CAMBRIDGE SYSTEMATICS

Market Research Project

final

report

prepared for

Indiana Department of Transportation

prepared by

Cambridge Systematics, Inc.

final report

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Indiana Department of Transportation

prepared by

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1.0 Executive Summary

This report presents the results of a market research study carried out by Cambridge Systematics for the Indiana Department of Transportation (INDOT). The purpose of the study was to identify issues of importance to the general public, as well as particular stakeholders, as INDOT seeks to update its Policy Plan. The project had several components:

- A general survey of the population, described in Section 2.0;

- Outreach to stakeholders concerned about environmental justice issues in Indiana, described in Section 3.0;

- Outreach to stakeholders concerned about land resource issues, described in Section 4.0;

- Outreach to stakeholders concerned about freight issues, described in Section 5.0; and

- Suggestions for how INDOT might change the Policy Plan, in response to the findings of the market research, outlined in Section 6.0.

Summaries of each of these topics are provided below.

■ 1.1 General Survey

A central component of the market research study was a general survey of the Indiana population aimed at validating INDOT's Policy Plan and identifying emerging areas on which INDOT should focus. The survey also provided an opportunity to identify what transportation issues are important to Indiana residents, and how well INDOT performs in these areas. Ultimately, many of the survey questions may become the basis for customer-based performance measures that INDOT could monitor periodically.

The survey was carried out in May 2003 by the Indiana University Public Opinion Laboratory. It obtained information about travel behavior and socioeconomic characteristics of Indiana residents, analyzed customer attitudes through ratings of policy priorities, importance ratings, and satisfaction with INDOT services, and identified differences in behavior and attitudes by geography, socioeconomics (income, gender, age, auto ownership, household size), and travel behavior. They survey also over-sampled in areas with high concentrations of environmental justice populations.

The survey found that:

- Respondents mostly agree with INDOT's priorities;

- Funding allocation appears to be "about right," but those seeking a reallocation would shift funding to transit, intercity air, and new road construction;

- People are generally aware of INDOT but its exposure could be increased;

- Customers' view of INDOT has remained the same or has slightly improved over the past 12 months;

- INDOT has a positive image in trustworthiness, keeping drivers safe, and helping Indiana's economy; and

- Areas of concern include treating all parts of the State fairly, and completing construction/ maintenance projects on-time.

In general, there was high and uniform "overall satisfaction" with INDOT.

Overall Satisfaction with INDOT
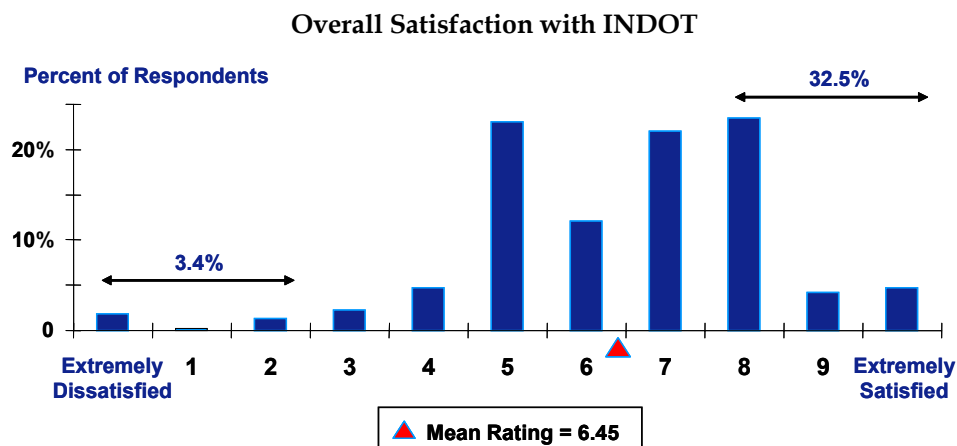
Cambridge Systematics evaluated the survey responses for potential implications for long-range transportation in Indiana. We found that the nine policy areas were still relevant (although there are some emerging areas that should get recognized). People think that INDOT should focus on:

- Congestion management;

- Improved highway maintenance; and

- Scheduling of construction and maintenance projects.

Some of the key emerging issues include land resources and homeland security. We also found some polarization of opinion regarding INDOT's role in bus and passenger rail service.

■ 1.2 Environmental Justice Perspectives

The concept of *environmental justice* refers, in the broadest sense, to the goal of identifying and avoiding disproportionate adverse impacts on minority and low-income individuals and communities. Environmental justice extends community impact assessment by examining communities based on characteristics such as race, ethnicity, income, age, and even disability. States and their local transportation partners are working today to ensure that the principles of environmental justice are consistently upheld with regard to transportation planning.

The population of the State of Indiana, consistent with patterns observed throughout the country, is becoming increasingly diverse racially and ethnically, including persons having limited English proficiency. There also is an increasing desire on the part of INDOT, and other state DOTs as well, to improve the manner in which they respond to customer needs, including the explicit recognition of differences among different population or stakeholder groups. The challenge in identifying, monitoring, and satisfying the needs of INDOT's customers is made all the more challenging because of the increasing diversity in the State's population.

In response to these needs, INDOT directed Cambridge Systematics to address environmental justice issues as part of a larger market research study. Four specific work program activities were undertaken:

1. Analysis of existing demographic conditions and trends building on the results of the Year 2000 Census of the Population;

2. Interviews with stakeholder, MPO, and INDOT staff;

3. Use of a stratified sample in the market research telephone survey to ensure a statistically valid sample of minority population subgroups; and

4. Development of potential actions that INDOT could take based on the cumulative results of the previous four information gathering activities.

Research Findings

The research found that:

1. **Indiana is becoming more diverse.** Populations of racial minority groups are increasing at a much faster rate than the general public. Hispanic population has more than doubled between 1990 and 2000.

2. **Seven percent of Indiana households do not own an automobile.** As expected, differences in vehicle ownership and travel mode to work vary by income, race, and

ethnicity. Non-EJ households have on average 2.12 vehicles, while EJ households average 1.65 vehicles.

3. **EJ and non-EJ respondent ratings were significantly different for a number of policy issues.** EJ respondents rated the following policy issues as being more important, including:

    a. Improve bus service;

    b. Make mobility easier for pedestrians and bicyclists;

    c. Improve the mobility of low-income, elderly, and the disabled; and

    d. Improve transportation safety.

4. **EJ issues mentioned.** Specific environmental justice issues mentioned included highway locations that have divided black communities and disproportionately displaced black residents, frequency of bus service, hours of the day during which public transportation services are available, adequate financing for public transportation, safe location of bus stops, and roadway maintenance practices.

5. **Environmental justice is, however, perceived by many as not being an important issue except in Northwest Indiana.** "There are so many other issues overshadowing environmental justice that it is rarely mentioned." Major transportation projects are located more in rural and suburban portions of the State than in the central cities where minority populations are living."

6. **English proficiency is not a significant issue.** Indiana's population having only a limited proficiency in the English language is growing but to date has not been a problem in terms of communication needs.

7. **INDOT has taken some steps, but needs to do more.** Virtually all of the interviewees acknowledged that INDOT has taken a number of important initiatives to address potential issues of environmental justice. At the same time, they felt INDOT needs to do more. A number of the interviewees felt that not all of the desired perspectives and viewpoints were either at the table or fully represented.

8. **Programmatic-level activity is needed.** The majority of existing environmental justice analyses are occurring at the project level. Consideration of environmental justice also should be addressed in the development of transportation policies and during the development of systems-level transportation plans and programs.

Potential Actions

Cambridge Systematics compiled a list of actions that INDOT can take to better incorporate environmental justice considerations into their day-to-day activities, including establishment of a department-wide environmental justice policy. Such a policy would direct that issues associated with the human environment receive the same level of attention as

is now devoted to the natural environment. In particular, INDOT should look for context sensitive solutions that "think beyond the pavement." Supporting these efforts would be additional training throughout all aspects of planning, maintaining, and operating Indiana's transportation system, including training for MPO and local staff.

■ 1.3 Land Resources Perspectives

One of the nine policies adopted by the Indiana Department of Transportation (INDOT) is to "establish and maintain a transportation system that is consistent with the State's commitment to protect the environment." One element of this policy is the manner in which INDOT utilizes and protects existing land resources, an issue that has become increasingly complex as suburban areas have developed and population growth is occurring in rural and small urban areas. The movement of housing and jobs into rural and small urban communities has come to be known as "rural sprawl," complementing the more familiar concepts of urban and suburban sprawl. Open space is being converted to development at a rate that is faster than the growth in either population or housing units.

With these changes, there are particular concerns regarding the protection of agricultural lands, forestland, wetlands, wildlife habitats, and other sensitive land uses. The economy of rural areas is no longer limited to or even primarily agricultural, with housing, manufacturing, service, and trade taking on larger roles. In parallel, agricultural productivity has increased. The result is a tension over the manner in which the increased need for transportation services is met and the manner in which existing land resources are utilized. While there is recognition of the fact that the economic, development, and demographic character of Indiana is changing, there is at the same time a desire to preserve existing characteristics of the land.

Transportation agencies today are actively endorsing the concept of environmental stewardship, where investments in transportation are made in a manner that improves the quality of the environment and affected communities as well as providing improvements in mobility and accessibility.

The purpose of Task 4 of the Market Research Project was to consider how INDOT should change the way in which land resource issues and the interests of resource agencies are addressed in the transportation planning process. The work involved an identification and analysis of specific land resource issues that are of interest in different parts of the State; interviews with resource agency staff, local transportation planning officials in several small cities and rural areas, and special interest groups; and an examination of the experience of other states and regions in incorporating land resource considerations into transportation planning.

Findings

Several findings emerged from Cambridge Systematics' research:

1. Concerns over land resource issues have grown in recent years, and will continue to grow in importance with respect to transportation decision-making.

2. Land resource issues have relatively high visibility in some parts of the State, but the importance of these issues varies by location.

3. There is a widespread feeling that transportation improvements eventually lead to new development. This development, though, has both positive and negative impacts, with different people or interests placing different weights on these impacts.

4. There is not a strong culture of land use planning in Indiana. This makes it especially difficult to achieve land resource-related objectives.

Potential Actions

While a number of the interviewees noted that INDOT has made important progress in the past five to 10 years in taking land resource issues into account when making specific project alignment and other design decisions, most also felt that it was important that INDOT further expand its consideration of land resource issues not only at the project design stage but also during systems-level planning. Three general areas were noted where INDOT could improve the manner in which land resource considerations are integrated into transportation planning:

1. **Coordination, Outreach, and Training,** including improving the visibility and treatment of land resource issues in the statewide planning process. This would help to overcome an image as an adversary or an agency that acts without considering feedback from others, and instead work to build a reputation as a collaborator.

2. **Improve INDOT's Analytical Capabilities**, including finishing a uniform, comprehensive, and accessible GIS system at the state level for use in project design and impact assessment, and developing tools for evaluating the impacts of transportation projects on land resources/land use and urban growth, both at a micro level (e.g., interchange) and a macro level (city/region).

3. **Design, Operation, and Management of the Transportation System,** including implementation of access management policies, to maintain traffic flow on arterial roads, revising landscaping and roadside maintenance practices to reduce the spread of invasive species, and acquiring development rights in selected impact areas, such as wetlands adjacent to an improved highway.

■ 1.4 Perspectives of Freight Stakeholders

With its historic role as a center for agriculture and manufacturing, and its strategic location serving regional, national, and international markets, Indiana's economy is heavily dependent on freight movement. These freight operations, in turn, have significant impact on Indiana's transportation system. INDOT has made initial attempts to understand the issues and concerns of the freight community through development of its Intermodal Management System, and incorporation of freight issues into some corridor studies.

The purpose of this research was to identify concerns of major shippers and carriers for consideration in the statewide planning process, and provide initial recommendations to INDOT regarding the integration of freight and goods mobility issues in the statewide plan.

Background
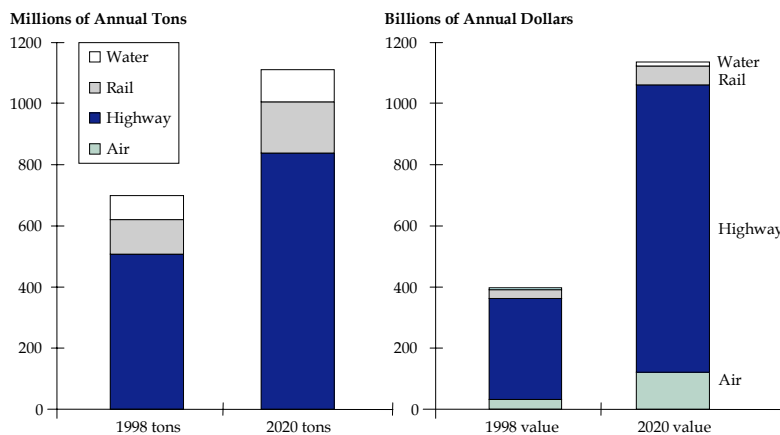
In 1998, approximately 698 million tons of freight moved to, from, or within Indiana, representing roughly $398 billion worth of goods in transit. The State is forecast to experience dramatic tonnage growth of nearly 60 percent over the next 20 years. By 2020, roughly 1.11 billion tons ($1.14 trillion) of freight is expected to use Indiana's freight network. A slight shift mode from rail and water to highway and air is expected over that time period.

Growth in Freight Movements by Mode (1998 to 2020)

There are four industries in Indiana that are particularly intensive users of the State's freight system. Non-Metallic Minerals and Coal are both associated with the mining industry. Primary Metal Products, Transportation Equipment, and Chemicals are all associated with the Manufacturing sector. Secondary Traffic and Freight All Kinds both represent shipments of consumer goods, and thus have a strong tie to the retail sales business. Finally, Farm Products are part of the agricultural sector. Therefore, in gathering market research on the State's freight transportation, we focused on input from the agriculture, mining, manufacturing, and retail industries.

In addition to generating a significant volume of freight traffic, Indiana is also a major corridor for through traffic moving between the Western, Mountain, and Midwestern states,

and the Northeast. As much as one-third of the freight on Indiana's transportation network passes through the State without stopping, making through carriers a significant stakeholder in the State's freight system.

Stakeholder Interviews

Cambridge Systematics staff conducted interviews with 22 members of the freight community in Indiana. The list of interviewees was generated through discussions with INDOT staff, members of other state authorities, trade associations, and industry groups. The interviewees represent both the shipper and carrier perspectives, include a range of larger and smaller stakeholders, and run the gamut of modes and industries in Indiana.
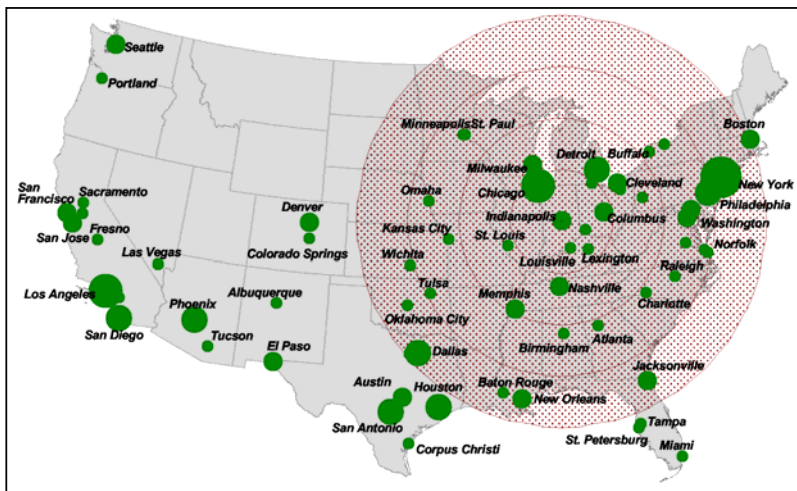
Stakeholders identified strengths and weaknesses of Indiana's freight system. Among the strengths were the centralized location in the United States, providing one-day truck access to over half of the country's population. Respondents also cited Indiana's abundant and well-maintained Interstate system, general lack of roadway congestion, and fewer toll roads than neighboring states. The quality of the rail services was also cited, as was the strong modal connections for bulk goods.

Major Metropolitan Areas[1] within a One-Day Delivery Radius of Indiana (Scaled by Population)

[1] Cities with a population greater than 250,000 residents.

On the shortcomings and challenges side, every stakeholder mentioned the Interstate system gap in southwest Indiana (where I-69 is proposed). Others mentioned that congestion is increasing at particular bottleneck locations, limited capacity to cross the Ohio River, and substandard physical geometries at older interchanges and ramps. Though the Interstate system was noted as excellent, some stakeholders had concerns about the non-Interstate system. Lack of rest areas for long-distance truckers was cited as a safety concern.

Stakeholders that depend on rail were concerned that short line railroads lack the resources to upgrade their lines to the new 286,000 pound-per-axle track standard required by modern bulk cars. Similarly, smaller terminal and elevator operators often do not have the resources to lengthen sidings to accommodate more cars.

Recommended Next Steps Related to Freight

Based on the results of the freight interviews, INDOT should examine its current efforts to see whether they support the identified strengths or address the identified shortcomings. The business community's input may provide added importance to existing initiatives that advance goods movement, or may suggest additional measures that INDOT should take to improve the State's freight system.

A number of the interviewed freight stakeholders expressed interest in continuing to actively coordinate with INDOT on freight planning issues. In light of this interest and the valuable perspective that members of the freight community could bring to a statewide freight planning effort, INDOT should consider establishing a standing freight stakeholders committee to provide a formal and ongoing dialogue with industry representatives.

2.0 General Survey

A central component of the market research study was a general survey of the Indiana population aimed at validating INDOT's Policy Plan and identifying emerging areas on which INDOT should focus. The survey also provided an opportunity to identify what transportation issues are important to Indiana residents, and how well INDOT performs in these areas. Ultimately, many of the survey questions may become the basis for customer-based performance measures that INDOT could monitor periodically.

The survey was prepared and carried out in these steps:

1. Cambridge Systematics developed a draft survey instrument aimed at probing INDOT's nine policy areas, and addressing potential customer-based performance measures.

2. Cambridge Systematics worked with The Blackstone Group to carry out two focus groups in Indianapolis in March 2003. The primary purpose of the focus groups was to test the approach to the survey and wording of questions. The secondary purpose was to gain a sense of attitudes. One of the focus groups was oriented towards Indianapolis residents, while the other was oriented to suburban Indianapolis residents. The focus group findings are not statistically significant, but do provide some interesting anecdotal insights. The focus group report is provided in Appendix A.

3. Cambridge Systematics developed a phone survey instrument in consultation with INDOT staff and Indiana University Public Opinion Laboratory. The survey was carried out in May 2003. A copy of the survey instrument is included in Appendix B.

The methods and results of the survey are explained in presentation format in the remaining pages of this section. Appendix C has a summary of the responses to the survey, and Appendix D has the transcripts of the open-ended responses.

research summary

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Analysis Objectives

- **Support the long range transportation plan**

    - **"Validate" the 9 policy areas**

    - **Identify emerging areas of focus**

- **"Listen to Indiana residents"**

    - **What is important to them?**

    - **How does INDOT perform in each area?**

    - **How can INDOT best respond to their needs and wants?**

- **Consider needs of different market segments**

    - **Geographic**

    - **Demographic**

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Relationship to Other INDOT Activities

- **Environmental Justice (EJ).** **How does INDOT respond to EJ populations?[1] EJ populations are defined as**

    - **Being of race/ethnicity other than white**

    - **Being of more than one race**

    - **A single person earning less than $15,000 per year**

    - **Belonging to a household of two or more people that earns less than $25,000 per year**

    - **Belonging to a household of three or more people that earns less than $35,000**

- **Performance measures.** **Market research findings can be used as the basis for customer-oriented performance measures.**

    - **Can monitor Hoosiers' "pulse" over time**

[1] **More detail on this topic is provided in a separate memorandum**

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Survey Research Design

- **Telephone survey**
  - **10-15 minutes long**
  - **Random digit dialing (RDD) covering all of Indiana**

- **A random individual in the household was selected**

- **Survey design**
  - **Probed policy areas in long range plan**
  - **Explored emerging policy areas**

- **INDOT staff and focus group findings influenced design**

- **Survey pre-test influenced final refinements**

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Sample Design

- **Counties were grouped into 6 homogeneous strata**
  - **Marion County**
  - **Lake County**
  - **12 counties in northern Indiana with cities of 20,000+**
  - **9 counties in southern Indiana with cities of 50,000+**
  - **29 other counties in northern Indiana**
  - **40 other counties in southern Indiana**

- **Stratified sample used for efficiency**

- **Representative sample expanded to the entire state**

Marion County
Lake County
12 Counties in Northern Indiana with Cities of 20,000 +
9 Counties in Southern Indiana with Cities of 20,000 +
29 Other Counties in Northern Indiana
40 Other Counties in Southern Indiana

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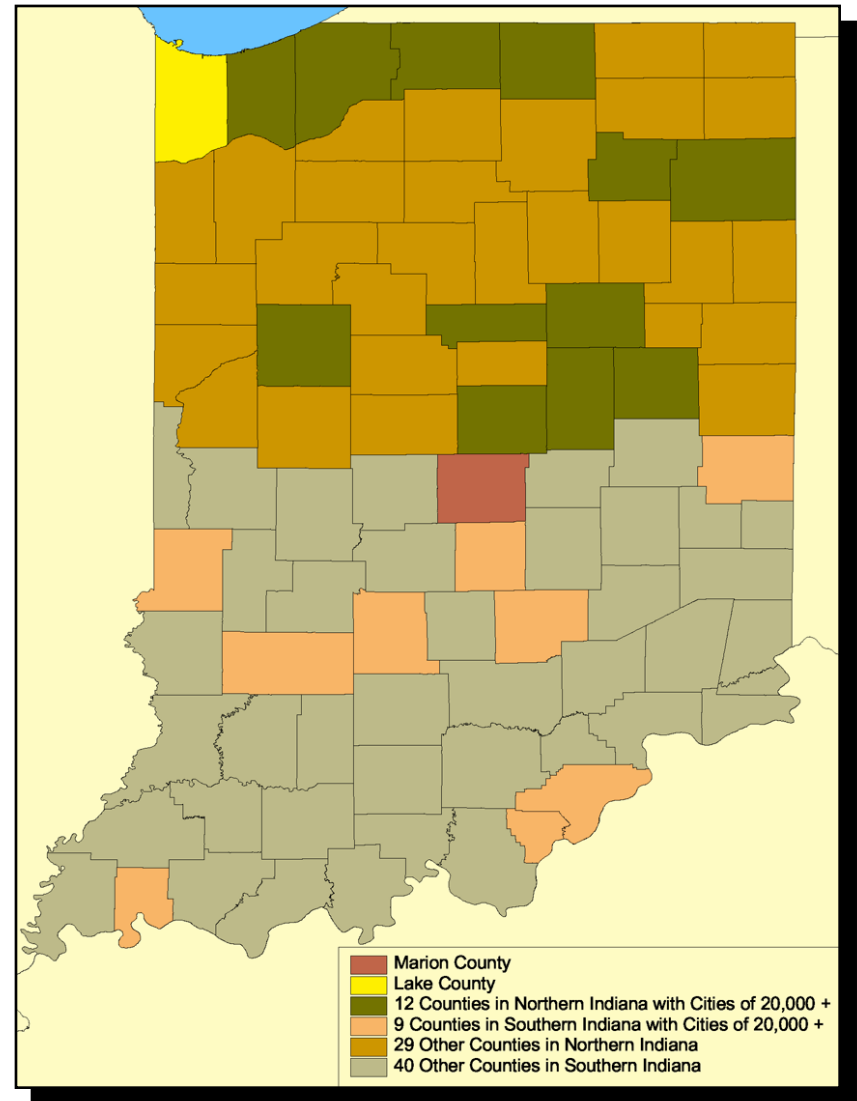
Survey Weighting

- **We over sampled households in Lake and Marion counties**

  - **They had a higher incidence of EJ population**

  - **By collecting a random sample of households in these counties, we achieved a higher EJ sample**

- **Census 2000 was the basis for weighting (see table on next page)**

  - **Survey weighting factors were determined by**

$$\frac{\textit{Strata's share of census population}}{\textit{Strata's share of survey sample}}$$

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Survey Weighting

Survey Strata	Census	Survey Incidence	Weight
Marion	15.1%	20.8%	0.73
Lake	7.8%	20.8%	0.37
Northern Indiana with Large Cities	29.4%	14.6%	2.01
South Indiana with Large Cities	14.4%	14.6%	0.99
Other Northern Indiana Counties	13.9%	14.6%	0.95
Other Southern Indiana Counties	19.4%	14.6%	1.34

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Categories of Questionnaire Topics

- **<u>Importance</u> of different policy areas**

- **Ratings of <u>priorities</u> for transportation policy initiatives**

- **<u>Satisfaction</u> with specific INDOT services**

- **Awareness and image of INDOT**

- **Overall satisfaction with INDOT and recent performance**

- **Recent experiences with INDOT highway facilities**

- **Travel behavior and socioeconomic characteristics**

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Analysis Framework

■ **Described travel behavior and socio-economic characteristics**

■ **Identified differences in answers by market segment**
- **Used analysis of variance, chi-square, and t-tests**

■ **Identified significant differences according to**
- **Geography by the 6 strata**
- **Socioeconomics**
  - EJ household
  - Income, gender, age,
  - Auto ownership, household size
- **Travel behavior – Miles driven per year**

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significant findings

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Key Take-Aways

- **Indiana residents mostly agree with INDOT's priorities**

- **Funding allocation appears to be "about right"**

- **If a reallocation were to be made, funding should shift to**
  - **Transit and intercity air**
  - **New road construction instead of maintenance**

- **People are generally aware of INDOT but its exposure could be increased**

- **High and uniform "overall satisfaction" with INDOT**

- **Customers' view of INDOT has remained the same or has slightly improved over the past 12 months**

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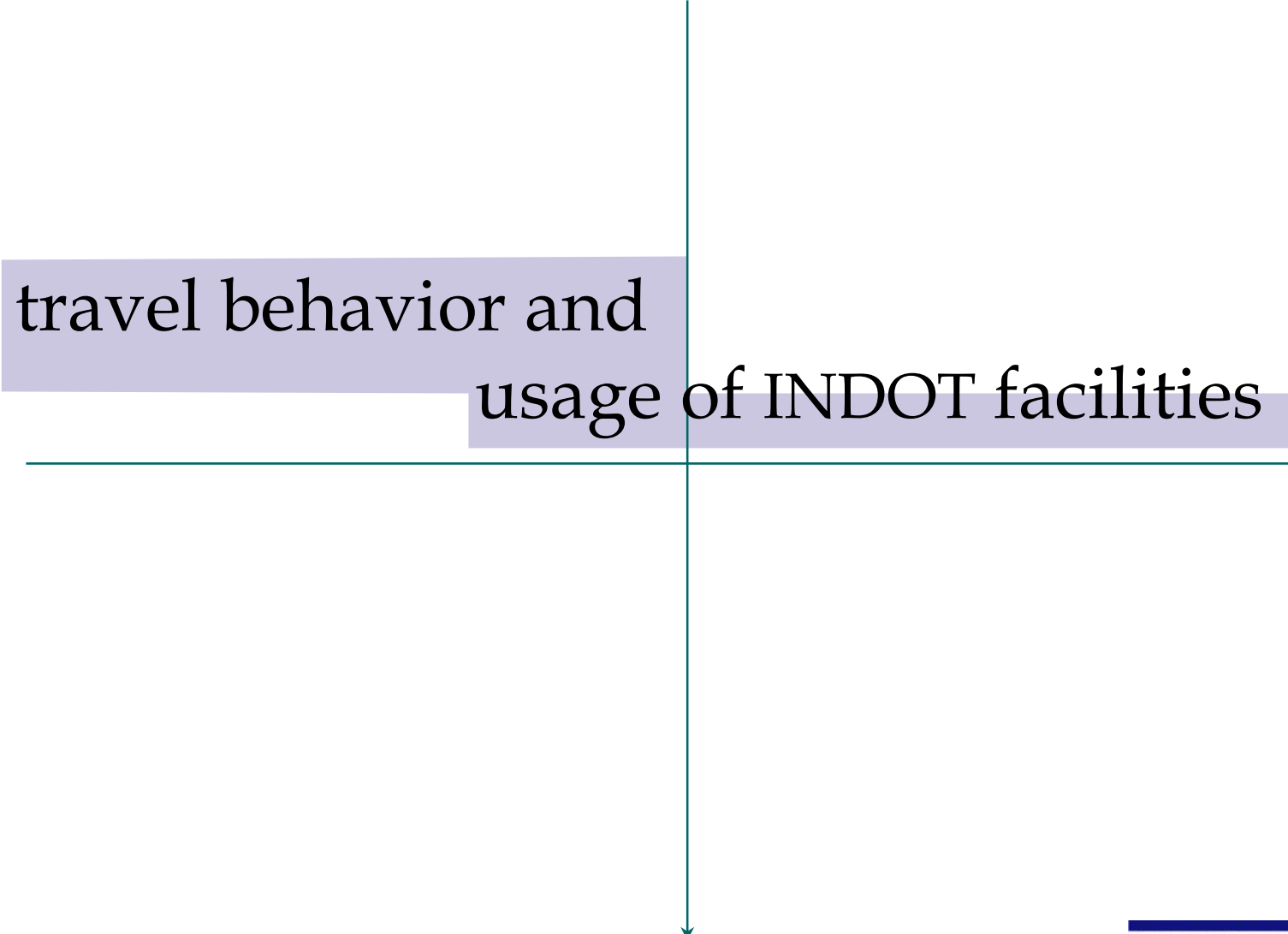
Key Take-Aways (continued)

- **INDOT has a positive image in**

  - **Trustworthiness**

  - **Keeping drivers safe**

  - **Helping Indiana's economy**

- **Areas of concern include**

  - **Completing construction/maintenance projects on time**

  - **Treating all parts of the state fairly**

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Implications for Long-Range Planning

- **Nine policy areas are still relevant**

- **People think that INDOT should focus on**
  - **Congestion management**
  - **Improved highway maintenance**
  - **Scheduling of construction and maintenance projects**

- **Land resources and homeland security are key emerging issues**

- **INDOT's role in bus and passenger rail service is polarized**

- **Safety and signage are big positives for INDOT**

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travel behavior and
usage of INDOT facilities

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Customer Travel Characteristics
Summary (details on following pages)

- **High auto ownership — only 3 percent without an auto**

- **Automobile travel**
  - **22 percent of individuals drove more than 15,000 miles/year**
  - **42 percent of households drove more than 20,000 miles/year**

- **Travel by other modes**
  - **43 percent traveled by air in last <u>12 months</u>; 6.2 percent used Amtrak**
  - **Fairly low transit use in last <u>month</u>**
    - 4.9 percent used transit at least once
    - Higher in urban areas – 9 percent in Lake County, 7 percent in Marion County, 6 percent in Northern Indiana
  - **Only 1.3 percent used transit 10 or more times each month**

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Vehicle Availability in Household

- *Lowest auto ownership was in Marion County*
- *Highest was in southern Indiana*
- *Highly correlated with household size and Income*

- *Only 3% have no vehicles*

3 or More Vehicles

35%

No Vehicles

3%
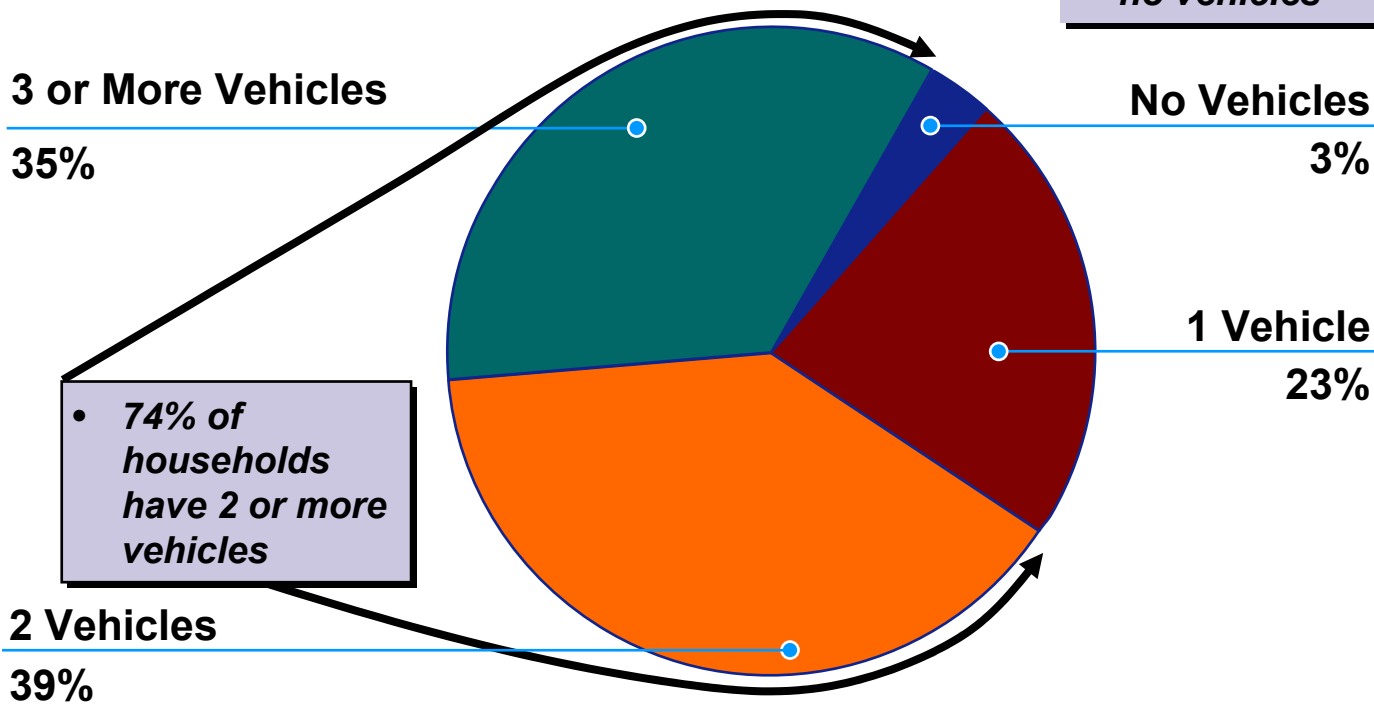
- *74% of households have 2 or more vehicles*

1 Vehicle

23%

2 Vehicles

39%

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Miles Traveled by Person in Past 12 Months

- *The amount of driving varies by geography*

- *People that drive 20,000 or more miles are twice as likely to be in rural counties*

Don't Know
3.63%

More than 20K
12.57%

15 to 20K
9.52%

Less than 5K
31.25%

5 to 10 K
23.38%

10 to 15K
19.65%

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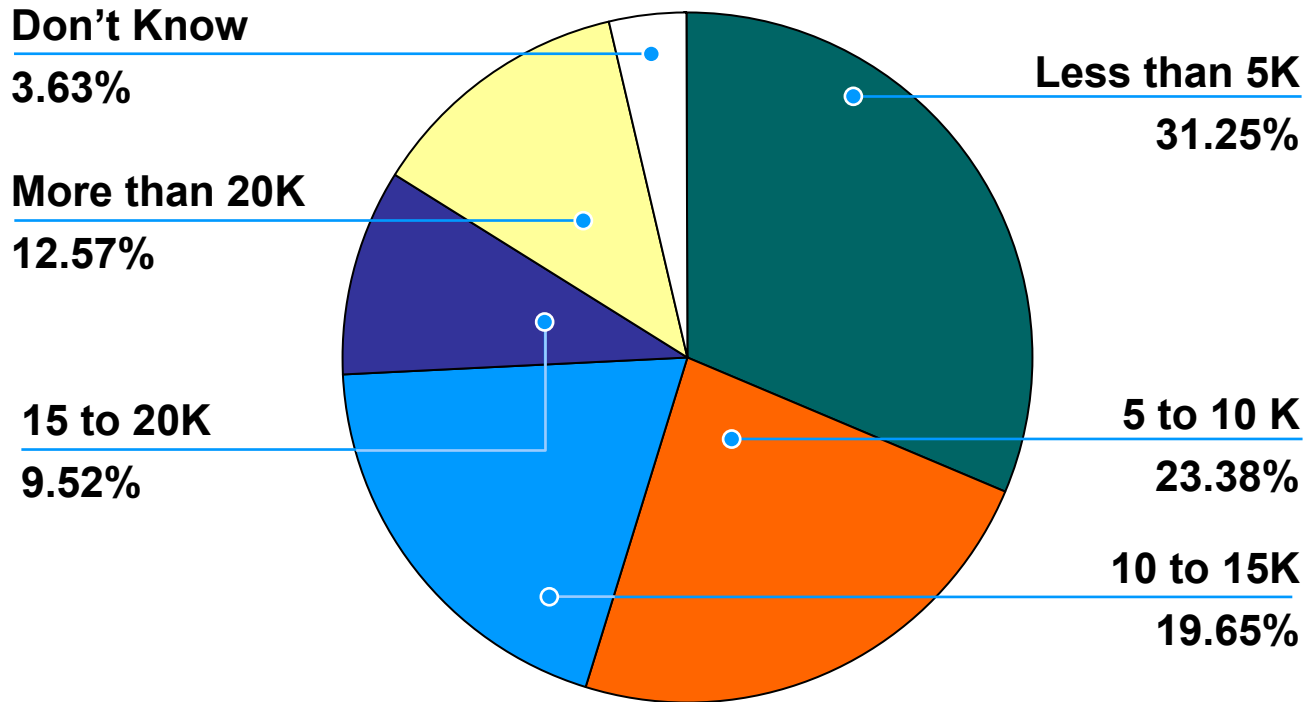
Public Transit Usage[1] in the Past Month

- *Fairly low transit usage*
- *Higher in urban areas*

None
95.8%

4.2%

5 to 10 Times
0.7%

More than 10 Times
1.1%

1 to 4 Times
2.4%
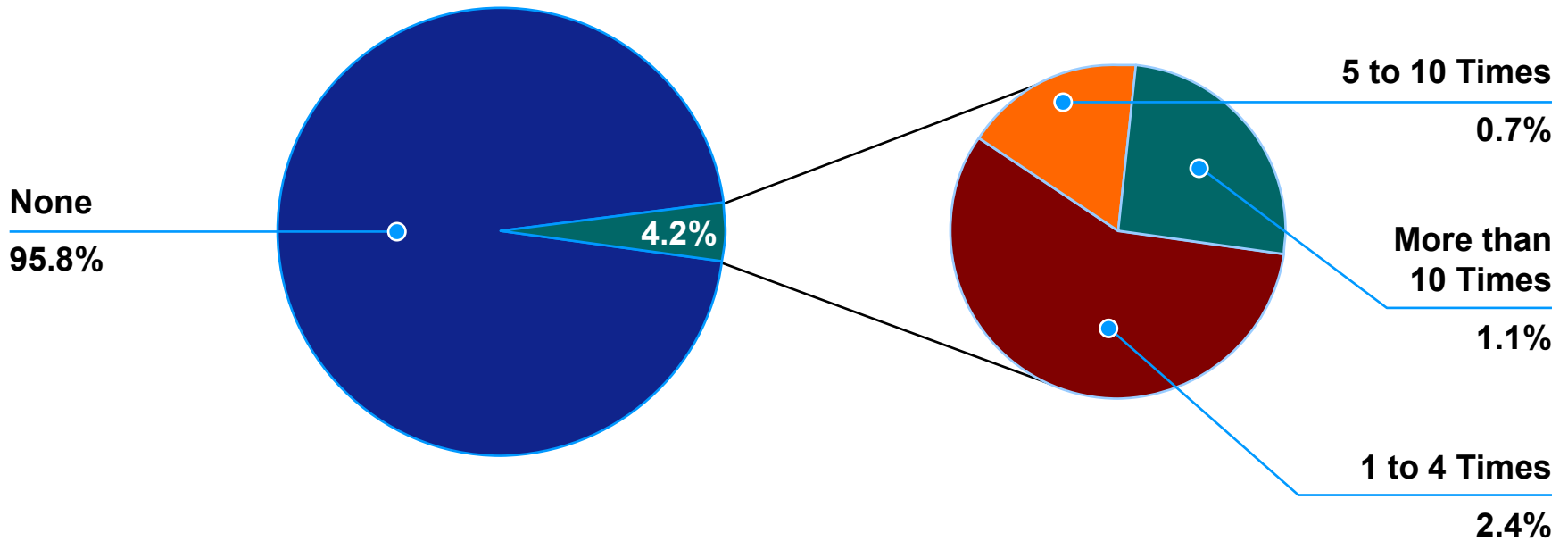
[1] Public Bus or Train

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Annual Long-Distance Trips
Number of Times Respondent has made a Trip of 75 Miles or More in Past 12 Months

Percent of Respondents

- *Overall, a mix of long distance travel by Hoosiers*

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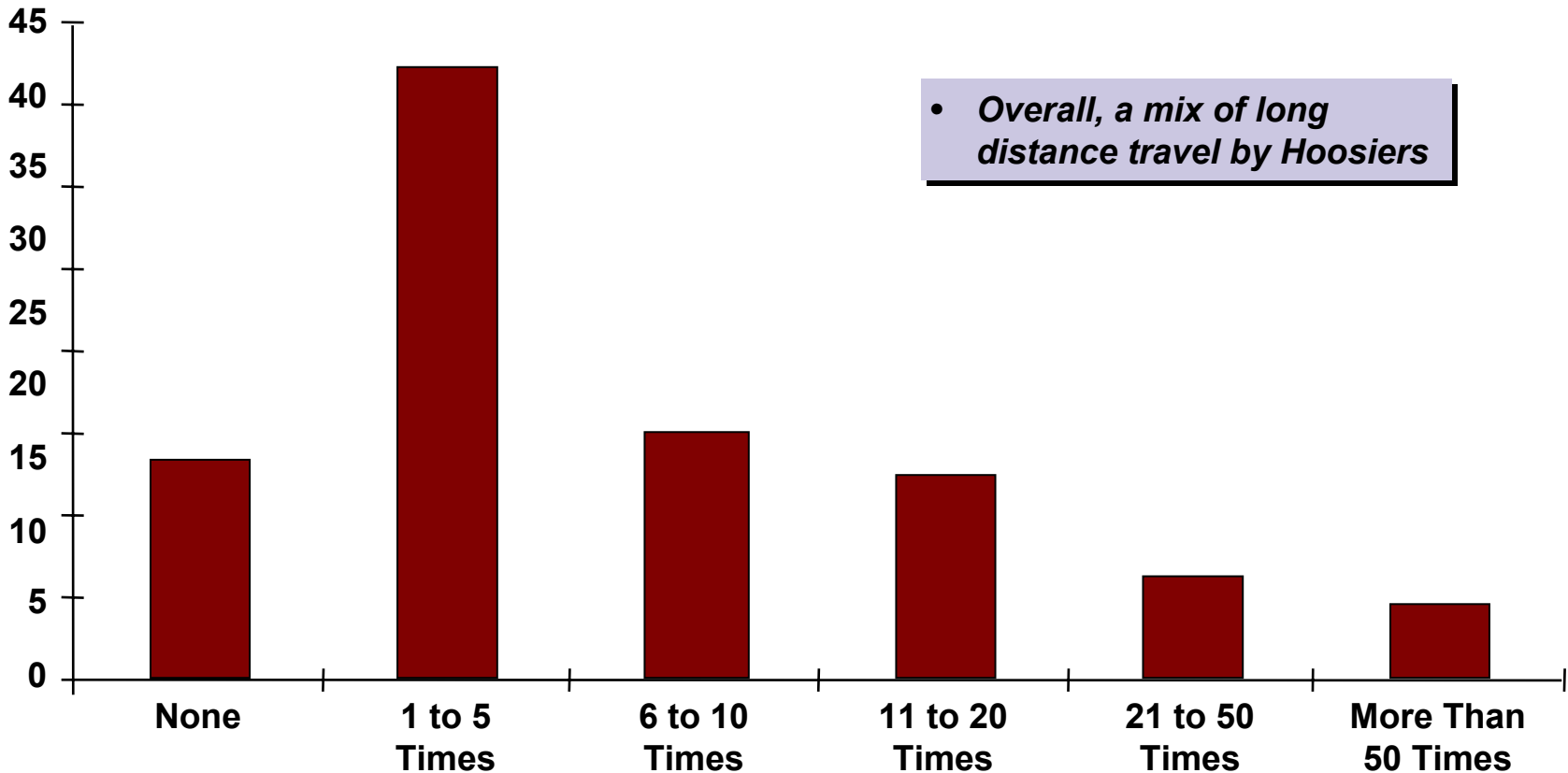
Annual Usage of Amtrak
Number of Times Respondent has Ridden Amtrak in the Past 12 Months

None
93.8%

6.2%

More than 5 Times

1.7%

1 to 5 Times

4.5%

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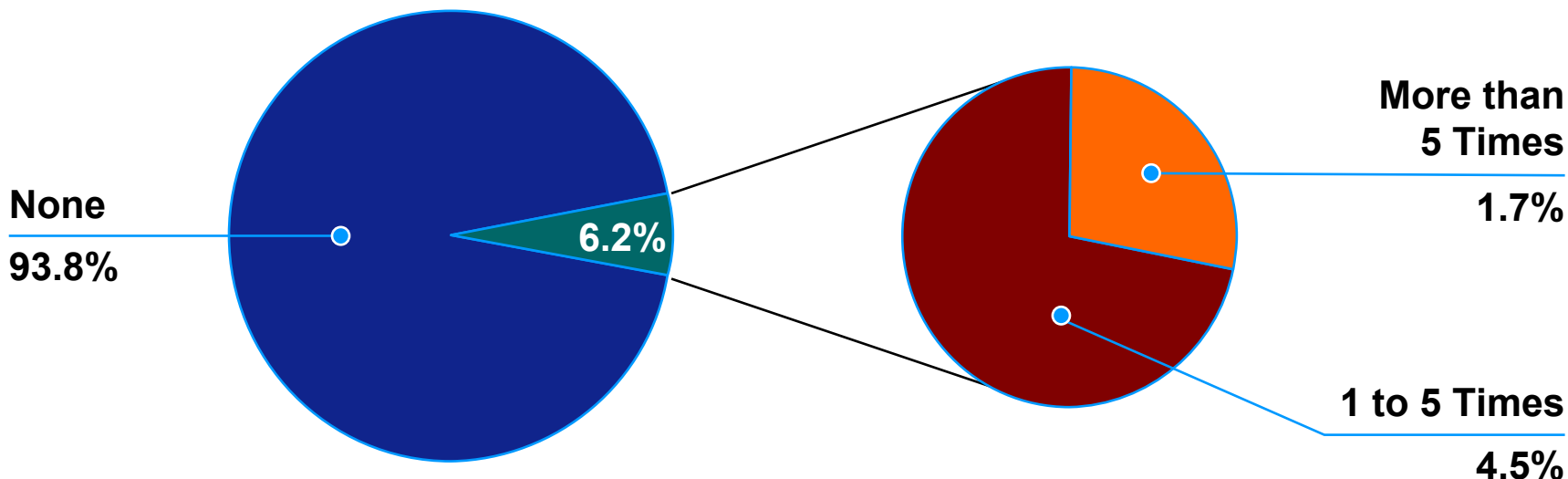
Annual Usage of Indiana Airports
Number of Times Respondent has Traveled Through an Indiana Airport in the Past 12 Months

None

56%

43%

1 to 5 Times

36%

6 to 10 Times

5%

More than 10 Times

3%
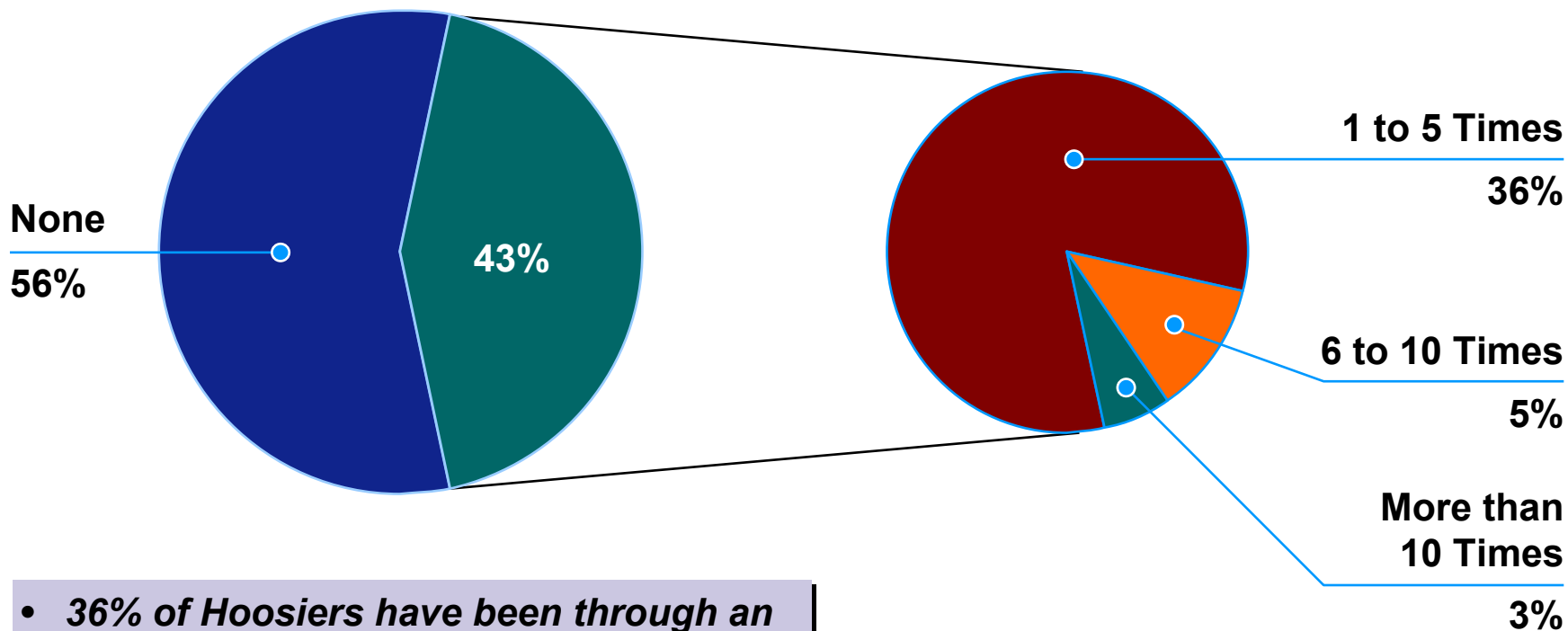
- *36% of Hoosiers have been through an airport at least once in the past year*

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Usual Commuting Mode
Usual Mode of Travel to Work in Past Week (of Those Working Outside Their Home)

• *97% of commute trips are by car*

Auto-Shared Ride
25.7%

Drive Alone
71.0%

3.3%

Walk/Bicycle
2.5%

Bus/Commuter Rail
0.8%

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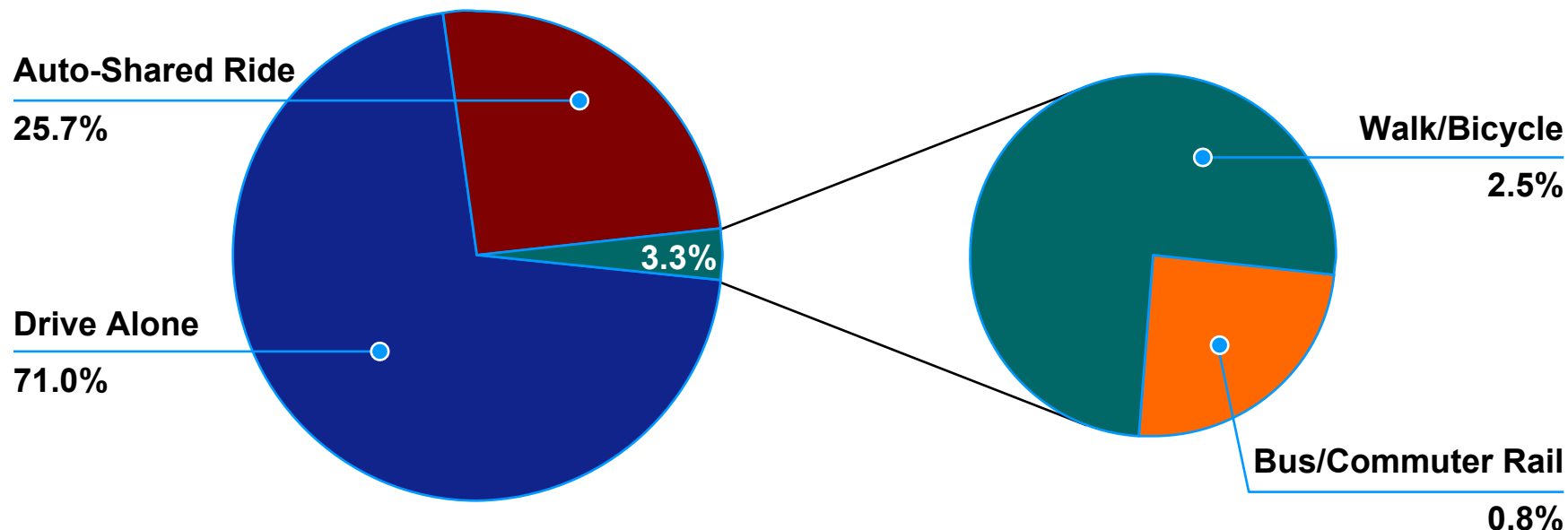
how important are
various aspects of a state transportation agency's
role to you?

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How Important are These Topics to You?
Topics in Current Policy Plan

Mean Ratings
0="not at all important; 10 = "extremely important"

Topic	Rating
Easier Mobility for Low Income, Elderly, Disabled	8.37
Protect the Environment	8.32
Improve Transportation Safety	8.21
Alleviate Traffic Congestion	8.11
Support Economic Development	7.93
Use New Transportation Technologies	7.12
Easier Mobility for Pedestrians and Bicyclists	6.99
Access to Business, Recreation, Cultural Sites	6.96
Coordinate with Other Agencies	6.82

Rating

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Extremities of Opinions
Topics in Current Policy Plan

INDOT's nine policy areas
continue to be relevant

Percent rating "very important" or "not important"

Low Income, Elderly, Disabled

Protect the Environment

Improve Transportation Safety

Reduce Traffic Congestion

Support Economic Development

Use New Technologies

Pedestrians and Bicyclists

Improve Access to Sites

Coordinate with Agencies

■ Percent Rating Very Important (8-10)

■ Percent Rating Not Important (0-2)

0   10   20   30   40   50   60   70   80   90   100

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How Important are These Topics to You?
Emerging Issues

> **Most important emerging issues**
> - *Preservation of open spaces and farmland*
> - *Improvement of homeland security*

Mean Ratings
0="not at all important; 10 = "extremely important"

Topic	Rating
Preserve Open Spaces, Farmlands, Forests	8.08
Improve Homeland Security	8.06
Have a Long-Term Vision	7.83
Preserve Rural Lifestyles	7.49
Improve Passenger Rail Services	5.79
Improve Bus Services	5.72

Rating

CAMBRIDGE SYSTEMATICS
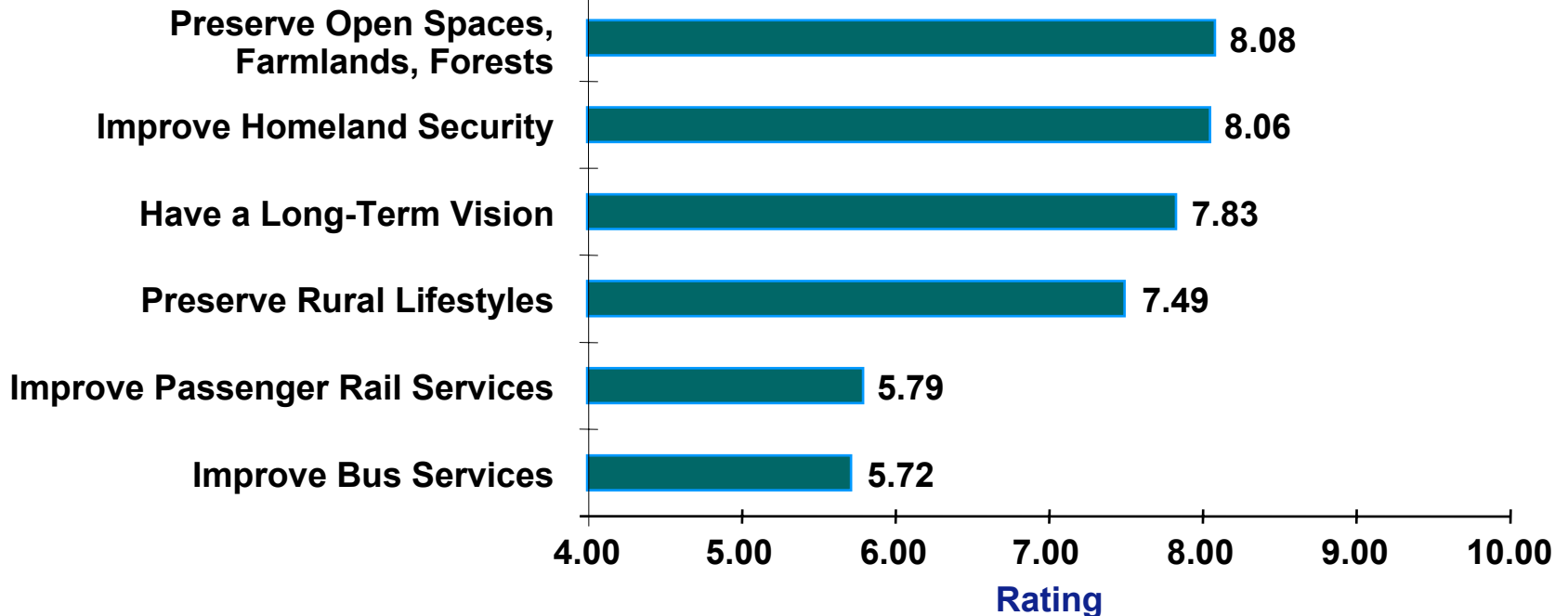
Extremities of Opinions
Emerging Issues

Most polarizing emerging issues

- *Improving passenger rail and bus service*

Percent rating "very important" or "not important"

Legend:
- Percent Rating Very Important (8-10)
- Percent Rating Not Important (0-2)

CAMBRIDGE
SYSTEMATICS
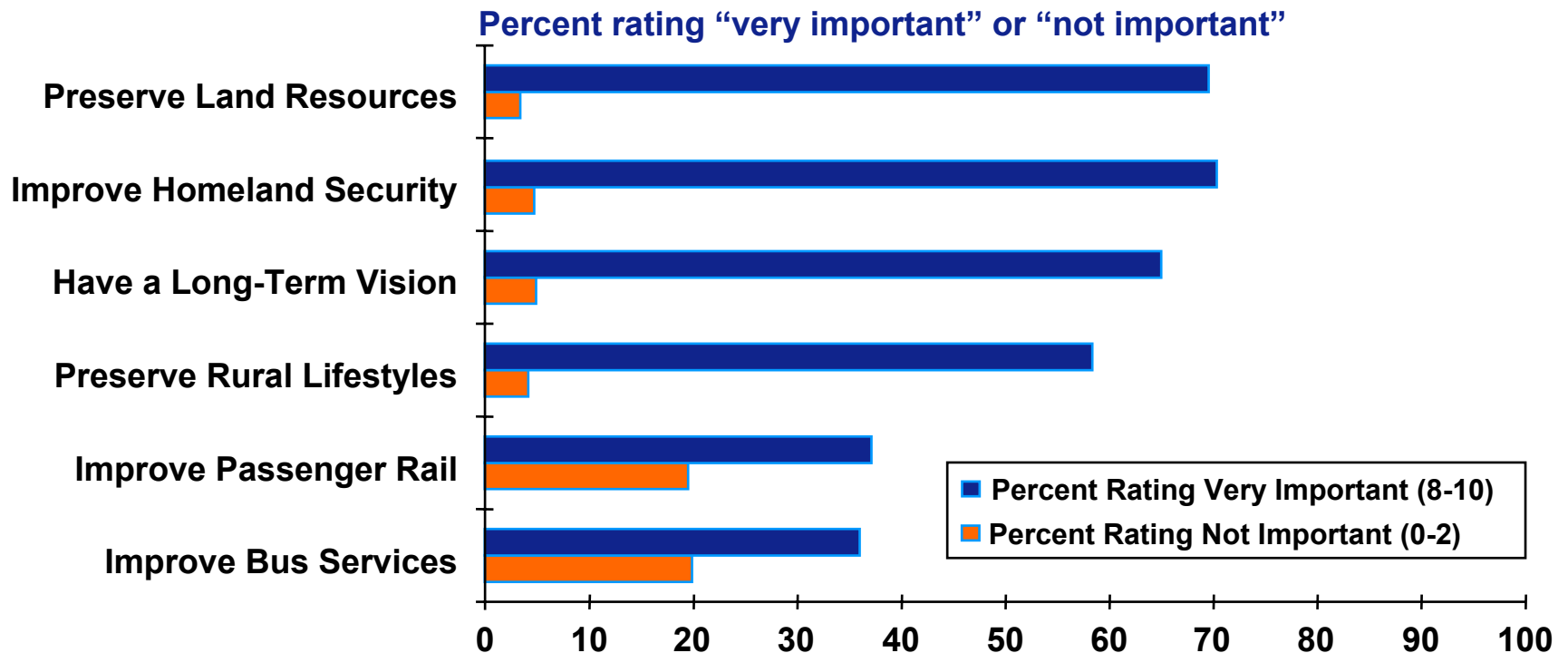
Differences by Market Segment

- **By gender**

  - **Women placed higher importance on all topics**

- **By geography**

  - **Congestion most important in Northwest Indiana**

  - **Transit very important in Northwest Indiana and Marion County**

- **EJ groups, as distinct from the general public**

  - **EJ population places greater importance on roughly half of the statements**

  - **Greatest difference on bus and rail service improvements**

CAMBRIDGE SYSTEMATICS

Women's Point of View

- **Place higher importance on everything than men**

- **Differences most pronounced when evaluating**

  - **Improvements in transportation safety**

  - **Enhanced mobility for low income, disabled, and elderly**

  - **Easier mobility for pedestrian and bicyclists**

  - **Improvements in homeland security**

  - **Preservation of open space, farmlands, and forests**

- **Women appear to be a more receptive audience for improvements of a more qualitative nature**

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Differences by Geography

- **"Alleviating traffic congestion" most important in northwest Indiana**

- **Transit very important in northwest Indiana and Marion County. More importance placed on**

  - **"Improving bus services"**

  - **"Improving passenger rail services"**

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How EJ Populations Differ from General Population[1]
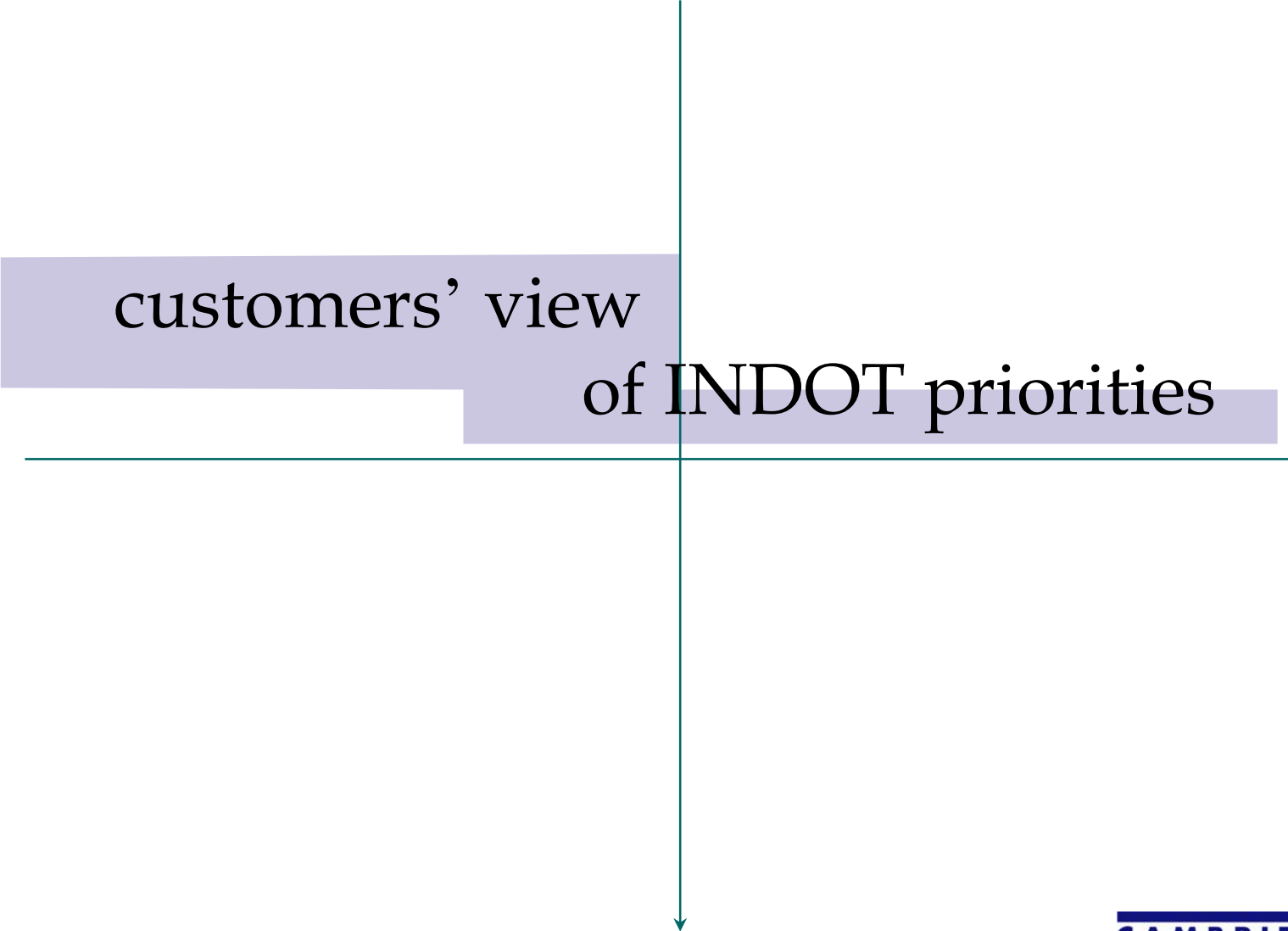
> **EJ population places greater importance on most statements**
>
> **Greatest difference in importance is placed on**
>
> - **Improvements in bus and passenger rail service**
> - **Enhanced mobility for low income, disabled, and elderly**
> - **Improved access to business, recreation, and cultural sites**

Rating

Legend:
- **Non-EJ**
- **EJ Population**

Categories: Transportation Safety, Access to Sites, Enhanced Mobility, Agency Coordination, Environmental Protection, Pedestrian/Bike Mobility, New Technologies, Bus Services, Rail Services

[1] **More detail on this topic is provided in a separate memorandum**

CAMBRIDGE SYSTEMATICS
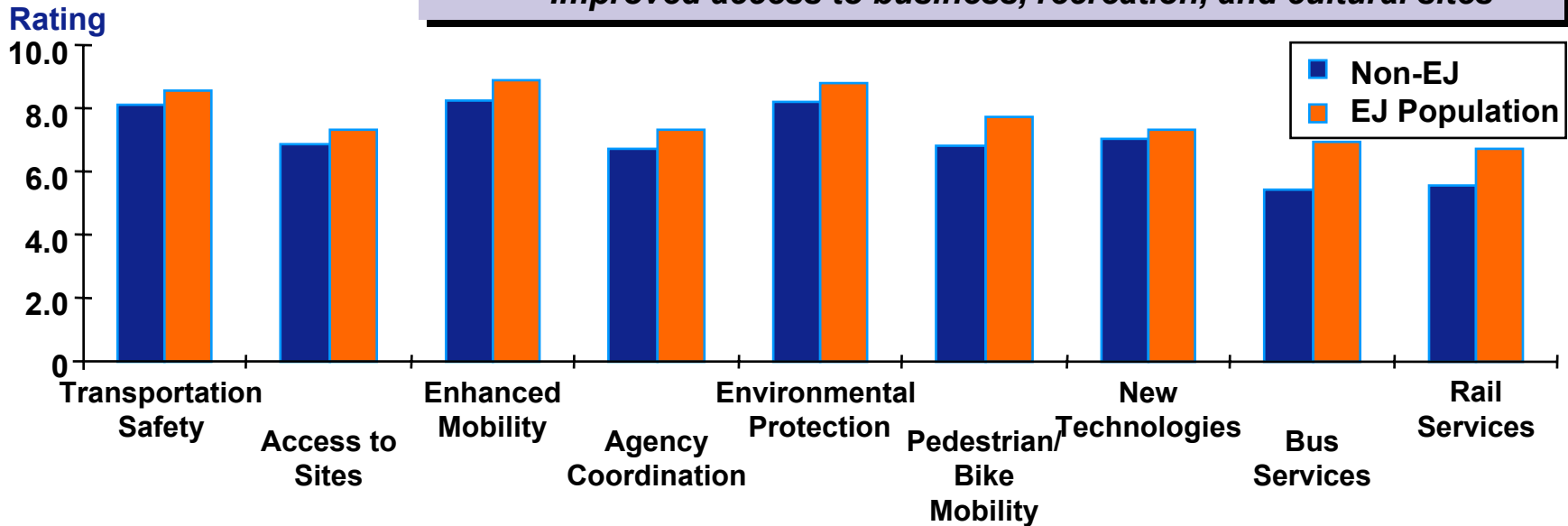
customers' view
of INDOT priorities

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Do INDOT's Customers Think it Has the Right Priorities?

- **We asked these questions**

  - **Overall, is INDOT on the right track?**

  - **Unaided, what do the customers say?**

  - **Does INDOT devote too much or too little attention to certain policy areas?**

  - **Are INDOT's spending priorities in the right place?**

  - **How did these answers vary by market segment?**

CAMBRIDGE
SYSTEMATICS
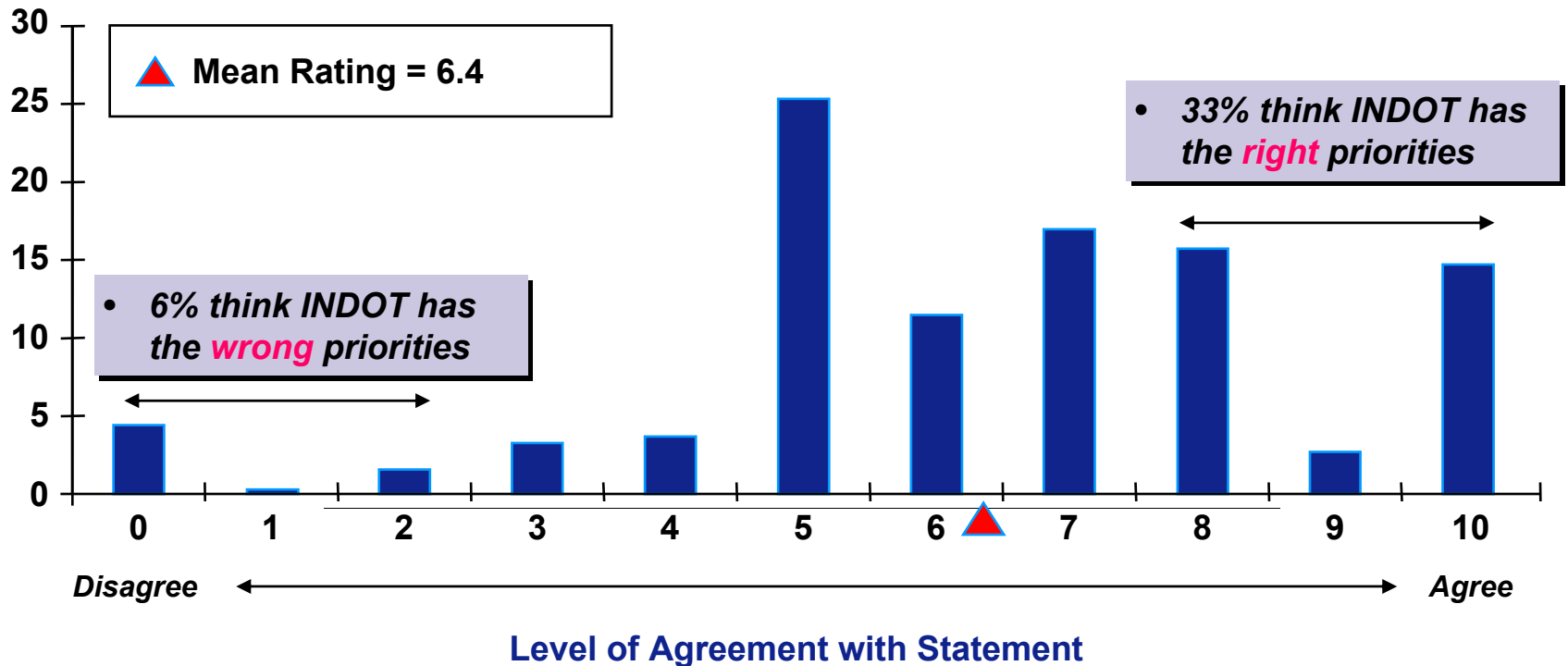
What Should INDOT's Top Priorities Be?

"In your opinion, what should be INDOT's top priorities in the future?"
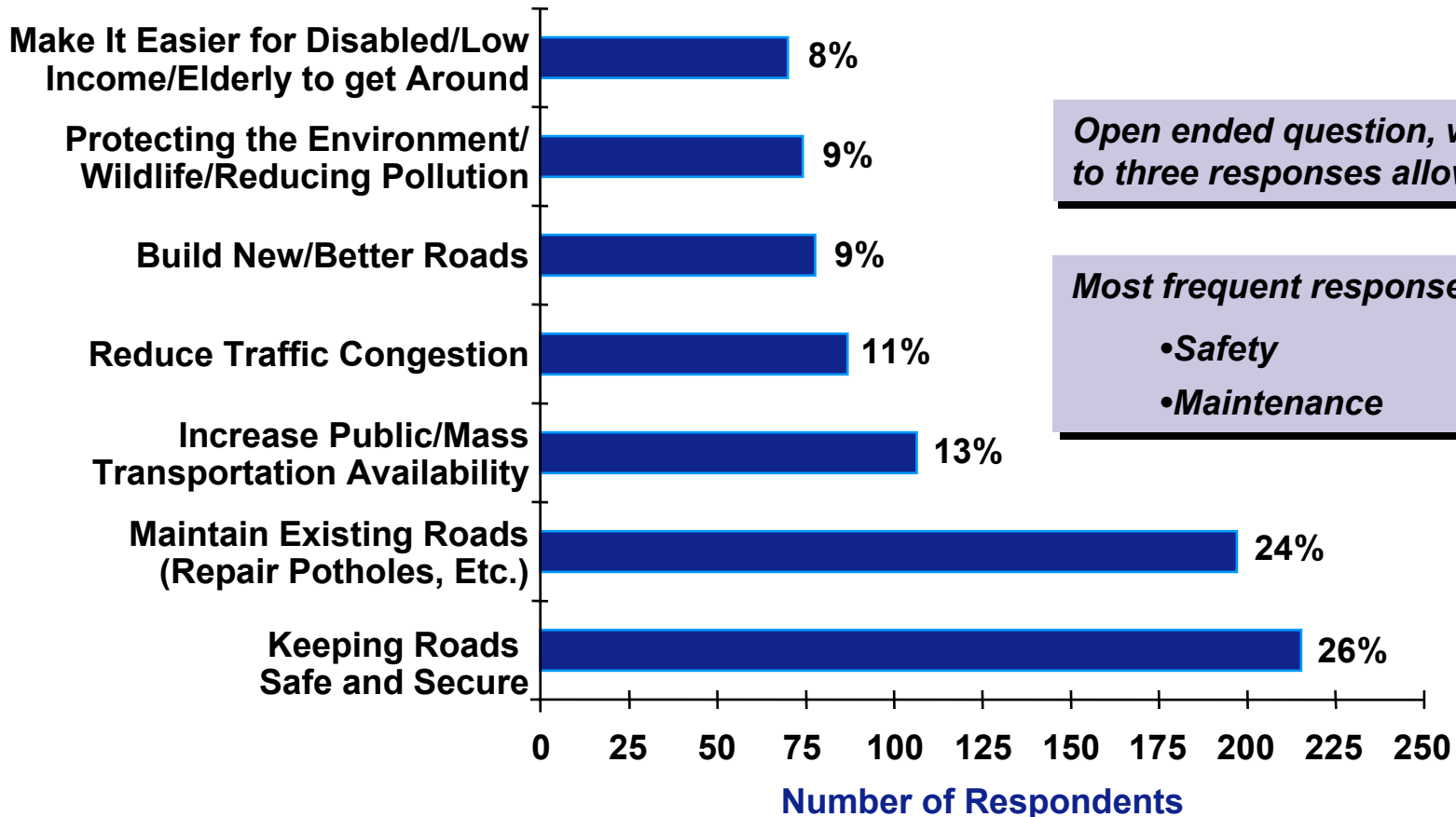
Open ended question, with up to three responses allowed

Most frequent responses were
- *Safety*
- *Maintenance*

Make It Easier for Disabled/Low Income/Elderly to get Around — 8%

Protecting the Environment/ Wildlife/Reducing Pollution — 9%

Build New/Better Roads — 9%

Reduce Traffic Congestion — 11%

Increase Public/Mass Transportation Availability — 13%

Maintain Existing Roads (Repair Potholes, Etc.) — 24%

Keeping Roads Safe and Secure — 26%

Number of Respondents

"Does INDOT Give too Little, About the Right Amount, or too Much Attention to these Policy Areas?"
Nine Policy Areas from Policy Plan

Percent indicating "too little"

Policy Area	Percent
Create a Long Term Vision	42
Use New Transportation Technologies	48
Make It Easier for Pedestrians and Bicyclists to get Around	44
Protect the Environment	41
Support Economic Development in the State	36
Actively Coordinate with and Assist Other Agencies	27
Make it Easier for Low Income, Elderly, and Disabled Persons to get Around	56
Improving Access to Business	27
Improve Transportation Safety	28
Reduce Traffic Congestion too Little Attention to Policy Areas	51

0   10   20   30   40   50   60

CAMBRIDGE SYSTEMATICS

"Does INDOT Give too Little, About the Right Amount, or too Much Attention to these Policy Areas?"
Emerging Policy Areas

Percent indicating "too little"

CAMBRIDGE SYSTEMATICS
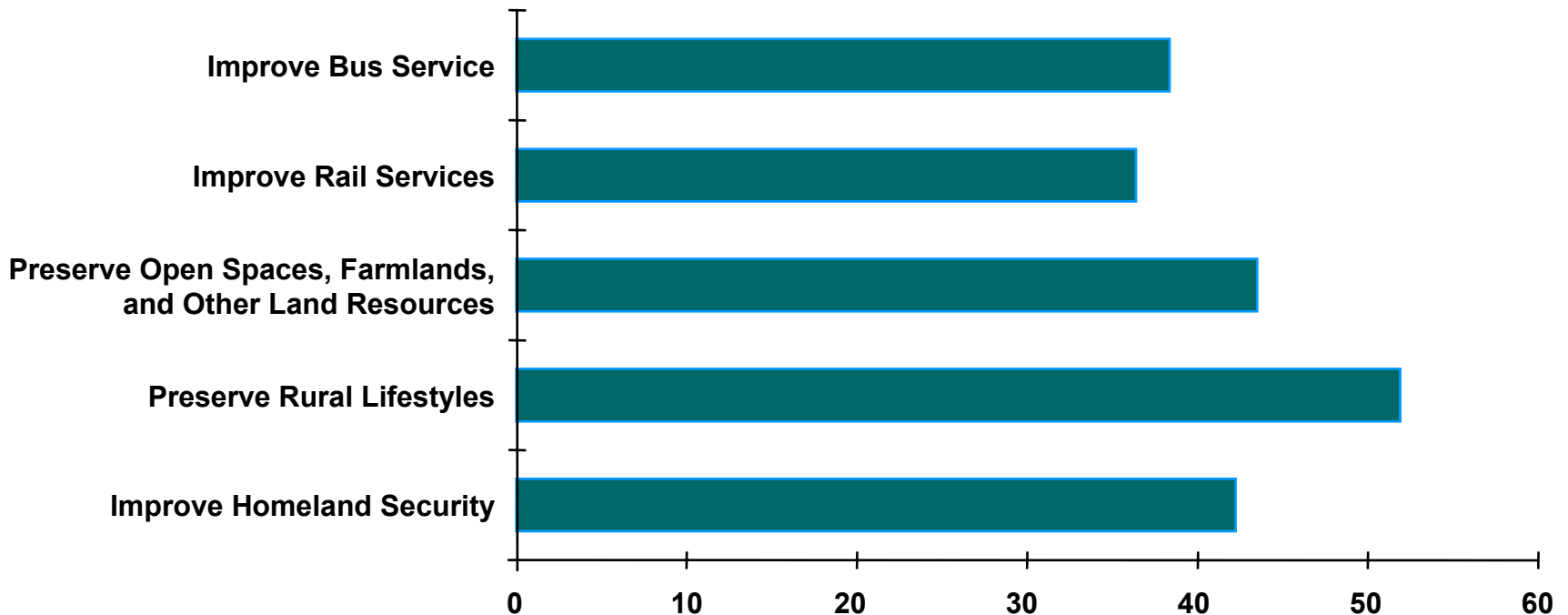
Change the Current Funding Allocation?

Last year, INDOT spent about

- *70 percent of its available construction funds on paving and maintaining highways and repairing bridges*

- *20 percent on new roadway projects, and*

- *10 percent on non-highway programs, like public transit and airports*

If it were up to you, would you use the same allocation?

Yes 20%

No 80%

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SYSTEMATICS
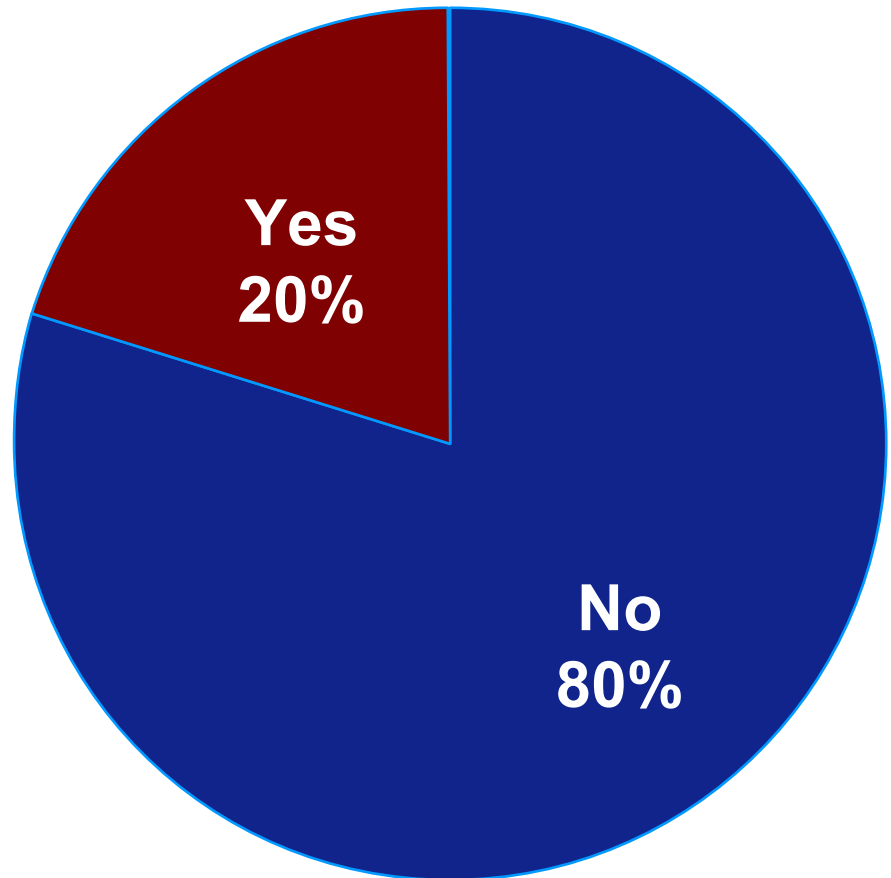
Should INDOT Adjust its Funding Allocation?

Respondents Who Want to See a Reallocation of Funding by INDOT
(refer to question on previous page)

Percent of Respondents

CAMBRIDGE SYSTEMATICS
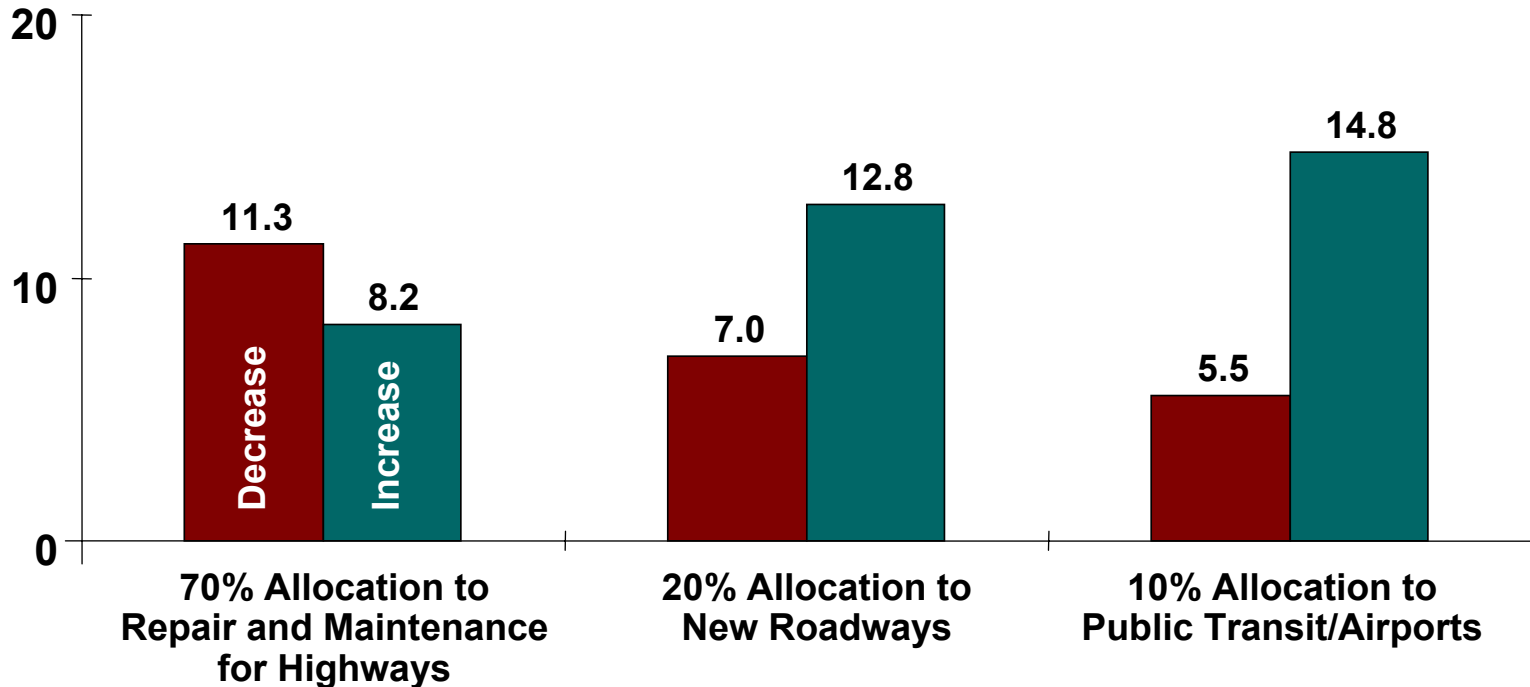
How Did Answers Vary by Market Segment?

- **Members of the EJ population believe that INDOT pays too little attention to**

  - **Improving access to business, recreation, and cultural sites**

  - **Making it easier for low income, elderly, and disabled to move around**

  - **Coordinating with other agencies**

  - **Improving bus services**

- **Lake County and rural southern Indiana residents believe INDOT pays too little attention to reducing traffic congestion**

- **Lake and Marion County residents believe INDOT pays too little attention to improving bus services**

CAMBRIDGE SYSTEMATICS

INDOT services — importance and satisfaction

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INDOT Services

- **Questions focused on eight specific services provided by INDOT**

  - **Probed two dimensions of respondents' perceptions**

    - Importance of each INDOT service

    - Satisfaction with each aspect of service

- **The results tell us**

  - **What do customers think is important?**

  - **Where does INDOT service lag?**

  - **How can INDOT focus on service weaknesses that are important to its customers?**

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How <u>Important</u> are These INDOT Services to You?

- *High stated importance across the board*
- *Most important services include safety, good repair of bridges, and keeping highways smooth.*
- *Least important is "building and expanding highways"*

■ **Percent Rating Very Important (8-10)**
■ **Percent Rating Not Important (0-2)**

Percent rating "very important" or "not important"

Service	Value
Truck Traffic Flowing Smoothly	~78
Keep Roads Clear of Congestion	~76
Provide Clear Highway Signs	~86
Keep Highways Safe	~90
Keep Highways Clean	~76
Maintain Bridges in Good Repair	~88
Keep Highways Smooth	~91
Build and Expand Highways	~59

CAMBRIDGE SYSTEMATICS
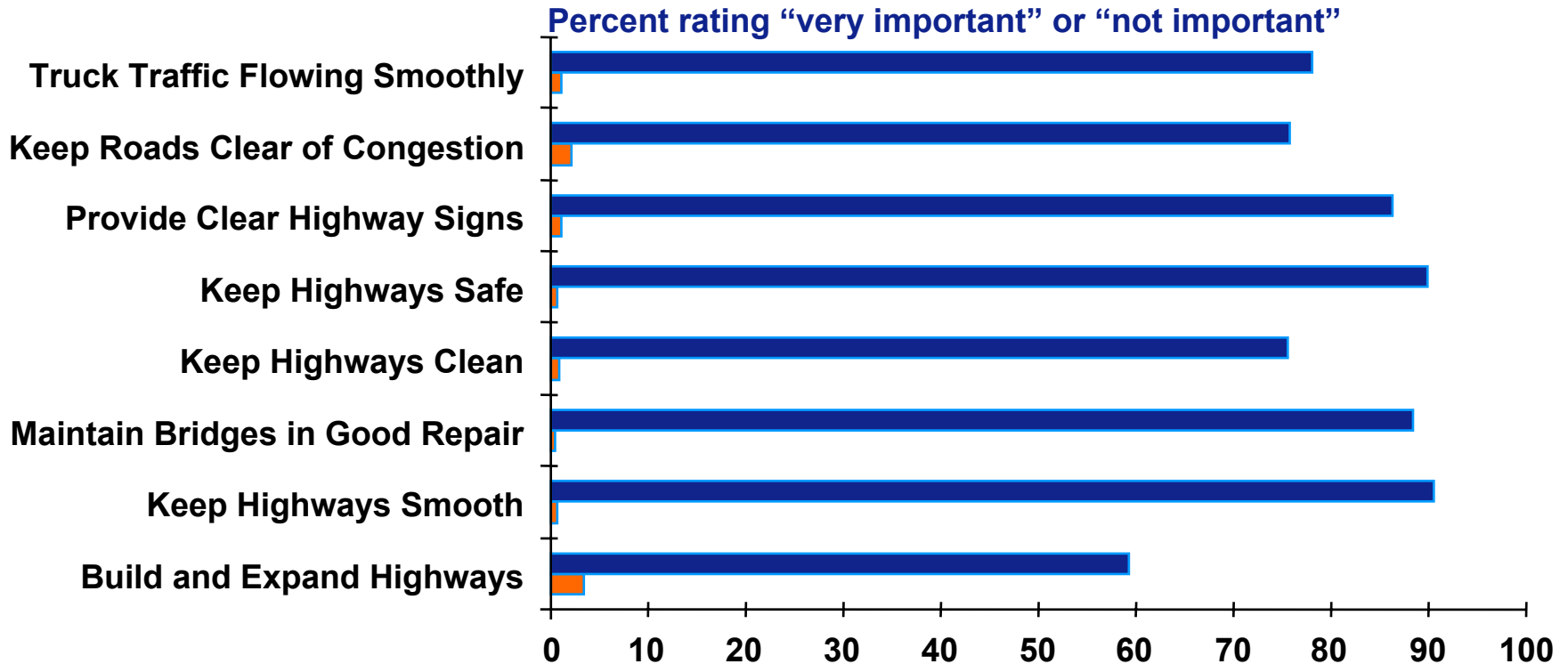
How <u>Satisfied</u> are You With the Services that INDOT Provides?

- *Greater variation than the importance ratings*
- *Highest level of satisfaction with safety, signage, and bridge repair*
- *Lowest level of satisfaction with keeping highways smooth and keeping roadways free of congestion*

Categories (top to bottom):
- Truck Traffic Flowing Smoothly
- Keep Roads Clear of Congestion
- Provide Clear Highway Signs
- Keep Highways Safe
- Keep Highways Clean
- Maintain Bridges in Good Repair
- Keep Highways Smooth
- Build and Expand Highways

Legend:
- ■ Percent Rating **Very** Satisfied (8-10)
- ■ Percent Rating **Not** Satisfied (0-2)

X-axis: 0 10 20 30 40 50 60 70 80 90 100

Satisfaction Versus Importance
Analysis Framework

Comparing the importance customers place on certain services to their satisfaction with those services gives INDOT some clues as to where to focus their attention.

Areas which are <u>important</u> to customers are on the right side. Areas with low <u>satisfaction</u> are at the bottom. So, areas that show up towards the bottom right hand corner of the chart on the next page are those where INDOT should focus its attention

High

Satisfaction

Low

Importance

High

Communication of successes

Low Priority

Priorities for Improvements

Low

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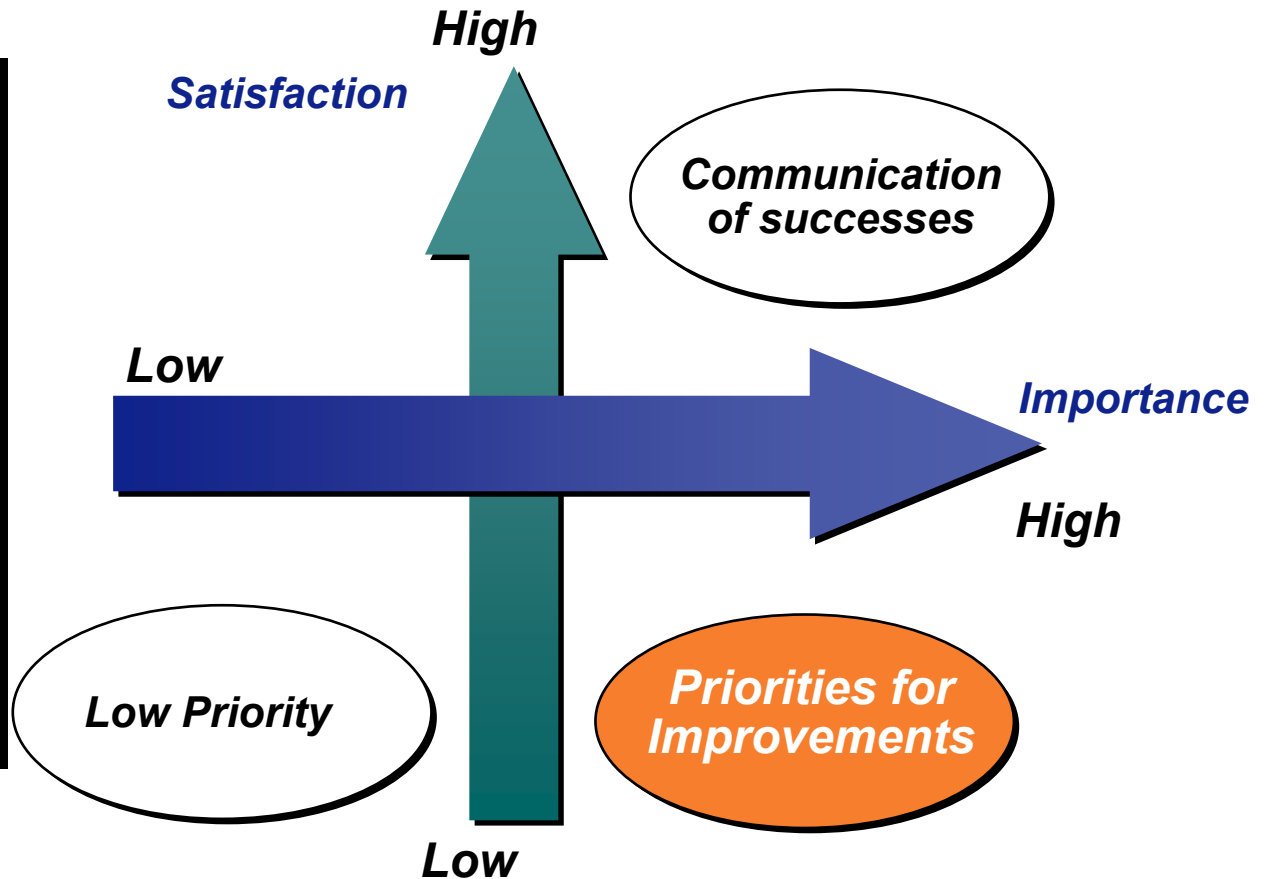
Satisfaction Versus Importance
Results

- **Discussion on next two pages**

Provide Clear Highway Signs

Maintain Bridges in Good Repair

Keep Highways Clean

Keep Highways Safe

SATISFACTION

Build and Expand Highways

Truck Traffic Flowing Smoothly

Keep Roads Clear of Congestion

Keep Highways Smooth

STATED IMPORTANCE

CAMBRIDGE SYSTEMATICS
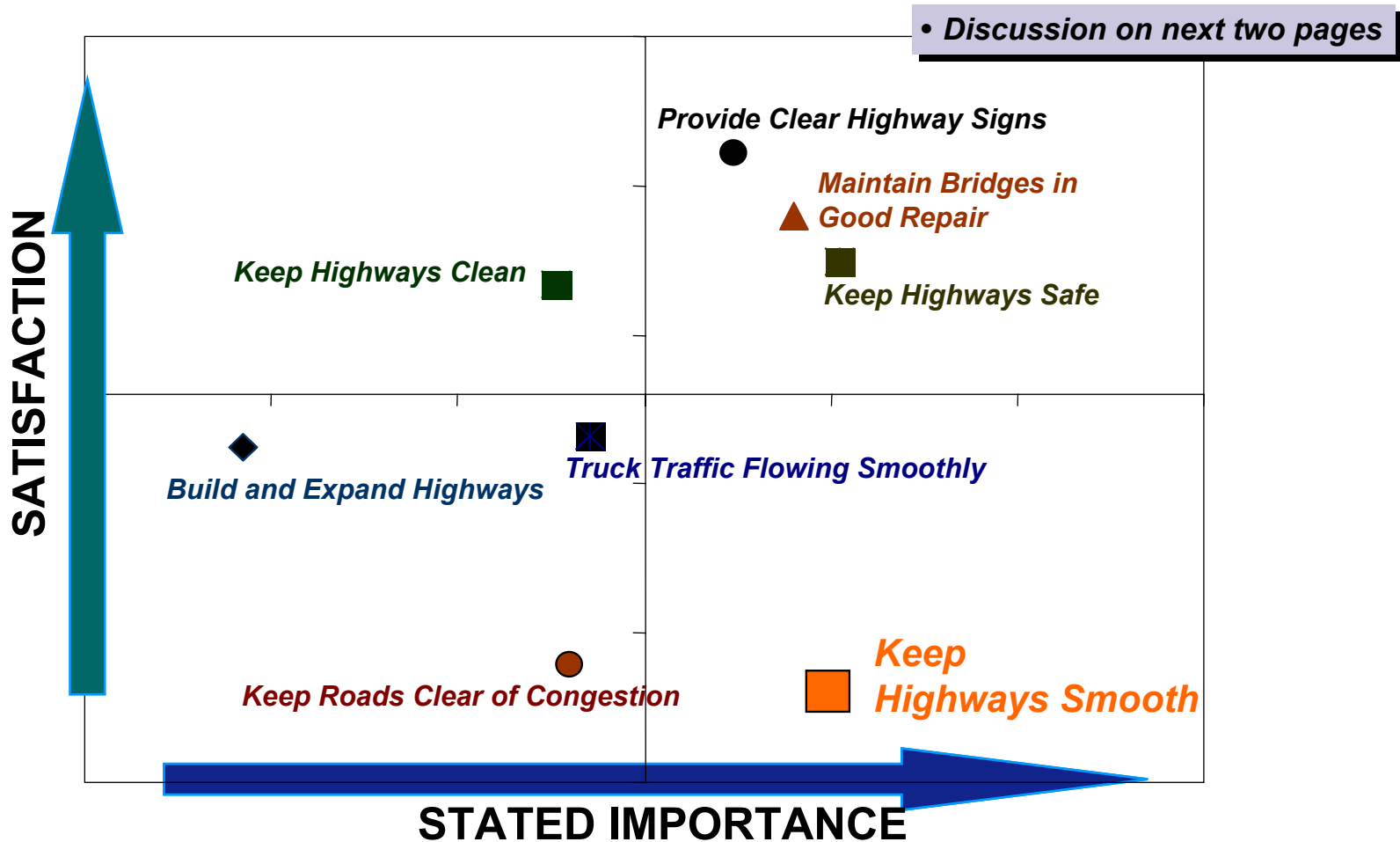
Satisfaction Versus Importance
Strengths

- **Clear success stories**

  - **Safety – "keep highways safe"**

  - **Signage – "provide clear highway signs"**

  - **Level of bridge repair – "maintain bridges in good repair"**

- **What should INDOT do about these?**

  - **Communicate success to the public**

  - **Monitor service offered to ensure continuity**

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Satisfaction Versus Importance
Weaknesses

- **Important areas that need to receive attention by INDOT**

    - **Pavement maintenance – "keeping highways smooth"**

    - **Congestion management – "keep roads free of congestion"**

    - **Truck traffic management – "truck traffic flowing smoothly"**

- **INDOT should develop performance measures to**

    - **Verify perceptions**

    - **Locate problem spots**

    - **Determine and implement changes**

- **INDOT should monitor service and communicate improvements to the public**

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How Did <u>Satisfaction</u> Vary by Market Segments?

- ■ **"Keeps truck traffic flowing smoothly"**

  - • **Lake County residents were significantly less satisfied**

  - • **Northern Indiana rural county residents were the most satisfied**

- ■ **"Keeps roads clear of congestion"**

  - • **Lake and Marion County residents were less satisfied**

  - • **Northern Indiana rural county residents were most satisfied**

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How Did <u>Importance</u> Vary by Market Segments?

- **"Keeping highways free of congestion"**
  - **Most important to Lake County residents and EJ respondents**
  - **Much less important to residents of rural counties**
  - **Very important to women respondents**

- **"Build and expand highways to keep pace with land development"**
  - **Most important to Lake County residents**
  - **Least important to rural county residents**

- **Women placed greater importance on safety, signage, and a smooth flow of truck traffic**

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attitudes
towards INDOT – awareness and image

CAMBRIDGE SYSTEMATICS

Attitudes toward INDOT – Awareness and Image
Summary (details follow)

- **Customers indicate a reasonable level of INDOT awareness during last 12 months**

  - **14 percent <u>very aware</u> of INDOT "in the news"**

  - **46 percent had <u>heard something</u> about INDOT**

- **Customers image of INDOT generally neutral**

- **Customers view of INDOT over the past 12 months is generally steady or improving**

  - **Has deteriorated (9 percent)**

  - **Has stayed the same (59 percent)**

  - **Has improved at least somewhat (32 percent)**

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How Much Have You Heard About INDOT Lately?

A Lot

14%

Nothing

40%

Something

46%

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SYSTEMATICS
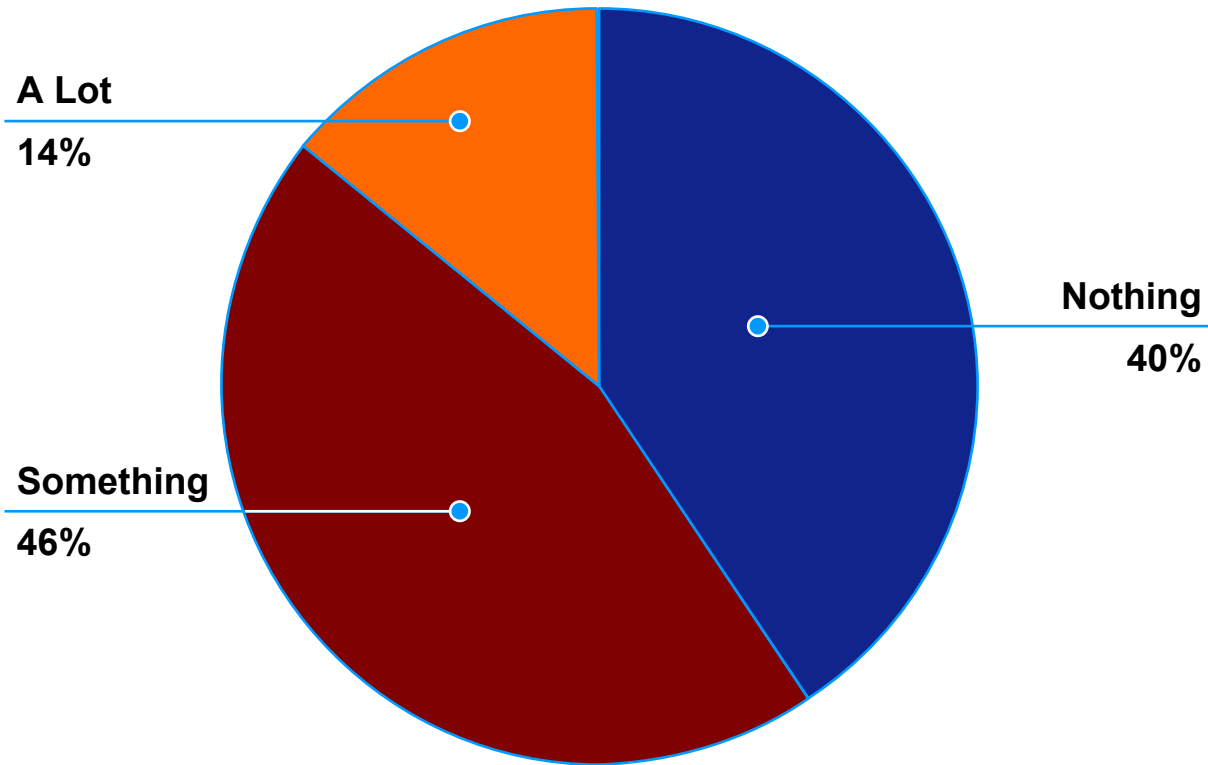
Overall Satisfaction with INDOT

> • *Most respondents satisfied with INDOT*
> • *Very few respondents with strongly negative feelings*
> • *No differences by market segment were identified*

Percent of Respondents

Bar chart with y-axis labeled 0 to 25 (in increments of 5) and x-axis labeled: Extremely Dissatisfied, 1, 2, 3, 4, 5, 6, 7, 8, 9, Extremely Satisfied.

CAMBRIDGE SYSTEMATICS
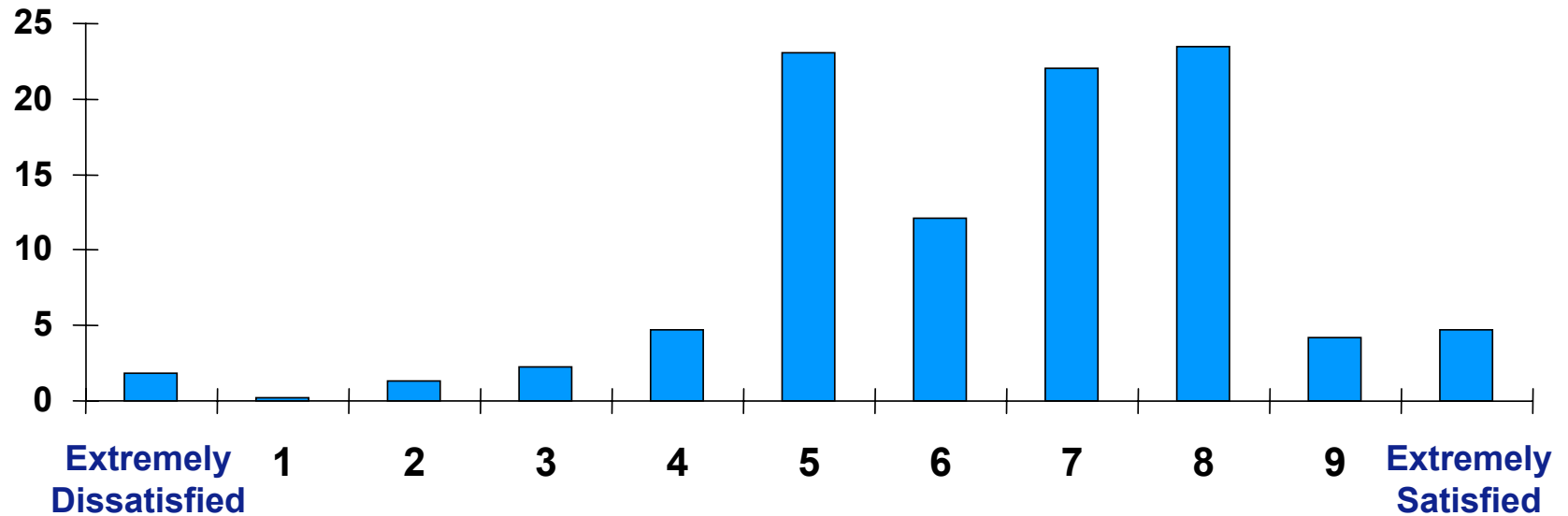
In the Past 12 Months, Has INDOT's Performance. . .

Percent

Only 9% of Hoosiers said that INDOT has gotten worse

| | Gotten a Lot Worse | Gotten a Little Worse | Stayed About the Same | Gotten a Little Better | Gotten a Lot Better |

CAMBRIDGE SYSTEMATICS
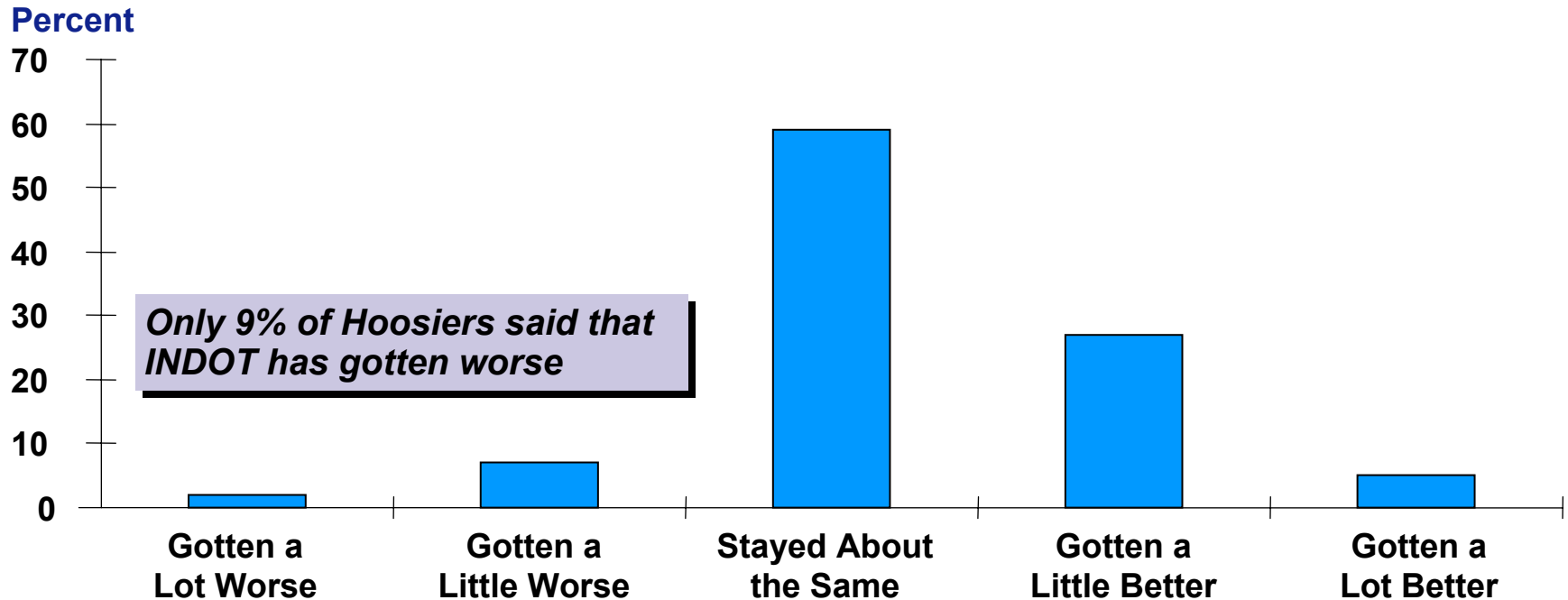
Image Ratings

"How well does this phrase describe INDOT (0-10 scale)?"

See next page for interpretation

Legend:
- Describes INDOT Well (8-10)
- Does not Describe INDOT (0-2)

Categories (top to bottom):
- Protects INDOT Natural Environment
- Provides Leadership to Move INDOT Forward
- Helps INDOT Economy
- Is Good at Managing Growth
- Completes Construction and Maintenance On Time
- Keeps Drivers Safe
- Puts Funds to Good Use
- Is Trustworthy
- Treats all Parts of the State and all Groups Fairly

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Image Ratings
Interpretation

- **The majority of respondents have a "neutral" view of INDOT image**

- **A third or more believe that INDOT performs well in —**
  - **Trustworthiness**
  - **Keeping drivers safe**
  - **Helping Indiana's economy**

- **There was greater dissatisfaction with INDOT in these categories —**
  - **Completing construction/maintenance projects on time**
  - **Treating all parts of the state fairly**

recent experiences with

INDOT highway facilities

CAMBRIDGE SYSTEMATICS
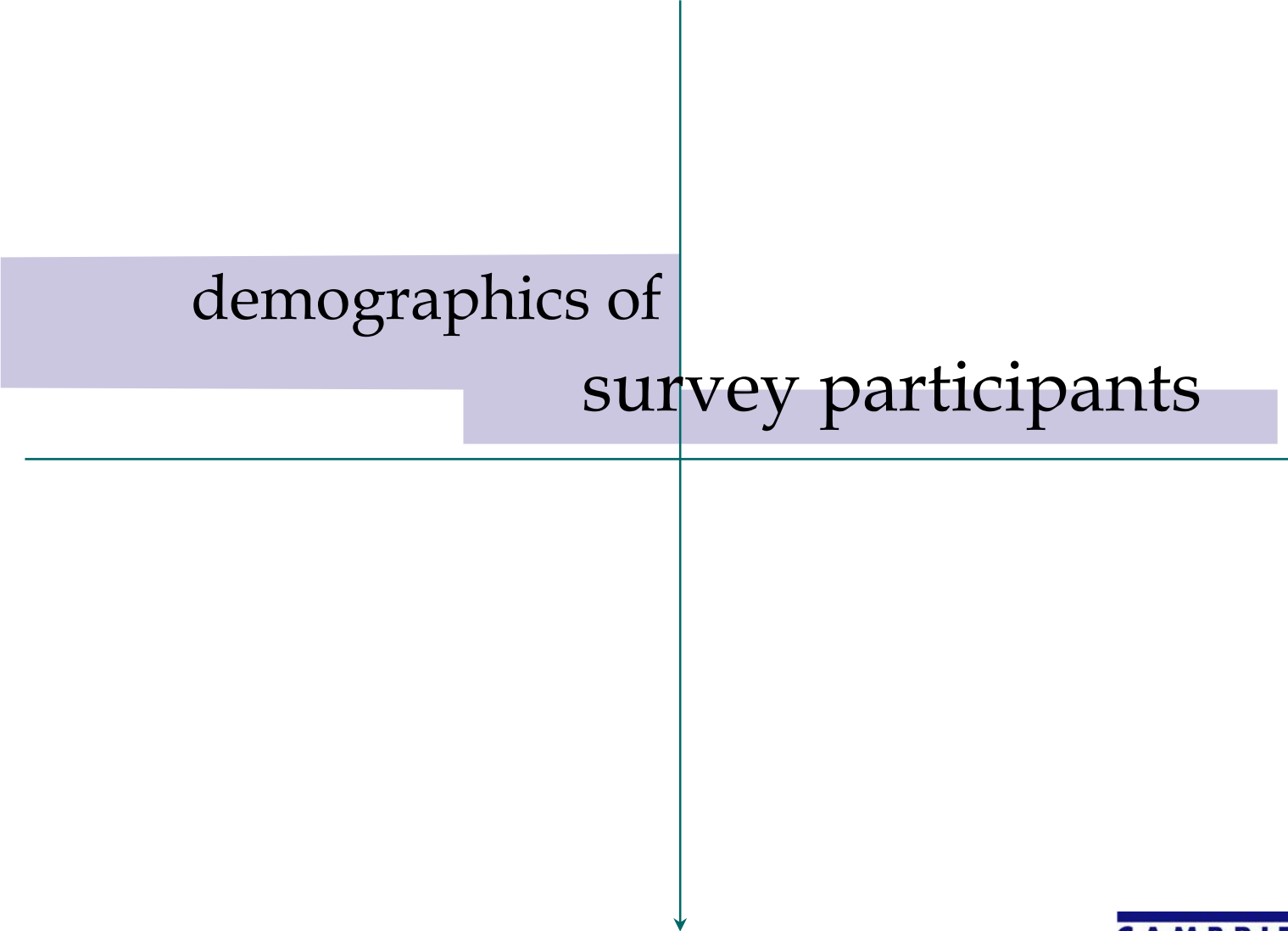
Recent Experiences with INDOT Highways

"In the past 30 days, how often have you encountered….?"
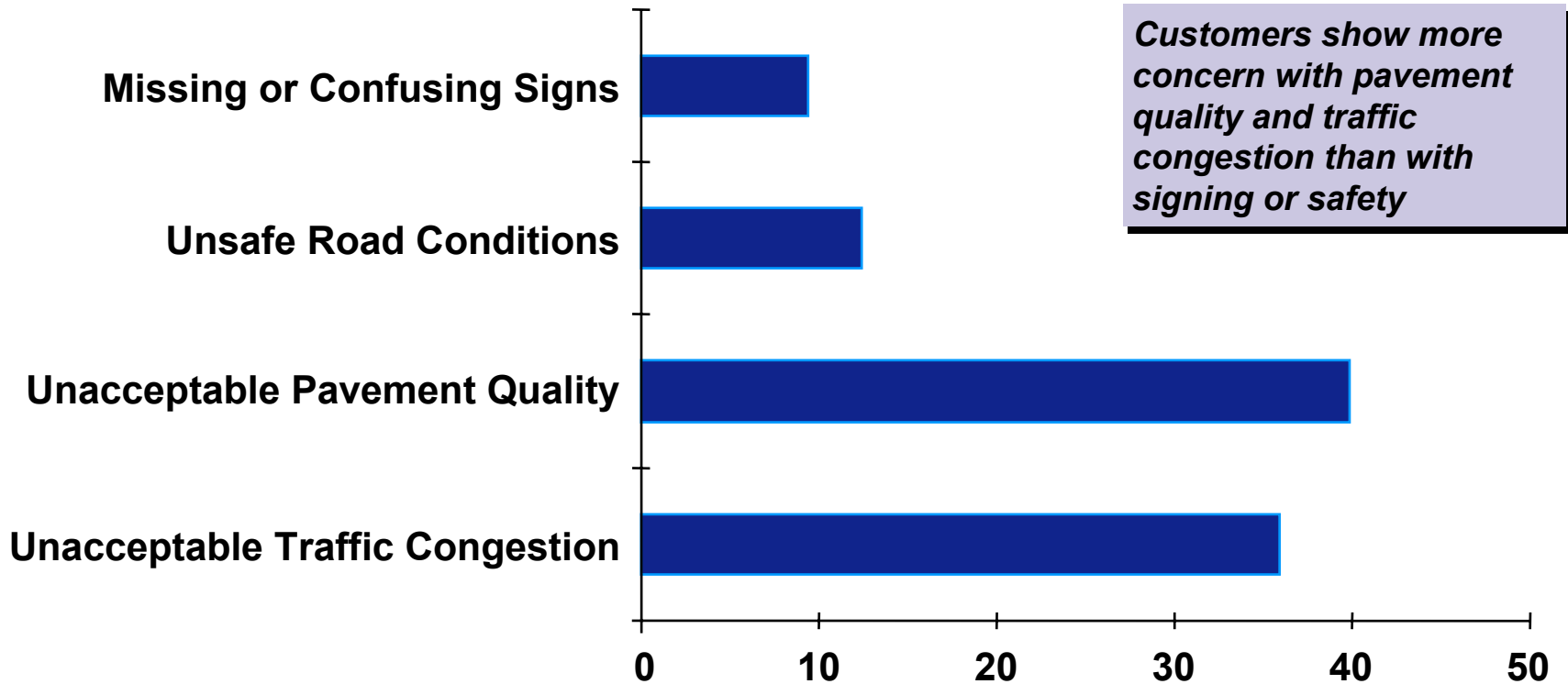
Customers show more concern with pavement quality and traffic congestion than with signing or safety

Respondents Responding "Frequently" and "Almost Every Day" (in Percent)

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demographics of
survey participants

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Demographics of Survey Participants
Summary (details follow)

- **Generally consistent with year 2000 Census data**

- **Representative of different areas in the state**

- **Majority of respondents are long-time residents of the state**

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How Long Have You Lived In Indiana?

Percentage

Bar chart showing years of residence in Indiana:
- Less than 5 Years: 6.9
- 5 to 15 Years: 7.8
- 15 to 30 Years: 21.4
- 30 or More Years: 64.0

Years of Residence in Indiana

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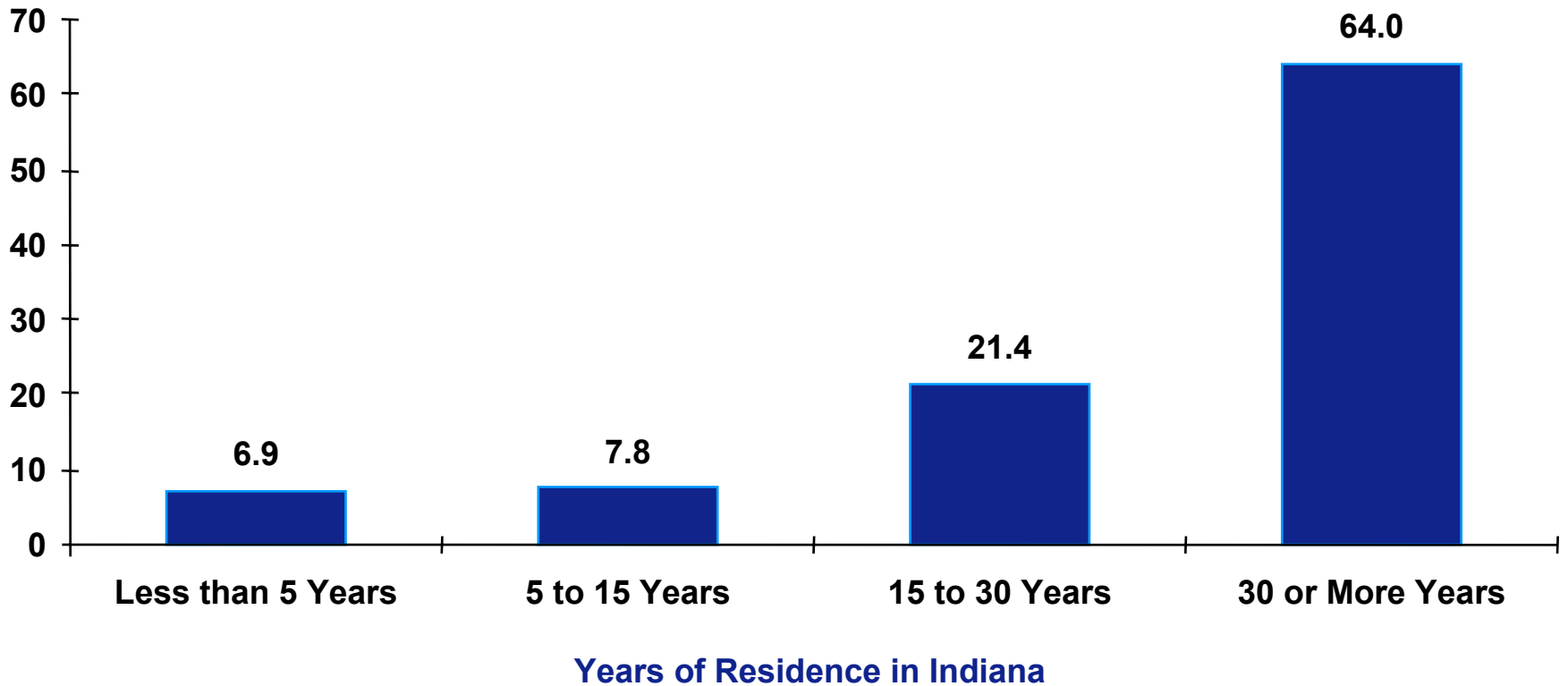
Household Size

Percentage

Bar chart showing percentage by household size:
- 1: 16.9
- 2: 35.3
- 3: 20.7
- 4: 15.2
- 5: 7.9
- 6 or More People in the Household: 4.0

Household Size

CAMBRIDGE SYSTEMATICS
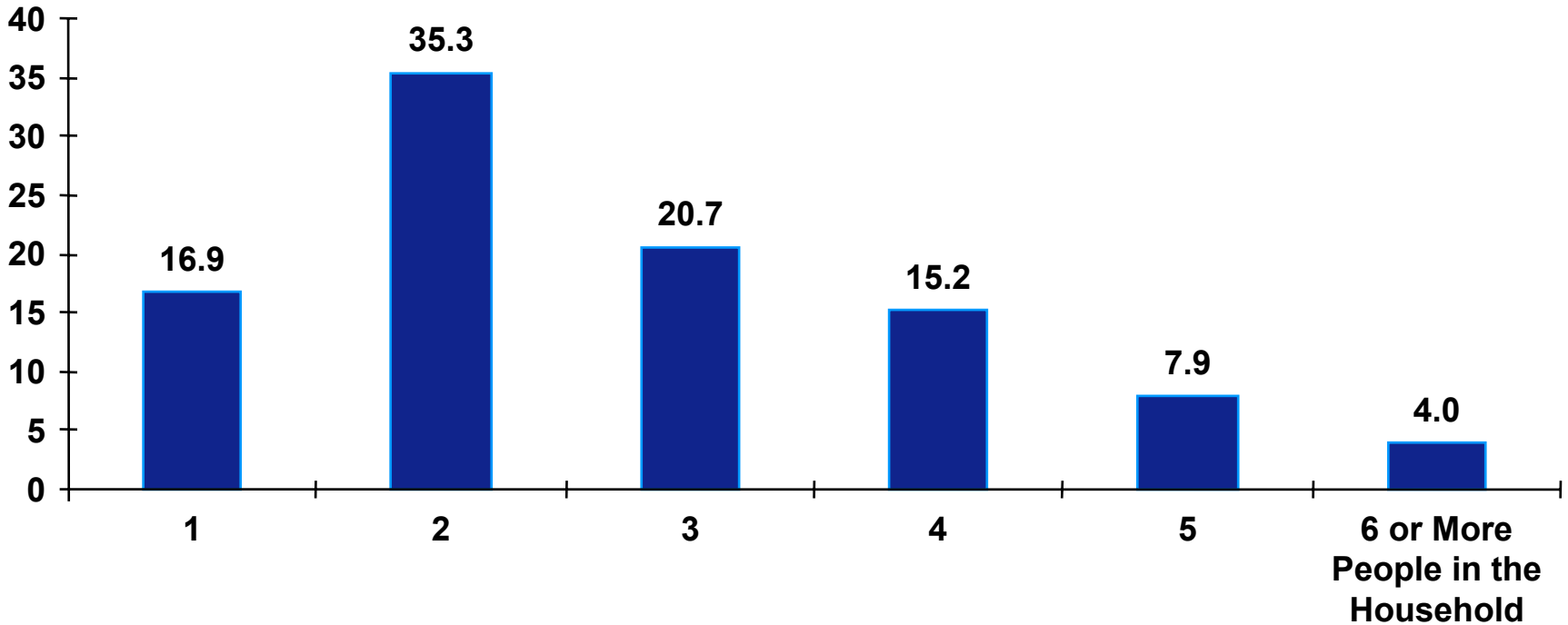
Household Workers

Percentage

Workers in Household

CAMBRIDGE SYSTEMATICS
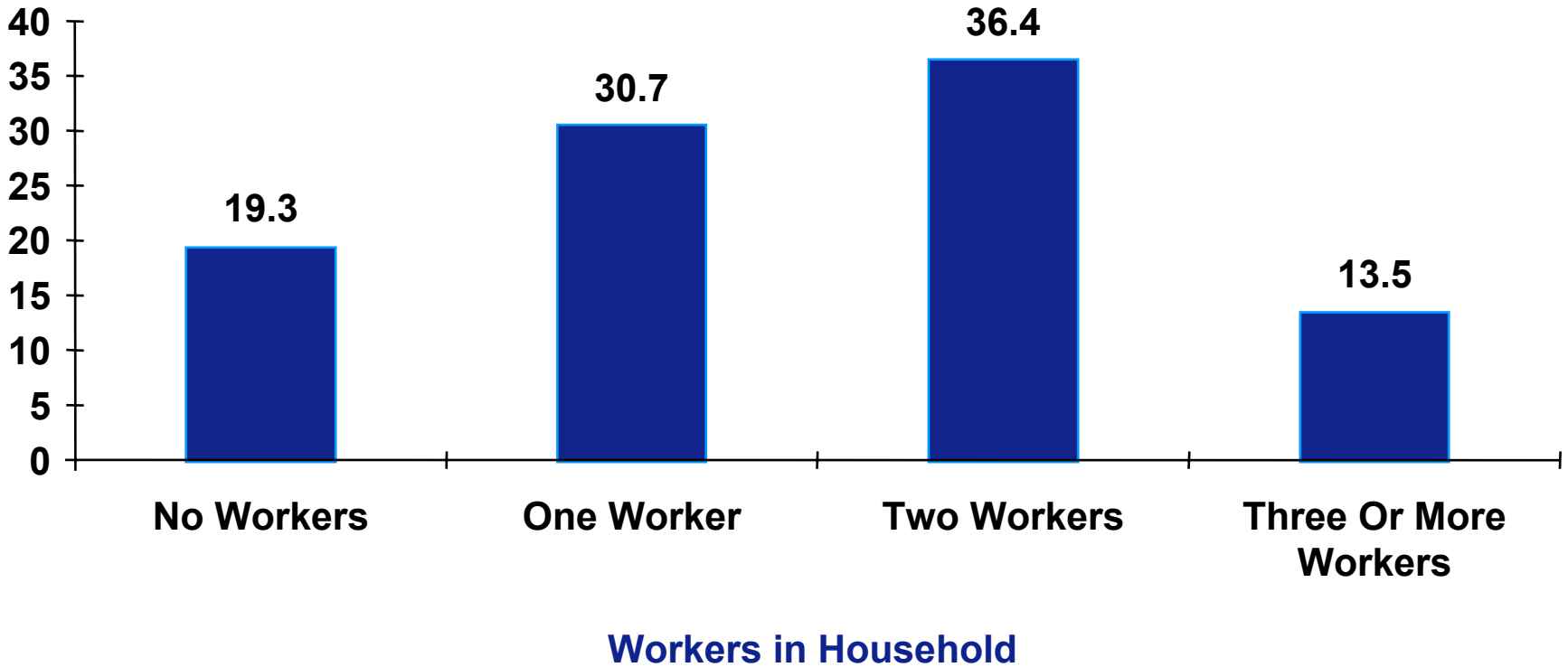
Household Income Distribution

Percentage

Household Income (in Thousands)

CAMBRIDGE
SYSTEMATICS
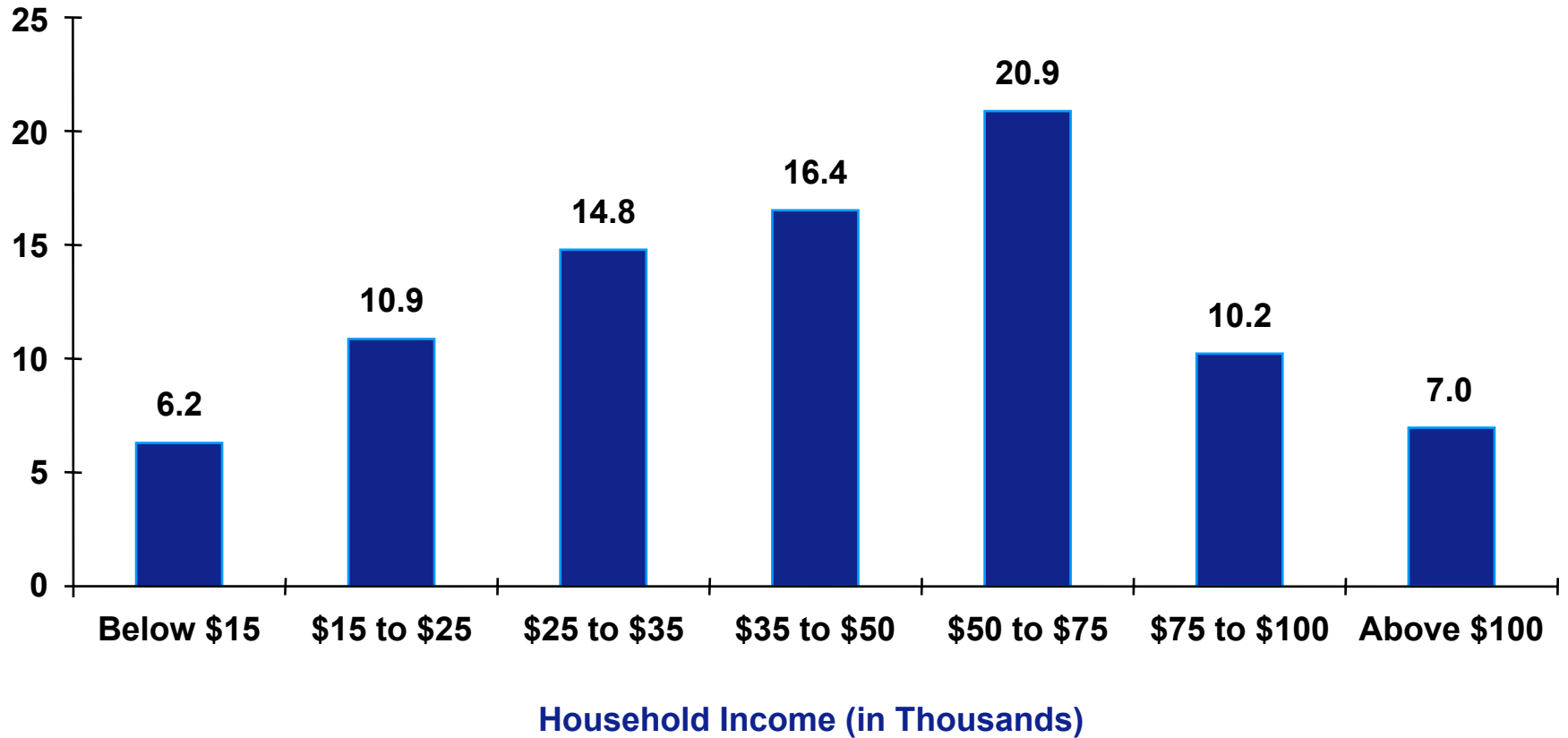
Respondent Employment Status

Bar chart showing Percentage (x-axis) by employment status category:

- Seasonal Employment: 0.1
- Maternity Leave: 0.1
- Employed and a College Student: 1.3
- Permanently Disabled/On Disability: 0.9
- DK/Refused: 0.7
- Not Presently Employed: 4.9
- A Full-Time Homemaker: 3.5
- A Full-Time Student: 2.6
- Retired: 19.2
- Self-Employed: 8.1
- Employed Part-Time: 9.6
- Employed Full-Time: 49.2

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Respondent Age Distribution

Distribution (in Years)

Age Group	Percentage
Over 65	18.4
50-65	26.3
35-50	29.2
25-35	15.4
18-25	9.0
Under 18	1.8

Percentage

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Respondent Gender

Gender

Female — 51%

Male — 49%

Percentage

(x-axis: 40, 45, 50, 55, 60, 65, 70)

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SYSTEMATICS
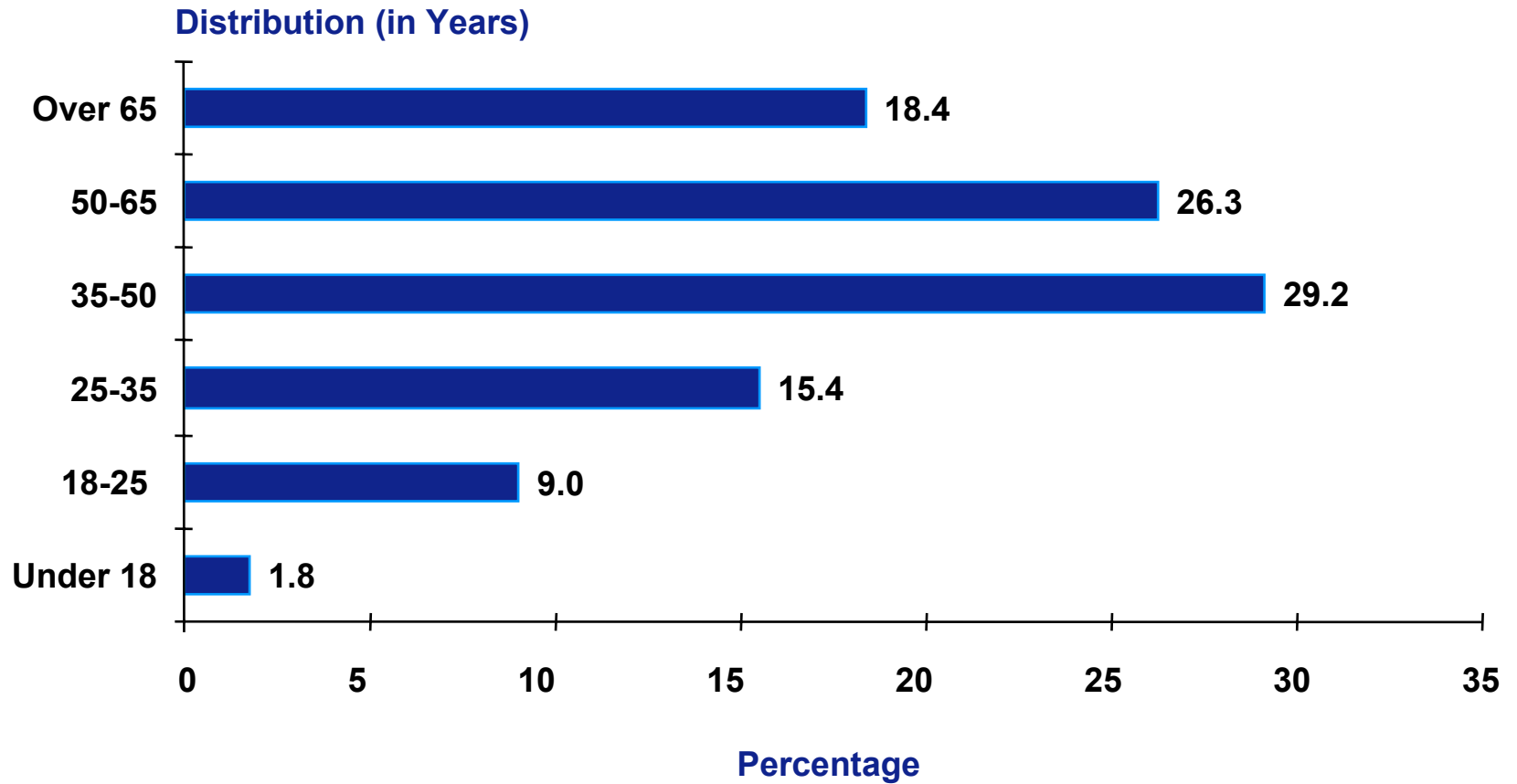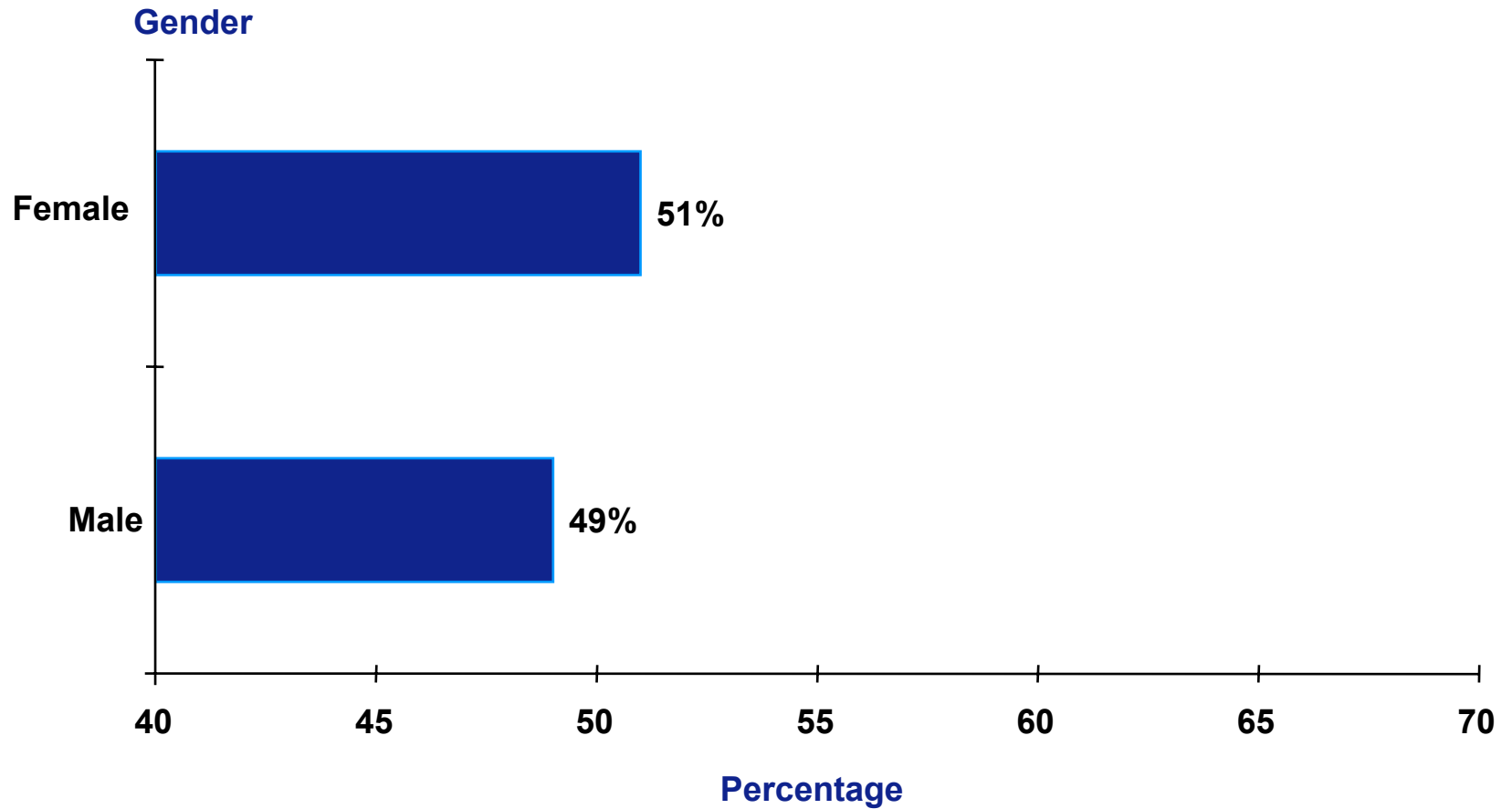
Respondent Race/Ethnic Identity

Race/Ethnic Identity

Category	Value
Black and American Indian	0.1
DK/Refused	1.3
Other	0.1
Multi-Racial/Bi-Racial	1.0
American Indian or Native American	0.7
Asian American or Pacific Islander	0.7
Hispanic or Latino	0.9
Caucasian or White	89.1
Black and American Indian	6.1

Percentage

CAMBRIDGE SYSTEMATICS
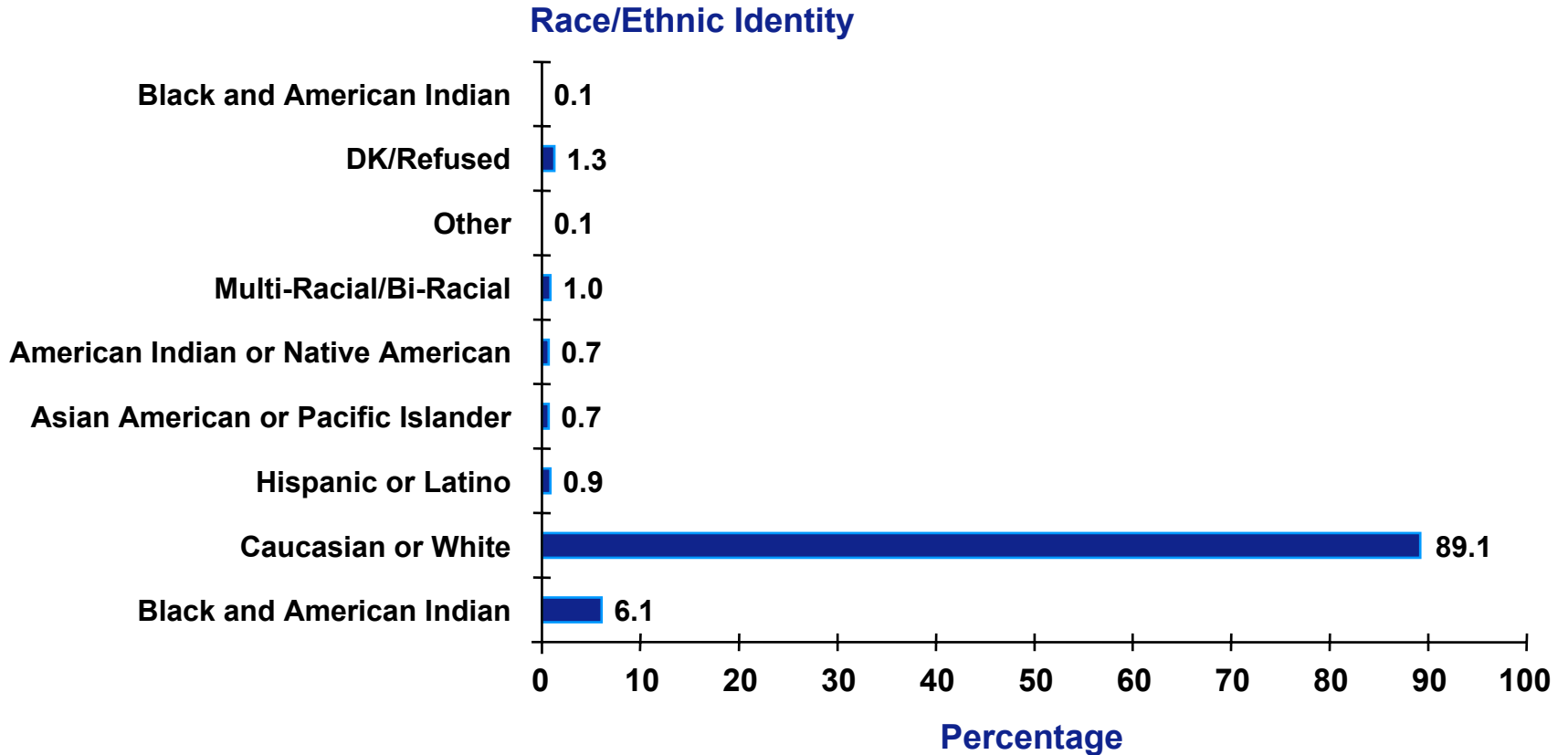
3.0 Environmental Justice Perspectives

■ 3.1 Background

Investments in transportation increasingly are being assessed on their ability to contribute to a variety of community, economic, and environmental objectives. Mobility and accessibility remain important priorities; but the manner in which improved transportation affects the livability and environmental quality of neighborhoods, urban areas, rural areas, and entire states is assuming a growing importance in all aspects of transportation decision-making – investment, operation, and maintenance.

This change in emphasis is resulting in important changes in the manner in which impacts of transportation policy and investment are being examined. Examining transportation impacts on an aggregate or regional basis no longer is sufficient. Equal attention is now being given to the manner in which these benefits and burdens are distributed among the different potentially affected communities, with c*ommunity impact assessment* methods growing in acceptance and importance within state departments of transportation. Impacts of particular concern are those affecting a community's overall quality of life and include community cohesion, displacements, safety, business and residential economics, land use, aesthetics, and livability.

The concept of *environmental justice* refers, in the broadest sense, to the goal of identifying and avoiding disproportionate adverse impacts on minority and low-income individuals and communities. Environmental justice extends community impact assessment by examining communities based on characteristics such as race, ethnicity, income, age, and even disability. The term "environmental justice" may be relatively new to transportation planning, but the requirement itself is not; it is embodied in the 1964 Civil Rights Act, Title VI, which states that, "No person in the United States shall, on the ground of race, color, or national origin be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." The legal framework influencing the practice of environmental justice, however, is broader, including the 1994 *Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*; the National Environmental Policy Act of 1969; Section 109(h) of the 1970 Federal-Aid Highway Act; the Age Discrimination Act of 1975; and the Americans with Disabilities Act of 1990.

The combination of these provisions affect a wide range of planning and project decisions undertaken by the Indiana Department of Transportation (INDOT), Indiana's Metropolitan Planning Organizations (MPO), public transportation agencies, and other transportation

providers. Questions related to environmental justice arise in both system-level analyses of regional issues and corridor-level analyses of specific projects. These questions may relate to accessibility to jobs and other activities, as well as to the magnitude and distribution of other consequences of transportation policies and projects.

States and their local transportation partners are working today to ensure that the principles of environmental justice are consistently upheld with regard to transportation planning. Transportation investment can promote greater respect for environmental justice in three ways. First, it can provide infrastructure and services that meet the needs of the entire public, including minority and low-income communities. Second, transportation projects can be developed so as to provide community, economic, and environmental benefits by employing practices such as those embodied within the emerging practice of *context sensitive design*. Third, it can ensure that potential adverse health and environmental impacts associated with new project construction do not strike these communities disproportionately, and that such impacts are either eliminated or effectively mitigated.

The population of the State of Indiana, consistent with patterns observed throughout the country, is becoming increasingly diverse racially and ethnically, including persons having limited English proficiency. There also is an increasing desire on the part of INDOT, and other state DOTs as well, to improve the manner in which they respond to customer needs, including the explicit recognition of differences among different population or stakeholder groups. The challenge in identifying, monitoring, and satisfying the needs of INDOT's customers is made all the more challenging because of the increasing diversity in the state's population.

■ 3.2 Objectives

The purpose of the Task 3 program of market research activities was to develop an improved understanding of current and potential future environmental justice issues within the State of Indiana and to use this understanding as the basis for identifying potential policy, technical analysis, community outreach, and training initiatives that could be undertaken by INDOT. The work program involved these elements:

1. Analysis of existing demographic conditions and trends building on the results of the Year 2000 Census of the Population;

2. Interviews with stakeholders, MPO, and INDOT staff;

3. Use of a stratified sample in the market research telephone survey to ensure a statistically valid sample of minority population subgroups; and

4. Development of potential actions that INDOT could take based on the cumulative results of the previous four information gathering activities.

The objective of this task, therefore, is to help INDOT establish an appropriate state-level and department-wide perspective on the topic of environmental justice by:

- Developing a better understanding of the types of environmental justice issues within the State of Indiana that fall within the purview of INDOT; and

- Defining an overall approach through which to better integrate environmental justice issues throughout the activities of INDOT.

While both INDOT and the state's MPOs already have taken important steps to respond to potential issues of environmental justice, INDOT recognizes that these existing actions, while they represent an important start, may not be sufficient. Additional actions may be desirable in three distinct areas:

1. Examining potential issues of environmental justice earlier in the transportation planning process, especially as part of developing a long-range statewide systems-level plan and during the process of programming transportation projects;

2. At the program level, in the detailed planning and design of specific projects, and in the operation and maintenance of the state's transportation facilities; and

3. Articulating an overall INDOT policy with respect to environmental justice.

3.3 Changing Demographics of Sensitive Population Groups in Indiana

This subsection examines demographic trends among Indiana's minority and low-income population groups. It is intended to set the stage for the more detailed and project-specific interviews and telephone survey results. It begins with a summary of overall findings, then focuses on the patterns and change in spatial distributions between the 1990 and 2000 Census years for each of the following subsets of population: White, Black, Other, Hispanic, and poverty. For the purposes of this report, Black, Other, Hispanic and poverty groups will represent Indiana's environmental justice populations. The White population is described first because it is the majority group and its characteristics can be used as a control for comparison to the other groups.

Statewide Findings

According to the 2000 Census, Indiana Department of Transportation served just over 6.08 million people, the population of Indiana, in 2000 (Table 3.1). This is up from 5.54 million people in 1990 which represents a 10 percent growth in population from 1990 to 2000. While the majority of the state's population is White, a significant and growing number of people are included in Indiana's minority population groups and their unique settlement patterns warrant specific study and treatment. This section outlines general demographic trends and then each trend is discussed in more detail in its own section.

Table 3.1   Indiana Statewide Population Summary
1990 and 2000

	1990	Percent of Total	2000	Percent of Total	Percent Growth
Total Population	5,544,159	100.0%	6,080,485	100.0%	9.67%
White Population	5,020,700	90.6%	5,317,334	87.4%	5.91%
Black Population	432,092	7.8%	504,449	8.3%	16.75%
Hispanic Population	98,788	1.8%	210,538	3.5%	113.12%
Other Population	91,367	1.6%	258,702	4.3%	183.15%
Population in Poverty	573,632	10.3%	559,484	9.2%	-2.47%

In general, racial and ethnic minority groups represent a significant portion of Indiana's total population and are increasing at a much faster rate than the general public. Approximately, 87 percent of Indiana's population is White. Of the non-white population, the majority group is Black, comprising about eight percent of the total population. However, Indiana also has a increasingly prominent non-Black racial minority population, representing the remaining five percent of the state's population, a population group that almost tripled in the last 10 years in absolute terms.

Probably the most noteworthy trend in population change with respect to Title VI, between 1990 and 2000, is the rapid increase in the Hispanic population which has more than doubled. It is important to note that in this report, as in the U.S. Census, the term Hispanic is not used as a racial group and is completely independent of racial status. That is, a person may be counted as either White, Black, or Other (Other could be any other racial group or a combination of racial groups) and be either Hispanic or non-Hispanic. While this growth in Indiana's Hispanic population still represents less than four percent of the state's total population, Hispanics comprise higher percentages of the 10 largest cities' populations and are dispersed throughout the State.

Another important trend has been the population decline seen in Indiana's largest cities (Table 3.2). Nine of Indiana's 10 largest cities have seen a decrease in their overall population. The exception is Indianapolis which has experienced a small increase in population. Besides a difference in general population change, the 10 largest cities also exhibit vast differences in race and poverty trends compared to areas outside the cities.

Finally, statewide poverty has decreased since 1990. This encouraging trend is further examined in its own section below.

Table 3.2   Total Population of Indiana's 10 Largest Cities

City	1990	2000	Percent Growth
Indianapolis	729,057	778,669	6.800%
Fort Wayne	191,576	191,533	-0.020%
Evansville	123,475	118,488	-4.040%
Gary	116,596	100,560	-13.750%
South Bend	104,710	104,237	-0.450%
Hammond	84,044	82,720	-1.580%
Muncie	68,507	64,856	-5.330%
Anderson	60,008	59,870	-0.230%
Terre Haute	59,571	57,116	-4.120%
Bloomington	58,376	60,824	4.190%
Total	**1,595,920**	**1,618,873**	**1.438%**

General Quick Facts

1. Population has increased by 10 percent between 1990 and 2000;

2. Urban population has decreased (Indianapolis is the exception);

3. Racial minority groups are increasing at a much faster rate than the general public (Whites only increasing by six percent) – especially in the 10 largest cities;

4. Hispanic population has more than doubled between 1990 and 2000; and

5. Population in poverty overall has decreased.

White Population

The White racial group makes up 87.5 percent of the population. Statewide, the White population has increased at a rate of six percent since 1990. This increase is less than the general increase in population for the State which increased 9.7 percent. This means that the percent of the total population that is White is decreasing.

Indiana's suburban and rural counties have the largest White percentages while the 10 largest cities have relatively low White percentages. Together, Indiana's largest 10 cities grew by only 1.4 percent. Eight of the 10 largest cities, have actually experienced significant negative population growth. The two exceptions are Indianapolis which had a 6.8 percent population growth and Bloomington which had a 4.2 percent population growth. This downward population trend is exaggerated for the White population in the

10 largest cities (Table 3.3). In fact, White population is only increasing in Bloomington and by only 0.07 percent. In all of the other 10 largest cities, White population is decreasing. The cities that have the smallest White percentages also experienced some of the largest decreases in White population. For example, the White population in Gary, which is only 12 percent White, decreased by an additional 39 percent between 1990 and 2000; South Bend has the second smallest White percentage, 67 percent, and its White population decreased by 13 percent; Indianapolis which is 69 percent White saw a decrease in its White population by three percent; and Hammond which is 72 percent White had a decrease in its White population by 16 percent.

Table 3.3   White Population of Indiana's 10 Largest Cities

City	1990	Percent of Total	2000	Percent of Total	Percent Growth
Indianapolis	554,462	76.1%	539,390	69.3%	-2.718%
Fort Wayne	157,490	82.2%	144,044	75.2%	-8.538%
Evansville	110,594	89.6%	102,789	86.8%	-7.057%
Gary	18,994	16.3%	11,503	11.4%	-39.439%
South Bend	80,044	76.4%	69,615	66.8%	-13.029%
Hammond	71,430	85.0%	59,785	72.3%	-16.303%
Muncie	60,990	89.0%	55,865	86.1%	-8.403%
Anderson	51,032	85.0%	49,321	82.4%	-3.353%
Terre Haute	53,630	90.0%	49,494	86.7%	-7.712%
Bloomington	53,100	91.0%	53,136	87.4%	0.068%
Total	**1,211,766**	**75.9%**	**1,134,942**	**70.1%**	**-6.340%**

This "White flight" from the largest cities exacerbates the segregation of cities and suburbs. The segregation index, a statistic which describes how segregated two groups are within a geographic area, compares the spatial distributions between White and Black populations (Figures 3.1 and 3.2). Results show that segregation has worsened between 1990 and 2000. In 1990, many rural counties had a very low segregation index indicating a relative even distribution of White and Black populations. In 2000, many of those same rural counties had a much higher index.

Figure 3.1   1990 County Segregation Index
Black versus White

Formula for Segregation Index

$$D = \left(0.5 * \sum_{l=1}^{K} |\, x\,l - y\,l\,|\,\right)$$

County Segregation Index

Better (less segregation)

Worse (more segregation)

X = The percentage of the study area's white population living in a given census block group.
y = The percentage of the study area's black population living in the same census block group.
k = The number of block groups.

Figure 3.2   2000 County Segregation Index
  Black Versus White

Formula for Segregation Index

$$D = \left(0.5 * \sum_{l=1}^{k} |\, x\,l - y\,l\,| \right)$$

County Segregation Index
Better (less segregation)
Worse (more segregation)

X = The percentage of the study area's white population living in a given census block group.
y = The percentage of the study area's black population living in the same census block group.
k = The number of block groups.

White Population Quick Facts

- Statewide, White population has increased less than the general population;

- Indiana's rural and suburban counties have far higher percentages of Whites than cities;

- White population is decreasing in the largest 10 cities. The cities with the largest percentage of population that is minority also has seen the largest decrease in White population; and

- Racial segregation between Black and White populations has increased in Indiana from 1990 to 2000.

Black Population

The Black population is Indiana's largest racial minority. Blacks made up 8.3 percent of Indiana's total population in 2000. This is up from 7.8 percent in 1990. Statewide, the Black population has increased at a rate almost twice that of the general population.

Indiana's Black population is overwhelmingly urban. In 2000, 77 percent of the Black population lived within the borders of the 10 largest cities. This statistic is more than three times higher for Blacks as it is for Whites (24 percent of White population lives within the same 10 cities). Indianapolis has the largest absolute Black population, with the collective populations of Gary, Hammond and South Bend making up the largest regional Black population (Table 3.4). The maps illustrating percentage Black by county (Figures 3.3 and 3.4) clearly show a ring around cities where the Black percentage is very low. This trend is explained by the very low suburban representation of Blacks. However, the percentage of Blacks living in the 10 largest cities has decreased by four points from 1990 to 2000 so the rate of Black suburbanization is likely rising. Black population in rural areas is also very low.

Table 3.4   Black Population of Indiana's 10 Largest Cities

City	1990	Percent of Total	2000	Percent of Total	Percent Growth
Indianapolis	163,368	22.4%	196,368	25.2%	20.200%
Fort Wayne	28,680	15.0%	33,027	17.2%	15.157%
Evansville	11,701	9.5%	11,900	10.0%	1.701%
Gary	93,966	80.6%	84,953	84.5%	-9.592%
South Bend	21,810	20.8%	25,249	24.2%	15.768%
Hammond	7,523	9.0%	11,657	14.1%	54.951%
Muncie	6,360	9.3%	6,831	10.5%	7.406%
Anderson	8,486	14.1%	8,820	14.7%	3.936%
Terre Haute	4,885	8.2%	5,388	9.4%	10.297%
Bloomington	2,306	4.0%	2,493	4.1%	8.109%
Total	**349,085**	**21.9%**	**386,686**	**23.9%**	**10.771%**

Figure 3.3   1990 County
Percent Black
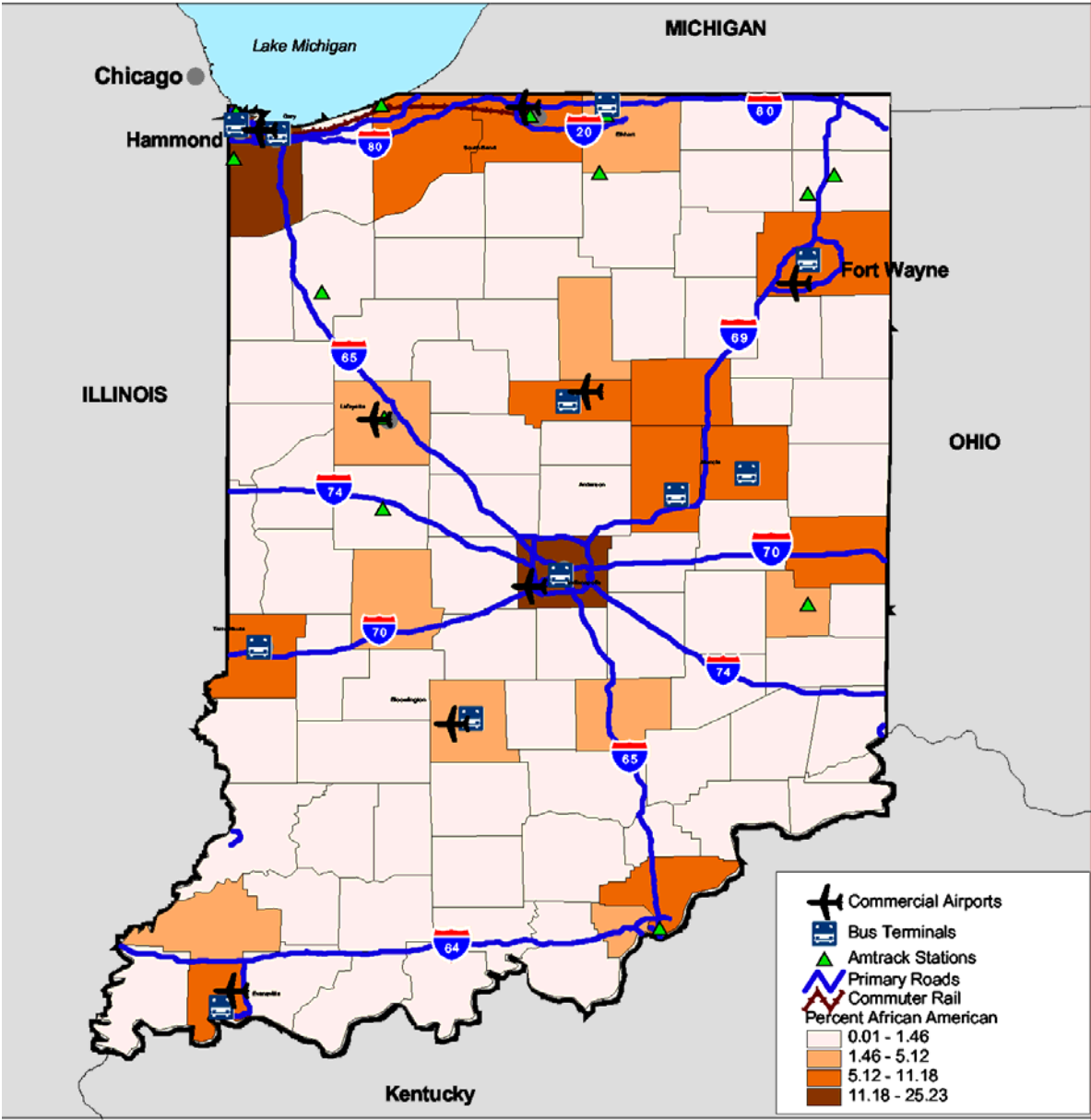
Figure 3.4   2000 County
Percent Black
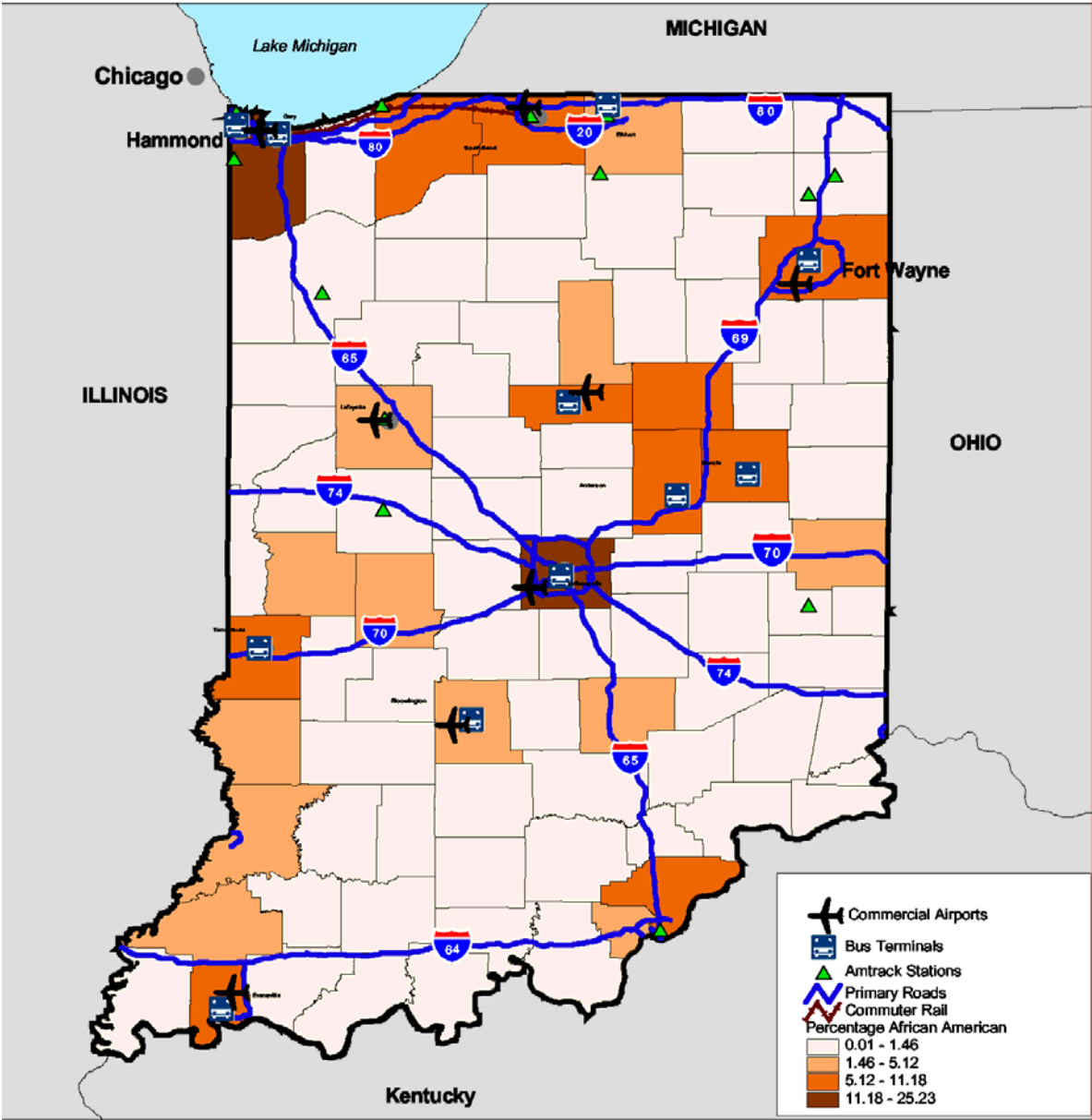
Of the marginalized populations studied, the Black population has the most clustered spatial distribution. This pattern is very apparent in both the 1990 and 2000 census data. The dot density maps of Black population in Indiana (Figures 3.5 to 3.8) show that the clusters of Black population are correlated with large cities. However, even within rural counties, Black population is clustered. That is, within rural counties, the Black popula-tion is not distributed evenly with respect to the majority population. The segregation index between White and Black populations further supports this notion as it is high in 2000 for most rural counties as well as urban counties, indicating that Blacks throughout the State are clustered and not spread out with respect to Whites.

Figure 3.5   1990 Block Group – Black Population
  (One Dot = 50 Persons)

Figure 3.6   2000 Block Group – Black Population
(One Dot = 50 Persons)
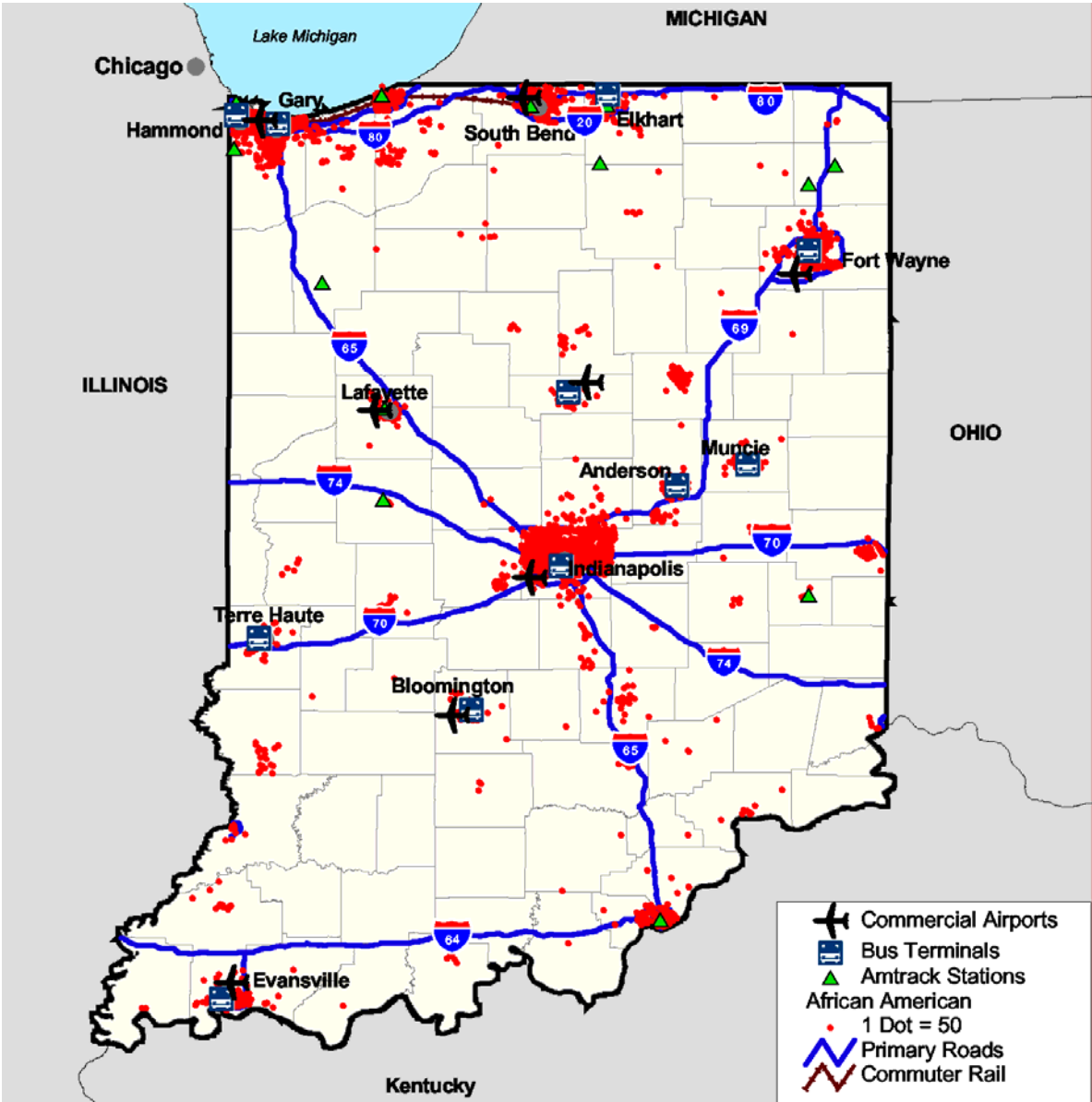
Figure 3.7   1990 Block Group – Black Population
Northwest Indiana (One Dot = 50 Persons)
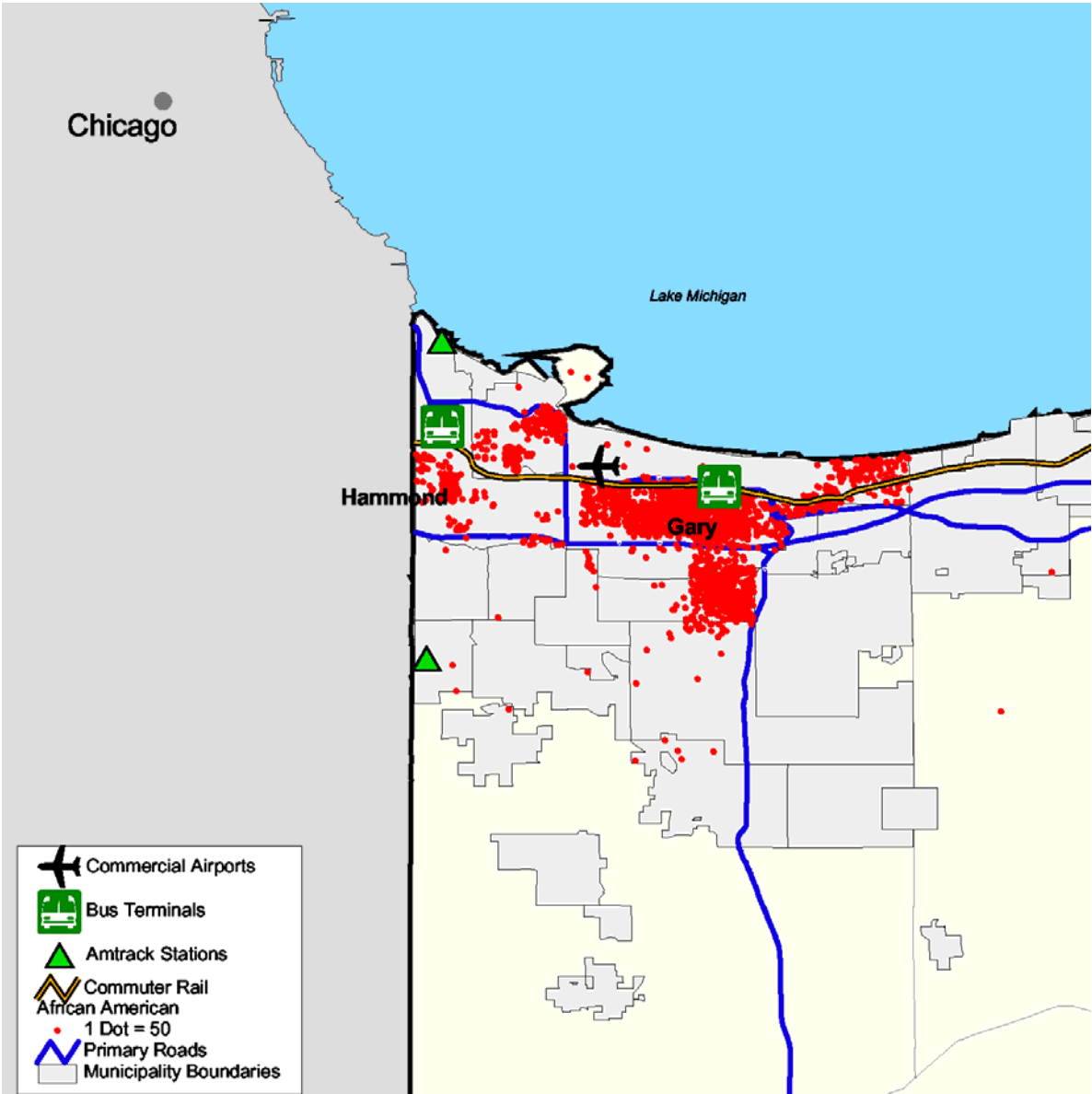
Figure 3.8   2000 Block Group – Black Population
Northwest Indiana (One Dot = 50 Persons)
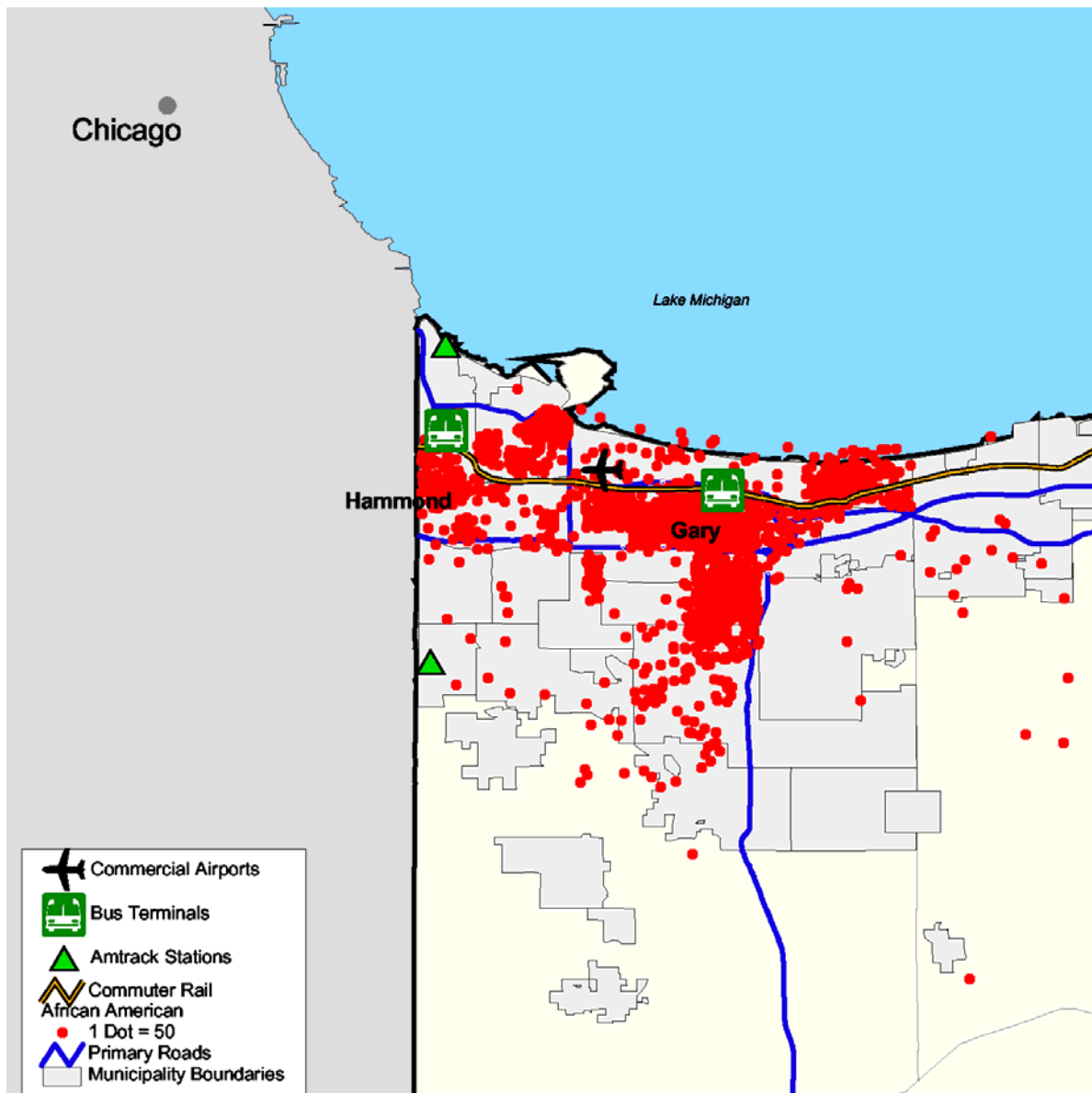
Because the most prominent clusters of Black population are in the 10 largest cities this set of the largest 10 cities were paid special attention in this analysis. Population as a whole increased only 1.4 percent, in the 10 largest cities between 1990 and 2000. In eight of 10 cities, population actually decreased. Only two cities, Indianapolis and Bloomington, experienced small population increases. Also noted above, the total White population in the 10 largest cities decreased by 6.3 percent. However, Black populations in the 10 largest cities increased sharply between 1990 and 2000. Only one city, Gary, experienced a decrease in Black population in the 10 years and this decrease, 9.6 percent, was lower than the city's population decrease as a whole (13.8 percent) and much higher than that city's

decrease in White population (almost 40 percent). Similarly, Hammond experienced a 54.9 percent increase in Black population and Indianapolis had an increase of 20.2 percent.

Black Population Quick Facts

- Statewide, the Black population has increased at a rate almost twice that of the general population;

- The Black population makes up Indiana's largest racial minority. However, it is not the growing as fast as the Hispanic population;

- Of the populations studied, the Black population has the most clustered spatial distribution. This pattern is evident in both the 1990 and 2000 census data;

- The Black population is concentrated in the 10 largest cities. The percentage of urban populations that is Black is increasing at a much higher rate than statewide averages; and

- The only city in the 10 largest where the Black population is decreasing is Gary, which is seeing an even larger decrease in population generally.

Other Population

For the purposes of this analysis, "Other population" is defined as population from all racial groups that are not White and not Black. "Other" includes all bi- or multiracial populations. In Indiana, this group is made up of Asian, Hawaiian, Native American, and many others. The Other population has increased by 183 percent from 1990 to 2000. Although growing rapidly, the Other population still makes up a relatively small proportion of Indiana. It comprised just 4.3 percent of the population in 2000, up from 1.6 percent in 1990.

Although the Other population is predominantly located in the industrial northern half of the State, this population, unlike the Black population, is not particularly clustered, nor is it overrepresented in the 10 largest cities. In fact, only 15.8 percent (down from 24.9 percent in 1990) of the Other population lives in the 10 largest cities (Table 3.5). This is a slightly smaller proportion than for White and Hispanic populations. In fact, growth in Other population in all of the 10 largest cities together, was only 80.2 percent. This statistic seems very large, but not when compared to the 183.2 percent that the Other population grew as a whole between 1990 and 2000. It is likely that individual racial minority groups within the Other category are clustered. However, each makes up such a small percentage of the state's total population that they are treated, for the purposes of this report, as a combined group. Nevertheless, there is a significant and growing number of non-Black and non-white people who are well spread throughout the State.

Table 3.5   Other Population of Indiana's 10 Largest Cities

City	1990	Percent of Total	2000	Percent of Total	Percent Growth
Indianapolis	4,563	0.6%	15,605	2.0%	241.990%
Fort Wayne	3,508	1.8%	6,152	3.2%	75.371%
Evansville	443	0.4%	641	0.5%	44.695%
Gary	3,491	3.0%	2,061	2.0%	-40.962%
South Bend	2,089	2.0%	4,878	4.7%	133.509%
Hammond	4,821	5.7%	7,868	9.5%	63.203%
Muncie	613	0.9%	419	0.6%	-31.648%
Anderson	286	0.5%	500	0.8%	74.825%
Terre Haute	339	0.6%	238	0.4%	-29.794%
Bloomington	567	1.0%	554	0.9%	-2.293%
Total	**20,720**	**1.3%**	**38,916**	**2.4%**	**87.819%**

Other Population Quick Facts

- Other population is small, 4.3 percent of the state's population, but grew by 183 percent from 1990 to 2000;

- Other population has a dispersed distribution; and

- Other population is disproportionately located outside the top 10 cities.

Hispanic Population

The Hispanic population of Indiana has more than doubled statewide since 1990. In 1990 only 1.8 percent of the population was Hispanic but by 2000 that statistic grew to 3.5 percent.

In 1990, the Hispanic population was mostly in the more industrial northern parts of Indiana but has spread south to more counties in 2000. The Hispanic population also has become less clustered in the last 10 years. The Hispanic population is a bit more urban than the White population; in 2000, 37.7 percent of it was in the 10 largest cities. However, it is far less clustered in the largest cities than the Black population.

The segregation index between Hispanic and non-Hispanic is interesting and shows opposite patterns to that of the Black versus White segregation index. The index shows that Hispanic and non-Hispanic populations in urban counties in Indiana's industrial northeast and the urban and suburban area of Indianapolis are not very segregated;

conversely, Hispanic and non-Hispanic populations in rural counties, especially in the south where the absolute number of Hispanics is very low, are highly segregated.

The 10 largest cities of Indiana have experienced a boom in their Hispanic populations from 1990 to 2000, an increase of 118 percent that is consistent with the statewide increase of 113 percent (Table 3.6). Anderson shows the single largest increase of 370 percent and Indianapolis' Hispanic population increased by nearly 300 percent. Generally, the proportion of each of the 10 largest cities that is Hispanic is relatively low. Of Indiana's largest three cities, Indianapolis is only 3.8 percent Hispanic, Fort Wayne is 5.9 percent Hispanic and Evansville is only 1.1 percent Hispanic. The only city with a large Hispanic proportion is Hammond which is 21.1 percent Hispanic, up from 11.7 percent in 1990. As was the case with the Black population, Gary is the only city in which the Hispanic population has decreased from 1990 to 2000. This is a rate that is more than double the rate of decrease in the general public in Gary.

Table 3.6   Hispanic Population of Indiana's 10 Largest Cities

City	1990	Percent of Total	2000	Percent of Total	Percent Growth
Indianapolis	7,374	1.0%	29,453	3.8%	299.417%
Fort Wayne	4,488	2.3%	11,278	5.9%	151.292%
Evansville	547	0.4%	1,308	1.1%	139.122%
Gary	6,278	5.4%	4,574	4.5%	-27.142%
South Bend	3,429	3.3%	8,924	8.6%	160.251%
Hammond	9,860	11.7%	17,410	21.0%	76.572%
Muncie	692	1.0%	1,099	1.7%	58.815%
Anderson	246	0.4%	1,156	1.9%	369.919%
Terre Haute	603	1.0%	761	1.3%	26.202%
Bloomington	897	1.5%	1,369	2.3%	52.620%
Total	**34,414**	**2.2%**	**77,332**	**4.8%**	**124.711%**

This examination of Hispanic population finds that Hispanics are much more spatially dispersed then Blacks. This dispersion can add to the challenge faced by transportation providers. Another attribute of this population is the decreased likelihood that Hispanic people will speak English as a first language or at all. Since most information about transportation services is available in written format, it is important to understand the patterns of non-English speaking patrons.

Hispanic Population Quick Facts

- Statewide, the Hispanic population increased by 113 percent from 1990 to 2000;

- Together, the 10 largest cities experienced a 118 percent Hispanic population increase;

- Indianapolis had a 300 percent increase in Hispanic population;

- Hispanic population is spread out in the northern half of the State in urban, suburban and rural areas;

- Gary is the only city in which the Hispanic population decreased, and it did so by more than double the rate of decrease in the general public;

- Hammond Indiana is now 21 percent Hispanic; and

- Unlike the distribution of Black population, which is tightly clustered in the largest cities, the distribution of the Hispanic population is much more spread out.

Population in Poverty

Between 1990 and 2000, the number of people living under the poverty line, as defined by the U.S. Census, decreased statewide by approximately 2.5 percent. In 2000, population in poverty comprised nine percent of the state's population which is down from 10 percent in 1990. Poverty status is a very different statistic than membership in racial and ethnic population groups, because unlike race or ethnicity, poverty status for individuals can change. As a result, this statistic can fluctuate with economic trends and regional employment and industrial changes as well as with the variables that affect all demographic statistics such as fertility rates and settlement patterns.

In Indiana, the patterns of poverty are similar to patterns found in other states. Poverty is concentrated in cities and spread out fairly evenly in rural areas. Counties that are largely suburban have very low poverty rates. These patterns are evident in both 1990 and 2000 but de-intensified in 2000. The segregation index, shows a difference in the magnitude of dissimilarity between rural poverty and urban poverty. That is, when the segregation index is applied to poverty and non-poverty distributions and mapped (Figures 3.9 and 3.10), it can clearly be seen that within urban areas (cities and suburban areas) poverty and non-poverty populations are extremely segregated while in rural areas, poverty and non-poverty populations are more coexistent or likely to be integrated. This could have implications for the provision of transportation services that meet the needs of both urban and rural populations in poverty.

Figure 3.9   1990 County Segregation Index
Below Poverty versus Above Poverty
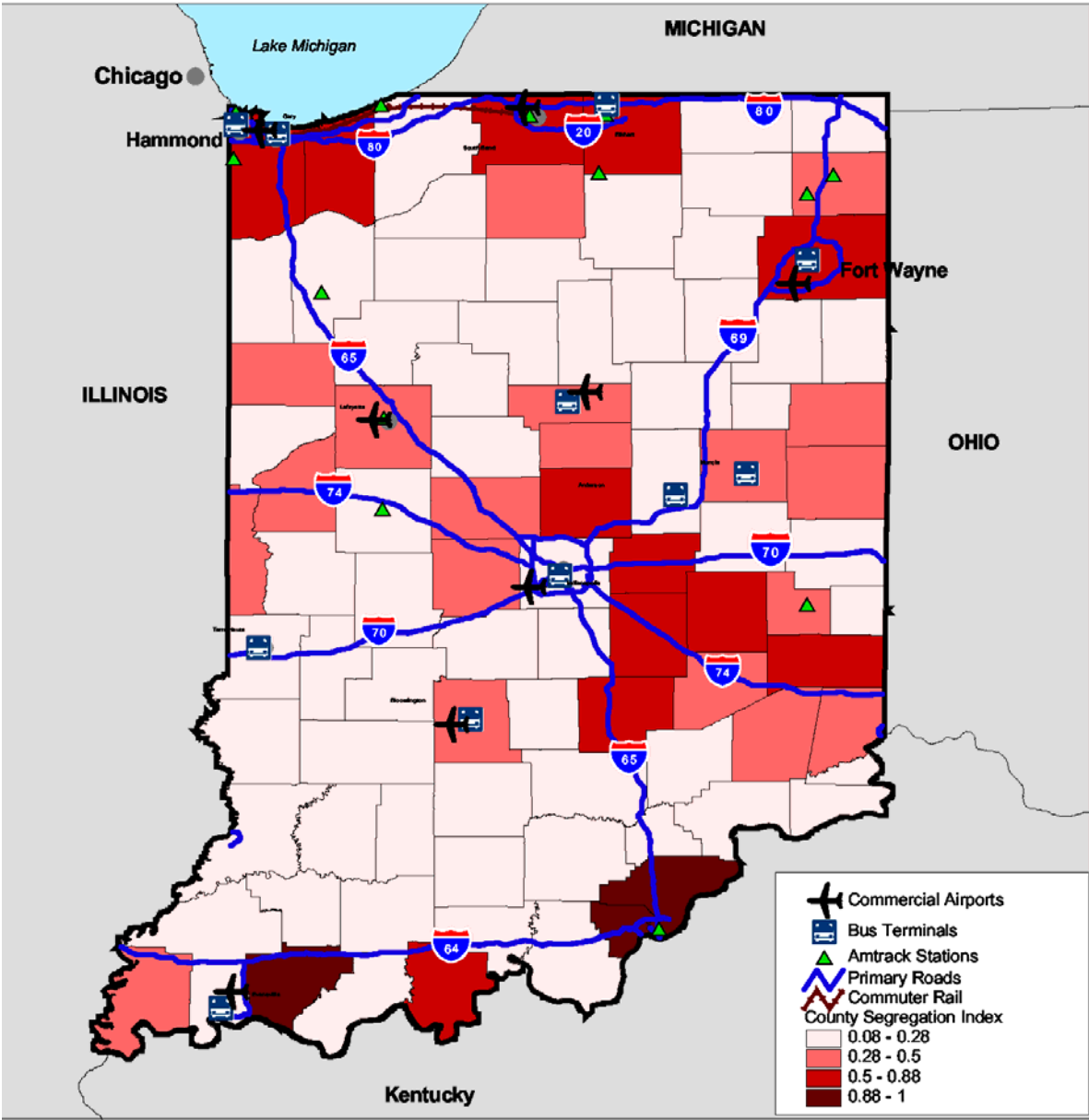
Figure 3.10 2000 County Segregation Index
Below Poverty versus Above Poverty
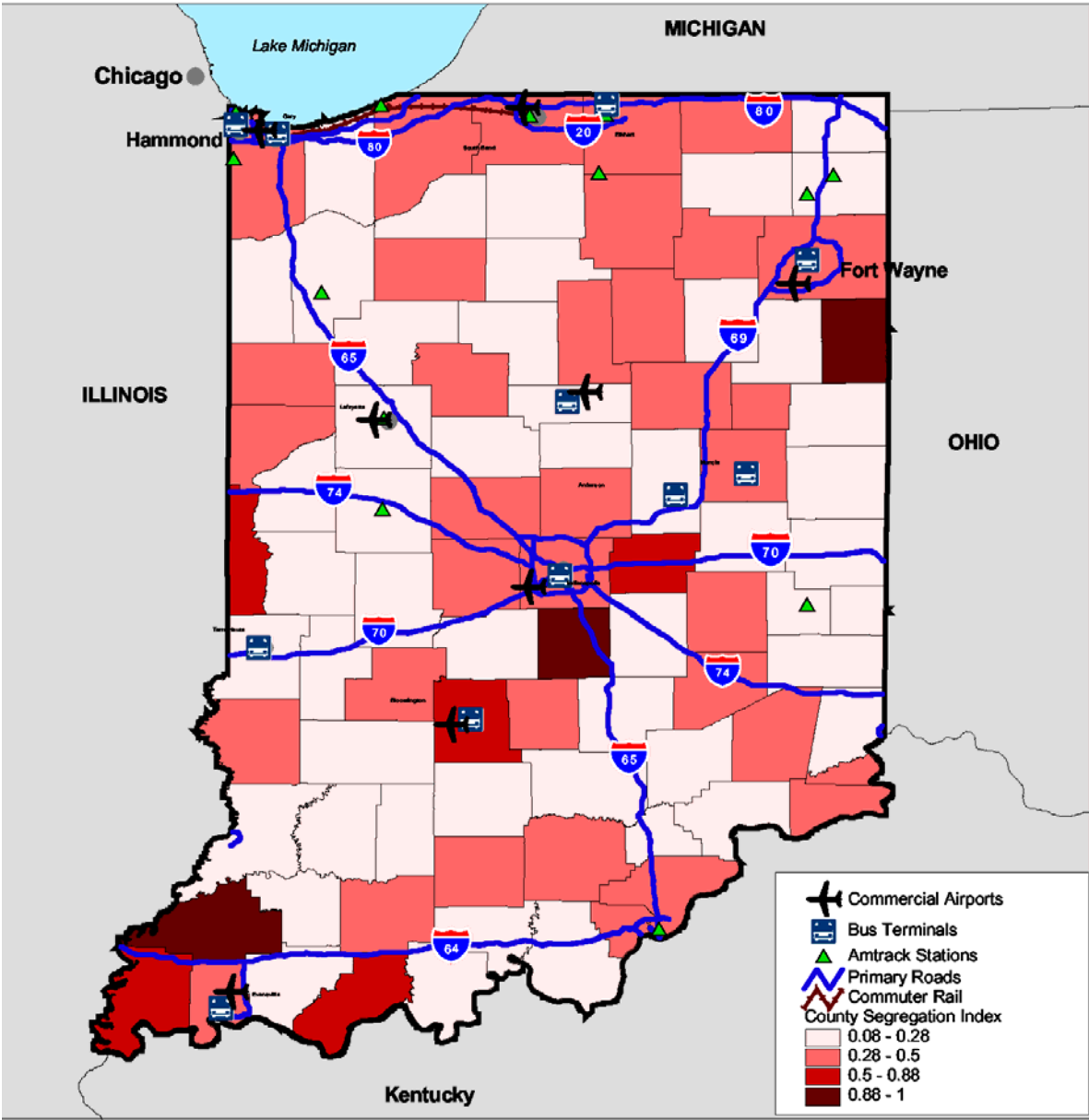
The decrease in poverty is not evenly distributed around the State. Generally, poverty decreased much more in the largest 10 cities than in the State as a whole. In Bloomington, people in poverty decreased by almost 50 percent (Table 3.7). Indianapolis, Evansville, Gary, Muncie, Anderson, and Terre Haute all saw decreases in poverty ranging from 10 to 40 percent as well. This is likely due to the fact that poverty is even more sensitive to economic trends and shifts in unemployment in urban areas than in rural areas. During the late 90s, (the part of the decade the 2000 Census best reflects) unemployment was extremely low and the economy was very good. For the same reason, it is possible that a illusory Census taken in 2003 would show an increase in poverty in urban areas. The city of Fort Wayne is an exception to this observation; Fort Wayne has seen a slight increase in poverty levels between 1990 and 2000.

Table 3.7   Population in Poverty of Indiana's 10 Largest Cities

City	1990	Percent of Total	2000	Percent of Total	Percent Growth
Indianapolis	104,631	14.4%	89,897	11.5%	-14.082%
Fort Wayne	23,348	12.2%	24,216	12.6%	3.718%
Evansville	21,673	17.6%	15,029	12.7%	-30.656%
Gary	35,191	30.2%	25,517	25.4%	-27.490%
South Bend	17,142	16.4%	16,632	16.0%	-2.975%
Hammond	11,824	14.1%	11,759	14.2%	-0.550%
Muncie	21,626	31.6%	13,215	20.4%	-38.893%
Anderson	12,157	20.3%	7,625	12.7%	-37.279%
Terre Haute	16,556	27.8%	10,022	17.5%	-39.466%
Bloomington	28,356	48.6%	14,504	23.8%	-48.850%
Total	**292,504**	**18.3%**	**228,416**	**14.1%**	**-21.910%**

The decrease in poverty not withstanding, population in poverty is Indiana's largest or most prominent marginalized group with respect to environmental justice. In 2000, 9.2 percent of the population was under the poverty line as compared to 8.3 percent that was Black and 3.5 percent that was Hispanic. Only the treatment of all non-white racial groups together, 12.5 percent, accounts for a bigger percentage than that in poverty. Compared to the other subsets of Indiana's population that were analyzed in this study, the population in poverty is by far the most sprawling. This can be seen easily by looking at the dot density maps of poverty for 1990 and 2000 Figures 3.11 to 3.14). This can make serving such a population very challenging for transportation providers.

Figure 3.11 1990 Block Group – Below Poverty
(One Dot = 50 Persons)
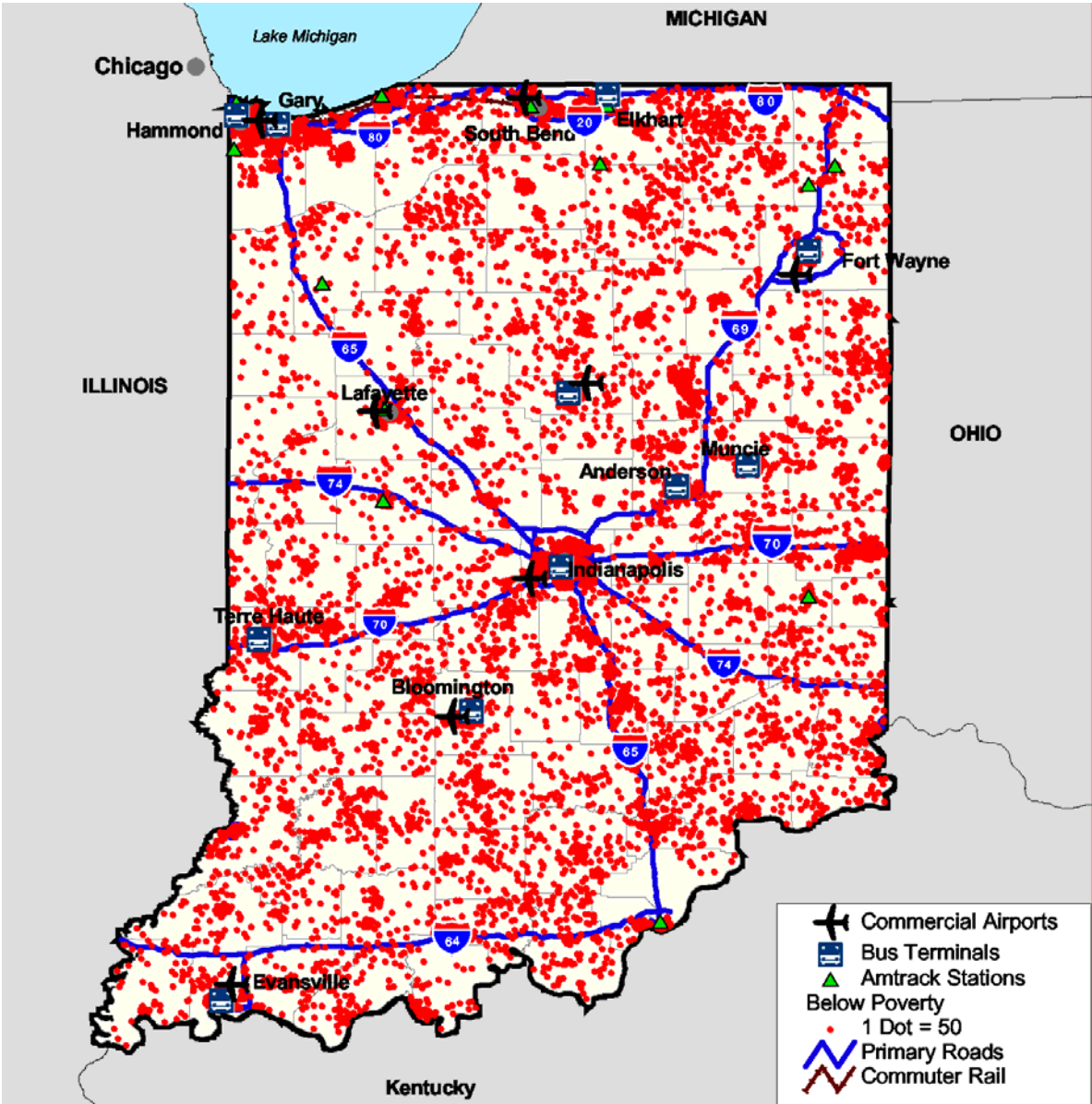
Figure 3.12 2000 Block Group – Below Poverty
(One Dot = 50 Persons)
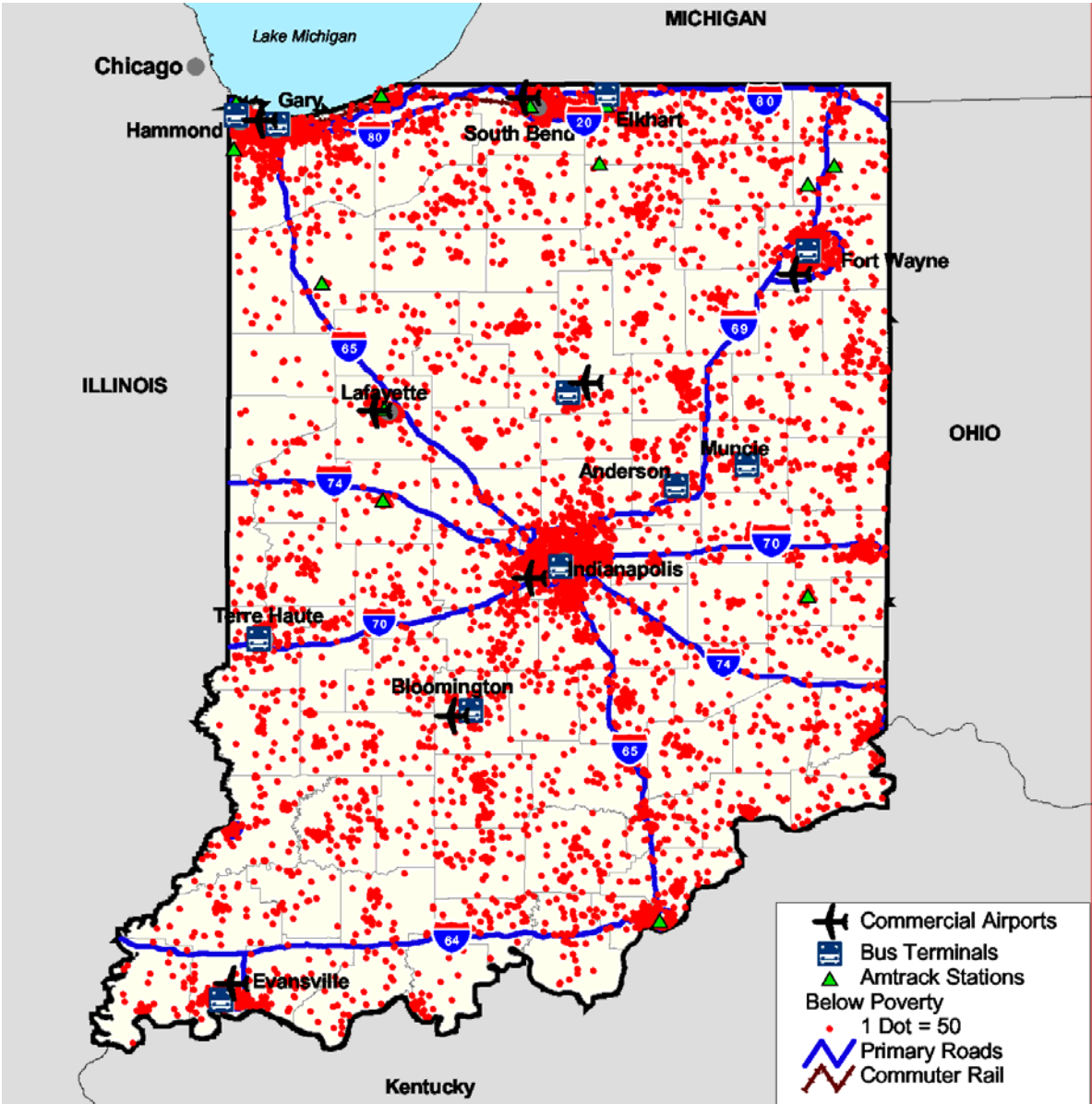
Figure 3.13 1990 Block Group – Below Poverty
Northwest Indiana (One Dot = 50 Persons)
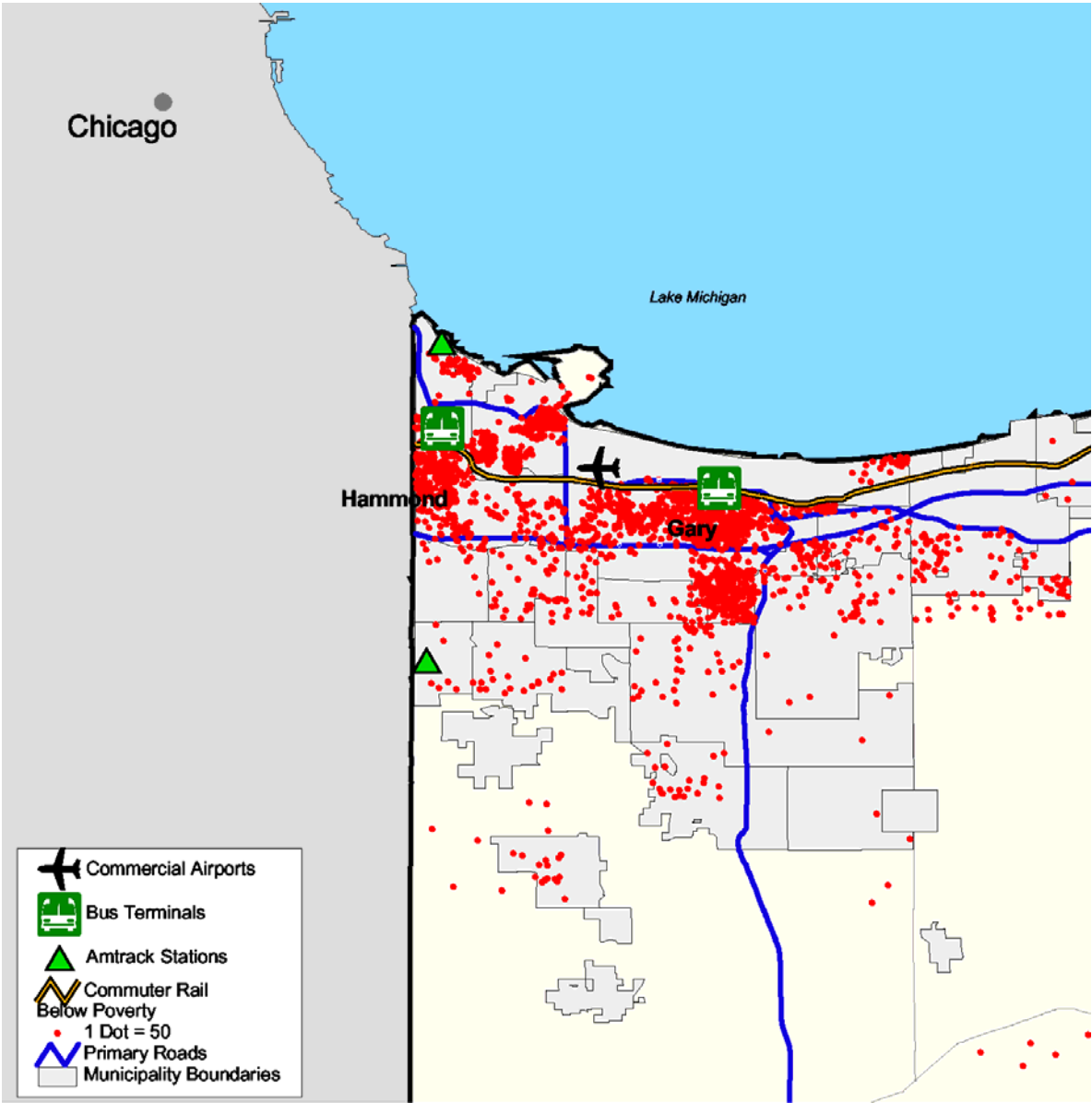
Figure 3.14 2000 Block Group – Below Poverty
Northwest Indiana (One Dot = 50 Persons)
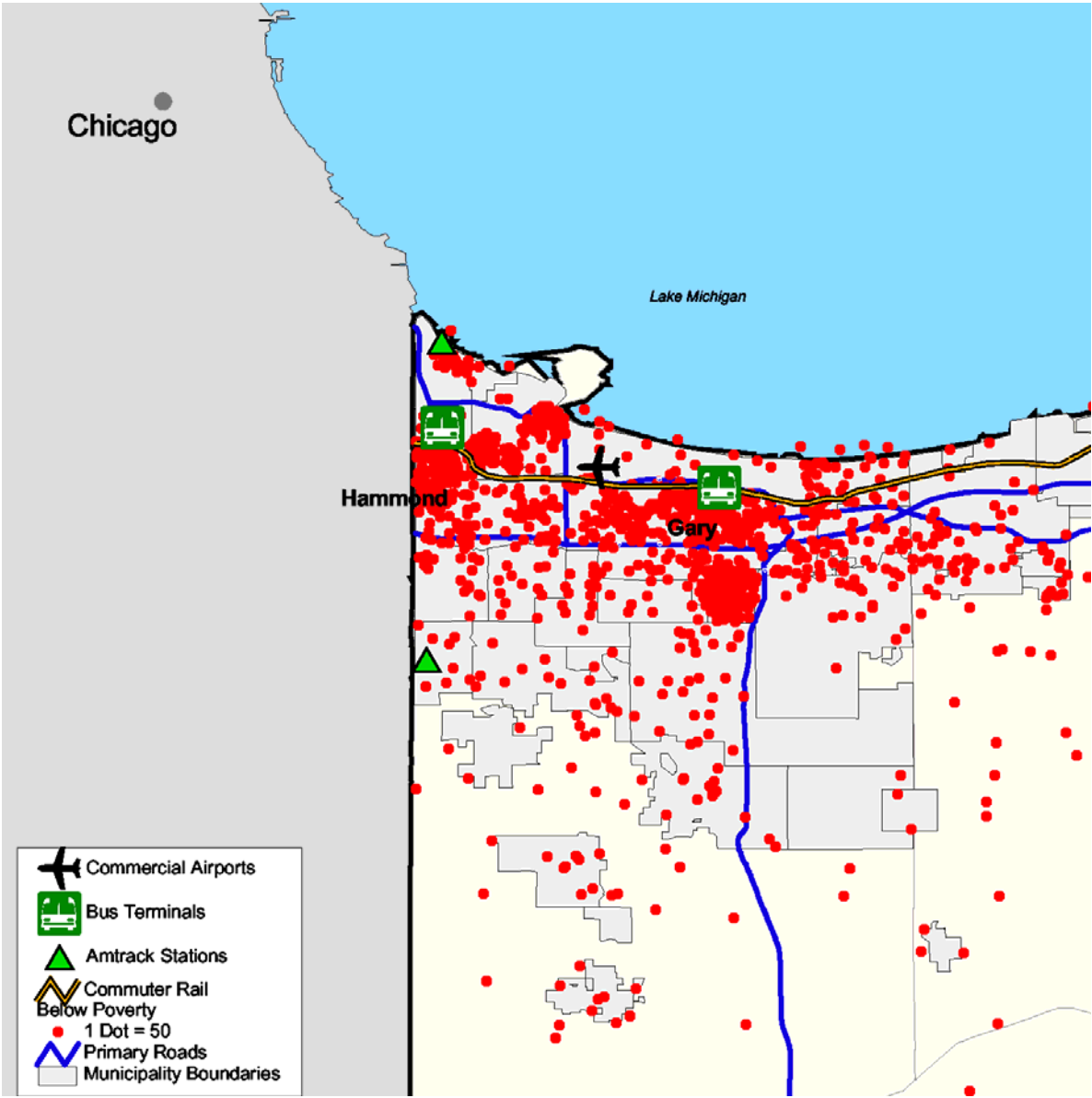
Poverty Quick Facts

- In 2000, 9.2 percent of Indiana's population was under the poverty line;

- The percent of Indiana's population that is under the poverty line has decreased from 1990 to 2000;

- The 10 most populous cities have seen larger decreases in poverty as compared to the statewide average;

- Rural poverty has a more dispersed settlement pattern than urban poverty which is more segregated from non-poverty populations;

- The decrease in poverty could be due to the economic boom of the 1990s; and

- The number of individuals in poverty is larger than the Black population (Indiana's largest racial minority).

Vehicle Availability

The distribution of households with no available vehicle also was mapped and studied (Figures 3.15 and 3.16). In 2000, 168,050 of 2,336,306 or 7.2 percent of households had no vehicle available for use. The distribution is clustered as opposed to disperse, concentrated in the largest cities and not suburban. The map showing percentage of households with no vehicle (Figure 3.16) shows a suburban ring around Indianapolis where the percentages are very low. The counties were divided into three groups: counties with one or more of the ten largest cities in them, counties immediately adjacent to Marion County (Indianapolis), and counties that are neither adjacent to Indianapolis nor have one of the ten largest cities. In the group of counties with the largest cities, 9.1 percent of households had no car. While in the suburban group of counties, the group of counties adjacent to Marion County, only 3.1 percent of households had no car. The percentage of households with no available vehicles in the remaining counties is 6.3 percent. This attribute is a proxy for public transportation dependency.

Figure 3.15 2000 Block Group
No Vehicle Available (One Dot = 50 Persons)
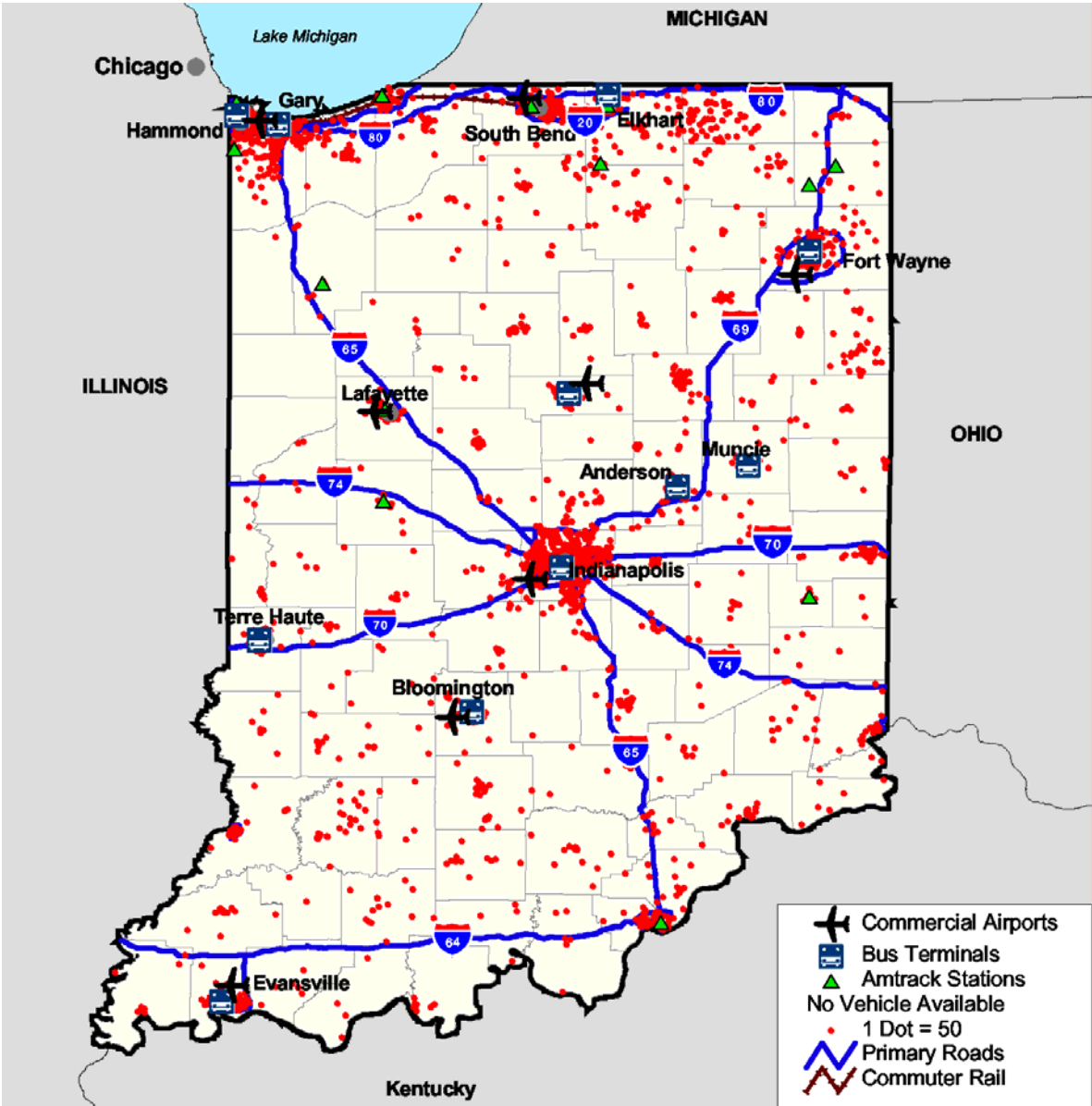
Figure 3.16 2000 County
Percent No Vehicle
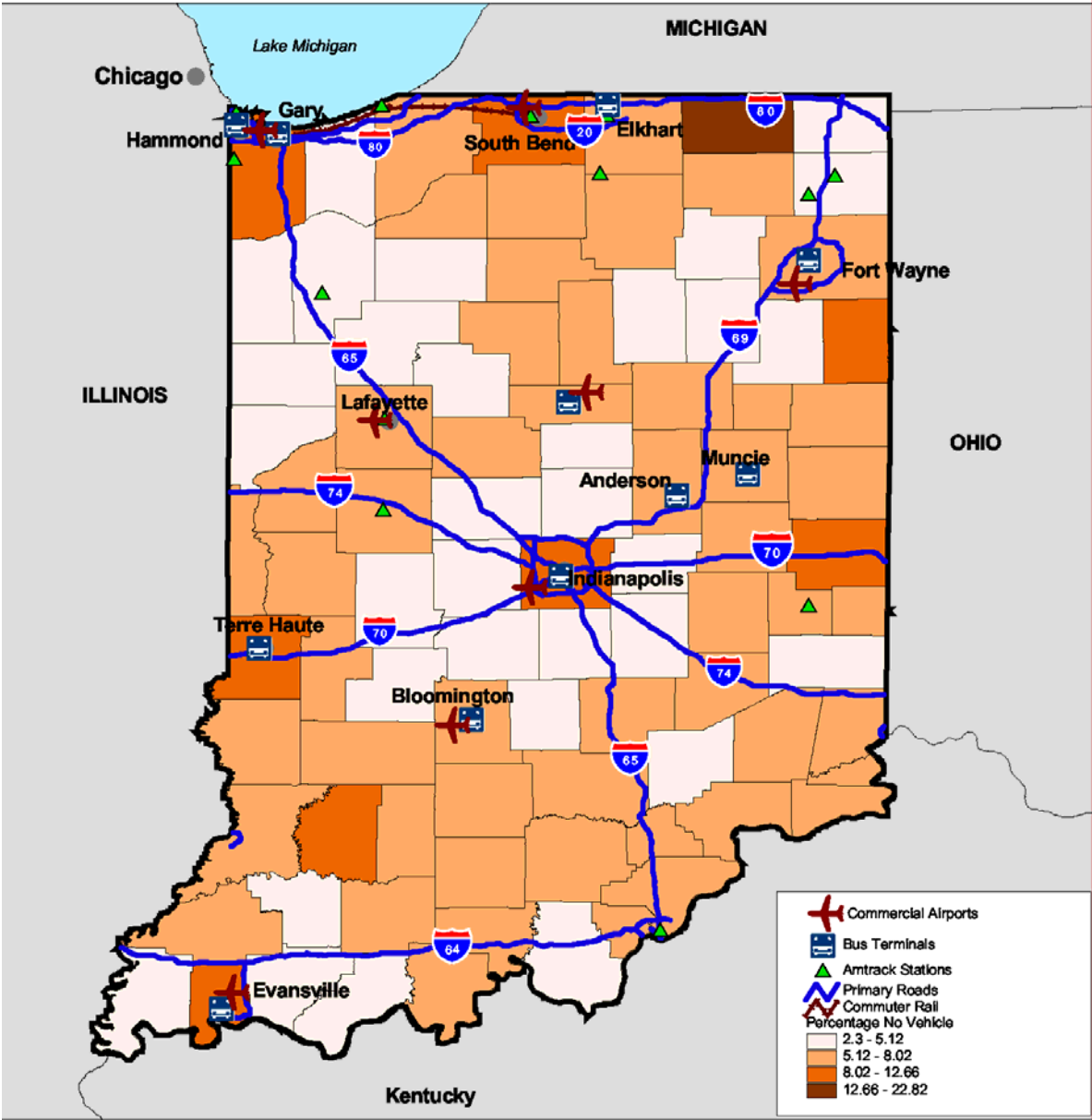
Implications for Transportation

There are many reasons why it is important for INDOT to understand the difference in spatial settlement patterns and growth trends between the special population groups described in this report and the general population. One can be found in the historical framework of environmental justice and another is explained by the different transportation needs and behaviors exhibited by minority and low-income groups.

Historical Oversight

Examining the history of transportation from a national perspective, there have been instances in the past, when minority, low-income, and other disadvantaged groups haven't been given sufficient weight before making transportation policy decisions and investments. In hindsight, some of these investments have been shown to not provide the same benefits to less politically powerful groups as to the White and non-poverty population groups. In fact, some projects in urban areas, have actually provided disbenefits or unintended negative externalities that have disproportionately effected minority and low-income groups. On occasions when these projects were built through minority and low-income neighborhoods, they displaced or split communities; increasing air and noise pollution and introducing new safety concerns. As a reaction to this and other historical events, community groups and environmental justice advocates have organized around these issues; monitoring public investments, including transportation spending and policies. Their work has resulted in court decisions as well as local, state, and Federal policy enactment designed to ensure equal dispersal of benefits and disbenefits of public spending including investment in transportation services. In general, awareness and public understanding of environmental justice has been elevated so that states and local transportation agencies must now give significantly increased attention to the need to protect minority and low-income groups from environmental injustice.

Travel Behaviors and Transportation Needs

Another reason INDOT needs to concern itself with where minority and low-income groups live and their population growth trends is because these groups have needs and behaviors that distinguish them from those of the general public. Most importantly, there is a large difference in how transportation costs affect households of different income groups. Transportation costs as a percentage of average household budgets have risen steadily in the last century. According to a new study by the Surface Transportation Policy Project, "Transportation Costs and the American Dream," transportation costs now make up 20 percent of an average household spending. This average alone would be disproportionately burdensome for low-income households but the reality is that for low-income households the percent spent on household costs is much higher than the average. In fact, "the poorest 20 percent of American households, those earning less than $13,908 (after taxes) per year, spend 40.2 percent of their take home pay on transportation."[1]

This enormous household expenditure on transportation by low-income groups can limit quality of life and have negative impacts on other household decisions like where to live, where to educate children and where to shop.

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[1] Surface Transportation Policy Project (July 2003). *Transportation Costs and The American Dream: Why a Lack of Transportation Choices Strains the Family Budget and Hinders Home Ownership*.

Of these increasing household transportation costs, the largest costs can be attributed to private vehicle acquisition and operations. It is much less expensive for households to utilize public transportation than private vehicles for commuting.[2] However, public transportation is not always conveniently located to available jobs and affordable housing accessible necessary for low-income populations. Furthermore, minorities and low-income populations are less likely to own cars than whites.[3] So either households that could benefit from public transportation must adjust their lives to the financial burden of private car ownership or they must limit their housing and job choices to areas with public transportation. This could explain why blacks and other minorities are disproportionately concentrated in the largest 10 cities; the cities most likely to have public transportation.

Language accessibility is another need that distinguishes minority groups from the general public. Ethnic and racial minorities are more likely than whites to speak English second to another language or not speak English at all. There are two ways this places them at a disadvantage. One is the obvious information barrier. Information about public transportation in the form of schedules, stops and even street signs is almost always in English only formats. The second, is that non-English speaking groups tend to have "little voice in transportation planning because of language barriers or lack of information."[4] So the public vetting of transportation projects is less likely to include or consider non-English speaking groups. For INDOT, the Spanish speaking group is probably the largest non-English speaking constituency. If INDOT can be aware of patterns and trends in the Hispanic population, it can be more sensitive to this issue.

Commuting behavior can be very different for minorities and low-income population groups. Reverse commuting, or commuting from cities to suburbs rather than suburbs to cities in the morning rush hour and vice versa in the evening rush hour, is more prevalent in these groups as is commuting to multiple jobs in a day. Increasing public transportation at night or to places not typically served by public transportation could be a future remedy. As INDOT seeks to provide better commuting options for the state, these patterns should be further studied.

If INDOT is more aware of these and other factors that are different or more important to minority and low-income communities; and the spatial patterns and growth trends that are unique for these groups; then it will be viewed as being more sensitive to its constituents and be able to provide services and investment strategies that better serve the State.

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[2] Surface Transportation Policy Project (July 2003). *Transportation Costs and The American Dream: Why a Lack of Transportation Choices Strains the Family Budget and Hinders Home Ownership.*

[3] Sanchez, Thomas W., Stolz, Rich, and Ma, Jacinta S. (2003). *Moving to Equity: Addressing Inequitable Effects of Transportation Policies on Minorities.* Cambridge, Massachusetts: The Civil Rights Project at Harvard University.

[4] Sanchez, Thomas W., Stolz, Rich, and Ma, Jacinta S. (2003).

■ 3.4 Environmental Justice Analysis of Census Journey to Work Data

This subsection aims to deepen INDOT's understanding of potential transportation-related environmental justice issues within the state. Preliminary Year 2002 Census of the Population data are used to develop a better understanding of the characteristics of various environmental justice population groups.

The following subsets of the population were examined: Non-Hispanic White, Hispanic White, Black, Other, and Poverty. Given that this analysis utilizes preliminary 2000 Census Transportation Planning Package (CTPP) data, a few caveats must be made. While it is expected that population totals presented within this report will be slightly different than that found in the final release of the CTPP, the percentage breakdowns (by race, poverty, and other variables found within) are expected to serve as stronger indicators.[5]

Throughout the analyses, the state is examined at the following levels:

- State;

- County;

- Central Indiana (nine-county Indianapolis metropolitan region);

- Non-Central Indiana;

- High-poverty concentration counties and their respective remaining counties; and

- High and low minority concentration counties.

A county was considered to have a high concentration of poverty if its percent of households below the poverty level was higher than that of the State. A county was considered to have a high concentration of minorities if its percent of non-Hispanic Whites was less than that of the State.

The definition of categories is shown below:

- Central Indiana counties: Boone, Hamilton, Hancock, Hendricks, Howard, Johnson, Madison, Marion and Monroe (Figure 3.17).

- High-poverty concentration counties include: Crawford, Daviess, Decatur, Delaware, Grant, Greene, Howard, Knox, LaGrange, Lake, Lawrence, Marion, Martin, Monroe,

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[5] It should also be noted that during the course of conducting this analysis, it was found that the household vehicle availability by race dataset contained in this preliminary release was erroneous and deemed unsuitable for use at this time. Therefore, any analysis corresponding to this particular dataset has been left out of this report.

Orange, Owen, Pulaski, Randolph, St. Joseph, Scott, Starke, Sullivan, Switzerland, Tippecanoe, Union, Vanderburgh, Vigo, Washington and Wayne (Figure 3.18).

• High minority concentration counties: Allen, Elkhart, Lake, Marion, St. Joseph and Tippecanoe (Figure 3.19).

Figure 3.17 Central Indiana Counties
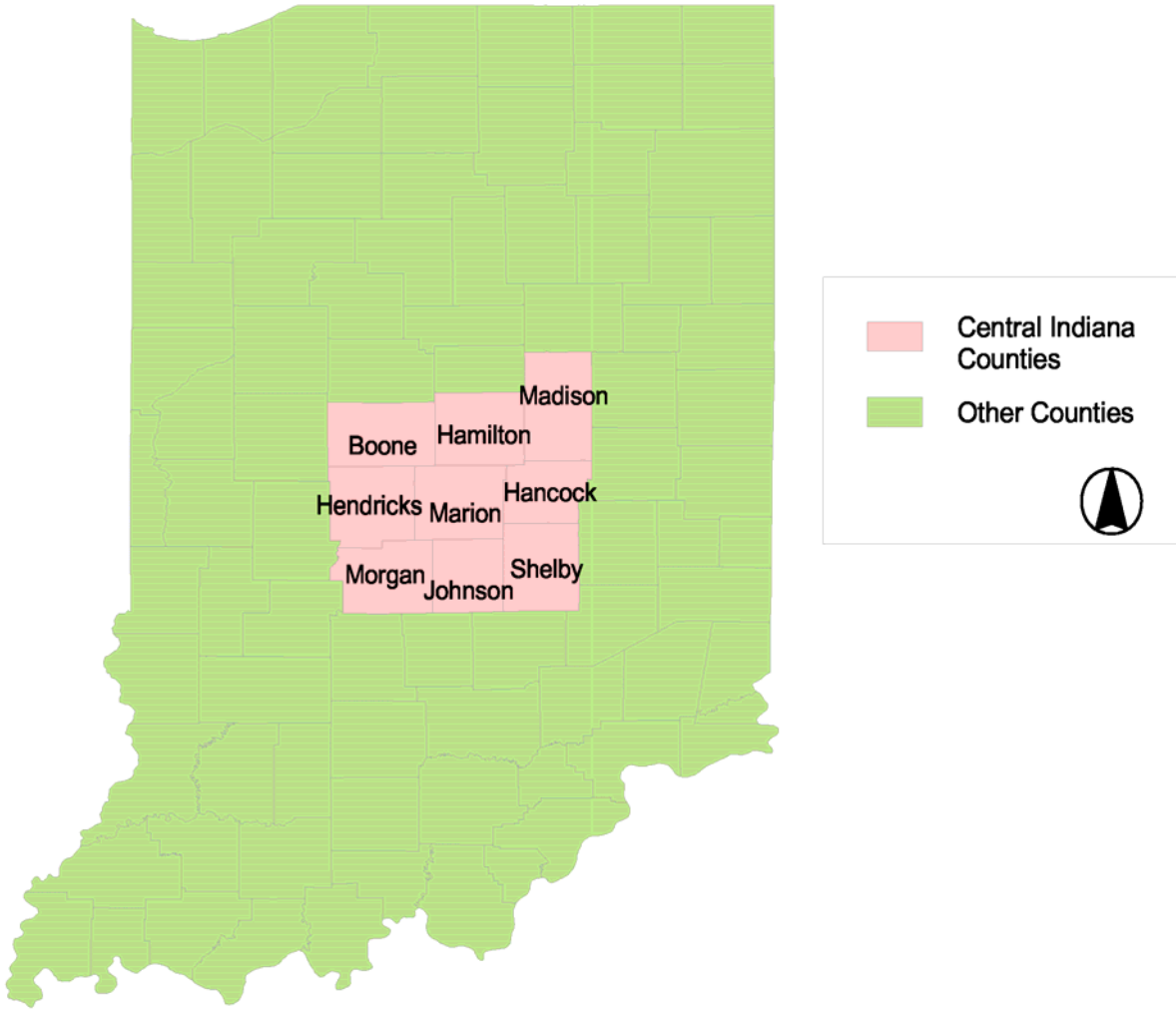
Figure 3.18 Counties of High-Poverty Concentration
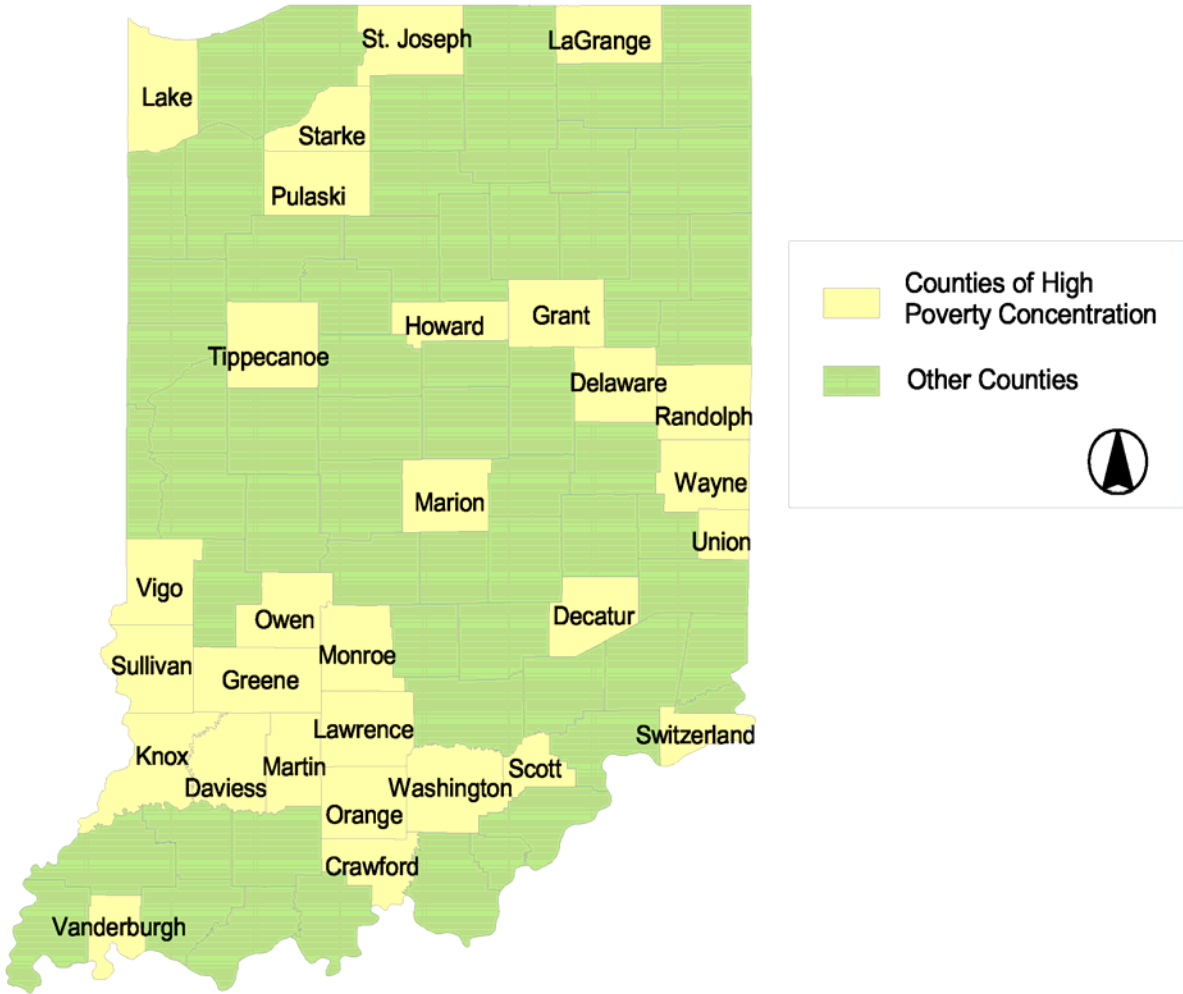
Figure 3.19 Counties of High-Minority Concentration
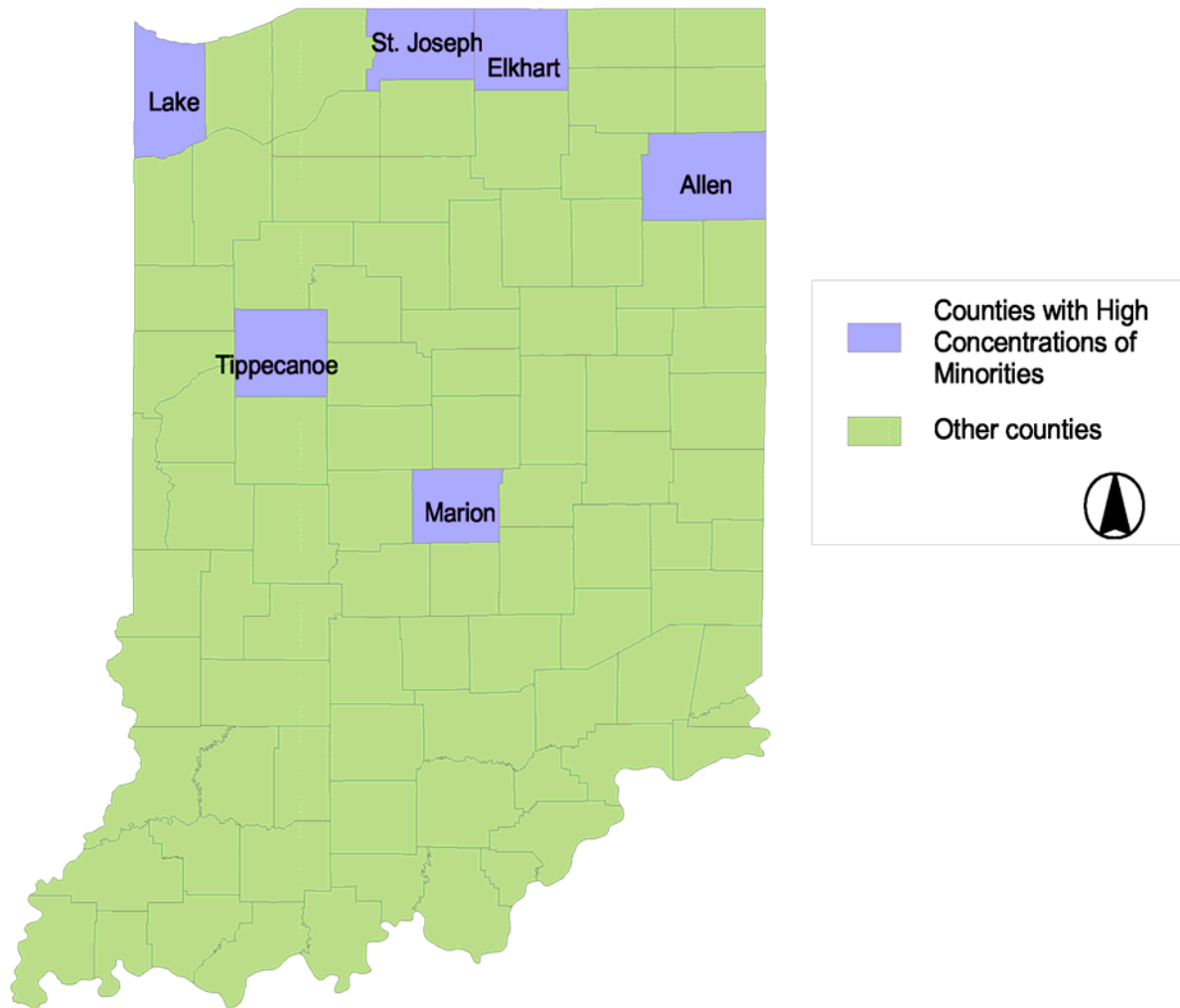
Key Findings

- Most Indiana households have at least one car available.

- Below-poverty households in high-poverty concentration counties are less likely to have a vehicle available than below-poverty households in other counties.

- Of all population segments examined in this analysis, below-poverty households living in high minority concentration counties have the greatest percentage of zero-vehicle households.

- Alternative choices to driving alone are usually carpooling or walking/biking/taxi.

- Statewide, the bus and transit mode shares compose only one percent of all commuters.

- The bus mode share has a high disproportion of Blacks.

- Hispanic Whites are twice as likely to carpool than Non-Hispanic Whites.

- The bus mode share has a high disproportion of commuters from below-poverty households.

- There is no compelling evidence based on this particular data source that any one particular race group systematically experiences a longer commute on a statewide level. Data at a more disaggregate level is required to confirm this finding.

The discussion below present the numerical data supporting each of these findings.

Vehicle Availability

Statewide, most households (93 percent) have at least one car available (Figure 3.20). Two-car households compose the greatest portion of the state's households (40 percent), followed by one-car households (32 percent).

Figure 3.20 Statewide Vehicle Availability
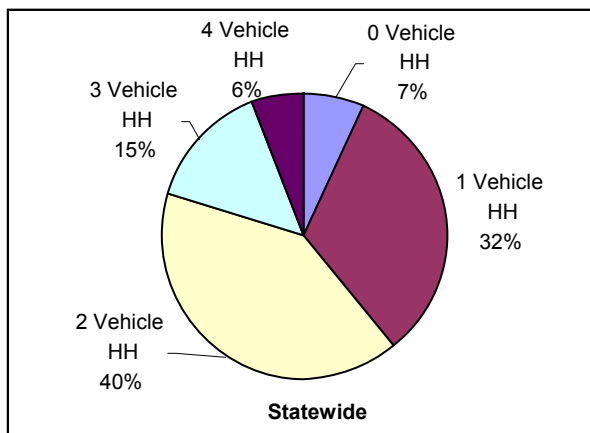
Vehicle Availability by Poverty

Nine percent of Indiana's population is considered to be in a poverty status (Table 3.8). Predictably, vehicle availability varies according to a household's status with respect to the poverty level. As shown in Figure 3.21, 43 percent of above-poverty households on a statewide basis have two vehicles available. Most below-poverty households (48 percent) have one vehicle. Nearly one in four below-poverty households do not have a vehicle available, while only five percent of above-poverty households do not have an available

vehicle. At closer examination as shown in Tables 3.9 and 3.10, these patterns are found to be consistent in both Central Indiana and Non-Central Indiana. These findings also are illustrated in Figures 3.22 and 3.23.

Table 3.8   Vehicle Availability and Poverty Status for All of Indiana

All Counties	Below Poverty	Below Poverty (R)	Above Poverty	Above Poverty (R)	Total	Total (R)
0 Vehicle HH	53,475	32%	111,725	68%	165,200	100%
0 Vehicle HH (C)	24%		5%		7%	
1 Vehicle HH	106,600	14%	646,825	86%	753,425	100%
1 Vehicle HH (C)	49%		31%		32%	
2 Vehicle HH	44,775	5%	901,070	95%	945,845	100%
2 Vehicle HH (C)	20%		43%		40%	
3 Vehicle HH	11,725	3%	327,474	97%	339,199	100%
3 Vehicle HH (C)	5%		15%		15%	
4 Vehicle HH	4,883	4%	128,646	96%	133,529	100%
4 Vehicle HH (C)	2%		6%		6%	
Total	**221,458**	**9%**	**2,115,740**	**91%**	**2,337,198**	**100%**
Total%	**100%**		**100%**		**100%**	

Note: Percentages presented below column headings noted by "(R)" refer to row percentages. Percentages presented along row headings noted by "(C)" refer to column percentages. This convention is followed throughout this report.

Figure 3.21 Vehicle Availability for All of Indiana by Poverty Status
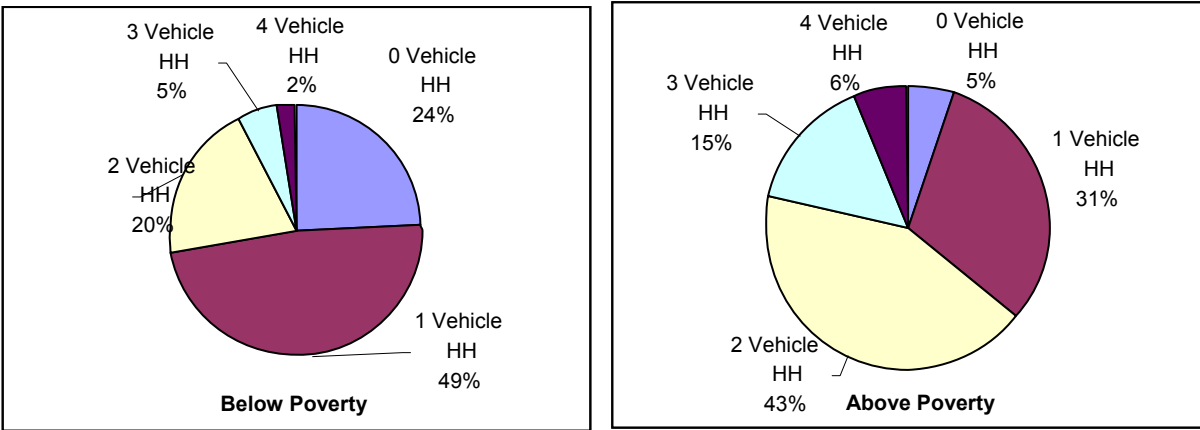
Table 3.9   Vehicle Availability and Poverty Status for Central Indiana Counties

Central Counties	Below Poverty	Below Poverty (R)	Above Poverty	Above Poverty (R)	Total	Total (R)
0 Vehicle HH	14,145	32%	29,710	68%	43,855	100%
0 Vehicle HH (C)	27%		5%		7%	
1 Vehicle HH	25,130	12%	188,835	88%	213,965	100%
1 Vehicle HH (C)	48%		33%		34%	
2 Vehicle HH	10,240	4%	248,740	96%	258,980	100%
2 Vehicle HH (C)	19%		43%		41%	
3 Vehicle HH	2,255	3%	80,260	97%	82,515	100%
3 Vehicle HH (C)	4%		14%		13%	
4 Vehicle HH	939	3%	29,780	97%	30,719	100%
4 Vehicle HH (C)	2%		5%		5%	
Total	**52,709**	**8%**	**577,325**	**92%**	**630,034**	**100%**
Total%	**100%**		**100%**		**100%**	

Table 3.10   Vehicle Availability and Poverty Status for Non-Central Indiana Counties

Non-Central Counties	Below Poverty	Below Poverty (R)	Above Poverty	Above Poverty (R)	Total	Total (R)
0 Vehicle HH	39,330	32%	82,015	68%	121,345	100%
0 Vehicle HH (C)	23%		5%		7%	
1 Vehicle HH	81,470	15%	457,990	85%	539,460	100%
1 Vehicle HH (C)	49%		30%		32%	
2 Vehicle HH	34,535	5%	652,330	95%	686,865	100%
2 Vehicle HH (C)	20%		43%		40%	
3 Vehicle HH	9,470	4%	247,214	96%	256,684	100%
3 Vehicle HH (C)	6%		16%		15%	
4 Vehicle HH	3,944	4%	98,866	96%	102,810	100%
4 Vehicle HH (C)	2%		6%		6%	
Total	**168,749**	**10%**	**1,538,415**	**90%**	**1,707,164**	**100%**
Total%	**100%**		**100%**		**100%**	

Figure 3.22 Vehicle Availability for Central Indiana Counties by Poverty Status

Below Poverty:
- 0 Vehicle HH 27%
- 1 Vehicle HH 48%
- 2 Vehicle HH 19%
- 3 Vehicle HH 4%
- 4 Vehicle HH 2%

Above Poverty:
- 0 Vehicle HH 5%
- 1 Vehicle HH 33%
- 2 Vehicle HH 43%
- 3 Vehicle HH 14%
- 4 Vehicle HH 5%
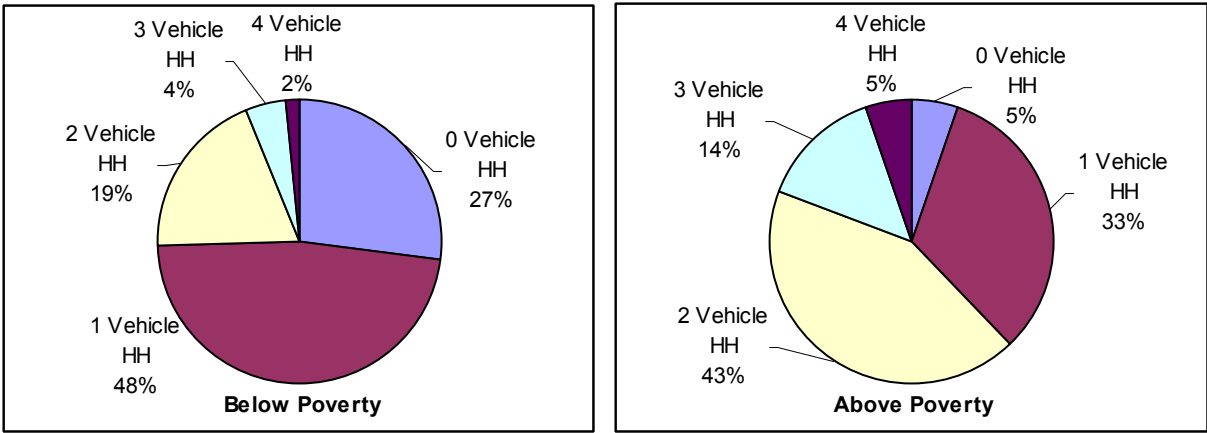
Figure 3.23 Vehicle Availability for Non-Central Indiana Counties by Poverty Status

Below Poverty:
- 0 Vehicle HH 23%
- 1 Vehicle HH 49%
- 2 Vehicle HH 20%
- 3 Vehicle HH 6%
- 4 Vehicle HH 2%

Above Poverty:
- 0 Vehicle HH 5%
- 1 Vehicle HH 30%
- 2 Vehicle HH 43%
- 3 Vehicle HH 16%
- 4 Vehicle HH 6%
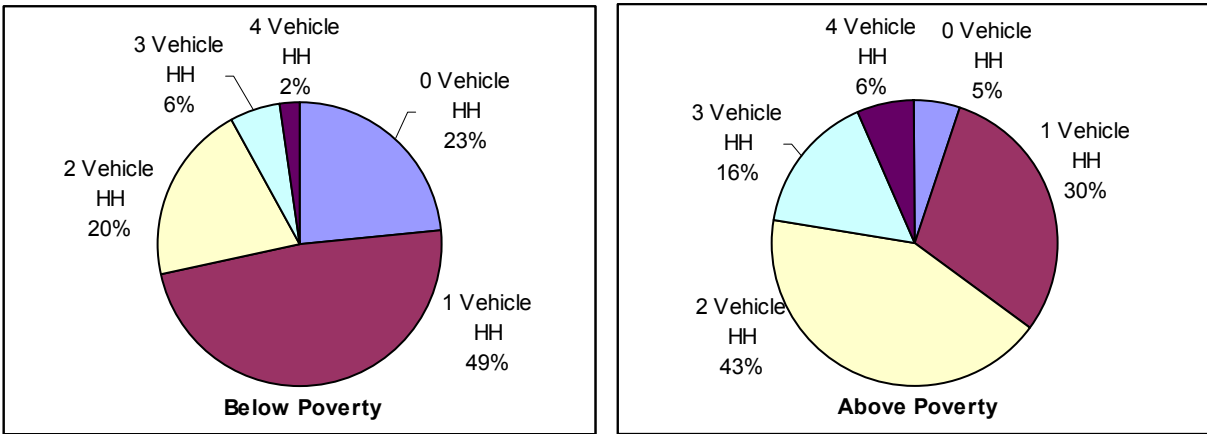
When considering differences between high- and low-poverty concentration counties, disparities in vehicle availability between below- and above-poverty households intensify. That is, the poor living in concentrated poverty areas are less likely to have a car available than the poor living in other areas (Figures 3.24 and 3.25). Within counties of high-poverty concentration, 27 percent of below-poverty households have no vehicles available (Table 3.11). Among counties of low-poverty concentration, 20 percent of below-poverty households have no vehicles (Table 3.12). Within high-poverty concentration counties, 60 percent of above-poverty households reported having two or more cars. Among low-poverty concentration counties, 69 percent of above-poverty households reported having two or more cars.

Figure 3.24 Vehicle Availability for High-Poverty Concentration Counties by Poverty Status

Below Poverty

- 4 Vehicle HH 2%
- 3 Vehicle HH 5%
- 2 Vehicle HH 19%
- 1 Vehicle HH 47%
- 0 Vehicle HH 27%

Above Poverty

- 4 Vehicle HH 5%
- 3 Vehicle HH 14%
- 2 Vehicle HH 41%
- 1 Vehicle HH 34%
- 0 Vehicle HH 6%
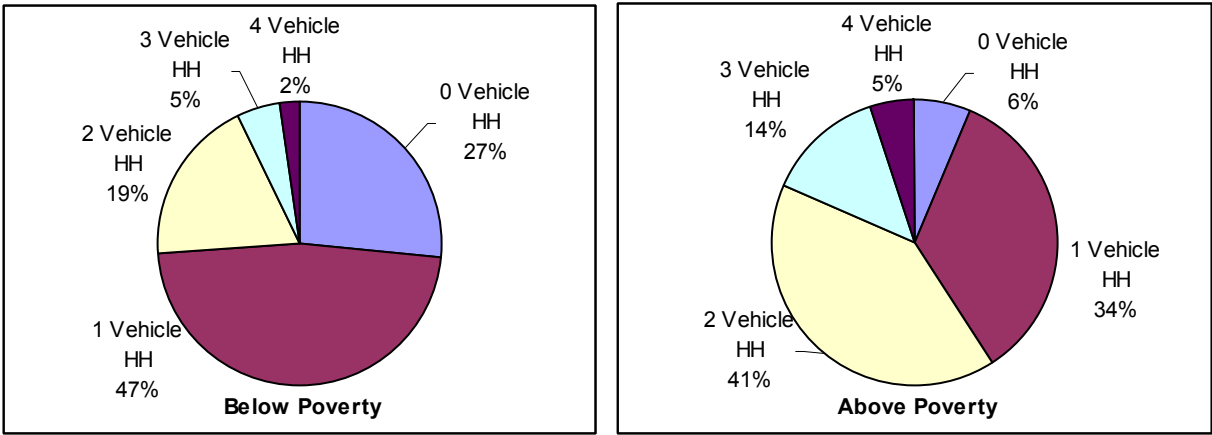
Figure 3.25 Vehicle Availability for Low-Poverty Concentration Counties by Poverty Status

Below Poverty

- 4 Vehicle HH 2%
- 3 Vehicle HH 6%
- 2 Vehicle HH 23%
- 1 Vehicle HH 49%
- 0 Vehicle HH 20%

Above Poverty

- 4 Vehicle HH 7%
- 3 Vehicle HH 17%
- 2 Vehicle HH 45%
- 1 Vehicle HH 27%
- 0 Vehicle HH 4%
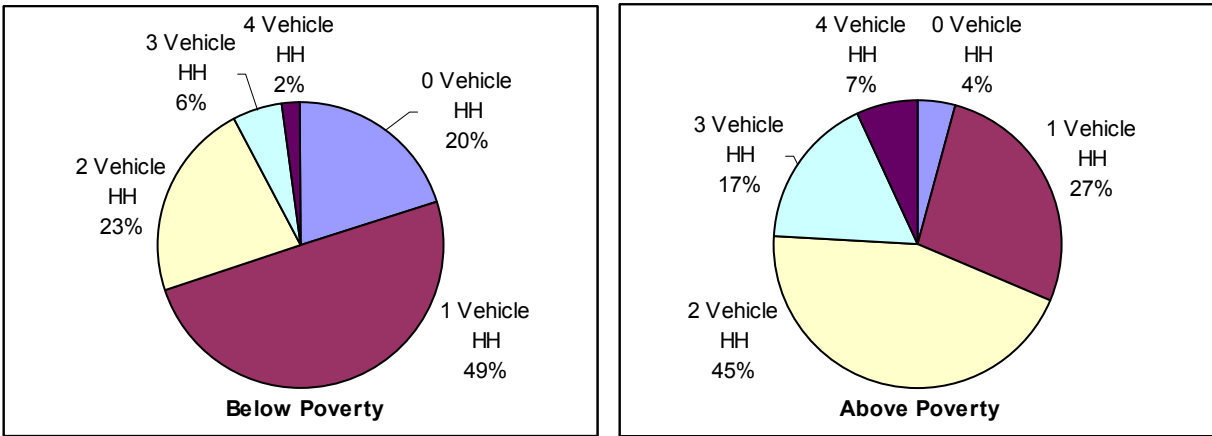
Table 3.11 Vehicle Availability and Poverty Status for High-Poverty Concentration Counties

High Poverty	Below Poverty	Below Poverty (R)	Above Poverty	Above Poverty (R)	Total	Total (R)
0 Vehicle HH	36,100	36%	65,380	64%	101,480	100%
0 Vehicle HH (C)	27%		6%		9%	
1 Vehicle HH	63,890	16%	347,580	84%	411,470	100%
1 Vehicle HH (C)	47%		34%		36%	
2 Vehicle HH	25,355	6%	410,435	94%	435,790	100%
2 Vehicle HH (C)	19%		41%		38%	
3 Vehicle HH	6,705	5%	138,030	95%	144,735	100%
3 Vehicle HH (C)	5%		14%		13%	
4 Vehicle HH	3,193	6%	51,581	94%	54,774	100%
4 Vehicle HH (C)	2%		5%		5%	
Total	**135,243**	**12%**	**1,013,006**	**88%**	**1,148,249**	**100%**
Total%	**100%**		**100%**		**100%**	

Table 3.12 Vehicle Availability and Poverty Status for Low-Poverty Concentration Counties

Low Poverty	Below Poverty	Below Poverty (R)	Above Poverty	Above Poverty (R)	Total	Total (R)
0 Vehicle HH	17,375	27%	46,345	73%	63,720	100%
0 Vehicle HH (C)	20%		4%		5%	
1 Vehicle HH	42,710	12%	299,245	88%	341,955	100%
1 Vehicle HH (C)	49%		27%		29%	
2 Vehicle HH	19,420	4%	490,635	96%	510,055	100%
2 Vehicle HH (C)	23%		45%		43%	
3 Vehicle HH	5,020	3%	189,444	97%	194,464	100%
3 Vehicle HH (C)	6%		17%		16%	
4 Vehicle HH	1,690	2%	77,065	98%	78,755	100%
4 Vehicle HH (C)	2%		7%		7%	
Total	**86,215**	**7%**	**1,102,734**	**93%**	**1,188,949**	**100%**
Total%	**100%**		**100%**		**100%**	

When segmenting the state's high and low minority concentration counties, the same patterns arise as found when segmenting counties of concentrated poverty (Tables 3.13 and 3.14). As seen in Figures 3.26 and 3.27, in high minority concentration counties, differences in vehicle availability between below- and above-poverty households are amplified. Of all segments studied in this analysis, below-poverty households within

high-minority counties have the greatest percentage of zero-vehicle households (29 percent).

Table 3.13 Vehicle Availability and Poverty Status for High Minority Concentration Counties

High Minority	Below Poverty	Below Poverty (R)	Above Poverty	Above Poverty (R)	Total	Total (R)
0 Vehicle HH	26,730	34%	51,180	66%	77,910	100%
0 Vehicle HH (C)	29%		6%		3%	
1 Vehicle HH	44,460	14%	281,715	86%	326,175	100%
1 Vehicle HH (C)	47%		36%		14%	
2 Vehicle HH	16,345	5%	322,815	95%	339,160	100%
2 Vehicle HH (C)	18%		41%		15%	
3 Vehicle HH	3,995	4%	100,600	96%	104,595	100%
3 Vehicle HH (C)	4%		13%		4%	
4 Vehicle HH	1,560	4%	35,330	96%	36,890	100%
4 Vehicle HH (C)	2%		4%		2%	
Total	**93,090**	**11%**	**791,640**	**89%**	**884,730**	**100%**
Total%	**100%**		**100%**		**38%**	

Table 3.14 Vehicle Availability and Poverty Status for Low Minority Concentration Counties

Low Minority	Below Poverty	Below Poverty (R)	Above Poverty	Above Poverty (R)	Total	Total (R)
0 Vehicle HH	26,745	31%	60,545	69%	87,290	100%
0 Vehicle HH (C)	21%		5%		4%	
1 Vehicle HH	62,140	15%	365,110	85%	427,250	100%
1 Vehicle HH (C)	48%		28%		18%	
2 Vehicle HH	28,430	5%	578,255	95%	606,685	100%
2 Vehicle HH (C)	22%		43%		26%	
3 Vehicle HH	7,730	3%	226,874	97%	234,604	100%
3 Vehicle HH (C)	6%		17%		10%	
4 Vehicle HH	3,323	3%	93,316	97%	96,639	100%
4 Vehicle HH (C)	3%		7%		4%	
Total	**128,368**	**9%**	**1,324,100**	**91%**	**1,452,468**	**100%**
Total%	**100%**		**100%**		**62%**	

Figure 3.26 Vehicle Availability for High-Minority Concentration Counties by Poverty Status
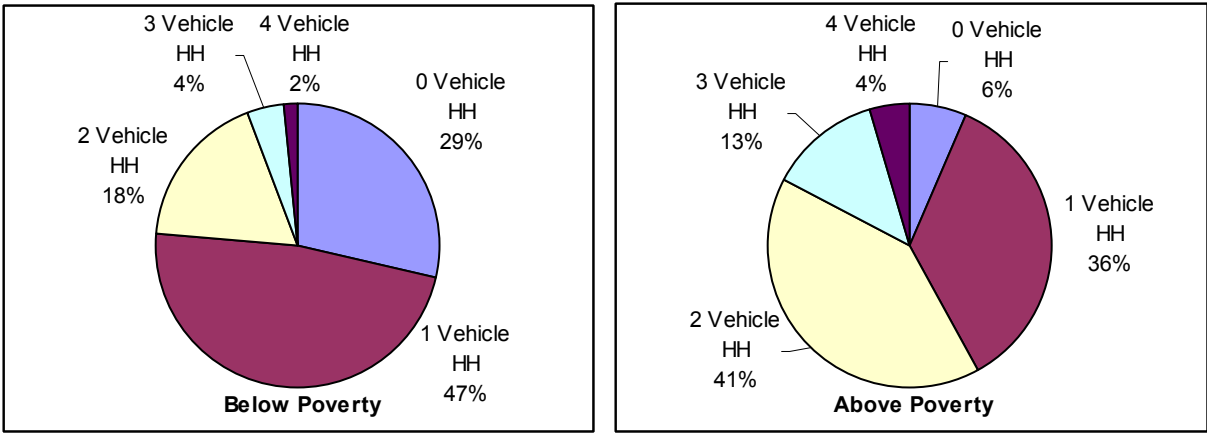
Figure 3.27 Vehicle Availability for Low-Minority Concentration Counties by Poverty Status
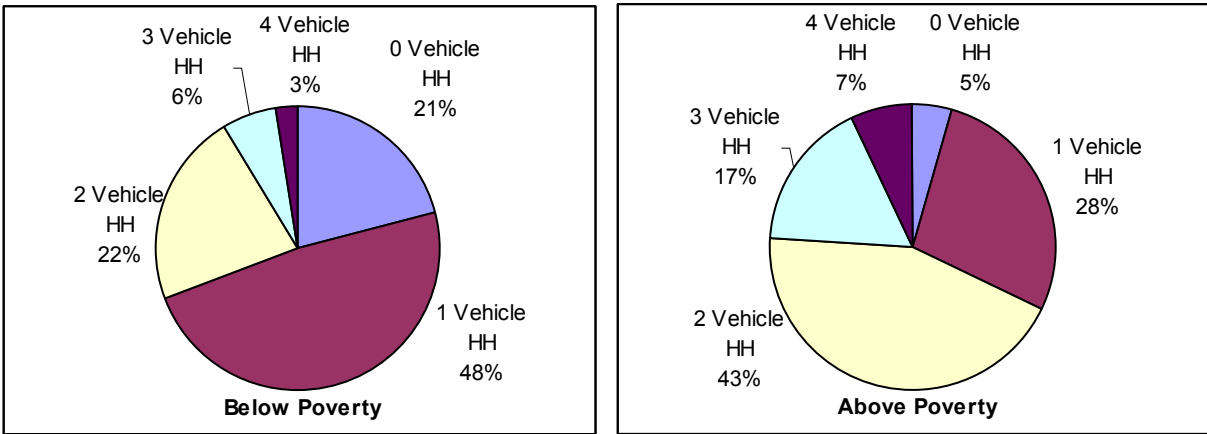
Mode Choice

On a statewide basis as illustrated in Figure 3.28, 82 percent of Indiana's workers drive alone for their journey to work. The second most popular mode is carpools of two, composing nine percent of all workers. Bus and transit account for only one percent of the mode share, while biking, walking and taxi combined compose three percent.

Figure 3.28 Statewide Mode Choice
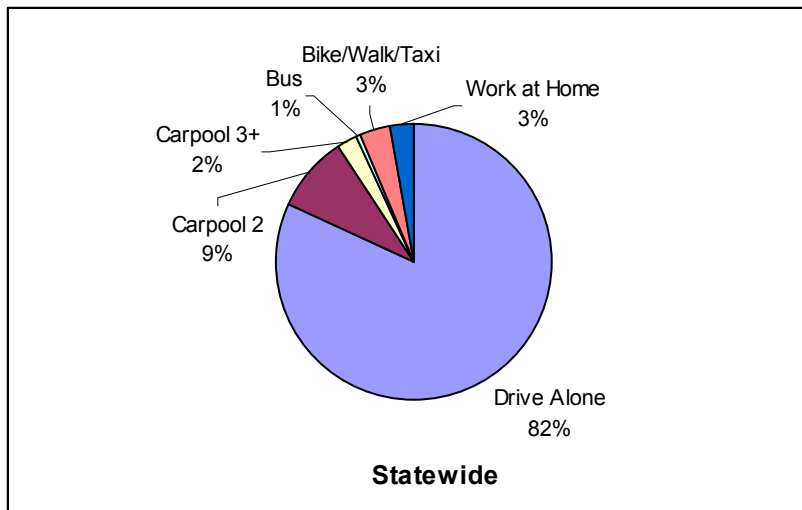
Mode Choice by Race

Statewide, non-Hispanic Whites have the greatest proportion of drive alone commuters among the studied race subsets (Figure 3.29). While 83 percent of non-Hispanic Whites drive alone to work, the drive alone share among Blacks is 73 percent and 69 percent among both Hispanics and other. When considering the composition of the drive alone share, however, the proportion of each race subset is similar to that of the state's overall population (Table 3.15). Carpooling (carpools of two and more than three) is the next predominant mode share, comprising 11 percent of the state's commuters. Between race subsets, Hispanics and Other have the greatest proportion of carpoolers – 22 percent of Hispanics carpool and 21 percent of the subset Other carpool. This suggests that Hispanics and those within the Other subset are twice as likely to carpool than non-Hispanic Whites, of whom 10 percent carpool. Of the modes, the bus share is the most racially disproportioned with respect to the state's population. While Blacks compose 6.5 percent of the state's total population, Blacks represent two out of five of those commuting by bus.

Figure 3.29 Mode Choice for All of Indiana by Race

Non-Hispanic White

Carpool 3+ 2%
Bike/Wlk 3%
Work at Home 3%
Carpool 2 8%
Drive Alone 84%

Hispanic White

Transit 1%
Bike/Wlk 5%
Bus 1%
Work at Home 2%
Carpool 3+ 7%
Carpool 2 15%
Drive Alone 69%

Black

Transit 1%
Bike/Wlk 4%
Work at Home 1%
Bus 5%
Carpool 3+ 3%
Carpool 2 13%
Drive Alone 73%

Other

Bus 1%
Bike/Wlk 7%
Work at Home 2%
Carpool 3+ 6%
Carpool 2 15%
Drive Alone 69%
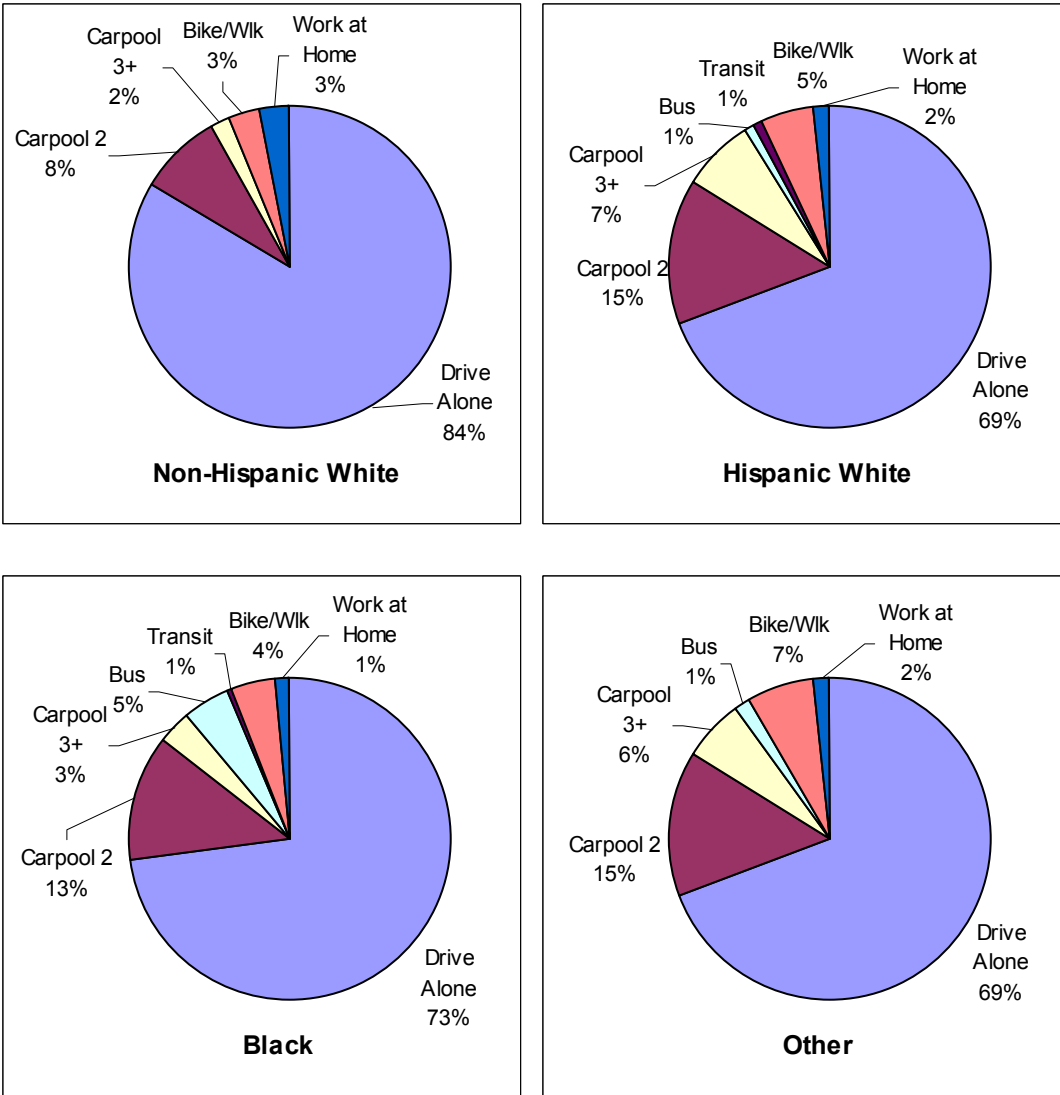
Table 3.15 Mode Choice and Race for Indiana

All Counties	White Non-Hispanic	White (R)	Hispanic	Hispanic (R)	Black	Black (R)	Other	Other (R)	Total	Total%
Drive Alone	2,141,100	90.0%	28,246	1.2%	137,523	5.8%	73,141	3.1%	2,380,010	100%
Drive Alone (C)	84%		69%		73%		69%		82%	
Carpool 2	213,085	82.2%	6,038	2.3%	24,546	9.5%	15,512	6.0%	259,181	100%
Carpool 2 (C)	8%		15%		13%		15%		9%	
Carpool 3	46,150	74.7%	2,893	4.7%	6,198	10.0%	6,528	10.6%	61,769	100%
Carpool 3 (C)	2%		7%		3%		6%		2%	
Bus	10,405	49.3%	419	2.0%	8,758	41.5%	1,522	7.2%	21,104	100%
Bus (C)	0%		1%		5%		1%		1%	
Transit	4,930	71.2%	407	5.9%	1,093	15.8%	497	7.2%	6,927	100%
Transit (C)	0%		1%		1%		0%		0%	
Bike/Walk	80,105	82.0%	2,164	2.2%	8,259	8.5%	7,107	7.3%	97,635	100%
Bike/Walk (C)	3%		5%		4%		7%		3%	
Work at Home	78,725	93.7%	643	0.8%	2,801	3.3%	1,817	2.2%	83,986	100%
Work at Home (C)	3%		2%		1%		2%		3%	
Total **Total%**	**2,574,500** **100%**	**88.5%**	**40,810** **100%**	**1.4%**	**189,178** **100%**	**6.5%**	**106,124** **100%**	**3.6%**	**2,910,612** **100%**	**100%**

As shown in Figures 3.30 and 3.31, Central Indiana and non-Central Indiana counties both exhibit patterns similar to that found at the state level. However, the most obvious differ-ence between these geographies is that Hispanics in non-Central Indiana have a greater drive alone share than their Central Indiana counterparts.   In non-Central Indiana, 71 percent of Hispanics drive alone, while in Central Indiana, 61 percent of Hispanics drive alone (Tables 3.16 and 3.17). The alternative to driving alone in Central Indiana is usually carpooling. 32 percent of Hispanics in Central Indiana carpool as opposed to 19 percent in non-Central Indiana. Given that Indianapolis has an established bus service, it is not entirely clear why carpooling is the alternative to driving alone instead of to bus. We might speculate that the choice to carpool is related to the commuters' nature of work or due to language barriers that make it more difficult to learn the bus system.

Figure 3.30 Mode Choice for Central Indiana Counties by Race

Non-Hispanic White

Carpool 3+ 1%
Bike/Wlk 2%
Work at Home 3%
Carpool 2 8%
Drive Alone 86%

Hispanic White

Bike/Wlk 4%
Work at Home 1%
Bus 2%
Carpool 3+ 12%
Carpool 2 20%
Drive Alone 61%

Black

Bike/Wlk 4%
Work at Home 1%
Bus 6%
Carpool 3+ 3%
Carpool 2 12%
Drive Alone 74%

Other

Bike/Wlk 4%
Work at Home 2%
Bus 2%
Carpool 3+ 7%
Carpool 2 15%
Drive Alone 70%
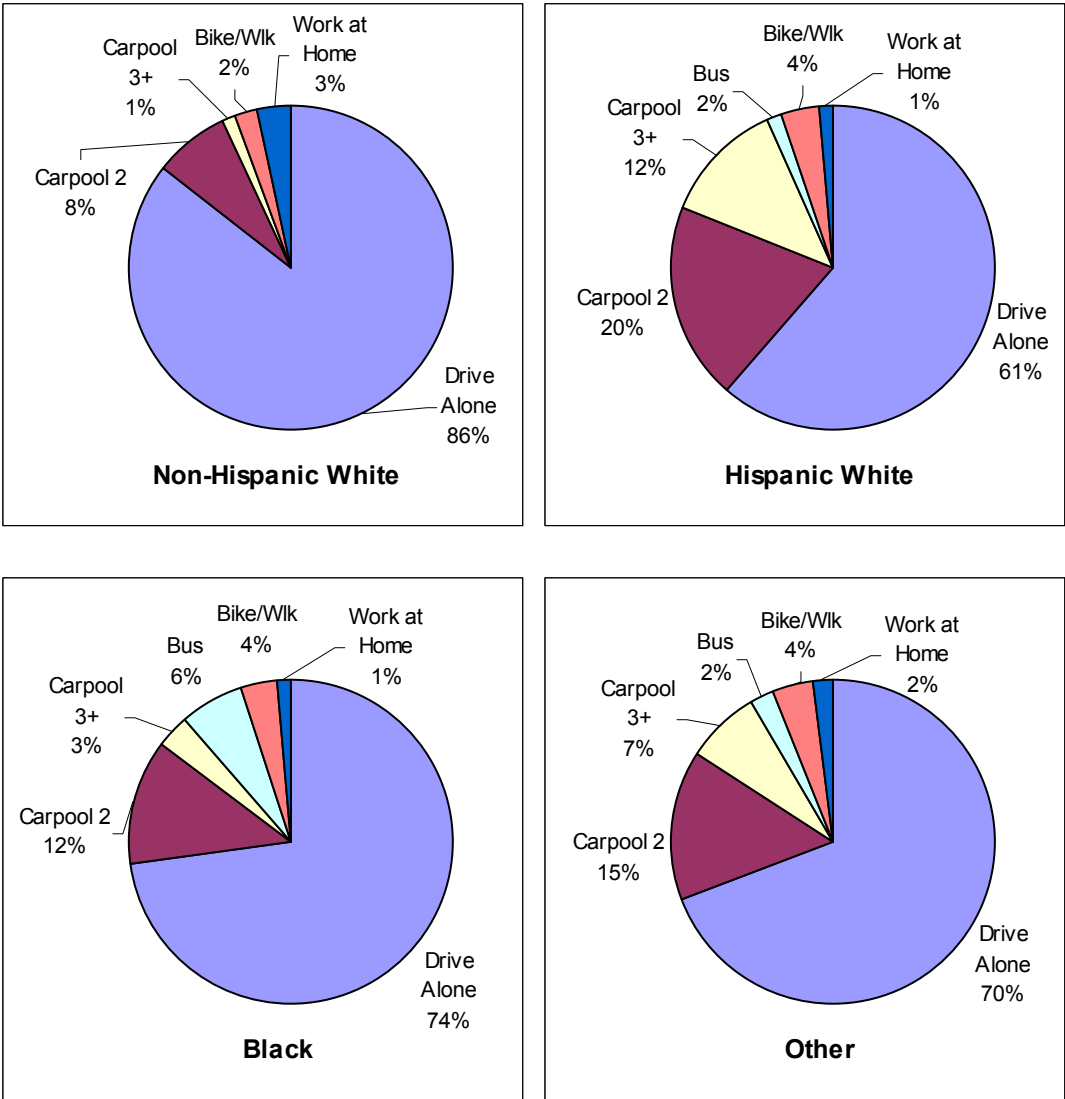
Figure 3.31 Mode Choice for Non-Central Indiana Counties by Race

Non-Hispanic White

Carpool 3+ 2%
Carpool 2 9%
Bike/Wlk 3%
Work at Home 3%
Drive Alone 83%

Hispanic White

Transit 1%
Bus 1%
Carpool 3+ 6%
Carpool 2 13%
Bike/Wlk 6%
Work at Home 2%
Drive Alone 71%

Black

Transit 1%
Bus 3%
Carpool 3+ 3%
Carpool 2 13%
Bike/Wlk 5%
Work at Home 1%
Drive Alone 74%

Other

Transit 1%
Bus 1%
Carpool 3+ 6%
Carpool 2 14%
Bike/Wlk 8%
Work at Home 2%
Drive Alone 68%
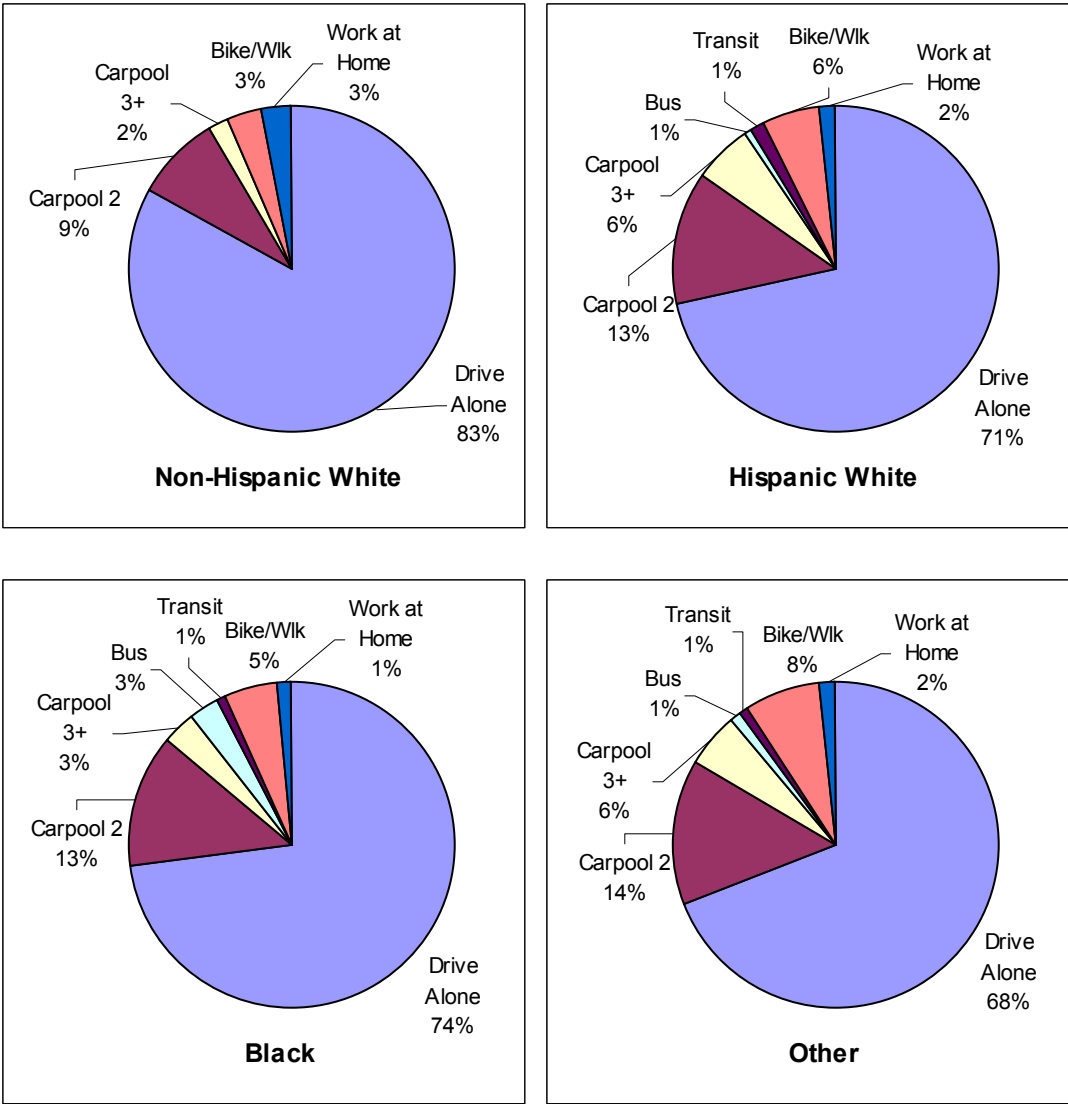
Table 3.16 Mode Choice and Race for Central Indiana Counties

Central Counties	White Non-Hispanic	White (R)	Hispanic	Hispanic (R)	Black	Black (R)	Other	Other (R)	Total	Total%
Drive Alone	568,235	86.2%	5,275	0.8%	64,255	9.8%	21,070	3.2%	658,835	100%
Drive Alone (C)	86%		61%		74%		70%		83%	
Carpool 2	50,565	74.5%	1,698	2.5%	11,029	16.3%	4,555	6.7%	67,847	100%
Carpool 2 (C)	8%		20%		12%		15%		9%	
Carpool 3	9,205	59.6%	1,054	6.8%	2,909	18.8%	2,268	14.7%	15,436	100%
Carpool 3 (C)	1%		12%		3%		7%		2%	
Bus	3,145	32.7%	130	1.4%	5,685	59.1%	655	6.8%	9,615	100%
Bus (C)	0%		2%		6%		2%		1%	
Transit	308	69.5%	0	0.0%	105	23.7%	30	6.8%	443	100%
Transit (C)	0%		0%		0%		0%		0%	
Bike/Walk	15,400	76.4%	339	1.7%	3,114	15.4%	1,309	6.5%	20,162	100%
Bike/Walk (C)	2%		4%		4%		4%		3%	
Work at Home	21,395	91.4%	114	0.5%	1,315	5.6%	589	2.5%	23,413	100%
Work at Home (C)	3%		1%		1%		2%		3%	
Total	**668,253**	**84.0%**	**8,610**	**1.1%**	**88,412**	**11.1%**	**30,476**	**3.8%**	**795,751**	**100%**
Total%	**100%**		**100%**		**100%**		**100%**		**100%**	

Table 3.17 Mode Choice and Race for Non-Central Indiana Counties

Non-Central Counties	White Non-Hispanic	White (R)	Hispanic	Hispanic (R)	Black	Black (R)	Other	Other (R)	Total	Total%
Drive Alone	1,572,865	91.4%	22,971	1.3%	73,268	4.3%	52,071	3.0%	1,721,175	100%
Drive Alone (C)	83%		71%		74%		68%		81%	
Carpool 2	162,520	84.9%	4,340	2.3%	13,517	7.1%	10,957	5.7%	191,334	100%
Carpool 2 (C)	9%		13%		13%		14%		9%	
Carpool 3	36,945	79.7%	1,839	4.0%	3,289	7.1%	4,260	9.2%	46,333	100%
Carpool 3 (C)	2%		6%		3%		6%		2%	
Bus	7,260	63.2%	289	2.5%	3,073	26.7%	867	7.5%	11,489	100%
Bus (C)	0%		1%		3%		1%		1%	
Transit	4,622	71.3%	407	6.3%	988	15.2%	467	7.2%	6,484	100%
Transit (C)	0%		1%		1%		1%		0%	
Bike/Walk	64,705	83.5%	1,825	2.4%	5,145	6.6%	5,798	7.5%	77,473	100%
Bike/Walk (C)	3%		6%		5%		8%		4%	
Work at Home	57,330	94.6%	529	0.9%	1,486	2.5%	1,228	2.0%	60,573	100%
Work at Home (C)	3%		2%		1%		2%		3%	
Total	**1,906,247**	**90.1%**	**32,200**	**1.5%**	**100,766**	**4.8%**	**75,648**	**3.6%**	**2,114,861**	**100%**
Total%	**100%**		**100%**		**100%**		**100%**		**100%**	

The mode choice among different race subsets in concentrated poverty counties demonstrates similar patterns to those found for the State (Figures 3.32 and 3.33). The most significant difference between high- and lower-poverty concentration counties is found in the bus share. Among high-poverty concentration counties, nearly half of the bus share is composed of Blacks. In lower-poverty concentration counties, Blacks compose about 17 percent of the bus share. It should be noted, however, that Blacks compose a smaller segment of the population in lower-poverty concentration counties – just over two percent (Tables 3.18 and 3.19). Therefore, the bus mode share still maintains a high disproportion of Blacks.

Figure 3.32 Mode Choice for High-Poverty Concentration Counties by Race
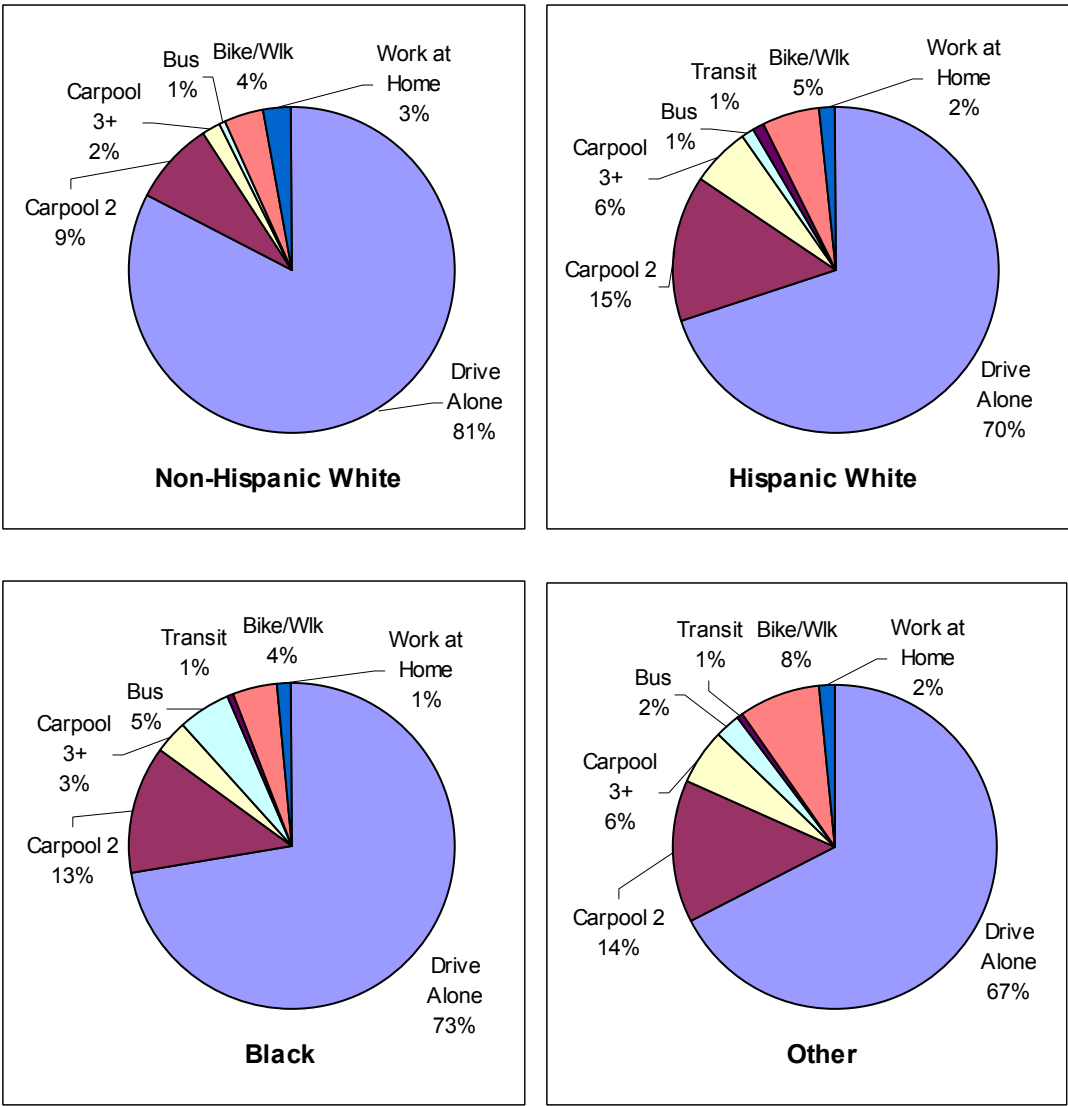
Figure 3.33 Mode Choice for Low-Poverty Concentration Counties by Race

Non-Hispanic White

- Carpool 3+ 2%
- Bike/Wlk 3%
- Work at Home 3%
- Carpool 2 8%
- Drive Alone 84%

Hispanic White

- Transit 1%
- Bike/Wlk 5%
- Work at Home 1%
- Carpool 3+ 9%
- Carpool 2 15%
- Drive Alone 69%

Black

- Bus 2%
- Bike/Wlk 4%
- Work at Home 1%
- Carpool 3+ 3%
- Carpool 2 14%
- Drive Alone 76%

Other

- Bike/Wlk 5%
- Work at Home 2%
- Carpool 3+ 7%
- Carpool 2 15%
- Drive Alone 71%
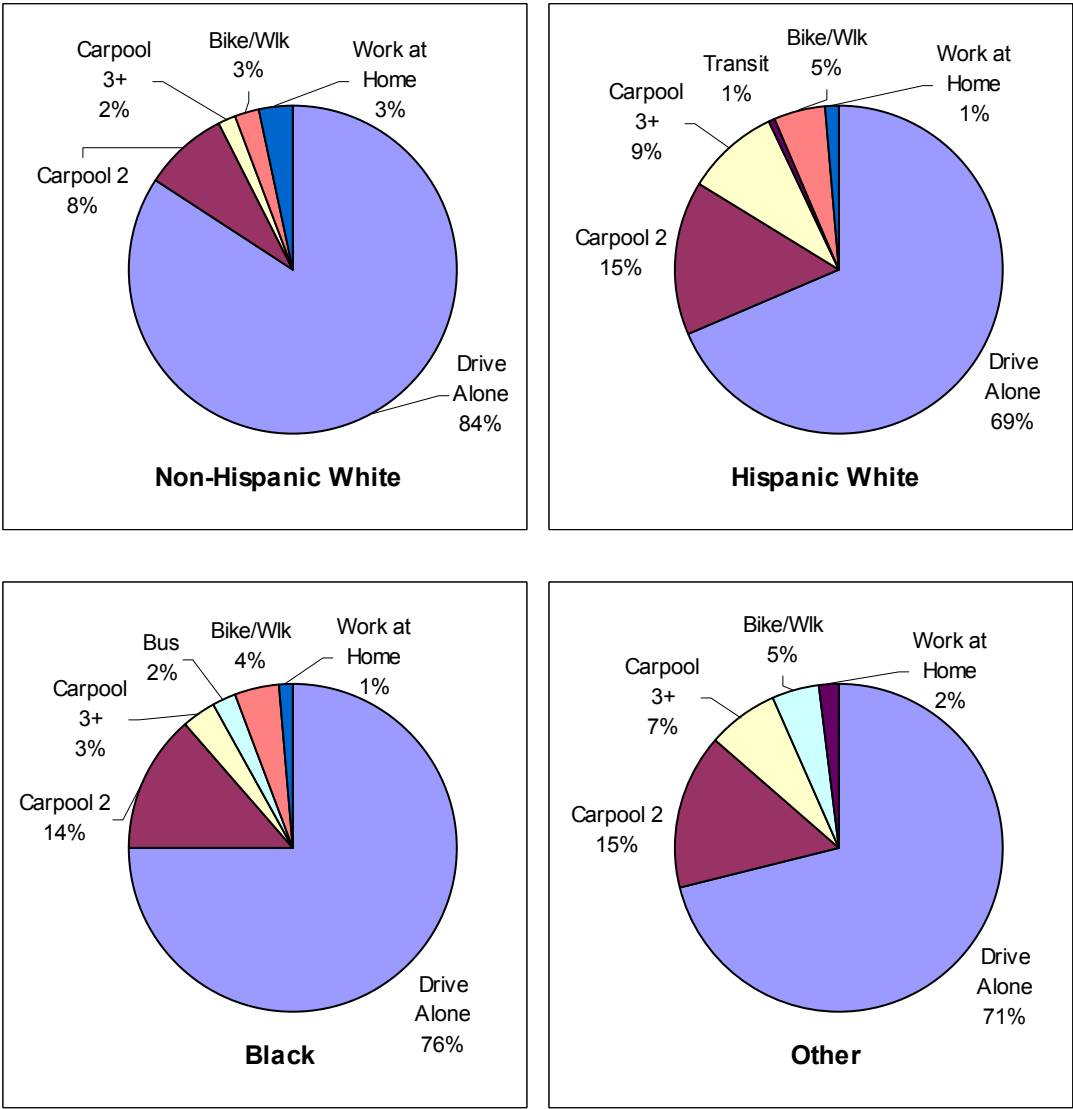
Table 3.18 Mode Choice and Race for High-Poverty Concentration Counties

High Poverty	White Non-Hispanic	White (R)	Hispanic	Hispanic (R)	Black	Black (R)	Other	Other (R)	Total	Total%
Drive Alone	930,225	84.5%	17,358	1.6%	112,011	10.2%	40,736	3.7%	1,100,330	100%
Drive Alone (C)	81%		70%		73%		67%		80%	
Carpool 2	96,235	75.0%	3,624	2.8%	19,873	15.5%	8,546	6.7%	128,278	100%
Carpool 2 (C)	9%		15%		13%		14%		9%	
Carpool 3+	20,670	67.4%	1,435	4.7%	5,079	16.6%	3,471	11.3%	30,655	100%
Carpool 3+ (C)	2%		6%		3%		6%		2%	
Bus	6,980	41.7%	347	2.1%	8,040	48.0%	1,375	8.2%	16,742	100%
Bus (C)	1%		1%		5%		2%		1%	
Transit	3,293	65.3%	304	6.0%	1,004	19.9%	444	8.8%	5,045	100%
Transit (C)	0%		1%		1%		1%		0%	
Bike/Walk/Taxi	42,805	76.8%	1,356	2.4%	6,742	12.1%	4,859	8.7%	55,762	100%
Bike/Walk/Taxi (C)	4%		5%		4%		8%		4%	
Work at Home	32,300	89.6%	437	1.2%	2,325	6.5%	973	2.7%	36,035	100%
Work at Home (C)	3%		2%		1%		2%		3%	
Total	**1,132,508**	**82.5%**	**24,861**	**1.8%**	**155,074**	**11.3%**	**60,404**	**4.4%**	**1,372,847**	**100%**
Total%	**100%**		**100%**		**100%**		**100%**		**100%**	

Table 3.19 Mode Choice and Race for Low-Poverty Concentration Counties

Low Poverty	White Non-Hispanic	White (R)	Hispanic	Hispanic (R)	Black	Black (R)	Other	Other (R)	Total	Total%
Drive Alone	1,210,875	94.6%	10,888	0.9%	25,512	2.0%	32,405	2.5%	1,279,680	100%
Drive Alone (C)	84%		69%		76%		71%		83%	
Carpool 2	116,850	89.3%	2,414	1.8%	4,673	3.6%	6,966	5.3%	130,903	100%
Carpool 2 (C)	8%		15%		14%		15%		9%	
Carpool 3+	25,480	81.9%	1,458	4.7%	1,119	3.6%	3,057	9.8%	31,114	100%
Carpool 3+ (C)	2%		9%		3%		7%		2%	
Bus	3,425	78.5%	72	1.7%	718	16.5%	147	3.4%	4,362	100%
Bus (C)	0%		0%		2%		0%		0%	
Transit	1,637	87.0%	103	5.5%	89	4.7%	53	2.8%	1,882	100%
Transit (C)	0%		1%		0%		0%		0%	
Bike/Walk/Taxi	37,300	89.1%	808	1.9%	1,517	3.6%	2,248	5.4%	41,873	100%
Bike/Walk/Taxi (C)	3%		5%		4%		5%		3%	
Work at Home	46,425	96.8%	206	0.4%	476	1.0%	844	1.8%	47,951	100%
Work at Home (C)	3%		1%		1%		2%		3%	
Total	**1,441,992**	**93.8%**	**15,949**	**1.0%**	**34,104**	**2.2%**	**45,720**	**3.0%**	**1,537,765**	**100%**
Total%	**100%**		**100%**		**100%**		**100%**		**100%**	

As seen in Figures 3.34 and 3.35, when comparing high and low minority concentration counties, there is very little difference in mode share by subset of race. Detailed in Table 3.20, among high-minority counties, from the alternative to driving alone usually is bus. Whereas, among low-minority counties, from the alternative to driving alone usually is carpooling (Table 3.21). This is likely because the high-minority counties identified in this study include the State's more prominent urban areas which tend to have better established bus services.

Figure 3.34 Mode Choice for High-Minority Concentration Counties by Race
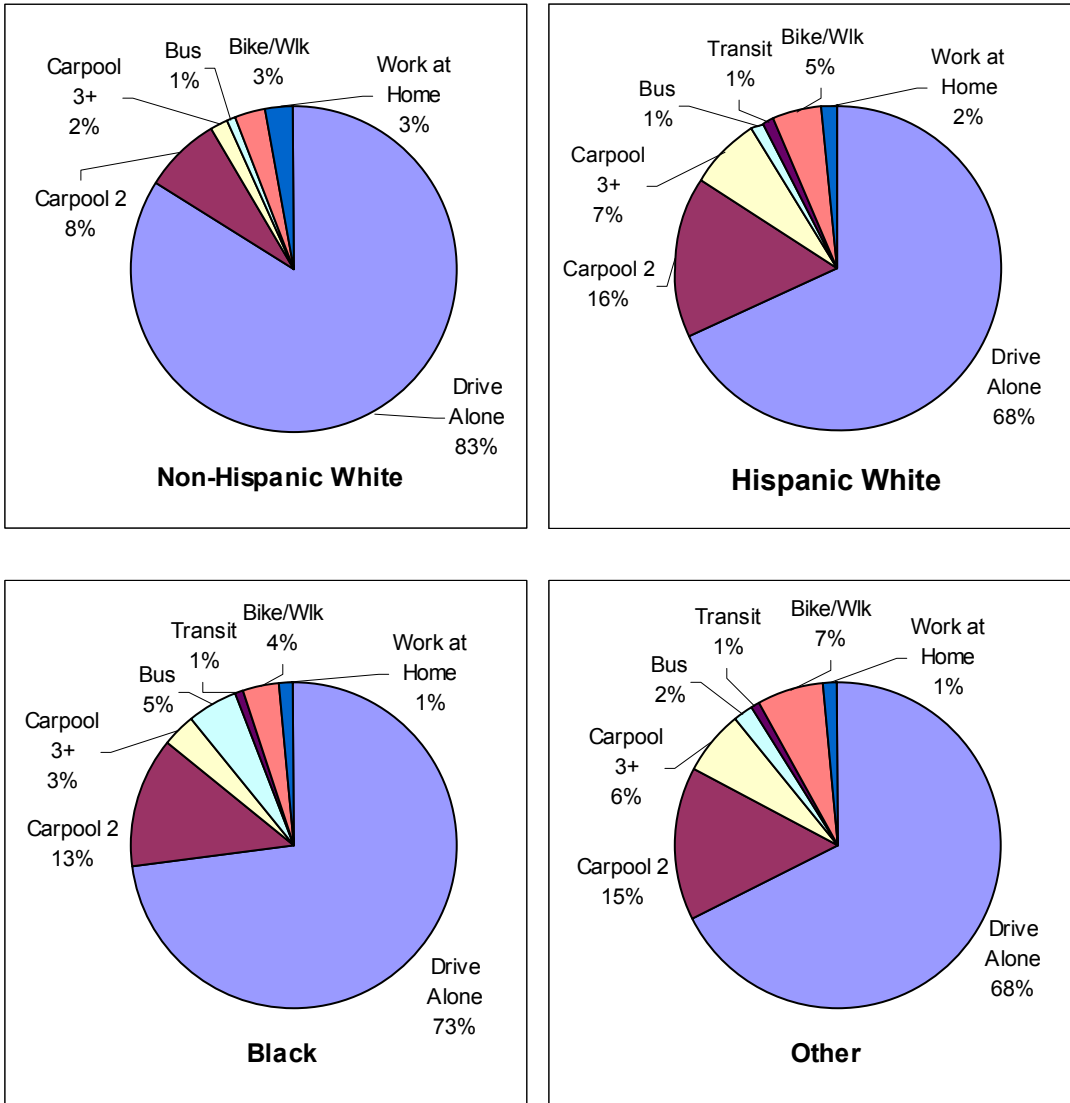
Figure 3.35 Mode Choice for Low-Minority Concentration Counties by Race

Non-Hispanic White

- Carpool 3+ 2%
- Bike/Wlk 3%
- Work at Home 3%
- Carpool 2 9%
- Drive Alone 83%

Hispanic White

- Transit 1%
- Bus 1%
- Carpool 3+ 7%
- Bike/Wlk 6%
- Work at Home 1%
- Carpool 2 13%
- Drive Alone 71%

Black

- Bus 2%
- Bike/Wlk 8%
- Work at Home 1%
- Carpool 3+ 3%
- Carpool 2 13%
- Drive Alone 73%

Other

- Bus 1%
- Bike/Wlk 7%
- Work at Home 2%
- Carpool 3+ 6%
- Carpool 2 14%
- Drive Alone 70%
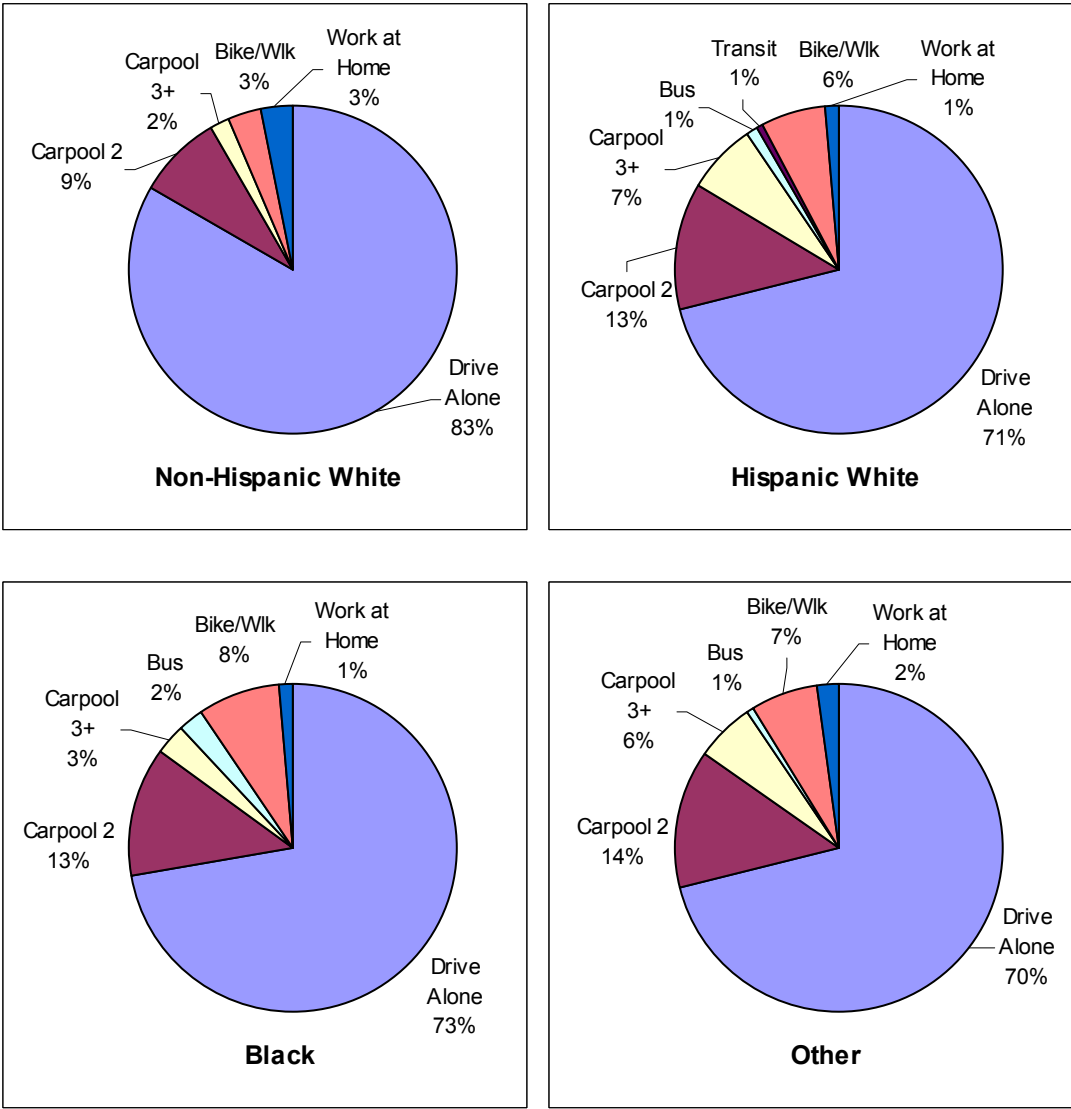
Table 3.20 Mode Choice and Race for High-Minority Concentration Counties

High Minority	White Non-Hispanic	White (R)	Hispanic	Hispanic (R)	Black	Black (R)	Other	Other (R)	Total	Total%
Drive Alone	706,125	80.3%	17,680	2.0%	113,195	12.9%	42,555	5%	879,555	100%
Drive Alone (C)	83%		68%		73%		68%		81%	
Carpool 2	65,990	66.0%	4,165	4.2%	20,215	20.2%	9,570	10%	99,940	100%
Carpool 2 (C)	8%		16%		13%		15%		9%	
Carpool 3	13,960	55.7%	1,855	7.4%	5,145	20.5%	4,089	16%	25,049	100%
Carpool 3 (C)	2%		7%		3%		6%		2%	
Bus	5,475	36.8%	260	1.7%	7,925	53.2%	1,230	8%	14,890	100%
Bus (C)	1%		1%		5%		2%		1%	
Transit	3,285	65.9%	313	6.3%	974	19.5%	413	8%	4,985	100%
Transit (C)	0%		1%		1%		1%		0%	
Bike/Walk	25,810	70.0%	1,220	3.3%	5,600	15.2%	4,245	12%	36,875	100%
Bike/Walk (C)	3%		5%		4%		7%		3%	
Work at Home	23,760	86.8%	435	1.6%	2,310	8.4%	855	3%	27,360	100%
Work at Home (C)	3%		2%		1%		1%		3%	
Total	**844,405**	**77.6%**	**25,928**	**2.4%**	**155,364**	**14.3%**	**62,957**	**6%**	**1,088,654**	**100%**
Total%	**100%**		**100%**		**100%**		**100%**		**100%**	

Table 3.21 Mode Choice and Race for Low-Minority Concentration Counties

Low Minority	White Non-Hispanic	White (R)	Hispanic	Hispanic (R)	Black	Black (R)	Other	Other (R)	Total	Total%
Drive Alone	1,434,975	95.6%	10,566	0.7%	24,328	1.6%	30,586	2%	1,500,455	100%
Drive Alone (C)	83%		71%		73%		70%		82%	
Carpool 2	147,095	92.4%	1,873	1.2%	4,331	2.7%	5,942	4%	159,241	100%
Carpool 2 (C)	9%		13%		13%		14%		9%	
Carpool 3	32,190	87.7%	1,038	2.8%	1,053	2.9%	2,439	7%	36,720	100%
Carpool 3 (C)	2%		7%		3%		6%		2%	
Bus	4,930	79.3%	159	2.6%	833	13.4%	292	5%	6,214	100%
Bus (C)	0%		1%		2%		1%		0%	
Transit	1,645	84.7%	94	4.8%	119	6.1%	84	4%	1,942	100%
Transit (C)	0%		1%		0%		0%		0%	
Bike/Walk	54,295	89.4%	944	1.6%	2,659	4.4%	2,862	5%	60,760	100%
Bike/Walk (C)	3%		6%		8%		7%		3%	
Work at Home	54,965	97.1%	208	0.4%	491	0.9%	962	2%	56,626	100%
Work at Home (C)	3%		1%		1%		2%		3%	
Total	**1,730,095**	**95.0%**	**14,882**	**0.8%**	**33,814**	**1.9%**	**43,167**	**2%**	**1,821,958**	**100%**
Total%	**100%**		**100%**		**100%**		**100%**		**100%**	

Mode Choice by Poverty

When examining the differences in mode choice between below- and above-poverty household workers, discrepancies are typically found among the drive alone, carpooling and biking/walking/taxi modes. As shown in Figure 3.36, while 83 percent of above-poverty respondents drive alone to work, only 66 percent of below-poverty workers drive alone; constituting a 17 percent difference. Commuters of below-poverty households, who do not drive alone, tend to opt for carpooling. Carpooling comprises 19 percent of below-poverty workers as compared to 11 percent of above-poverty workers (Table 3.22). The other more common alternative for below-poverty workers who do not drive alone is walking/biking/taxi, which accounts for eight percent of all below-poverty workers.

Figure 3.36 Mode Choice for All of Indiana by Poverty Status
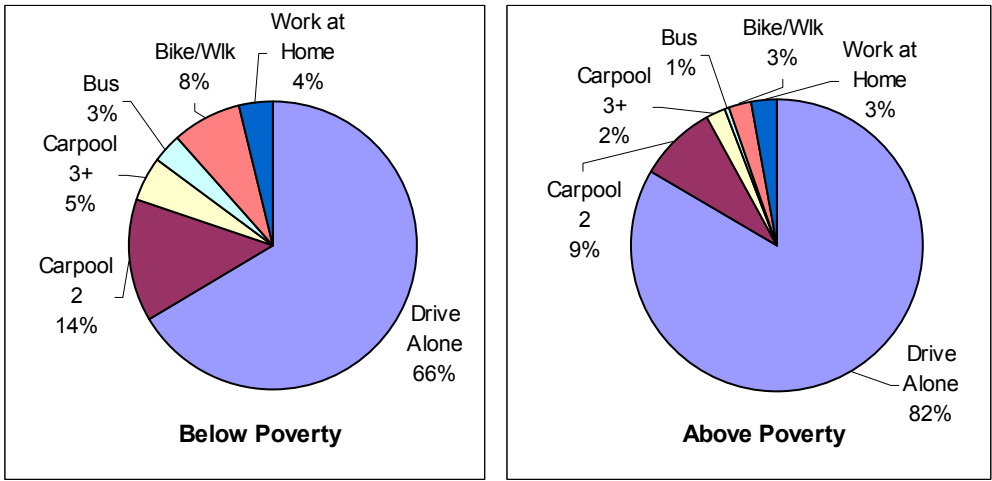
Table 3.22 Mode Choice and Poverty Status for Indiana

All Counties	Below Poverty	Below Poverty (R)	Above Poverty	Above Poverty (R)	Total	Total (R)
Drive Alone	88,380	4%	2,283,965	96%	2,372,345	100%
Drive Alone (C)	66%		82%		82%	
Carpool 2	18,420	7%	239,615	93%	258,035	100%
Carpool 2 (C)	14%		9%		9%	
Carpool 3+	6,852	11%	54,692	89%	61,544	100%
Carpool 3+ (C)	5%		2%		2%	
Bus	4,157	20%	16,408	80%	20,565	100%
Bus (C)	3%		1%		1%	
Transit	325	5%	6,587	95%	6,912	100%
Transit (C)	0%		0%		0%	
Bike/Walk/Taxi	10,092	13%	69,972	87%	80,064	100%
Bike/Walk/Taxi (C)	8%		3%		3%	
Work at Home	5,298	6%	76,989	94%	82,287	100%
Work at Home (C)	4%		3%		3%	
Total	**133,524**	**5%**	**2,748,228**	**95%**	**2,881,752**	**100%**
Total%	**100%**		**100%**		**100%**	

These patterns are found to be consistent when examining Central Indiana, Non-Central and high-minority concentration counties as exhibited in Tables 3.23 through 3.26 and Figures 3.37 through 3.40.

Table 3.23 Mode Choice and Poverty Status for Central Indiana

Central Counties	Below Poverty	Below Poverty (R)	Above Poverty	Above Poverty (R)	Total	Total (R)
Drive Alone	19,770	3%	638,050	97%	657,820	100%
Drive Alone (C)	64%		84%		83%	
Carpool 2	4,735	7%	62,915	93%	67,650	100%
Carpool 2 (C)	15%		8%		9%	
Carpool 3+	2,027	13%	13,364	87%	15,391	100%
Carpool 3+ (C)	7%		2%		2%	
Bus	1,863	19%	7,755	81%	9,618	100%
Bus (C)	6%		1%		1%	
Transit	60	13%	390	87%	450	100%
Transit (C)	0%		0%		0%	
Bike/Walk/Taxi	1,675	9%	16,519	91%	18,194	100%
Bike/Walk/Taxi (C)	5%		2%		2%	
Work at Home	1,010	4%	22,300	96%	23,310	100%
Work at Home (C)	3%		3%		3%	
Total	**31,140**	**4%**	**761,293**	**96%**	**792,433**	**100%**
Total%	**100%**		**100%**		**100%**	

Table 3.24 Mode Choice and Poverty Status for Non-Central Indiana

Non-Central Counties	Below Poverty	Below Poverty (R)	Above Poverty	Above Poverty (R)	Total	Total (R)
Drive Alone	68,610	4%	1,645,915	96%	1,714,525	100%
Drive Alone (C)	68%		83%		82%	
Carpool 2	13,685	7%	176,700	93%	190,385	100%
Carpool 2 (C)	13%		9%		9%	
Carpool 3+	4,825	10%	41,328	90%	46,153	100%
Carpool 3+ (C)	5%		2%		2%	
Bus	2,294	21%	8,653	79%	10,947	100%
Bus (C)	2%		0%		1%	
Transit	265	4%	6,197	96%	6,462	100%
Transit (C)	0%		0%		0%	
Bike/Walk/Taxi	8,417	14%	53,453	86%	61,870	100%
Bike/Walk/Taxi (C)	8%		3%		3%	
Work at Home	4,288	7%	54,689	93%	58,977	100%
Work at Home (C)	4%		3%		3%	
Total	**102,384**	**5%**	**1,986,935**	**95%**	**2,089,319**	**100%**
Total%	**100%**		**100%**		**100%**	

Table 3.25 Mode Choice and Poverty Status for High-Minority Concentration Counties

High Minority	Below Poverty	Below Poverty (R)	Above Poverty	Below Poverty (R)	Total	Total (R)
Drive Alone	35,100	4%	841,965	96%	877,065	100%
Drive Alone (C)	62%		84%		81%	
Carpool 2	8,520	9%	90,975	91%	99,495	100%
Carpool 2 (C)	15%		9%		9%	
Carpool 3+	3,160	13%	21,745	87%	24,905	100%
Carpool 3+ (C)	6%		2%		2%	
Bus	2,945	20%	11,635	80%	14,580	100%
Bus (C)	5%		1%		1%	
Transit	249	5%	4,729	95%	4,978	100%
Transit (C)	0%		0%		0%	
Bike/Walk/Taxi	5,245	17%	25,025	83%	30,270	100%
Bike/Walk/Taxi (C)	9%		2%		3%	
Work at Home	1,715	6%	25,025	94%	26,740	100%
Work at Home (C)	3%		2%		2%	
Total	**56,934**	**5%**	**1,021,099**	**95%**	**1,078,033**	**100%**
Total%	**100%**		**100%**		**100%**	

Table 3.26 Mode Choice and Poverty Status for Low-Minority Concentration Counties

Low Minority	Below Poverty	Below Poverty (R)	Above Poverty	Below Poverty (R)	Total	Total (R)
Drive Alone	53,280	4%	1,442,000	96%	1,495,280	100%
Drive Alone (C)	67%		83%		83%	
Carpool 2	9,900	6%	148,640	94%	158,540	100%
Carpool 2 (C)	12%		9%		9%	
Carpool 3+	3,692	10%	32,947	90%	36,639	100%
Carpool 3+ (C)	5%		2%		2%	
Bus	1,212	20%	4,773	80%	5,985	100%
Bus (C)	2%		0%		0%	
Transit	76	4%	1,858	96%	1,934	100%
Transit (C)	0%		0%		0%	
Bike/Walk/Taxi	7,250	14%	44,947	86%	52,197	100%
Bike/Walk/Taxi (C)	9%		3%		3%	
Work at Home	3,583	6%	51,964	94%	55,547	100%
Work at Home (C)	5%		3%		3%	
Total	**78,993**	**4%**	**1,727,129**	**96%**	**1,806,122**	**100%**
Total%	**100%**		**100%**		**100%**	

Figure 3.37 Mode Choice for Central Indiana by Poverty Status

Below Poverty: Bus 6%, Bike/Wlk 5%, Work at Home 3%, Carpool 3+ 7%, Carpool 2 15%, Drive Alone 64%

Above Poverty: Bus 1%, Bike/Wlk 2%, Carpool 3+ 2%, Work at Home 3%, Carpool 2 8%, Drive Alone 84%
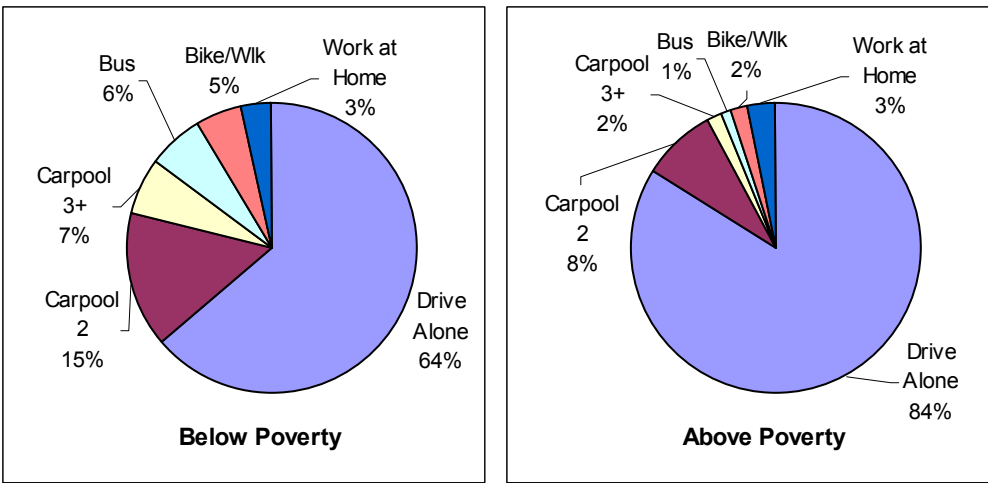
Figure 3.38 Mode Choice for Non-Central Indiana by Poverty Status

Below Poverty:
- Bus 2%
- Carpool 3+ 5%
- Carpool 2 13%
- Bike/Wlk 8%
- Work at Home 4%
- Drive Alone 68%

Above Poverty:
- Carpool 3+ 2%
- Bike/Wlk 3%
- Work at Home 3%
- Carpool 2 9%
- Drive Alone 83%
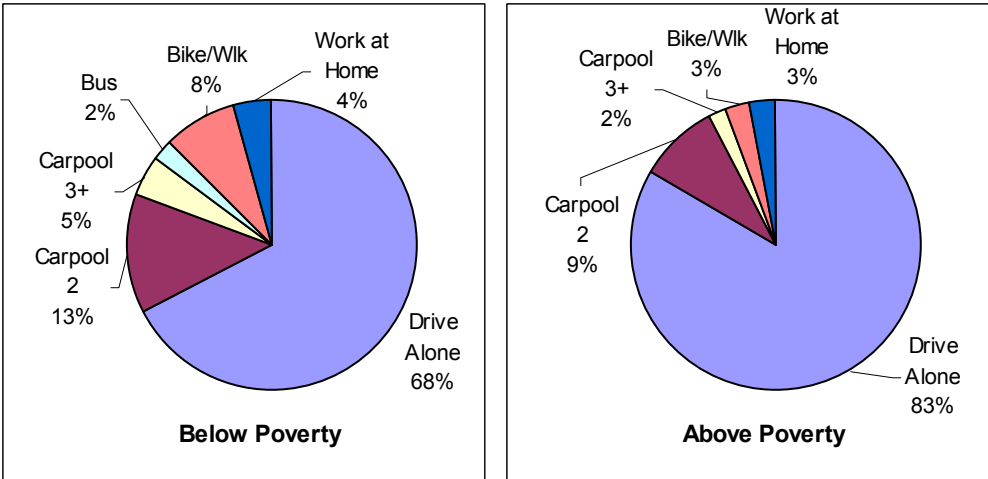
Figure 3.39 Mode Choice for High-Minority Concentration Counties by Poverty Status

Below Poverty:
- Bus 5%
- Carpool 3+ 6%
- Carpool 2 15%
- Bike/Wlk 9%
- Work at Home 3%
- Drive Alone 62%

Above Poverty:
- Bus 1%
- Carpool 3+ 2%
- Bike/Wlk 2%
- Work at Home 2%
- Carpool 2 9%
- Drive Alone 84%
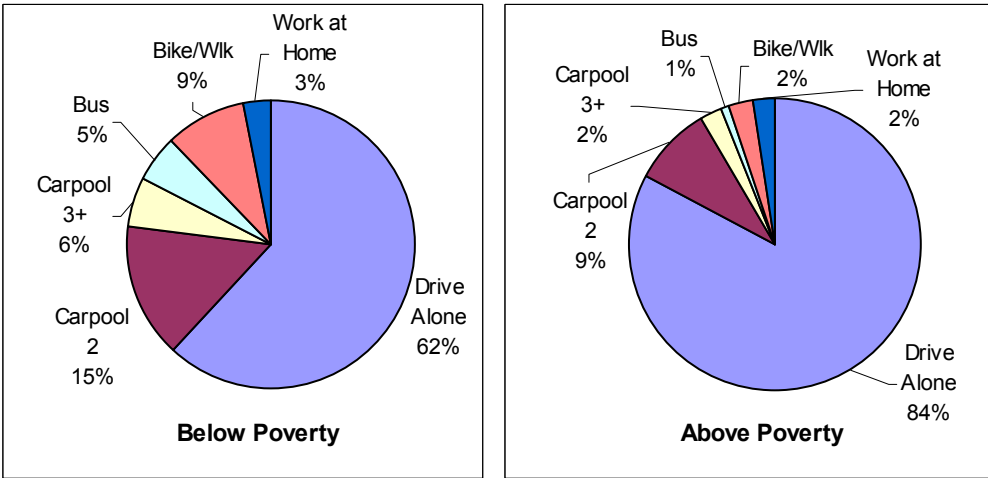
Figure 3.40 Mode Choice for Low-Minority Concentration Counties by Poverty Status
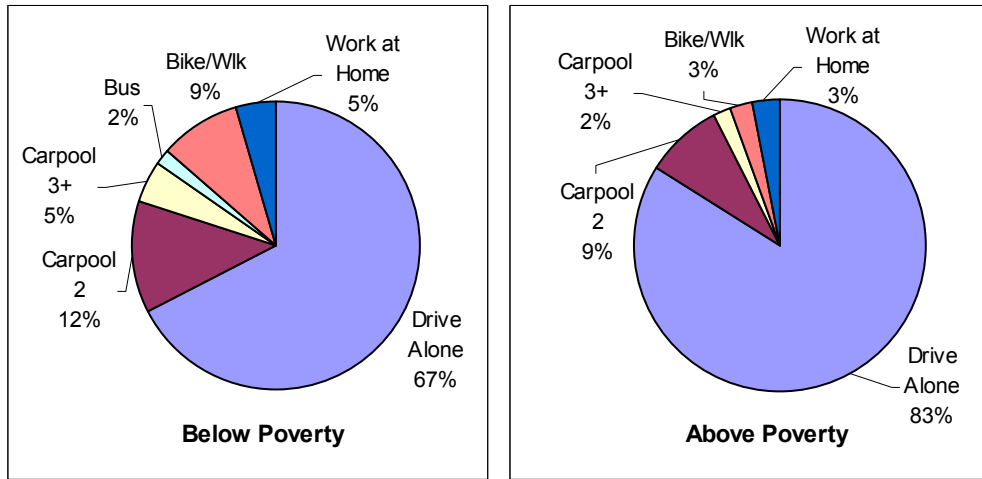
Generally, these trends are also true for high- and low-poverty concentration counties (Tables 3.27 and 3.28). As illustrated in Figures 3.41 and 3.42, however, high-poverty concentration counties exhibit a slightly higher bus and pedestrian mode share than do the remaining counties. This is likely related to the fact that concentrations of poverty-stricken neighborhoods are often found in urban areas where the setting is typically more conducive for bus and pedestrian modes.

Table 3.27 Mode Choice and Poverty Status for High-Poverty Concentration Counties

High Poverty	Below Poverty	Below Poverty (R)	Above Poverty	Above Poverty (R)	Total	Total (R)
Drive Alone	53,115	5%	1,040,985	95%	1,094,100	100%
Drive Alone (C)	65%		82%		81%	
Carpool 2	11,195	9%	116,120	91%	127,315	100%
Carpool 2 (C)	14%		9%		9%	
Carpool 3+	3,807	12%	26,657	88%	30,464	100%
Carpool 3+ (C)	5%		2%		2%	
Bus	3,549	22%	12,679	78%	16,228	100%
Bus (C)	4%		1%		1%	
Transit	261	5%	4,766	95%	5,027	100%
Transit (C)	0%		0%		0%	
Bike/Walk/Taxi	7,189	17%	35,244	83%	42,433	100%
Bike/Walk/Taxi (C)	9%		3%		3%	
Work at Home	2,794	8%	31,942	92%	34,736	100%
Work at Home (C)	3%		3%		3%	
Total	**81,910**	**6%**	**1,268,393**	**94%**	**1,350,303**	**100%**
Total%	**100%**		**100%**		**100%**	

Table 3.28 Mode Choice and Poverty Status for Low-Poverty Concentration Counties

Low Poverty	Below Poverty	Below Poverty (R)	Above Poverty	Above Poverty (R)	Total	Total (R)
Drive Alone	35,265	3%	1,242,980	97%	1,278,245	100%
Drive Alone (C)	68%		85%		83%	
Carpool 2	7,225	6%	123,495	94%	130,720	100%
Carpool 2 (C)	14%		8%		9%	
Carpool 3+	3,045	10%	28,035	90%	31,080	100%
Carpool 3+ (C)	6%		2%		2%	
Bus	608	14%	3,729	86%	4,337	100%
Bus (C)	1%		0%		0%	
Transit	64	3%	1,821	97%	1,885	100%
Transit (C)	0%		0%		0%	
Bike/Walk/Taxi	2,903	8%	34,728	92%	37,631	100%
Bike/Walk/Taxi (C)	6%		2%		2%	
Work at Home	2,504	5%	45,047	95%	47,551	100%
Work at Home (C)	5%		3%		3%	
Total	**51,614**	**3%**	**1,479,835**	**97%**	**1,531,449**	**100%**
Total%	**100%**		**100%**		**100%**	

Figure 3.41 Mode Choice for High-Poverty Concentration Counties by Poverty Status
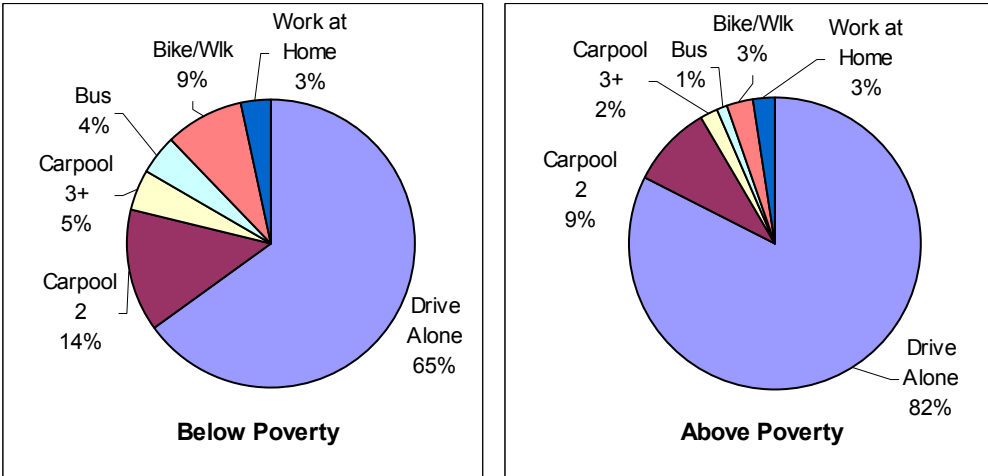
Figure 3.42 Mode Choice for Low-Poverty Concentration Counties by Poverty Status

Below Poverty:
- Bus 1%
- Bike/Wlk 6%
- Work at Home 5%
- Carpool 3+ 6%
- Carpool 2 14%
- Drive Alone 68%

Above Poverty:
- Carpool 3+ 2%
- Bike/Wlk 2%
- Work at Home 3%
- Carpool 2 8%
- Drive Alone 85%
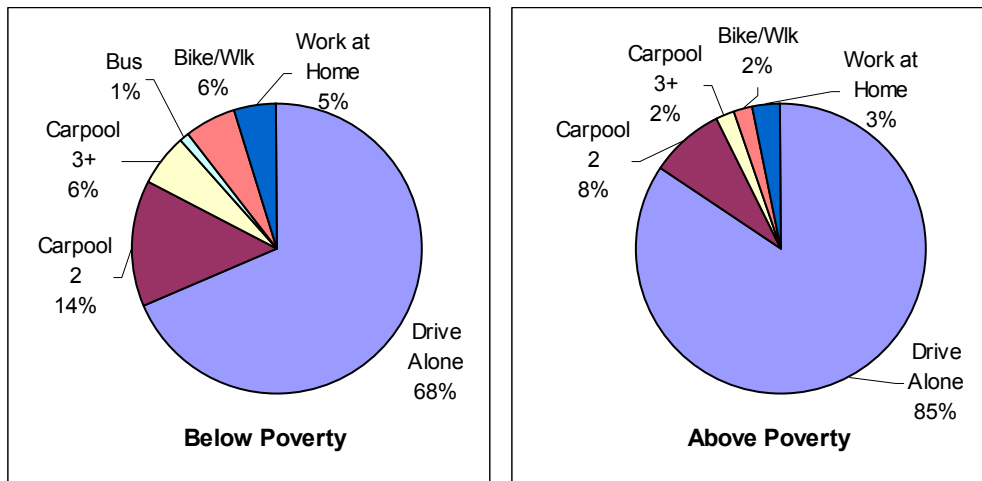
Travel Time

Based singly on this dataset, there is no strong indication that a particular segment of race systematically experiences a longer commute time on a statewide level. Figure 3.43 illustrates each county's average travel time by race, irrespective of mode. Table 3.29 provides Figure 3.43's underlying data as well as the maximum and mean travel time among the subsets. In most cases, the difference between the average and maximum travel time experienced among the subsets is minimal. In 19 of 92 counties, Non-Hispanic Whites experience the longest commute times. Hispanic Whites experience the longest commute in 27 counties, Blacks in 21 counties and Other in 25 counties. Given these findings, however, it should be noted that there are instances in some counties, where a small population of a given race will bias that race's respective average travel time. For instance, in Owen County, the average travel time for Blacks is reported to be 82 minutes, nearly double the County's mean travel time. However, Blacks compose only 10 of the more than 10,000 residents of Owen County.

As previously mentioned, this dataset provides travel time irrespective of mode. Given the earlier finding that some races have a greater tendency to use alternative modes to driving alone than other races, a comprehensive examination of travel time by race would require travel time data disaggregated by both race and mode.

Figure 3.43 Average Travel Times by Race for Each County

Average Travel Times
- Non-Hispanic White
- Hispanic White
- Black
- Other

Table 3.29 County Travel Times (Minutes) by Race and Maximum and Mean Travel Time within County

County	Non-Hispanic White	Hispanic White	Black	Other	Max Travel Time	Mean Travel Time	Longest Commuters
Adams	21.8	25.5	27.0	24.3	27.0	24.7	Black
Allen	20.9	23.2	22.5	24.0	24.0	22.7	Other
Bartholomew	20.0	17.5	18.0	17.7	20.0	18.3	Non-Hispanic White
Benton	23.6	22.8	40.3	28.7	40.3	28.9	Black
Blackford	23.4	23.7	7.0	21.2	23.7	18.8	Hispanic White
Boone	23.2	21.3	36.4	27.3	36.4	27.0	Black
Brown	33.8	25.6	37.2	44.8	44.8	35.4	Other
Carroll	23.9	18.9	39.4	16.1	39.4	24.6	Black
Cass	20.9	19.9	15.0	14.8	20.9	17.6	Non-Hispanic White
Clark	23.1	22.7	20.8	22.9	23.1	22.3	Non-Hispanic White
Clay	26.2	16.3	32.0	31.3	32.0	26.4	Black
Clinton	20.5	19.3	11.7	26.8	26.8	19.6	Other
Crawford	35.6	23.8		25.7	35.6	28.4	Non-Hispanic White
Daviess	23.0	25.9	34.7	16.7	34.7	25.1	Black
Dearborn	30.3	35.8	25.0	31.2	35.8	30.6	Hispanic White
Decatur	20.3	9.5	12.0	17.9	20.3	14.9	Non-Hispanic White
DeKalb	20.0	16.4	26.4	24.4	26.4	21.8	Black
Delaware	20.4	27.3	19.7	18.3	27.3	21.4	Hispanic White
Dubois	18.4	19.5	12.0	18.3	19.5	17.1	Hispanic White
Elkhart	18.8	18.3	19.3	20.6	20.6	19.2	Other
Fayette	23.0	8.6	13.4	21.5	23.0	16.6	Non-Hispanic White
Floyd	22.1	18.9	21.2	18.4	22.1	20.1	Non-Hispanic White
Fountain	25.0	12.9		33.6	33.6	23.8	Other
Franklin	29.8	18.4		38.4	38.4	28.9	Other
Fulton	22.2	28.9	27.1	24.3	28.9	25.6	Hispanic White
Gibson	24.1	27.1	25.4	23.5	27.1	25.0	Hispanic White
Grant	20.1	21.0	19.0	18.1	21.0	19.6	Hispanic White
Greene	29.2	28.6		26.5	29.2	28.1	Non-Hispanic White
Hamilton	25.1	27.6	27.2	25.5	27.6	26.4	Hispanic White
Hancock	26.1	16.6	17.0	29.4	29.4	22.3	Other
Harrison	29.6	25.2	21.2	32.6	32.6	27.1	Other
Hendricks	25.8	26.6	26.5	26.8	26.8	26.4	Other
Henry	24.3	27.3	19.7	27.8	27.8	24.7	Other
Howard	18.3	15.8	16.7	20.5	20.5	17.9	Other
Huntington	20.7	23.9	19.4	20.7	23.9	21.2	Hispanic White
Jackson	21.6	26.2	21.0	20.0	26.2	22.2	Hispanic White
Jasper	27.1	28.8	4.8	41.1	41.1	25.4	Other
Jay	22.3	22.9	21.1	23.0	23.0	22.3	Other
Jefferson	22.3	16.5	16.5	19.8	22.3	18.8	Non-Hispanic White
Jennings	25.5	33.3	25.7	26.3	33.3	27.7	Hispanic White
Johnson	25.4	20.5	20.9	26.4	26.4	23.3	Other
Knox	19.3	23.7	8.8	17.8	23.7	17.4	Hispanic White
Kosciusko	20.4	19.7	19.2	20.5	20.5	20.0	Other
LaGrange	21.0	25.7	27.8	18.5	27.8	23.3	Black
Lake	27.8	27.0	27.9	27.1	27.9	27.5	Black
LaPorte	22.7	23.9	20.2	20.7	23.9	21.9	Hispanic White
Lawrence	25.2	35.2	24.5	27.0	35.2	28.0	Hispanic White
Madison	24.0	26.9	22.2	26.7	26.9	24.9	Hispanic White
Marion	22.8	26.0	24.9	24.9	26.0	24.7	Hispanic White

Table 3.29 County Travel Times (Minutes) by Race and Maximum and Mean Travel Time within County (continued)

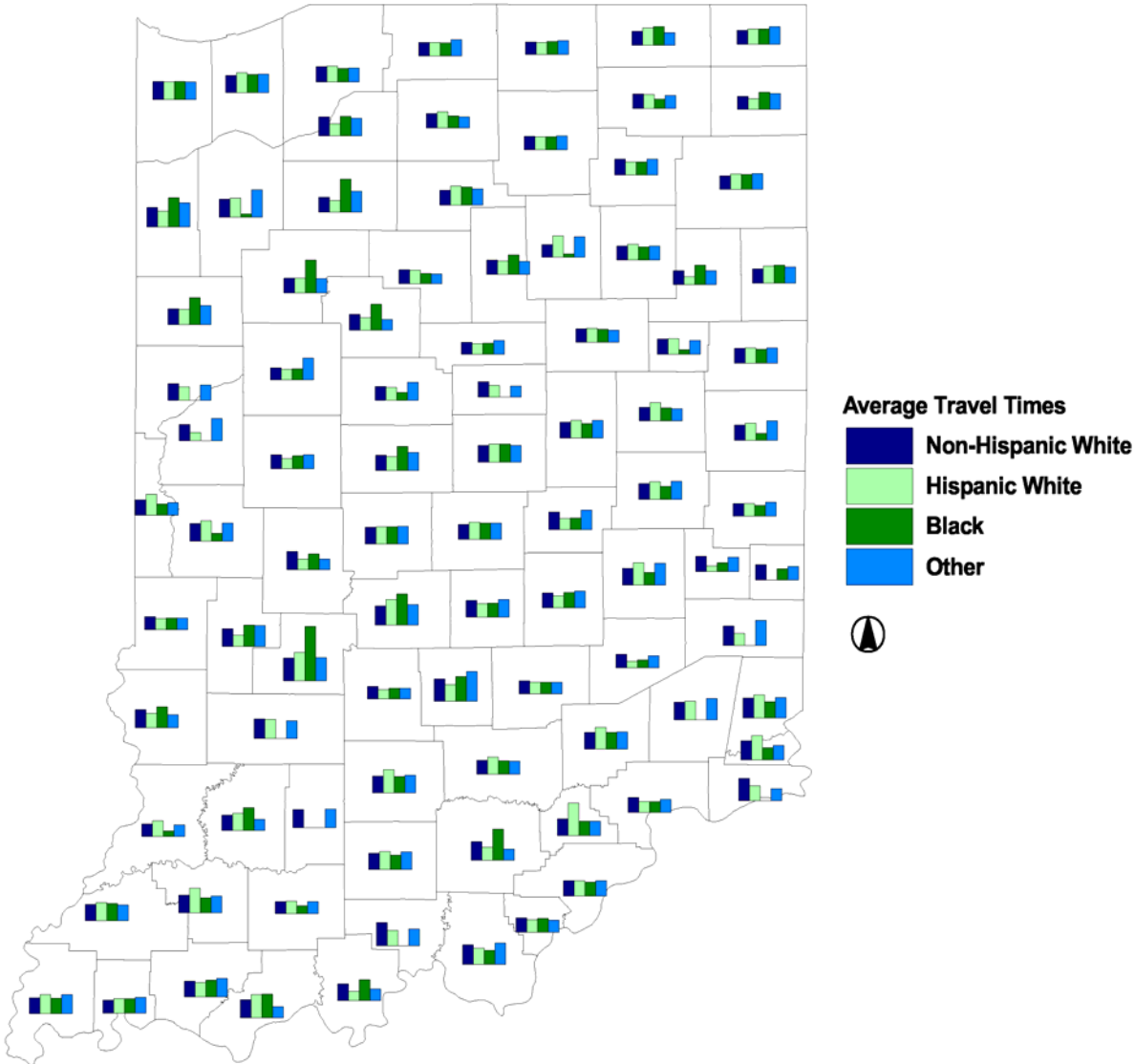| County	Non-Hispanic White	Hispanic White	Black	Other	Max Travel Time	Mean Travel Time	Longest Commuters
Marshall	21.9	24.6	18.5	17.1	24.6	20.5	Hispanic White
Martin	27.0			28.0	28.0	27.5	Other
Miami	22.0	20.7	30.0	20.2	30.0	23.2	Black
Monroe	19.1	14.1	16.0	15.8	19.1	16.3	Non-Hispanic White
Montgomery	21.0	15.1	19.7	21.0	21.0	19.2	Non-Hispanic White
Morgan	28.9	38.4	46.6	30.9	46.6	36.2	Black
Newton	30.0	24.1	44.5	36.7	44.5	33.8	Black
Noble	21.9	21.4	14.3	19.9	21.9	19.4	Non-Hispanic White
Ohio	28.6	37.0	18.4	22.0	37.0	26.5	Hispanic White
Orange	24.9	27.3	22.0	26.7	27.3	25.2	Hispanic White
Owen	34.2	43.2	82.0	34.8	82.0	48.6	Black
Parke	26.4	30.8	12.0	27.1	30.8	24.1	Hispanic White
Perry	24.8	13.9	31.3	17.2	31.3	21.8	Black
Pike	26.2	37.0	22.0	25.2	37.0	27.6	Hispanic White
Porter	26.3	30.5	27.8	28.2	30.5	28.2	Hispanic White
Posey	23.8	28.5	23.3	28.4	28.5	26.0	Hispanic White
Pulaski	22.4	17.2	49.5	31.3	49.5	30.1	Black
Putnam	26.7	16.3	23.9	16.4	26.7	20.8	Non-Hispanic White
Randolph	23.3	26.0	10.4	29.5	29.5	22.3	Other
Ripley	26.2	27.8		32.4	32.4	28.8	Other
Rush	25.3	33.9	19.0	33.2	33.9	27.8	Hispanic White
Scott	25.3	49.5	22.0	21.9	49.5	29.7	Hispanic White
Shelby	22.8	18.3	23.2	25.6	25.6	22.5	Other
Spencer	27.5	35.6	36.0	17.1	36.0	29.1	Black
St. Joseph	20.7	20.8	20.0	25.0	25.0	21.6	Other
Starke	29.2	18.4	29.5	26.7	29.5	26.0	Black
Steuben	21.4	23.1	23.1	26.7	26.7	23.6	Other
Sullivan	27.3	22.0	32.0	19.8	32.0	25.3	Black
Switzerland	33.7	22.0		17.8	33.7	24.5	Non-Hispanic White
Tippecanoe	18.1	16.0	17.1	33.5	33.5	21.2	Other
Tipton	22.9	17.8		17.0	22.9	19.2	Non-Hispanic White
Union	23.5		17.0	20.5	23.5	20.3	Non-Hispanic White
Vanderburgh	19.6	21.6	21.6	24.1	24.1	21.7	Other
Vermillion	23.3	31.3	17.0	18.8	31.3	22.6	Hispanic White
Vigo	19.7	17.3	18.0	17.7	19.7	18.2	Non-Hispanic White
Wabash	19.4	32.6	5.5	31.1	32.6	22.2	Hispanic White
Warren	25.5	20.3		23.2	25.5	23.0	Non-Hispanic White
Warrick	23.9	22.3	25.4	28.2	28.2	25.0	Other
Washington	28.2	20.1	47.0	16.6	47.0	28.0	Black
Wayne	19.3	19.1	16.8	21.1	21.1	19.1	Other
Wells	21.0	12.3	29.5	20.9	29.5	20.9	Black
White	22.2	22.1	49.7	21.8	49.7	28.9	Black
Whitley	23.7	19.8	19.5	23.4	23.7	21.6	Non-Hispanic White
State	23.0	24.1	24.2	25.4	25.4	24.2	Other

■ 3.5 Analysis of General Survey Responses from an Environmental Justice Perspective

Data from the market research survey provides more depth to our understanding of EJ issues in Indiana. In this segment of the EJ analysis, we examine differences that exist between EJ and non-EJ populations with respect to household characteristics, travel behavior and attitudes on transportation issues. Respondents were classified as part of an Environmental Justice (EJ) group in cases where the respondent reported:

- Being of a race/ethnicity that is other than white; or

- Being of more than one race; or

- A single person earning less than $15,000 a year; or

- Belonging to a household of two or more people that earns less than $25,000; or

- Belonging to a household of three or more people that earns less than $35,000.

This set of criteria is consistent with that used in the examination of census demographic data with minor differences in the definitions' income components. The demographics analysis qualified individuals as being in the EJ population if they fell below poverty, as defined by the U.S. Bureau of the Census. While the Census definition of poverty varies by region and accounts for other cost of living factors, the more simplified income criteria used for this analysis is dependent only on household income and household size.

The survey method over-sampled EJ populations to ensure adequate representation of both EJ populations and non-EJ populations for the analysis. However, since the survey was conducted via telephone, the segment of population that cannot afford to maintain phone service at home is not represented. However, though the survey could not reach this segment of the state's EJ population, the EJ sample of the survey is large enough to indicate differences between EJ and non-EJ populations.

Table 3.30 presents the survey sample population stratified by race and household income. White respondents represent the largest racial group in the sample, composing 86.5 percent of the surveyed population. Black respondents represent the largest minority racial group, composing 7.4 percent of the total surveyed population. Given that Hispanic and Latino communities are growing in Indiana, it should be noted that this segment of the population is probably slightly under-represented in this survey sample.

The distribution of household income suggests that Indiana has a fairly stable base of middle-income households. Most households earn an annual income of between $50,000 to $75,000, followed by the range of $35,000 to $50,000. No correlation was found between household income and race.

Table 3.30 Cross-Tabulation of Household Income and Race

	Below $15K	$15K-25K	$25K-35K	$35K-50K	$50K-75K	$75K-100K	$100K+	Don't Know	Refused	Total
Black (African-American)	12 (14.46%)	16 (19.28%)	13 (15.66%)	8 (9.64%)	16 (19.28%)	6 (7.23%)	4 (5.13%)	1 (1.20%)	7 (8.43%)	**7.35%**
White (Non-Hispanic)	60 (6.14%)	100 (10.24%)	132 (13.51%)	176 (18.01%)	208 (21.29%)	106 (10.85%)	68 (6.96%)	11 (1.13%)	116 (11.87%)	**86.54%**
Hispanic/ Latino	0 (0.00%)	5 (29.41%)	3 (17.65%)	2 (11.76%)	4 (23.53%)	0 (0.00%)	1 (5.88%)	0 (0.00%)	2 (11.76%)	**1.51%**
Asian/ Pacific Island	1 (10.00%)	0 (0.00%)	2 (20.00%)	0 (0.00%)	1 (10.00%)	2 (20.00%)	2 (20.00%)	0 (0.00%)	2 (20.00%)	**0.89%**
Native American	0 (0.00%)	2 (33.33%)	1 (16.67%)	1 (16.67%)	0 (0.00%)	0 (0.00%)	1 (16.67%)	0 (0.00%)	1 (16.67%)	**0.53%**
Multi-race	3 (15.79%)	1 (5.26%)	6 (31.58%)	2 (10.53%)	3 (15.79%)	2 (10.53%)	2 (10.53%)	0 (0.00%)	0 (0.00%)	**1.68%**
Total	**6.82%**	**11.07%**	**14.08%**	**16.83%**	**20.64%**	**10.27%**	**6.91%**	**1.06%**	**12.31%**	**100%**

Survey Analysis Findings

ANOVA analysis was used to measure statistical difference in EJ and non-EJ survey responses. Statistical significance was based on a 95 percent statistical confidence level. The following sections highlight significant findings with respect to:

- EJ and non-EJ Household Characteristics and Travel Behavior;

- EJ and non-EJ Attitudes on transportation policy issues; and

- Differences among segments of the EJ population.

Household Characteristics and Travel Behavior

Overall survey results indicate that EJ populations are not nearly as mobile as non-EJ populations.

- *Non-EJ households typically have more vehicles available.* Non-EJ households have on average 2.12 vehicles, while EJ households average 1.65 vehicles.

- *Non-EJ households typically have more workers.* Non-EJ households have on average 1.48 workers, while EJ households have an average of 1.33 workers. The correlation between EJ households and households with zero workers is marginally significant. See Table 3.31.

Table 3.31 Cross-Tabulation of EJ Classification and Presence of Workers in Household

	Non-EJ Household	EJ Household
Household with no workers	17.75%	22.73%
Household with at least one worker	82.25%	77.27%

- *EJ households tend to travel less than non-EJ households.* Most EJ households reported traveling less than 10,000 miles in the past 12 months (42.4 percent of EJ respondents), while most non-EJ households reported traveling between 10,000 to 20,000 miles (27.7 percent of non-EJ respondents). See Table 3.32.

Table 3.32 Cross-Tabulation of EJ Classification and Miles Traveled by Household in Past 12 Months

	Non-EJ Household	EJ Household
Traveled <10k miles	26.44%	42.44%
Traveled 10k to 20k miles	27.68%	22.27%
Traveled 20k to 30k miles	19.77%	13.45%
Traveled 30k to 40k miles	(10.06%)	5.88%
Traveled 40k or more	13.22%	9.66%
No response	2.82%	6.30%

- *Non-EJ respondents are more inclined to make long-distance trips more frequently.* Non-EJ respondents reported taking on average 18.5 trips that were greater than 75 miles one-way in the past 12 months. EJ respondents averaged 8.3 trips.

- *EJ respondents rely more heavily on Amtrak for intercity/regional travel.* On average, EJ respondents reported taking Amtrak 4.7 times in the past 12 months, while non-EJ respondents averaged 0.4 trips on Amtrak in the past 12 months.

- *EJ respondents rely more heavily on public transportation.* EJ respondents reported having ridden a bus or train 2.2 times on average in the past 30 days, while non-EJ respondents averaged 0.25 times.

- *Non-EJ respondents tend to drive to work more than EJ respondents.* 70.2 percent of non-EJ respondents reported driving a car, truck or van to work the week prior to the survey. 63.8 percent of EJ surveyed provided the same response.

Areas where EJ and non-EJ respondents do not seem to be significantly different are household size and the frequency of passing through Indiana airports.

Attitudinal Analysis

A significant part of the survey was designed to capture the respondent's attitudes toward transportation policy issues in three dimensions:

- The *importance* of various transportation policies;

- The *priority* that should be placed on various transportation issues; and

- The level of *satisfaction* he or she has with how the state is currently addressing these issues.

The policy issues were placed in one of two categories – traditional policy issues and emergent policy issues. The traditional policy issues are nine broad policy areas that are conventionally tied to INDOT's function, such as highway safety and congestion. Emergent issues correspond to issues that are becoming increasingly relevant to INDOT's function, such as homeland security and open land preservation. There was no significant correlation found between EJ/non-EJ to this categorization of policy issues. Therefore, no distinction of traditional or emergent is made in the following discussion of attitudes on policy issues.

Policy Importance Ratings

Respondents were given a list of various transportation policy issues and were asked to rate each issue's level of importance on a scale of 0 to 10, where:

- 0 means "not at all important"; and

- 10 means "extremely important."

For example, for a given policy issue, if EJ respondents provided an average response of 8.9 while non-EJ respondents averaged 5.2, it can be said that EJ respondents place more importance on that issue than do non-EJ respondents.

EJ and non-EJ respondent importance ratings were significantly different for a number of policy issues. In all cases of a significant difference, EJ respondents rated a given policy issue to be *more important* than the level rated by non-EJ respondents. Below, listed in descending order of difference, are the policies where EJ and non-EJ respondents differed (Figure 3.44):

Figure 3.44   Differences in EJ and Non-EJ Importance Ratings
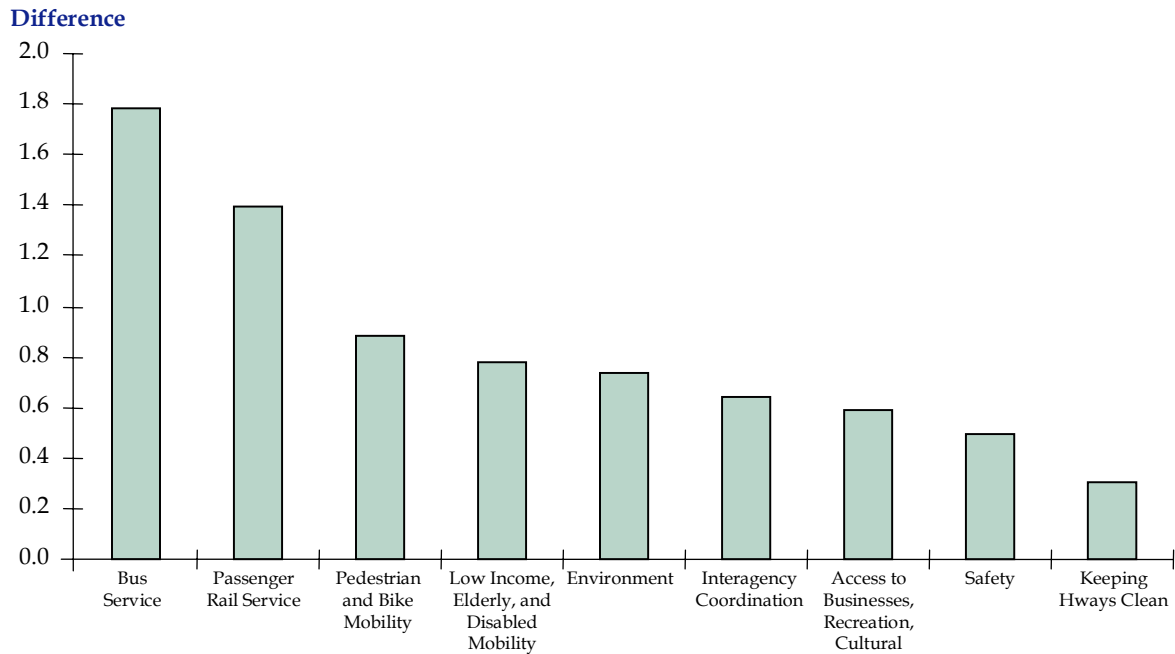
1. Improve bus services (EJ rating: 7.18, Non-EJ: 5.40);

2. Improve passenger rail services (EJ rating: 7.01, Non-EJ: 5.62);

3. Make mobility easier for pedestrians and bicyclists (EJ rating: 7.74, Non-EJ: 6.86);

4. Improve the mobility of low-income, elderly and disabled (EJ rating: 9.00, Non-EJ rating: 8.22);

5. Protect the environment (EJ rating: 8.93, Non-EJ rating: 8.19);

6. Improve interagency coordination (EJ rating: 7.34, Non-EJ rating: 6.70);

7. Improve access to business, recreation and cultural sites (EJ rating: 7.52, Non-EJ rating: 6.93);

8. Improve transportation safety (EJ rating: 8.64, Non-EJ rating: 8.15); and

9. Keep highways clean (EJ rating: 8.72, Non-EJ: 8.42).

Policy Priority Ratings

Respondents were given various transportation policy areas and were asked to rate their thoughts on how well INDOT prioritized these issues. Respondents were asked to provide a rating of 1, 2 or 3 where:

- 1 means "too little attention";

- 2 means "about the right attention"; and

- 3 means "too much attention."

For example, for a given policy issue, if EJ respondents provided an average response of 1.5 while non-EJ respondents averaged 1.8, it can be said that EJ respondents feel that an issue receives less attention by INDOT than felt by non-EJ respondents.

On many issues, EJ and non-EJ respondents have similar perceptions of the appropriateness of focus INDOT places on different policy issues. However, there are some instances where EJ and non-EJ respondents differed. In each of these instances, EJ respondents felt that the issue was given less attention by INDOT than that felt by non-EJ. Policy areas where EJ and non-EJ differed are listed below in descending order of difference:

1. Improving interagency coordination (EJ rating: 1.66, Non-EJ rating: 1.81);

2. Developing the transportation system in ways that protect the environment (EJ rating: 1.53, Non-EJ rating: 1.68);

3. Improving bus services (EJ rating: 1.48, Non-EJ rating: 1.62);

4. Improving the mobility of low-income, elderly and disabled (EJ rating: 1.35, Non-EJ: 1.49);

5. Improving access to business, recreation and cultural sites (EJ rating: 1.67, Non-EJ: 1.81);

6. Making it easier for pedestrians and bicyclists to get around (EJ rating: 1.52, Non-EJ rating: 1.63); and

7. Improving transportation safety (EJ rating: 1.68, Non-EJ rating: 1.77).

INDOT Satisfaction Ratings

Respondents were given statements such as "INDOT builds and expands highways as needed to keep pace with land development." A scale of 0 to 10 was used to assess the respondent's agreement with each statement, where:

- 0 means "disagree completely"; and

- 10 means "agree completely."

For example, for a given policy issue, if EJ respondents provided an average response of 8.9 while non-EJ respondents averaged 5.2, it could be said that EJ respondents are more satisfied with INDOT's performance in that policy area than are EJ respondents.

There were only two areas of significant difference in responses from EJ and non-EJ respondents with regard to their level of satisfaction or dissatisfaction with INDOT's performance. They are the following:

- Building and expanding highways as needed to keep pace with land development (EJ rating: 6.61, Non-EJ rating: 6.20); and

- Keeping state, U.S., and interstate highways, both inside and outside cities, free of congestion (EJ rating: 5.73, Non-EJ rating 5.34)

Closer Examination of Environmental Justice Populations

After establishing differences between EJ and non-EJ populations across the state, we then took a closer look at different segments *within the EJ population*. In particular, we examined whether attitudes within the EJ population reflected possible regional differences.

The greatest differentiator among EJ populations is if respondents reside in a rural or urban setting. It is worth noting that most of the differentiating factors are attitudinal, and not travel behavior.

In fact, the survey results did not find any significant difference in transit use between rural and urban EJ populations, as most would expect. Additionally, rural and urban EJ respondents reported traveling similar amounts over the past 12 months, suggesting that rural respondents reside just as close to or far away from jobs, retail areas, health services, etc., as their urban counterparts. The following are attitudinal differences between urban and rural EJ respondents.

Importance of Issues (0 to 10 with 10 Correlating to "Extremely Important")

- *Urban EJ respondents place more importance on alleviating traffic congestion than do their rural counterparts.* Urban EJ respondents rated this issue as 8.71 on a scale of 1 to 10, 10 being extremely important. Rural respondents rated this issue as 7.88.

- *Urban EJ respondents feel more strongly than rural EJ respondents about improving access to business, recreation and cultural sites.* Urban EJ respondents gave this policy issue an average rating of 7.83 on the scale of importance, while rural EJ respondents averaged a rating of 7.12.

- *Rural EJ respondents, on average, are more concerned about issues of protecting the environment than are urban EJ respondents.* Rural EJ respondents rated this issue at 9.15 in importance, while their urban counterparts responded in an average importance rating of 8.66.

- *Urban EJ respondents place a significantly greater importance on improving bus service than do rural EJ respondents.* Urban respondents averaged an importance rating of 7.76 on this issue, while rural respondents averaged a rating of 6.45.

- *Similar to the issue of bus service, urban EJ respondents placed greater importance on improving passenger rail service than did their rural counterparts.* Urban respondents placed a rating of 7.52 on this issue, while rural respondents provided a rating of 6.40.

- *Rural EJ respondents feel more strongly about the issue of preserving farmland than do urban EJ respondents.* Rural respondents gave this issue an importance rating of 8.50. Urban respondents provided an average rating of 7.85.

Satisfaction with INDOT

- *Urban EJ respondents are less satisfied than rural respondents with how well INDOT manages truck traffic on highways.* Urban EJ respondents averaged a response of 5.79 on a scale of 0 to 10, 10 meaning "agree completely" when given the statement "INDOT keeps truck traffic flowing smoothly on the highways." Rural EJ respondents provided a rating of 6.74.

Household Characteristics

- *The two notable differences between rural and urban EJ households are size and the number of workers in a household.* The average urban EJ household size is 3.07, while for rural EJ households the average is 2.61. Urban EJ households average 1.47 working individuals. Rural EJ households average 1.17 working individuals.

Examining Differences Between Lake County and Marion County EJ Populations

Survey results indicated very few differences in attitude and no differences in travel behavior between Lake and Marion County EJ populations. The survey found that Lake County EJ respondents are less satisfied with how well INDOT manages truck traffic on highways. Lake County respondents averaged a response of 5.07 on a scale of 0 to 10, 10 meaning "agree completely" when given the statement "INDOT keeps truck traffic flowing smoothly on the highways." Marion County respondents provided a rating of 6.64.

On average, Lake County has more workers per EJ household than Marion County. Lake County EJ populations average 1.64 workers per household. Marion County EJ populations average 1.25 workers per household. This is likely to be correlated to Lake County having larger average household sizes (3.07) than Marion County (2.97).

Concluding Remarks

Overall, the survey strongly suggests that Indiana's EJ populations have less mobility than its non-EJ populations. This likely explains why EJ respondents tend to place greater importance on transportation issues than do non-EJ respondents. This may also explain why EJ respondents more strongly feel that INDOT does not place enough priority on certain transportation issues.

A closer look at rural and urban EJ population travel behaviors and household characteristics reveals that the current level of mobility and the need for greater mobility are similar for rural and urban EJ populations. That is, while these two segments of the population share similar transportation needs, strategies to meet these needs will have to be very different given their contrast in settlement patterns (See Demographic Analysis section).

Since 2000 CTPP data will be coming out in the near future, it would be worthwhile to examine this data as it becomes available in the coming months. This data would provide a more comprehensive look at the state's travel patterns and greater insight to differences in journey-to-work characteristics. In particular, it would enrich the findings of this survey by exploring differences in:

- Work locations;
- Trip flows;
- Average travel times/distances; and
- Mode to work (especially the extent of carpooling).

■ 3.6 Interviews

In concert with INDOT staff, Cambridge Systematics identified 16 individuals knowledgeable about environmental justice issues in Indiana, as follows:

- Rose Zigenfus, Evansville Area Transportation Study
- Michael Deering, Indianapolis Metropolitan Planning Organization
- Ken Dallmeyer, Jim Ranfranz, and Steve Strains, Northwest Indiana Regional Planning Commission
- Harold Tull, Louisville, Kentucky Metropolitan Planning Organization
- Dan Avery, Fort Wayne Metropolitan Planning Organization
- Frank Nierzwicki, Bloomington Metropolitan Planning Organization
- Patrick Martin, Terre Haute Metropolitan Planning Organization
- James Hawley, Tippecanoe Area Planning Commission
- Mary Mulligan, City of Gary, Broomfields Coordinator
- Wendy Vachette, Michael Baker Associates
- David Isley, Bernarden-Lochmueller Associates
- Victor Austin, Federal Transit Administration Region 5
- Mary McDonough-Bragg, Federal Highway Administration Resource Center
- Dan Lowery, Indiana University Northwest, Quality of Life Council
- Sandra Leek, Indiana Civil Rights Commission, Executive Director
- Dana Reed-Wise, Indiana Department of Environmental Management

Each person was interviewed either in person or by telephone using the interview guide shown in the accompanying box. These questions were used to provide uniformity in the topics covered, and not as a formal questionnaire. The objective, rather, was to have an informal but nonetheless structured discussion or conversation. The purpose of this subsection is to summarize the key points or highlights that came out of these interviews.

Interview Guide – Environmental Justice

Basic Questions

1. What environmental justice-related issues have emerged as a result of existing planning, project development, operating, and maintenance activities? Have concerns been expressed about potential secondary and cumulative impacts? Is environmental justice being raised in any way as an issue that is related to growth management? Is documentation available describing these issues, and is it possible to obtain copies?

2. What existing procedures and approaches are being used to address potential issues of environmental justice? What has been the experience with these methods? What approaches have been successful? What approaches have not been effective? Why?

3. What kinds of actions in terms of project location, design, operating conditions, or impact mitigation have been taken in response to the environmental justice issues that have been raised?

4. What kinds of possible environmental justice concerns could emerge in the future?

5. How should potential considerations of environmental justice be addressed in transportation systems planning and policy development initiatives that are undertaken by the DOT?

6. What additional activities should the DOT consider undertaking in the future with respect to working with various population groups?

7. Are there additional information or analyses that would be worthwhile undertaking?

8. Are there other people with whom we should speak?

Optional Questions

1. How are "environmental justice" populations defined and identified? What data sources are being used?

2. To what degree is "Limited English Proficiency" an issue? Is this coming up in terms of public meetings and other outreach initiatives? Is this an issue with respect to roadway signage and "customer" relations (e.g., airports, drivers licenses, vehicle registration)? What steps have been taken to working with these populations?

3. Have issues related to environmental justice been raised relative to the structure of transportation organizations, the organization of governing boards, or institutional relationships?

Summary of Interview Findings

Less explicit attention, generally speaking, is being given to issues of environmental justice today than a few years ago. At the same time, the underlying legal foundation for environmental justice in the form of Title VI of the Civil Rights Act of 1964 and other statutes remain unchanged. The fundamental concern is the manner in which the benefits and burdens of transportation policy, plans, programs, projects, operations, and maintenance practices are distributed among various population groups, and whether any "protected" groups are disproportionally burdened. There are, however, important exceptions to this observation of decreased attention. In certain geographic areas both of the country and within Indiana, environmental justice remains an important public policy concern. And especially within the subject of air quality, there is a growing rather than a decreasing concern over the health effects of air toxics and ultrafine particulate matter and the potential that people living in close proximity to major transportation facilities may be disproportionally impacted.

The following is a summary and synthesis of the major findings from the interviews conducted as a part of this project.

Comparing examples from within Indiana to leading practice throughout the country, important environmental justice initiatives already have been taken by INDOT and other organizations with respect to outreach, identification of sensitive populations, and examination of the manner in which benefits and burdens are distributed among potentially sensitive populations. These include the mapping of Census data within the I-69 corridor, the use of community impact analysis in the Route 231 Lafayette study, the use of community-based project offices, the involvement by the Indianapolis MPO of schools in community and transportation planning, and NIRPC's use of a nationwide Environmental Justice Planning Challenge Grant to work with the Center for Neighborhood Technology and the Indiana University Northwest Environmental Justice Project.

Environmental justice is not now a major issue on individual projects except in Gary, Hammond, and other urbanized areas in the Northwest. A number of the interviewees, however, indicated that issues of environmental justice likely will grow in significance over time since Indiana's population is becoming increasingly diverse. With some exceptions, "the critical numbers are not there yet." "There are so many other issues overshadowing environmental justice that it is rarely mentioned." "Major transportation projects are located more in rural and suburban portions of the State than in the central cities where minority populations are living."

Environmental justice, except within the Northwest, typically is not raised as an issue in the planning of new or expanded transportation projects. Issues associated with preservation of land resources, historic preservation, and economic development "are driving the environmental process right now." In Indianapolis, "there have been all kinds of community concerns raised about all aspects of transportation, such as congestion, air quality, sidewalks, suburban sprawl. However, while these issues have been raised by specific communities and related to geographic location, the concerns have not been tied specifically to minority and/or low-income populations. In other words, people are not

claiming that projects or programs are discriminatory on the basis of race or income." Except in Northwest Indiana, issues exist that may not be perceived as environmental justice that in other parts of the country would be labeled and addressed as environmental justice. This does not mean that issues of environmental justice do not exist, only that they are not perceived and recognized as issues of environmental justice. "Indiana just has smaller numbers, but the issues are the same as in other parts of the country. If they are not addressed now, then they will become a necessity."

Specific environmental justice issues mentioned in the interviews include highway locations that have divided Black neighborhoods and displaced Black residents, the availability of adequate financing for public transportation services, frequency of bus service, hours of the day during which public transportation services are available, the safe location of bus stops, locating economic development so that it meets the needs of minority and low-income populations, INDOT contracting practices, INDOT hiring and promotional practices, and roadway maintenance practices. These issues exist more in urban than rural areas, but also are present in some smaller and midsized urban areas.

Indiana's population having only a limited proficiency in the English language is growing but to date the need for INDOT to communicate in multiple languages has not been a problem. However, the need to work in different languages and different cultures almost certainly will increase in the future.

Population groups of interest from an environmental justice perspective most commonly are defined on the basis of race, ethnicity, and income. The growing emphasis within INDOT and other government agencies to focus on meeting customer needs is viewed as a very positive development. "Governments have not always recognized citizens as their customers." Adopting a customer-driven perspective, though, brings another change: the desire to examine different segments of the customer market being served by the agency's services. The needs of two additional population groups are important in this regard. The first is the need to adapt highway and public transportation services to meet the needs of an increasing aging population. The second, under the Americans With Disabilities Act of 1990, is the need to ensure that, "No qualified individual with a disability shall, by reason of such disability, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal assistance."

Two basic approaches have been taken to identifying environmental justice populations, and thus the existence of potential issues of environmental justice. The first is to define a threshold, such as the statewide or regional average, and then map those areas that are above this threshold by a particular amount. The second is simply to examine the percentage distribution of various population groups independent of any threshold level, and then to use these results as a guide for developing a targeted program of community interaction activities. Experience nationally has shown that threshold-based approaches are less satisfactory.

There is a desire for increased environmental justice training and guidance on the part of regional and local practitioners involved in transportation planning and project development. Too often, a cultural gap exists between professional transportation planners and low-income, racial, and ethnic communities. People, be they from INDOT or a local

community, naturally feel uncomfortable when asked to work cooperatively with one another. In many cases, members of environmental justice communities are either unwilling or unable to attend traditional styles of public outreach meetings. Community impact analysis has been successfully utilized but is not yet widespread or routine practice. Many traditional transportation modeling and planning tools examine populations in the aggregate rather than by factors such as race, ethnicity, age, and gender. How do you evaluate, communicate, and display tradeoffs in impacts between regional and community objectives? How do you determine if the distribution of benefits and burdens among different population groups is proportional? The impacts of transportation on public health are just beginning to be examined and are not yet widely understood, but nonetheless are increasingly being used as the basis of legal challenges. A variety of demographic and spatial analysis tools exist that are not yet routinely applied within the transportation profession.

While those interviewed acknowledged that important steps with respect to environmental justice already had been taken by INDOT, a number of the interviewees at the same time felt that not all of the desired perspectives and viewpoints were either at the table or fully represented. In other words, while these initial steps are important, they are not sufficient. Training needs to be extended into awareness, sensitivity, actions, and even modified decisions. Actions should be taken in the form of the breadth and depth of community involvement activities, the number of projects where issues of environmental justice are examined, the kinds of technical analyses undertaken, the specific performance measures and tradeoffs examined, and the linkage of transportation with community development decisions. Further, the majority of existing environmental justice analyses now are occurring at the project level. Considerations of environmental justice also should be addressed in the development of transportation policies and during the development of systems-level transportation plans and transportation improvement programs.

Finally, a few of those interviewed commented on the evolving mission of state DOTs. Viewed in the context of broad public policy, state DOTs increasingly no longer are viewed as simply road building and maintenance organizations aimed at providing mobility. Rather, the role of a state DOT is to manage capital and operating expenditures on all modes of transportation so that these investments also simultaneously contribute to the achievement of a broad range of economic, community, environmental, recreational, and other public objectives. This same shift in orientation occurs when transportation decisions are viewed from the perspective of meeting customer needs. Customers not only want to purchase mobility with their tax dollars, they want this mobility provided in a manner that is consistent with a high level of community, neighborhood, and environmental quality. Viewed in this broader context, it was observed that transportation decisions should be better coordinated with land development decisions at both the neighborhood and regional scale and that transportation decisions should be made so as to support the needs of Indiana's diverse population groups. Most basically, the principles of environmental justice are consistent with the concept of customer-driven performance measures and decision-making.

■ 3.7 Potential Actions

Given the above findings in conjunction with the findings of both the market research survey and the analysis of year 2000 Census data, the following are actions that INDOT could take to improve the manner in which potential issues of environmental justice are addressed in agency decision-making:

1. Establish a department-wide environmental justice policy.

2. Continue to move towards a customer orientation in all aspects of INDOT's planning and operations. Work to make INDOT friendlier to all of its customers – the general public, elected and appointed officials, businesses, local and regional agencies. Take a human and community view in all aspects of agency decision-making.

3. Assess environmental justice for INDOT policies and system plans. Include measures of environmental justice in the set of performance measures used to evaluate transportation system plans and programs and the ongoing monitoring of agency operations. Examine issues of environmental justice from the top down and not just from the bottom up in terms of project-level planning and design.

4. Move away from using threshold-based approaches to identifying environmental justice populations, relying instead on numbers of different populations and the distribution of populations. Include low-income populations in examination of environmental justice issues.

5. Establish a department-wide working group, including representatives of other state agencies, to identify potentially important issues and to coordinate approaches.

6. Expand the multimodal program orientation of the department, especially with respect to the availability of public transportation services and the means these services can be accessed by persons of limited income.

7. Develop more in-house professional expertise, including consideration of hiring and promotional practices so as to broaden employee diversity.

8. Provide additional training to help mainstream considerations of environmental justice throughout all aspects of planning, maintaining, and operating Indiana's transportation system. This training should extend to MPOs and transit agencies, and include issues associated with working and living in a multicultural environment.

9. Broaden the usage of community impact analysis in developing transportation system plans as well as for project-level planning and design. Learn to understand and work within the informal structures that exist within all communities rather than relying primarily or even exclusively on formal structures. Addressing potential community issues earlier and more explicitly in the planning process reduces the probability of delays being incurred in the later stages of the project development process, and therefore contributes to the objective of environmental streamlining.

10. Broadly communicate to people, organizations, and agencies the opportunities that are available to provide input to the transportation planning process, and the different approaches that can be used in achieving this interaction.

11. A number of the interviewees recommended that INDOT work cooperatively with MPOs to jointly develop guidelines for the conduct of environmental justice analyses, building upon already existing resource materials. While such state-specific guidance would be useful, the absence of this guidance should not be used as a reason for delaying the systematic assessment of potential environmental justice issues. When undertaken in conjunction with training and appropriate technical assistance, a strong argument can be made to, "Just do it."

   The most frequently requested topic for guidance was for a method to determine if the distribution of anticipated benefits and burdens among different population groups achieved the desired degree of proportionality. Unfortunately, measuring the proportionality of impacts raises numerous conceptual and practical problems. There are, at present, no established legal standards or guidance for deciding how to measure the proportionality of the distribution of benefits and burdens for a plan or project.[6] The U.S. DOT and FHWA however, have published standards for approving actions having disproportionate effects on protected groups.

12. Continue to implement the practice of Context Sensitive Solutions, for systems planning as well as for project planning and development. It is common in transportation and environmental planning to speak in terms of "mitigating" potentially adverse impacts. The most commonly recommended approach for mitigating potential issues of environmental justice is through the practice of Context Sensitive Design. Often referred to as "Thinking Beyond the Pavement," this approach increasingly is referred to as Context Sensitive Solutions. The implication of this change in name is that this approach is just as applicable to system and project planning as it is to design. The practice of Context Sensitive Solutions, in fact, is consistent with the concept of environmental stewardship, where the objective is to develop and operate transportation systems so that they contribute to accomplishing desirable community and environmental objectives at the same time that desired transportation objectives are being achieved.

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[6] The most applicable ruling with respect to the issue of proportionality may be that of the U.S. Court of Appeals for the Fourth Circuit in the *Case of Jersey Heights Neighborhood Association versus Glendening*, 174 F.3d 180 (4th Cir. 1999).

4.0 Perspectives on Land Resources

■ 4.1 Introduction

One of the nine policies adopted by the Indiana Department of Transportation (INDOT) is to "establish and maintain a transportation system that is consistent with the state's commitment to protect the environment." One element of this policy is the manner in which INDOT utilizes and protects existing land resources, an issue that has become increasingly complex as suburban areas have developed and population growth is occurring in rural and small urban areas. The movement of housing and jobs into rural and small urban communities has come to be known as "rural sprawl," complementing the more familiar concepts of urban and suburban sprawl. Open space is being converted to development at a rate that is faster than the growth in either population or housing units.

With these changes, there are particular concerns regarding the protection of agricultural lands, forestland, wetlands, wildlife habitats, and other sensitive land uses. The economy of rural areas is no longer limited to or even primarily agricultural, with housing, manufacturing, service, and trade taking on larger roles. In parallel, agricultural productivity has increased. The result is a tension over the manner in which the increased need for transportation services is met and the manner in which existing land resources are utilized. While there is recognition of the fact that the economic, development, and demographic character of Indiana is changing, there is at the same time a desire to preserve existing characteristics of the land.

Land use and transportation planning traditionally have been conducted in a largely independent manner, and at different levels of government. There is increasing recognition, though that this lack of coordination leads to unintended consequences. As a result, considerable current attention in Indiana and throughout the country is being given to the interconnections between transportation and land use decision-making. Transportation agencies today are actively endorsing the concept of environmental stewardship, where investments in transportation are made in a manner that improves the quality of the environment and affected communities as well as providing improvements in mobility and accessibility.

The purpose of Task 4 of the Market Research Project was to consider how INDOT should change the way in which land resource issues and the interests of resource agencies should be addressed in the transportation planning process. The work involved an identification and analysis of specific land resource issues that are of interest in different parts of the state; interviews with resource agency staff, local transportation planning officials in several small cities and rural areas, and special interest groups; and an examination of the

experience of other states and regions in incorporating land resource considerations into transportation planning.

The work in this task is supplemented by a compendium of transportation planning-related land resource practices being followed in other states and regions provided in Appendix E.

■ 4.2 Interview Findings

Sixteen people were interviewed either in person or by telephone using a 13-question interview guide. The responses of these persons to the 13 questions are characterized in this section.

The following people were interviewed:

- Joe Tutterrow, Director, Indiana Land Resources Council;

- John Bacone, Department of Natural Resources – Division of Nature Preserves;

- Glen Boise, Kokomo/Howard County Plan Commission;

- Rick Chase, Purdue Extension Central District Office;

- Rich Gargas, Central Indiana Regional Community League;

- Jim Hawley, Tippecanoe Area Plan Commission;

- Jonathan Isaacs, Town of Fishers – Planning and Zoning Administrator;

- Ellen Jacquart, Nature Conservancy;

- Dr. Eric Kelly, Ball State University;

- Dan Lowery, Indiana University Northwest and Quality of Life Council;

- Eric Myers, Natural Resources Foundation;

- John Ottensmann, Center for Urban Policy and the Environment at IUPUI;

- Jamie Palmer, Center for Urban Policy and the Environment at IUPUI;

- Phil Roth, Indianapolis MPO;

- Jill Saligoe-Simmel, Indiana Geographic Information Council;

- Ken Dallmeyer, Jim Ranfranz, and Steve Strains, Northwest Indiana Regional Planning Commission (joint interview).

The interviews were conducted using the interview guide shown in the accompanying text box.

Interview Guide – Land Resources

1. What kinds of land resource issues have emerged in recent transportation planning and project development activities with respect to farmland, wetlands, forested lands, and natural resources? Are these issues arising during project development and design, statewide and metropolitan planning, or as a larger policy issue? Is it possible to obtain copies of relevant documentation?

2. Are there portions of the state where these issues or more important or sensitive than in other areas?

3. How important are land resource issues compared to other issues facing the state?

4. Looking into the future, how do you see these issues changing? Do you anticipate that the importance of land resource issues will increase in importance, decrease in importance, or stay relatively the same?

5. What kinds of databases or analyses are available documenting the existing inventory of land resources and how is this inventory is changing over time? Can we obtain copies of relevant documents or databases?

6. What existing procedures and approaches are being used to address land resource issues? What has been the experience with these methods? What approaches have been successful? What approaches have proven not to be effective? Why?

7. How could these existing procedures and approaches be improved? Are there *additional* information or analyses that would be worthwhile undertaking in the future as part of either systems planning or project development?

8. With respect to land resources, what are examples of important performance measures that should be examined?

9. What kinds of actions in terms of transportation project location, design, or impact mitigation have been taken in response to the desire to preserve various types of land resources? How have project designs or locations been modified in response to land resource issues?

10. Are there additional policies, strategies, or activities that INDOT should consider undertaking in the future?

11. How can land resource agencies and land resource interest groups more effectively contribute to, or be involved in, the statewide transportation system planning process? What barriers, if any, may exist in achieving this desired level of involvement?

12. What kinds of changes may occur in the future with respect to the manner in which issues of land use, smart growth, and land resources are managed either at the local or state level?

13. Do you have any other comments, concerns, or issues that we have not discussed?

14. Are there other groups or persons with whom we should talk for additional information?

Summary of Attitudes of Respondents

The following selected quotes provide an overview of the attitude of the respondents:

- "INDOT currently sees transportation planning as something that is done in response to development. In reality, transportation projects direct what happens. INDOT needs to undertake planning with this relationship in mind."

- "People don't feel connected to INDOT – it's hard to get to them – or even figure out who 'them' is."

- "INDOT could probably save money in the long run through greater coordination with local jurisdictions on land use issues."

- "INDOT is often viewed as an adversary… instead, they should be viewed as a consensus-builder."

- "People in the state are generally not anti-highway, and there are lots of people who would love to work with INDOT and see better decisions made."

- "Reaching out to political officials and planners could help INDOT with its public input efforts for the transportation project – specifically, to get public input in an earlier and more effective manner than if INDOT just did it themselves."

- "INDOT needs to go beyond just thinking as a highway agency. They need to start integrating thoughts on transportation, land use and tax policies as they go through the transportation planning process and help provide MPOs with the technical support to do this as well."

- "Support for land preservation is mixed – people like the idea in concept, but cities/ towns do not like having the land taken off of tax rolls."

- "The data stops at jurisdictional boundaries, but the problems don't."

- "I'm not sure people see the relevance of land use planning to their lives… people see the symptoms, but not their relationship to land use."

Responses to Specific Lines of Questioning

1. *What kinds of land resource issues have emerged in recent transportation planning and project development activities? At what stage of the process?*

All interviewees agreed that certain land resource issues have had relatively high visibility in recent major transportation project design and development processes. Farmland preservation is important throughout the state, and especially near expanding urban areas. Two different motivations are cited, depending upon the person/constituency – first,

conservation of prime farmland for agricultural purposes; and second, preservation of the rural and small town character of areas. Forest preservation is of concern for similar reasons. Most interviewees felt that the rate of land loss (especially agricultural) was a concern in the state, although a few noted that the losses are still relatively small compared to total productive land in Indiana.

Many (but not all) interviewees mentioned that secondary impacts – especially development or "sprawl" – induced by transportation improvements are of increasing concern to them, their constituents, and/or the public. There was a general feeling that transportation improvements (new highway, widening, new interchange) eventually lead to development.

However, the reasons that people are concerned about suburban/exurban/rural development vary. Some are concerned because the induced development consumes or impacts rural land (agricultural, forest, open space) or specific sensitive habitats such as wetlands, floodplains, or nature preserves. A related impact is the effect of reducing/ changing rural character. Others, especially representatives of local jurisdictions, are concerned that induced development along the new/expanded highway or in outlying areas can have negative impacts on the performance of the transportation system. They see secondary development impacts not as a problem of land consumption/change, but rather of maintaining transportation system performance. Concerns in most areas are about the capacity of local roads. In the Indianapolis metropolitan area, though, there also is concern about the capacity of the regional freeway system, which people feel is at capacity but cannot be expanded.

In general, people interviewed (especially local officials) were not opposed to development, but just felt that it should go in appropriate places. One local representative noted that they were concerned that highway improvements were made without enough local access, thus failing to provide economic benefits to the community.

Some other, more specific concerns mentioned by one or two interviewees each include:

- Invasive species – Common landscaping and mowing practices along highway rights-of-way either introduce invasive species or allow them to take over. This impacts nearby natural areas as the species spread. Invasive species also have significant negative economic impacts on farmers.

- Fragmentation of forests (as opposed to simple loss of forested land area) – Reduces contiguous forest habitat, affects certain species.

- Runoff/hydrology changes from newly constructed transportation facilities – Can affect and change nearby natural areas, even if the highway does not directly impact the area.

- Groundwater pollution from highway runoff, especially in areas with karst topography.

- Impacts of transportation on tourism – Both as transportation providing access to tourist activities/destinations, but also the negative impact of transportation facilities on areas/locations that are attractive to tourists (noise, traffic, visual intrusion, etc.)

- Animal mortality, e.g., the bobcat in the southern forests.

- Community impacts. In many places, state highways run through the county seat. Traffic safety and capacity improvements have been a concern to some communities because of the impact on community character and ability to walk (sidewalks are not normally included).

Land resource issues typically arise in the transportation project design and development process. While most interviewees had not been closely involved in the statewide plan development process, the feeling was that land resource issues were not being adequately addressed at this stage of planning. For example, land resource issues have not been addressed as part of the Indianapolis long-range transportation planning process, in part because of the unique structure of the MPO (an agency of the City of Indianapolis, although other communities serve on its policy board).

2. *Are there portions of the state where these issues are more important or sensitive than in other areas?*

- Agricultural/open space/rural character preservation is an issue everywhere, but of primary concern near expanding urban areas – namely, Indianapolis, northwest Indiana, and the Louisville metropolitan area fringes.

- Preservation of transportation capacity/performance is most important near expanding urban areas – but this may include smaller urban areas that are "sprawling" as well as the three large metropolitan areas.

- Forest preservation is of greatest importance in the southern part of the state (where the forests are).

- Groundwater pollution is of greatest concern in the southern part of the state, where the karst topography allows pollutants to spread easily.

- Wetlands appear to be of greatest concern in the northwest part of the state, where there are a number of wetlands with sensitive and endangered species.

- Urban/brownfields redevelopment is of greatest concern in the northwest part of the state.

Case studies of key land resource issues in three specific parts of the state are illustrative of these issues.

- **Greater Indianapolis Region –** While the Indianapolis region continues to grow at a relatively slow pace, some areas on the urban fringe have grown more rapidly as

employment and population move to the suburbs. This has caused concern among existing residents of these areas about the protection of rural character as well as inadequacy of existing roadways for serving high volumes of traffic. However, efforts to limit growth and preserve farmland have been controversial because of the desire of many property owners (including some farmers) to sell/develop their property, and because of local jurisdiction interests in economic development (especially revenue-generating commercial development). Urban communities within the City of Indianapolis are concerned about the disinvestment in the inner city that results from suburban development, and want to maintain/strengthen the physical "core" of the region as its economic center. Also, residents in general are concerned that the free-way system appears to be approaching capacity, and that future expansion of existing highways will not be possible.

- **Northwest Indiana –** Of the various regional concerns for community and environ-mental groups in northwest Indiana, land resource issues rank high along with envi-ronmental justice issues. The two most significant land resource issues in this region are sprawl and the reallocation of lakeshore lands as the steel plants move out. Some see an emphasis on highway rather than transit investments as contributing to sprawl and an associated loss of inner-city jobs and population. Environmental constraints related to water supply and sewerage, though, largely limit development to the Lake Michigan watershed, and most transportation projects have occurred within this watershed as well. Lack of adequate transit service for low-income populations is a significant issue, and is related to some extent to dispersed development patterns. Local groups would like to see a master plan for redevelopment of the steel mill areas/waterfront rather than scattered and uncontrolled development.

- **Southwest Indiana –** Because of significant public interest, the I-69 environmental impact statement (EIS) process included extensive documentation and consideration of land resource issues in developing and selecting project alternatives for the Indianapolis to Evansville corridor. Some of the most significant issues of concern included farmland preservation, forest protection, protection of natural areas, and urban sprawl near Indianapolis. There has been a significant debate over the tradeoff between the economic development benefits of the highway and the potential degra-dation of rural character. INDOT brought the consideration of land resource issues into the study process by assembling a GIS database of various environmental data for use in route planning and selection. The database was published as part of the EIS in the form of an "environmental atlas," containing detailed maps showing proposed alignments overlaid on the various environmental data, and that is now being expanded for statewide application.

3. How important are land resource issues compared to other issues facing the state (or local communities)?

The importance of these issues varies by location in the state, with the greatest relative importance and visibility in high-growth suburban fringe areas. People become con-cerned when they see rural land being developed, and experience the associated traffic increases and loss of rural character. The desire for land preservation/growth

management, though, often loses out at the local government level to the desire for economic development and a reluctance to tell property owners what to do with their land. One interviewee from the Indianapolis metropolitan area commented that people see the *symptoms* of land use problems (such as traffic congestion), but not the relationship to land use planning.

At the state level, economic development and the state budget crisis currently have greater importance. The state leadership has talked about land resource issues but has not made it a high priority in terms of new initiatives.

4. *Looking into the future, how do you see these issues changing? Do you anticipate that the importance of land resource issues will increase in importance, decrease in importance, or stay relatively the same?*

The importance/visibility of land resource issues has increased significantly in the last 10 years (from almost nothing). Interest will likely continue to increase in the future, especially in rural areas and the suburban fringe. The fiscal impacts of local development patterns will become of increasing concern to communities given generally tight budgets – development can bring more tax revenue but also require more services. Poorly planned development may have greater negative fiscal impacts than the same amount of well-planned development.

The new Federal farm bill and associated funding is creating greater interest in farmland preservation initiatives.

5. *What kinds of databases or analyses are available documenting the existing inventory of land resources and how is this inventory changing over time?*

National Sources

- National wetlands inventory (last performed for Indiana in the 1980s, but still useful)

- USGS soils survey

- Water and floodplain boundaries

State Sources

- The Department of Natural Resources (DNR) maintains its Natural Heritage Data Center, which has the locations of threatened and endangered species, managed lands, historic/archeological sites, etc. Quality can vary by county, though – species inventory is more thorough in some areas than in others.

- Indiana University Purdue University Indianapolis (IUPUI) has good data, developed from satellite imagery, to track recent land use change (they have classified land use by category at a 30-meter grid cell level for 1985, 1993, and 2000). No one else is tracking this.

- Commissioner of Agriculture has some data on farmland, but it is not comprehensive or detailed (e.g., by county).

- The Lake Rim GIS was developed by the Indiana Geological Survey to address water quality issues in northwest Indiana. It includes data relevant to water quality such as landfill sites and hydrology.

Local Sources

- The quality of land use/land resource data varies by jurisdiction. Some have relatively comprehensive data, others have no data. Many do not have GIS capabilities.

- The Indianapolis MPO has used census data from 1960, 1980, and 2000 in conjunction with USGS maps to determine urbanized land area and population density in each year.

Meta-sources

- The Indiana Land Use Consortium has published a Land Resources Catalog that provides summaries and references to various sources of data.

- The Governor established a group, the Indiana GIS Initiative (INGISI) to coordinate information/data across state agencies and between state and local agencies.

- The statewide environmental GIS currently being developed illustrates the current Indiana state-of-practice in assembling environmental data for transportation planning. This effort is expanding the scope of the 170-layer database completed for southwest Indiana so that it is statewide in coverage. The effort is scheduled to be completed in 2004.

6. *What existing procedures and approaches are being used to address land resource issues? What has been the experience with these methods? What approaches have been successful? What approaches have proven not to be effective? Why?*

At the Statewide Level

- The Department of Environmental Management (DEM), DNR, and nonprofit groups (e.g., Nature Conservancy) identify important/sensitive areas (e.g., wetlands, key habitat) and work to acquire or otherwise manage them for preservation. For example, DEM issues permits for building on a wetland, and mitigation may be required. Indiana has done a standard version of Gap (habitat) analysis.

In Transportation Project Design and Development

- INDOT assembles data, especially on wetlands, preserves, and other sensitive areas, as well as existing development, and works to design projects that minimize direct impacts on these areas (e.g., through alternative project alignment choices). For example, the department commissioned the Indiana Geological Survey to do a relatively

comprehensive data collection and mapping effort for southwest Indiana, and they are expanding this effort statewide for use in transportation planning.

- Interviewees disagreed about the extent to which INDOT adequately addresses land resource and natural resource issues through the EIS process; some felt the agency does a good job, while others did not.

- The Land Use in Central Indiana Model (LUCI) has been developed as a tool for fore-casting urbanization, but has not yet been applied in transportation planning practice. In transportation corridor studies, INDOT has done land use forecasting with the objective of generating population and employment changes to feedback into the statewide travel demand model, but not with the objective of predicting land use change.

In Local Comprehensive Planning

- The amount and quality of comprehensive planning, as well as issues addressed, varies widely by jurisdiction. Some jurisdictions do not do comprehensive planning. *(Note – A recent research effort by IUPUI surveyed the state of practice in planning in Indiana.)* Jurisdictions that plan may often identify areas, such as floodplains that are not suitable for building. Some jurisdictions have parks plans to set aside land for rec-reational purposes. Except for these preserved areas, it is unusual for local jurisdic-tions to place significant restrictions on the type or location of development. If somebody wants to build on a property, the planning/zoning boards are unlikely to deny permission.

- The level of coordination between transportation and land use planning also varies, but well-coordinated planning is uncommon. Most jurisdictions do not have the resources or technical expertise to do good coordinated planning, or to work with developers to site development in appropriate locations from a transportation perspective. Often there is only one person in a planning department, and it is "all they can do to deal with petitions," so they have "no time to analyze the world." Even if planning has been done, there is a reluctance to override the intentions of particular property owners or developers ("zoning is political"). Most counties do at least have a registered engineer (state-subsidized), though, who can review subdivision designs, etc.

7. *How could these existing procedures and approaches be improved? Are there additional information or analyses that would be worthwhile undertaking in the future as part of either systems planning or project development?*

Improvements to INDOT's Procedures and Approaches

- To help address the kinds of land resource concerns raised in these interviews, INDOT currently is in the process of assembling a statewide GIS database, expanding a 170-layer GIS developed for the southwest Indiana region. This comprehensive statewide database can be used up front in the project planning process to identify potential

problem areas, and should to a large extent address the identified concerns. Not all of those interviewed, however, were aware of this effort. Better use of GIS mapping and analysis capabilities will be helpful in identifying areas that should be avoided by transportation facilities. A uniform, comprehensive, and accessible GIS system at the state level, therefore, should be a great benefit.

- Tools are needed for analyzing the impacts of transportation systems on urban development/land development, both at a macro level (urban sprawl, land conversion) and at a micro level (specific interchanges, arterials, subareas, etc.)

- One respondent mentioned that there are models used in Indiana and elsewhere that INDOT could make better use of: for example, Land Evaluation and Suitability Analysis (LESA) to analyze soils, terrain, topography, vegetation, etc., for appropriate facility siting.

- One local planner mentioned the desire for empirical before/after evidence on the impacts of highways on communities, especially on property values of neighborhoods adjacent to the highway.

- One comment was made that "The time engineers/planners/analysts spend working on EISs would be more productively used working with local governments where impacts and needs are understood."

It is important to note that many of the land resource issues involving transportation projects appear to arise more from disagreements on the relative importance of various impacts than from a lack of data/information on the impacts. There also is disagreement about the interpretation of impacts, and the value system associated with an impact. If a road project brings economic development to a depressed rural community, it's a positive impact if you care about economic health, but a negative impact if you care about maintaining rural lifestyles.)

Improvements to Local Planning Procedures and Approaches

- There was widespread agreement that training for local planners and engineers is extremely important. "Training is often a better planning tool than zoning and subdivision regulations." There is a general lack of professionals in technical jobs at the local level, largely due to insufficient financial resources. However, the staff that are in place, as well as volunteer positions such as planning and zoning board members, could benefit from additional training and technical support. Some training activities are conducted (e.g., through IUPUI, Purdue Extension, Indiana Land Use Consortium) but more are needed.

- One specific area in which greater technical support is needed is the ability to do traffic impact analysis and mitigation related to development. Local planning commissions need to know how to respond to development in terms of providing appropriate road infrastructure (e.g., when is a signal, passing lane, etc., needed; do local roads have the capacity to handle planned development).

- Better coordination is needed among local jurisdictions. Specifically, consistent data classifications and information maintenance systems are required; and cross-jurisdictional coordination of planning efforts is required. The need for comprehensive and consistent land use data was mentioned specifically in the Indianapolis metropolitan region, where a lack of such data hampers efforts to jointly plan for transportation, land use, and economic development from a regional perspective. The Indiana Geographic Information Council is attempting to establish standards and work with local jurisdictions to develop more uniform and comprehensive data.

8. **With respect to land resources, what are examples of important performance measures that should be examined?**

Many interviewees noted that induced development (along an arterial, near an interchange, or elsewhere within a community) was an important performance measure – e.g., location and amount of residential and commercial development. Interest in the specific types of impacts from this induced development, however, varied considerably. Also, some interviewees noted that the key performance measures vary depending upon the situation. Specific suggestions included:

- Fiscal impacts – cost of providing services versus tax revenue gains;

- Transportation impacts, including traffic congestion and safety;

- Loss of land by type and quality, e.g., forest land, farmland, wetland, important/ unique habitats;

- Efficiency of land used for urban purposes – e.g., jobs/acre, population/acre, gross state product generated per unit of new land development;

- Forest fragmentation;

- Introduction of invasive species;

- Economic benefits to the community (businesses, jobs, etc.); and

- Tourism benefits.

9. **What kinds of actions in terms of transportation project location, design, or impact mitigation have been taken in response to the desire to preserve various types of land resources? How have project designs or locations been modified in response to land resource issues?**

Most respondents felt that INDOT is taking land resource issues into account in making specific alignment/routing choices for facilities, e.g., to avoid particular natural areas, wetlands, or other environmentally sensitive locations. INDOT has given greater consideration to this factor within the past few years. Respondents disagreed, though, about the extent to which consideration was taken and appropriate decisions made. For example,

the DNR felt that INDOT has coordinated well with them on avoiding preserves and natural areas, while the Nature Conservancy felt that INDOT had not responded to some of their concerns. Also, avoiding major forest fragmentation may result in farmland takings and potential secondary impacts from "greenfields" development. Respondents' differing opinions appear, in part, to reflect value judgments on the relative importance of different issues, including land resources and other issues such as economic development.

Respondents noted that INDOT has been less likely to evaluate or make changes that address secondary impacts due to the transportation facility (noise, runoff, etc.) than primary impacts (directly from the facility itself).

Other observations included:

- Mitigation is commonly performed, e.g., through the replacement of wetlands or acquisition of other natural areas not on the alignment. The state has begun a wetland mitigation banking program.

- Two examples were cited where INDOT worked with the local communities to implement additional landscaping, one in the Town of Fowler (wildflowers) and one in Fishers. These were noted as exceptions rather than standard practice, however.

- INDOT has been reluctant to make highway design changes to address local community character issues/impacts, although in some cases such changes ultimately have been made after pressure from the community. For example, a town in western Indiana had to "work hard" to get sidewalks included as part of a highway upgrade project through the town.

- Potential secondary impacts on land development have been given limited, if any, consideration to-date.

10. Are there additional policies, strategies, or activities that INDOT should consider undertaking in the future?

Within the transportation planning and project development processes, interviewees generally felt that INDOT should give more consideration to the secondary impacts of transportation projects, and should help to avoid or mitigate those impacts. The most frequently mentioned area was that INDOT could work more closely with local jurisdictions to coordinate transportation planning and land use planning. Interviewees stressed that while local land use/planning decisions are not INDOT's responsibility, INDOT nonetheless is an important stakeholder in these decisions because of the implications for the transportation system. Interviewees felt that there were a number of beneficial ways in which INDOT could assist and work with local jurisdictions to improve planning practices. Interviewees also noted a desire for greater coordination between INDOT and other statewide agencies and interest groups.

Interviewees had the following suggestions for better coordinating transportation planning with local planning, and especially land use planning:

- A process is needed for INDOT to work with cities and counties in affected corridors earlier in the planning and project development process, i.e., before alternatives are fully defined. INDOT should solicit input on how the project should fit in with local land use goals and objectives, and also could work with local jurisdictions to ensure they are considering the potential impacts of the roadway on their community.

- INDOT should work with local jurisdictions to ensure that potential impacts of a roadway improvement on a community are being considered in other aspects of community planning. For example, local planners need to know where projects are going early in the planning process, so that local comprehensive plans can support state transportation projects. This will "protect the locals from doing things that get in INDOT's way."

- INDOT should view/work with local officials as a resource – often local officials may have knowledge about data sources, impacts, best mitigation strategies, etc., that would be useful in project design/development. INDOT needs to tap into this knowledge and provide a forum for airing local knowledge, issues, and concerns.

- INDOT should pay more attention to local knowledge in creating its population, employment, and traffic forecasts (this viewpoint was expressed primarily by local planners). Some interviewees expressed concern that the statewide modeling system does not adequately account for local traffic or projected growth in the future. Local jurisdictions sometimes keep close track of new development and believe they can provide more accurate forecasts.

Interviewees also mentioned specific ideas for improving coordination between transportation and land use planning, such as:

- Assign INDOT planners and engineers to stay in touch with locals, e.g., by attending planning commission meetings or meeting with local officials to understand issues important in each community. INDOT may not be able to do this with all communities, but should at least focus on larger jurisdictions.

- Provide technical assistance to help local jurisdictions address the infrastructure impacts/needs related to new development. For example, when a subdivision or commercial development is proposed, the state highway engineer is supposed to comment on how it will affect traffic flow, but this communication comes through the county highway engineer who says "the state requires this." One interviewee commented that sometimes the planning commission gets good information, and sometimes not. Local agencies need to know what is needed from an infrastructure perspective to support new development. This issue is particularly critical in rural counties that may not have a registered engineer.

- Support technical assistance for comprehensive planning efforts. For example, the state could help locals understand the importance of doing comprehensive planning with transportation impacts/needs in mind. How can transportation facilities be planned to serve new development, and what options are available for doing this?

- Local agencies should consult with the state whenever a comprehensive plan is revised, including how the plan might affect/require transportation projects.

- Use the Land Resources Council as a communications vehicle.

- Make it easier to contact INDOT; for example, identify a point of contact for groups with concerns.

Suggestions to improve coordination with other state agencies and interest groups included:

- INDOT needs to become more of a consensus-builder with tourism, economic development, natural resource, etc., interests. More interagency coordination is needed.

- Hold quarterly meetings with mid- to high-level people from other state agencies to talk about issues.

- Form interagency coordination groups around specific issue areas.

- The state can help in obtaining/channeling Federal funds available for land preservation – possibly a role for the Land Resources Council.

Finally, interviewees made specific suggestions for improving transportation facility design and management practices. Of these, access management and right-of-way acquisition were commonly mentioned; the other recommendations were mentioned by one or two interviewees each.

- Address access management; limit the number of driveways/access points along major arterials. Interviewees recognized, though that this may not be easy. Because property owners must legally be given access to their land, this may require coordinating with local jurisdictions and property owners to construct access roads. One interviewee suggested the need for more flexibility in allowing access management for lower classes of functional roads.

- Be more proactive about protecting right-of-way for future new transportation facilities, facility expansion, and interchange development. Right-of-way should be acquired well before the facility is actually needed, when land is cheap and local opposition or potential displacement is minimal.

- Consider actions to protect specific sensitive areas from development, such as acquiring easements on land adjacent to roadways or guaranteeing no curb cuts. Elkhart County acquired an easement on a wetland as a condition for obtaining a permit from the DEM to construct a bypass.

- Revise landscaping and roadside maintenance practices; specifically, stop planting crown vetch (an invasive species that moves into natural areas adjacent to highways) and instead plant a "good mix of native seeds." Manage presence of invasive species, such as Johnson grass and Canada thistle, along roadways.

11. How can land resource agencies and land resource interest groups more effectively contribute to, or be involved in, the statewide transportation system planning process? What barriers, if any, may exist in achieving this desired level of involvement?

Most of the interviewees were either not aware of the statewide planning process or were not very familiar with it. Two comments on this process included:

1. The current modus operandus (or at least, many peoples' impression) seems to be that INDOT proposes a statewide plan and asks for reactions – at which point, it's too late to make significant changes. There is an impression that INDOT already has decided what they want and that other groups' input does not matter.

2. The statewide plan appears to be primarily a laundry list of projects on the back burner.

One local jurisdiction (combined county/MPO) commented that they have had discussions with INDOT about the statewide plan and they agree on most points but not all. Disagreements tend to be about future traffic volumes (especially underprediction) and future connections. These issues (e.g., need for greater capacity) eventually get worked out in the design process.

Constructive advice for improving the statewide planning process included:

• A more formal and forward-thinking statewide planning process is needed to address transportation issues from a long-term statewide and community development perspective.

• More information and outreach is needed. Get information on issues being discussed in the process (including issues that affect land resources) out to local jurisdictions, other state agencies, and various interest groups earlier, so that these groups can understand where the process is going and what opportunities they have to provide input. The same comment holds true with involving local jurisdictions and other state agencies.

• Greater interagency coordination methods are needed. One idea is to hold a quarterly meeting of mid- to upper-level officials of the agencies. Another idea is to create advisory groups for various interest areas such as tourism and natural resource/land preservation. A structure is needed where people already are at the table, rather than having issues raised on a project-specific basis.

• The statewide planning process does not appear to be well-connected to the legislative process. If the legislature understood the overall plan, they might be more supportive. (One interviewee suggested having the legislature approve the statewide plan as a policy document.)

• Meetings should be led by professional facilitators rather than engineers.

12. What kinds of changes may occur in the future with respect to the manner in which issues of land use, smart growth, and land resources are managed either at the local or state level?

Some local jurisdictions in rapidly growing areas will consider more innovative and aggressive approaches to land resource management; others will at least "pay attention" to the issue. For example, the Indiana Land Use Consortium is working with Putnam County on how to better address land use issues in planning. In most counties, though, planning is not going to change, local zoning controls are "not really going to happen," and traditional attitudes towards allowing development will continue.

One interviewee commented that the state is likely to get better at supporting local planning. For example, changes are in the works with respect to wastewater policy, which affects the suitability of land near interchanges for development. Some progress also is being made on invasive species. Others commented, though that short of gubernatorial leadership, the state is not likely to take a much more active role in land resource issues – especially given the current budget crisis. Interviewees were of the opinion that the process for addressing land resource issues by the Legislature will continue to be reactive rather than proactive (e.g., exceptions to specific rules to allow specific things to happen).

There has only been limited interest in Smart Growth policies so far, and it is not clear from the interviews whether this will increase.

13. Do you have any other comments, concerns, or issues that we have not discussed?

- One interviewee commented that the Transportation Enhancements (TE) program should be better staffed and made more visible. More resources for this program could lead to a greater return for INDOT and the state. INDOT would pick up good PR for these "soft projects." Also, the program should be streamlined. Local officials complain about bureaucracy and also that INDOT requires "overbuilding" (e.g., building bicycle paths to highway standards when users are bicyclists/pedestrians.)

- One interviewee commented that INDOT should pay greater attention to land resource issues specifically in the airport planning process. For example, the DNR has some concerns about the proposed Gary airport, since the area is full of wetlands and rare species. The DNR reports, though that they have had good coordination with INDOT on the Indianapolis airport expansion.

- Interviewees from local and regional agencies commented that INDOT should pay greater attention to the needs of local traffic. State highway system planning is focused primarily, if not exclusively, on moving through traffic – often at the expense of local traffic. On a related topic, highway improvement studies should consider impacts on local roads as well as needs for local road improvement in coordination with – or even as an alternative to – the main highway improvement. For example, the Central Indiana Suburban Transportation Mobility Study (CISTMS) study should consider the effects of local road improvements as a complementary or alternative strategy to a through highway.

- A number of interviewees suggested giving more serious consideration to a broader range of transportation options. The following options were mentioned by at least one interviewee each: rail transit, HOV lanes, ITS, and bicycle/pedestrian in local communities.

- One interviewee noted that INDOT still uses obsolete design standards, such as "open intersections," and sometimes under-designs (e.g., diamond interchange where a cloverleaf will be needed).

■ 4.3 Examples of Coordinated Transportation and Land Use Planning

Interviewees frequently noted a perceived disconnect between transportation planning and land use planning, and various problems created by this disconnect. Based on the market research interviews on land resource issues, the following subsection provides examples cited by the interviewees as "uncoordinated" planning and its effects. An example of "coordinated" planning is then described.

Examples of Uncoordinated Planning and Its Effects

Here are some examples that interviewees provided regarding uncoordinated planning and its effects:

- A subdivision was built in the alignment of a proposed bridge over the Ohio River. This will make property acquisition for the project much more difficult. Recent news reports suggest that local officials were legally required to grant the permit for the subdivision.

- In Johnson County (south of Indianapolis), there is a growing need for an east-west highway due to development in the county. However, since a right-of-way has not been set aside, it will be increasingly difficult to build such a connector. Planning for this 25 years ago would have made it easier to build.

- There is a prairie nature preserve in Lake County that was purchased by the state when the county was still rural. It is now surrounded by towns. The road through the preserve is now a bottleneck because it cannot be widened because of the preserve's protected status. The DNR had pointed out for 20 years that this would be a problem but it was not addressed in the comprehensive planning of the local jurisdictions.

- Kokomo/Howard County has not been able to craft land use policies specifically for a bypass because the final route has not been determined.

- Lack of access controls along a highway in Lafayette has led to a proliferation of curb cuts, roadside businesses, and increasing traffic snarls and safety problems.

- In Elkhart County, the county is eligible for state funds to upgrade a road but wants to limit access along the road (so that its primary function is traffic movement). However, INDOT is not willing to limit access for lower functional classifications of roads. This issue also arises in the case of bypasses around towns, where towns support the bypass but want to limit access in order to preserve business viability in the downtown.

An Example of Coordinated Planning

The Tippecanoe Area Plan Commission, based in Lafayette, provides an example of how transportation and land use planning *can* be coordinated at the local level. The Commission has a somewhat unusual role in that it is both the designated MPO and the land planning agency for the county, in charge of planning, zoning, subdivision ordinances, etc. (This arrangement dates to the mid-1970s). Bloomington and Muncie are the only other areas in the state with the same land use and transportation planning agency. Also, there is a unified zoning and subdivision ordinance that applies to all but one jurisdiction in the county – in most areas with zoning, each jurisdiction has its own code.

The Commission forecasts growth with considerable accuracy because of close ties to the development community. They have pre-design areas on the order of 600 acres. They work with developers to identify areas that are the easiest or most suitable to develop. At the same time, they discourage development in inappropriate areas (e.g., by refusing to rezone floodplains or areas not served by public utilities). As a result, they know proposed densities and locations of residential and commercial growth. The Commission then develops socioeconomic forecasts and identifies transportation projects to support that growth. Afterwards, other county/local agencies take these forecasts and do utility plans based on them. Note, though that "zoning is politics" rather than rational, and it is not always possible to control development as desired. The Commission also has two full-time transportation modelers in-house. Their growth projections, including population, development, and traffic, have been "very accurate" in the past.

The Commission has authority, albeit limited, within their subdivision ordinances to set aside right-of-way easements for future transportation improvements – again, unusual for Indiana. A developer must set aside a designated corridor for five years (after the developer acquires the land) for potential transportation facilities. A transportation agency (state, city, or county – but not the MPO) must acquire or condemn land within the five-year time period; otherwise the developer is allowed to build on it. These policies are "on the edge of violating takings law" and could run into legal difficulties if land set aside for a transportation right-of-way is not later used for this public purpose.

The Commission believes that its approach, followed over a 25-year period, has successfully introduced greater rationality to transportation and land use planning in the county. Development in the county is relatively contiguous, rather than leapfrog. They believe that the cost of providing infrastructure and utilities to serve development has been lower as a result. Also, farmland is well-preserved and development has stayed out of floodplain areas.

■ 4.4 General Findings on Land Resource Issues in Indiana

Interviewees agreed that concerns over land resource issues have gown in recent years, that these issues have relatively high visibility in some parts of the state, and that they will continue to grow in importance with respect to transportation decision-making. Traffic congestion, farmland preservation, and preservation of rural and small town character are probably the most significant concerns related to land resource planning. Other areas of concern include forest preservation, preservation of sensitive natural areas (habitat, wetlands) and open space, groundwater contamination, and invasive species.

The relative importance of land resource issues varies by location. Issues related to transportation and urban growth are most significant on the fringes of expanding urban areas (including small as well as large cities). Other project-related issues have arisen in rural areas as well.

There is a general feeling that transportation improvements (new highways, highway widening, new interchange) eventually lead to development. Those interviewed view development as having both positive impacts (economic development and tax revenue) and negative impacts (loss of rural land/open space and increased traffic congestion), with different people placing different weights on these impacts.

Interviewees noted that there is not a strong culture of land use planning in Indiana. This makes it harder to achieve land resource-related objectives. Local officials are reluctant to impose restrictions on property use; the general public "does not see the relevance of land use planning to their lives." Education, outreach, and voluntary incentives therefore are important components of addressing land resource issues.

■ 4.5 Potential INDOT Actions Recommended by Interviewees

A number of respondents noted that INDOT has made important progress within the past five to 10 years in taking land resource issues into account when making specific alignment/routing choices for facilities. Examples include avoiding particular natural areas, wetlands, and other environmentally sensitive locations.

Most of those interviewed, though, also felt that it was important that INDOT further expand its consideration of land resource issues beyond the project design stage. Interviewees noted three general areas in which INDOT should expand its involvement in order to improve the manner in which land resource considerations are integrated into transportation planning.

Coordination, Outreach, and Training

1. Conduct more extensive outreach and coordination with local officials, stakeholder groups, and the general public, starting at the early stages of the transportation planning and project development processes;

2. Assist local jurisdictions, through coordination and training, in establishing appropriate land use policies to maximize positive impacts and minimize negative impacts related to transportation investment;

3. Improve the visibility and treatment of land resource issues in the statewide planning process; and

4. Work to overcome an image as an adversary or an agency that acts without considering feedback from others, and instead work to build a reputation as a collaborator.

Analytical Capabilities

5. Complete the implementation of a uniform, comprehensive, and accessible GIS system at the state level for use in project design and impact assessment; and

6. Develop and apply tools for evaluating the impacts of transportation projects on land resources/land use and urban growth, both at a micro level (e.g., interchange) and a macro level (city/region).

Design, Operation, and Management of the Transportation System

7. Implement access management policies, to maintain traffic flow on arterial roads;

8. Revise landscaping and roadside maintenance practices to reduce the spread of invasive species;

9. Protect right-of-way for future new transportation facilities, facility expansion, and interchange development; and

10. Acquire development rights in selected impact areas, such as wetlands adjacent to an improved highway.

A number of interviewees noted that while these recommended actions might require up-front commitments of resources on the part of INDOT, they have the potential to reduce costs and expedite project delivery in the long run. For example, greater coordination between transportation and land use decisions will reduce the cost of right-of-way acquisition as well as reduce overall demands on the transportation system. Consulting with stakeholders and addressing land resource issues earlier in the transportation planning process will help accelerate project delivery, by mitigating impacts and achieving greater consensus at an earlier stage of the process.

5.0 Perspective of Freight Stakeholders

■ 5.1 Introduction

With its historic role as a center for agriculture and manufacturing, and its strategic location serving regional, national, and international markets, Indiana's economy is heavily dependent on freight movement. These freight operations, in turn, have significant impact on Indiana's transportation system. INDOT has made initial attempts to understand the issues and concerns of the freight community through development of its Intermodal Management System, and incorporation of freight issues into some corridor studies.

The purpose of this research was to identify concerns of major shippers and carriers for consideration in the statewide planning process, and provide initial recommendations to INDOT regarding the integration of freight and goods mobility issues in the statewide plan.

This section presents background information to help frame the discussion, a description of some typical logistics patterns, the result the results of the stakeholder interviews, and near-term actions that INDOT might pursue to address the issues raised in the outreach.

■ 5.2 Background

Current Freight Movements in Indiana

In order to effectively plan for freight movement in Indiana, it is important to first understand the underlying market forces that drive goods movement, and how freight currently uses the State's freight transportation system to move between origins and destinations. This "snapshot" of current goods movement sets the context for a discussion of the system's strengths and weaknesses. It also helps frame how freight stakeholders perceive INDOT and the way it maintains the transportation network.

State Freight Movement Profile

Information on the flow of commodities into, out of, and through Indiana is available from a variety of sources, including a detailed documentation of internal Indiana flows prepared by Dr. William Black, of the Indiana University. For the purposes of this discussion,

the national "Freight Analysis Framework" (FAF) dataset compiled by the Federal Highway Administration (FHWA) provides an appropriate high-level background. The FAF includes data and forecasts for three target years, 1998, 2010, and 2020.[1]

Total Volume of Goods Moved

In 1998, approximately 698 million tons of freight moved to, from, or within Indiana, representing roughly $398 billion worth of goods in transit. The State is forecast to experience dramatic tonnage growth of nearly 60 percent over the next 20 years. By 2020, roughly 1.11 billion tons ($1.14 trillion) of freight is expected to use Indiana's freight network.

Mode Split

Figure 5.1 shows a breakdown of 1998 and forecast 2020 freight flows by mode, including both shipped weight and value. Truck traffic moving on the highway system is the dominant mode of freight shipment, carrying nearly 73 percent of all freight tonnage, and 84 percent of all value. Rail freight serves an important role as a bulk transportation mode, transporting 16 percent of all freight tonnage, but only seven percent of value. Waterborne barge traffic serves an even more niche market of bulk traffic, with more than 11 percent of weight, but less than two percent of value. Airfreight serve the opposite niche of high-value and time-sensitive goods, carrying less than 0.1 percent of the State's traffic by weight, but nearly eight percent by value.

Looking forward to 2020, the mode split for freight traffic is expected to shift slightly to favor trucking and airfreight over rail and maritime freight. The percentage of weight carried by trucks and planes is anticipated to increase to 75 and 0.1 percent, respectively. At the same time, the weight mode share of rail and barge traffic is forecast to decline to 15 and nine percent, respectively. It should be noted that while the percentage of rail and water tonnage is expected to decline over time, the actual tonnage is expected to increase.

Major Commodities Moved

By weight, the top commodities moved in Indiana in 1998 were:

- Non-Metallic Minerals (191 million tons);

- Coal (80 million tons);

- Farm Products (64 million tons);

- Primary Metal Products (60 million tons); and

- Secondary Traffic[2] (47 million tons).

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[1] The complete Freight Analysis Framework, including state to state flow data and pre-defined state reports, is available through the Bureau to Transportation Statistics at www.bts.gov.

[2] "Secondary Traffic" is the official commodity designation for mixed shipments of consumer goods, generally between warehousing distribution and retail locations.

Figure 5.1   Growth in Freight Movements by Mode
1998 to 2020

Millions of Annual Tons

Legend:
- ☐ Water
- ☐ Rail
- ☐ Highway
- ☐ Air

(Bar chart with y-axis from 0 to 1200. Categories: 1998 tons, 2020 tons)

Billions of Annual Dollars

(Bar chart with y-axis from 0 to 1200. Categories: 1998 value, 2020 value. Labels: Water, Rail, Highway, Air)
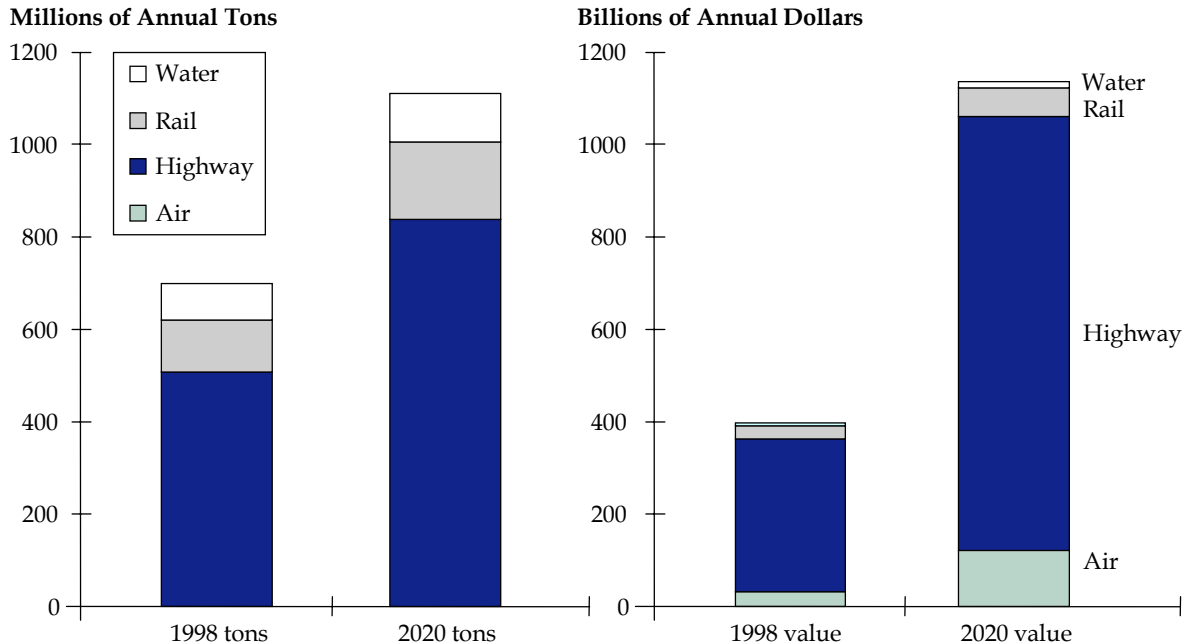
By value, the top commodities were:

- Transportation Equipment ($66 billion);

- Secondary Traffic ($48 billion);

- Primary Metal Products ($48 billion);

- Freight All Kinds[3] ($37 billion); and

- Chemicals ($31 billion).

The same commodities are expected to dominate future freight movements in Indiana.

The dominant commodities suggest that there are four industries in Indiana that are particularly intensive users of the State's freight system. Non-Metallic Minerals and Coal are both associated with the mining industry. Primary Metal Products, Transportation Equipment and Chemicals are all associated with the Manufacturing sector. Secondary Traffic and Freight All Kinds both represent shipments of consumer goods, and thus have a strong tie to the retail sales business. Finally, Farm Products are part of the agricultural

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[3] "Freight All Kinds" is the commodity designation for general, mixed or unidentified line-haul freight shipments. For example, consumer goods traveling in sealed intermodal containers are generally classified as FAK.

sector. Therefore, in gathering market research on the State's freight transportation, we focused on input from the agriculture, mining, manufacturing and retail industries.

Through Freight Traffic

In addition to generating a significant volume of freight traffic, Indiana is also a major corridor for through traffic moving between the Western, Mountain and Midwestern states, and the Northeast. Figures 5.2 and 5.3 show national truck and rail tonnage distributions, and illustrate the large through flows of "land bridge" freight traffic that uses Indiana's rail lines and roadways. Preliminary results from the FAF dataset suggest that as much as one-third of the freight on Indiana's transportation network passes through the State without stopping. This makes through carriers a significant stakeholder in the State's freight system.

Figure 5.2 National Freight-Truck Traffic
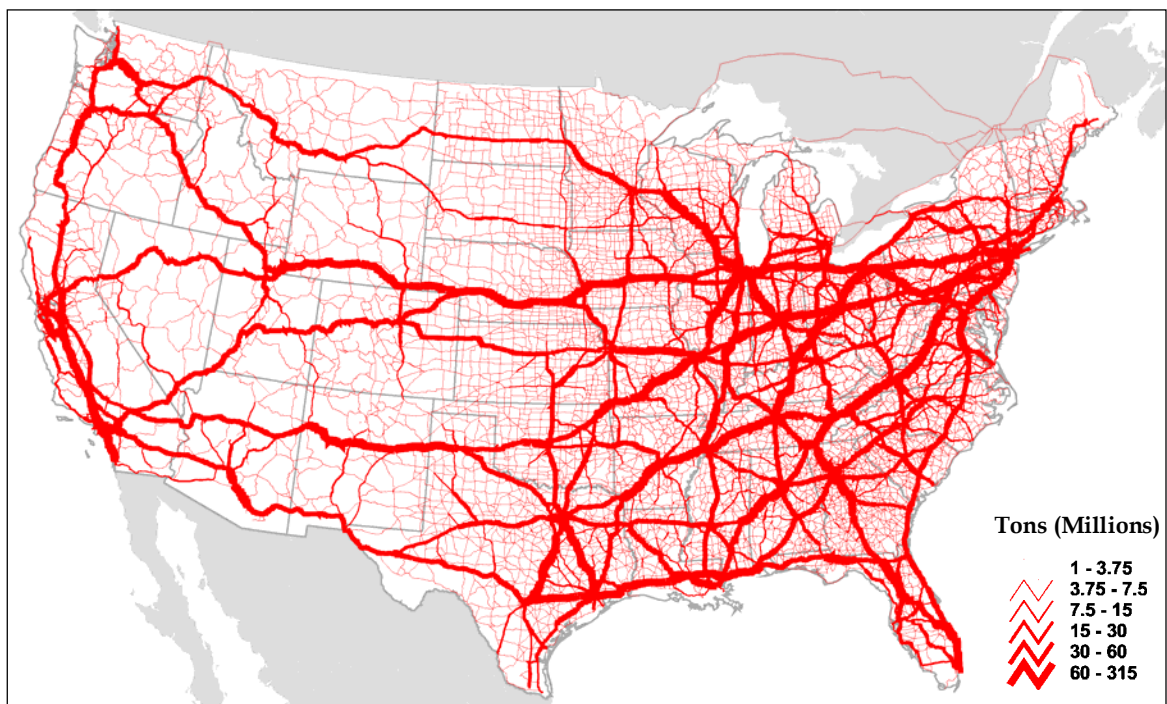
Source: Reebie TRANSEARCH and FHWA Freight
Analysis Framework Project

Figure 5.3   National Freight-Rail Traffic
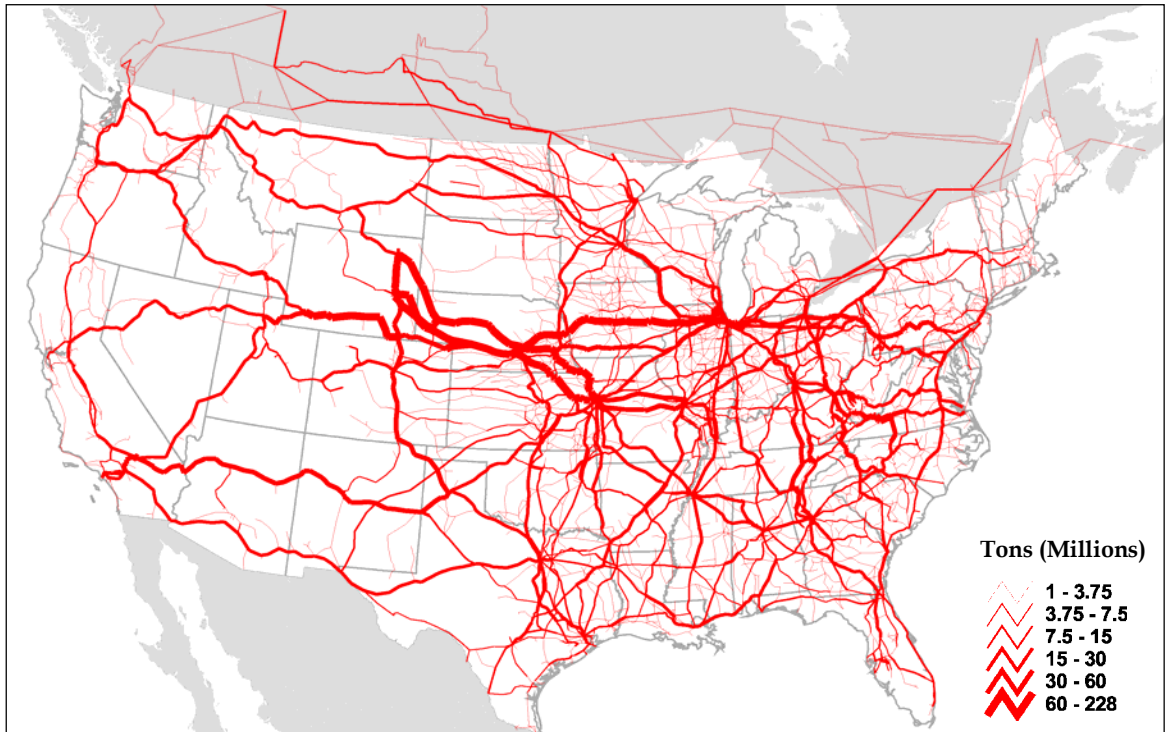
Source: Reebie TRANSEARCH and FHWA Freight
          Analysis Framework Project

Major Freight Facilities/Infrastructure

Indiana enjoys a wide selection of freight movement choices, due to its abundant trans-portation infrastructure and broad modal options. The following section briefly describes the major components of the State's freight transportation system, categorized by mode.

Highway

Indiana has an extensive network of major roadways that provide truck access across the State (see Figure 5.4). The truck freight network is composed of: Interstate highways; U.S. highways, state routes and other primary arterial roadways, county roads and other sec-ondary and local arterials.

Interstates – Indiana's interstate highways provide the major backbone for high-volume goods movement around the State. There are four major east-west interstate corridors across: the northern portion of the State (I-80/90), the central portion (I-70 and I-74) and the southern portion (I-64). Indiana has one major north-south Interstate (I-65) that con-nects Chicago, Illinois to Louisville, Kentucky through Indianapolis. I-69 connects Fort Wayne and the northeast corner of the State with Indianapolis, but does not continue south to provide a complete north-south corridor across the State. Indianapolis serves as a major hub of the State's Interstate network, with I-65, I-69, I-70, I-74, and the I-465 circum-ferential highway all intersecting in Marion County.

Figure 5.4   Indiana's Major Roadways and Airports
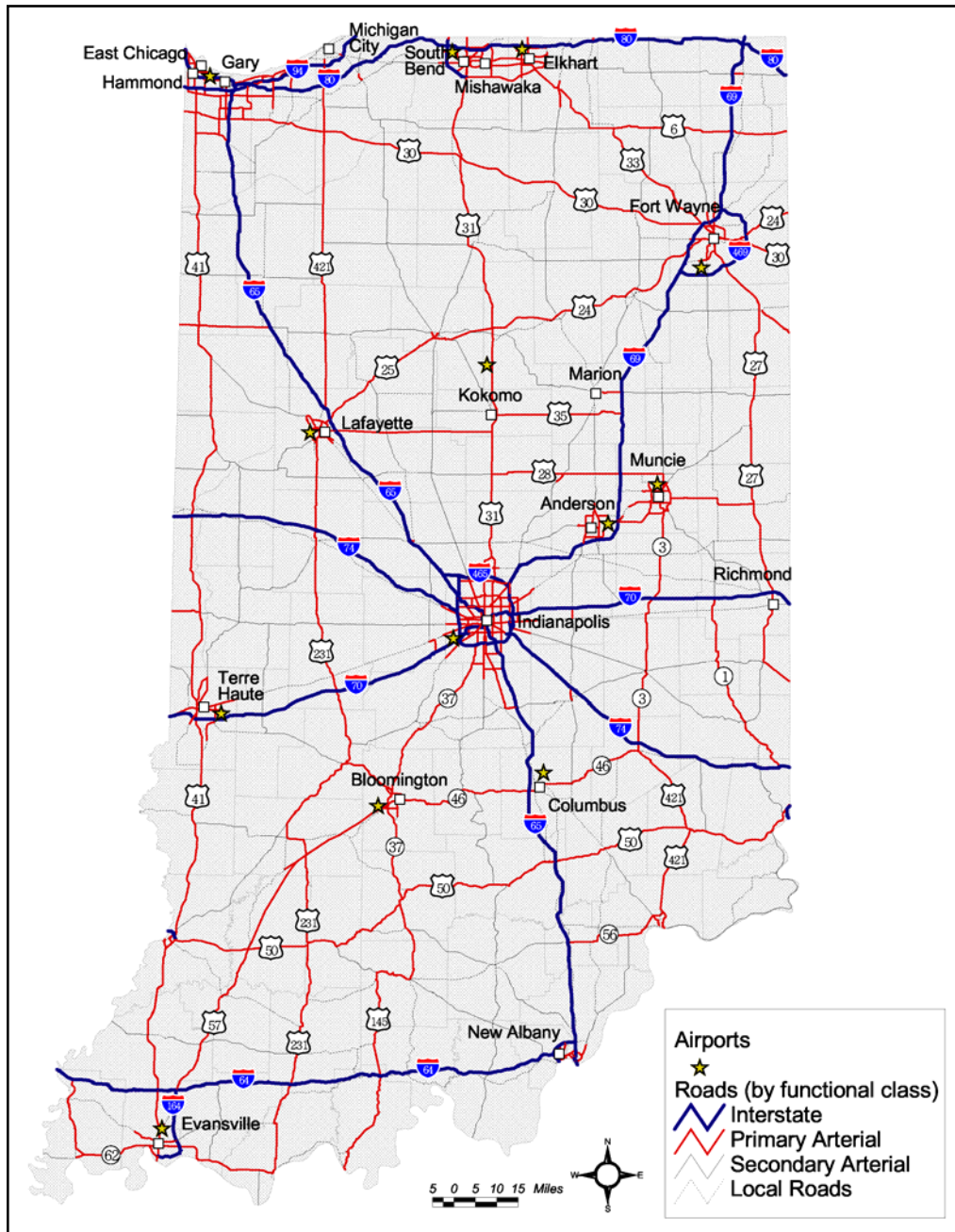
Primary Arterials – Indiana's network of U.S. highways and major state routes form a rough grid of north-south and east-west routes, and fill in many of the gaps between Interstates.   Major north-south corridors include: U.S. 27, U.S. 31, U.S. 41, U.S. 231, U.S. 421, SR-3, and SR-37.   Major east-west corridors include: U.S. 24, U.S. 25, U.S. 30, U.S. 50, and SR-46.   The physical configuration of these roads varies greatly; some are

limited access highways, while others are two-lane local streets. Taken as a combined network, however, they serve to connect all of the State's major population centers.[4]

Other Freight Roadways – This network of local roads provides the "last mile" connection to major freight generators in population centers, and connect less populated areas into the State's truck network. In urban areas, these links are composed of local streets, while in outlying areas they are generally rural roads.

Air

Indianapolis International Airport is a major operational hub for FedEx and the United States Postal Service. In this role, it dominates the State's share of airfreight traffic. There are, however, 12 other commercial airports in Indiana (see Figure 5.4) that provide air-freight opportunities for freight movement through either local air carrier service or passenger airline belly cargo.

Rail

Indiana is served by four Class I rail carriers, and 37 regional and short-line railroads (see Figure 5.5). A brief description of the major rail lines is presented below. INDOT's Indiana Rail Plan provides more detailed information on the State's rail system, including 2002 traffic volumes, and an evaluation of the current market sustainability of short-line track routes.

CSX operates 1,935 route-miles of track in Indiana, and maintains a series of major trunklines, including the following.

- Two parallel east-west corridors connecting Chicago, Illinois and Gary to Northern Ohio.[5] The northern route carries most of the through traffic, while the southern route passes through Fort Wayne, Indiana.

- An east-west corridor from St. Louis, Missouri to Northern Ohio, serving Terre Haute, Indianapolis, and Muncie.

- An east-west corridor connection between St. Louis, Missouri to Cincinnati, Ohio through Vincennes and southern Indiana.

- A north-south corridor that straddles the Illinois/Indiana border, and passes through Terre Haute, Vincennes, and Evansville.

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[4] Cities and towns with a population of at least 10,000 residents.

[5] In Northern Ohio, these routes connect with CSX's "Water Level Route" – the main CSX corridor to major northeastern population centers (New York City, Boston, and Philadelphia).

Figure 5.5   Indiana Rail Lines and Major Intermodal Terminals
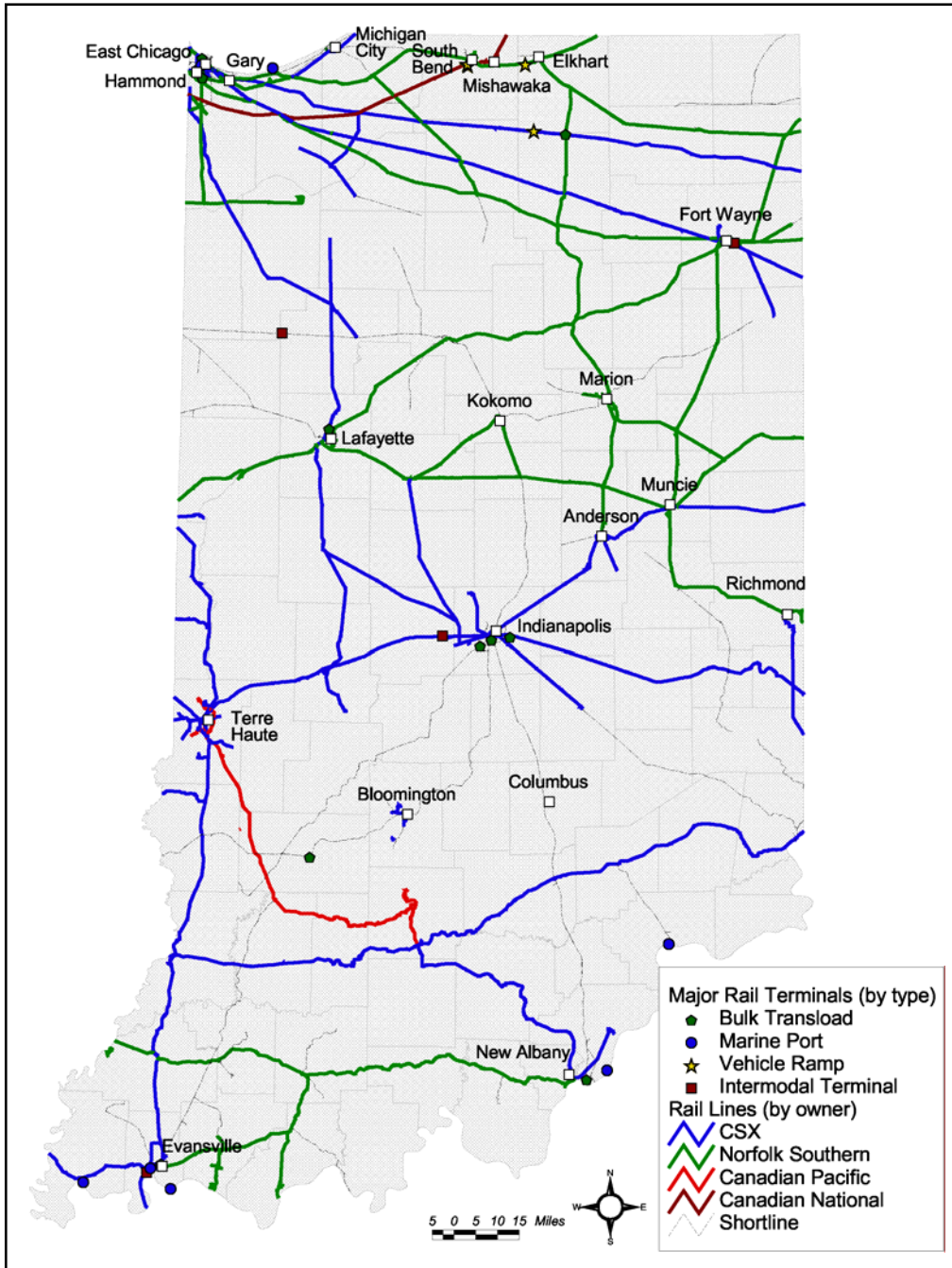
Norfolk Southern (NS) maintains 1,569 route-miles in Indiana. NS utilizes five primary routes through Indiana:

- A heavily used east-west through route between Chicago, Illinois and Detroit, Michigan/Northern Ohio[6] passing through Gary, South Bend and Elkhart;

- A parallel and somewhat less-utilized route through Fort Wayne;

- An east-west route connecting St. Louis and Northern Ohio, serving Lafayette and Fort Wayne;

- An east-west corridor connecting St. Louis, Missouri and Louisville, Kentucky, through New Albany; and

- A north-south route along the Indiana/Ohio border, connecting Detroit, Michigan and Cincinnati, Ohio via Fort Wayne, Muncie, and Richmond.

Canadian Pacific (CP), via its SOO Line subsidiary, operates a single 94 route-mile corridor between Chicago, Illinois and Louisville, Kentucky. This line passes through Terre Haute and New Albany. This route shares trackage with CSX north of Terre Haute and south of Bedford, Indiana.

Canadian National (CN) operates one route through northern Indiana, totaling 81 route-miles. The corridor serves as CN's main east-west connection between Chicago, Illinois and Toronto, Ontario, along the southern shore of Lake Michigan. It also provides service to South Bend.

Regional and Shortline Railroads provide a vital link in Indiana's rail network. Maintaining a combined total of 1,269 route-miles, short-lines serve vast areas of the State that do not have direct Class I rail service. Particularly in central and southern Indiana, short-lines such as the Louisville and Indiana Railroad, Indiana Railroad, and Indiana Southern Railroad provide north-south connections through the State's major agricultural and mining areas.

Maritime

Indiana is bordered by Lake Michigan to the northwest, and the Wabash and Ohio Rivers to the south. As such, it has significant maritime access to the nation's two major inland waterways: the Great Lakes and St. Lawrence seaways; and the Ohio/Missouri/Mississippi River watershed. These waterways provide high-capacity routes to major domestic and export markets, but both routes impose seasonal limitations. The Great Lakes waterway is open year-round, but the St. Lawrence's bi-national operating

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[6] Routes to Northern Ohio connect with NS's "Pennsylvania Route"– the main NS corridor to the major northeastern cities (New York City, Philadelphia, Baltimore and Washington).

authorities[7] close the Seaway from mid-December to mid-April for maintenance and repairs. Much of the Ohio River freezes over during the winter, which effectively closes Indiana's Ohio River ports.

In addition to a multitude of smaller private and municipal marine terminals serving the steel and agricultural industries, Indiana has three public terminals managed by Ports of Indiana. The three facilities are:

• Burns Harbor – A 500-acre terminal on Lake Michigan, serving primarily the steel and agricultural industries;

• Southwind Maritime Center (near Evansville, Indiana) – A 538-acre terminal on the Ohio River, serving the agricultural and mining industries; and

• Clark Maritime Center (near New Albany, Indiana) – A 962-acre terminal on the Ohio River, serving the agricultural and steel industries.

Intermodal Facilities

In addition to port terminals and airports, Indiana's freight system includes a number of facilities that enable the smooth transfer to goods between modes. These facilities are particularly vital to the State's rail freight network, because rail carriers typically rely on trucking for pickup and delivery, rather than providing door-to-door service. Indiana's intermodal facilities generally fall into one of four categories: Trailer-on-Flatcar or Container-on-Flatcar (TOFC/COFC) intermodal terminals, bulk transload facilities, vehicle ramps, and grain elevators.

TOFC/COFC Terminals facilitate the transfer of time-sensitive intermodal rail cargo between highway and rail, using specialized rail equipment that accepts standardized intermodal containers or roadway trailers. Indiana is served by four TOFC/COFC terminals, outlined below.

Facility Name	Location	Serving Railroad
Avon Yard	Indianapolis	CSX
Piqua Yard	Fort Wayne	Norfolk Southern
Evansville Yard	Evansville	CSX
Remington Yard	Remington	Remington, Peoria and Western

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[7] The Saint Lawrence Seaway Development Corporation is the U.S. operating authority, and the Saint Lawrence Seaway Management Corporation is the Canadian operation authority.

Bulk-Transload Facilities enable the intermodal transfer of low-value bulk commodities (such as petroleum, chemicals, plastics, and paper) between rail and road. These facilities are particularly crucial to heavy manufacturing industries that consume large quantities of raw materials. Indiana has 12 major bulk transload facilities.

Facility Name	Location	Serving Railroad
Jeffersonville Flexi-Flo	Jeffersonville	Louisville & Indiana, CSX
Bloomfield Bulk Transfer	Bloomfield	Indiana Railroad
Milford Junction Bulk TransFlo	Milford	CSX
East Chicago Bulk TransFlo	East Chicago	CSX
MDT Transloading Services	Hammond	Indiana Harbor Belt Railroad
Matlack Bulk Intermodal	Whiting	Norfolk Southern
Indianapolis Flexi-Flo Terminal	Indianapolis	CSX
Transfer of Indiana	Indianapolis	CSX
Indianapolis Bulk Transfer	Indianapolis	Indiana Railroad
Indiana Reload Center	Indianapolis	Indiana Railroad
Lafayette Bulk TransFlo	Lafayette	CSX
Evansville Bulk TransFlo	Evansville	CSX

Vehicle Ramps specifically support the automotive industry by allowing finished vehicles to be loaded onto rail cars for efficient distribution across North America. There are four major vehicle ramps in Indiana.

Facility Name	Location	Serving Railroad
South Bend Vehicle Ramp	South Bend	Norfolk Southern
Oliver Yard	South Bend	Canadian National
Elkhart Ramp	Elkhart	Norfolk Southern
Nappanee Ramp	Nappanee	CSX

Grain Elevators allow shipments of grain to be consolidated into unit train shipments destined for major agri-business receivers across the country. These operations typically take place at numerous smaller facilities spread throughout the State. Elevators represent a critical link in the process of bringing Indiana's agricultural products to market.

■ 5.3 Major Industry Logistics Patterns

To understand how freight uses Indiana's transportation infrastructure, it is helpful to identify the major logistics patterns that shape the demand for goods movement in the State. As seen from the previous description of commodity flows in Indiana, the four most significant industries with respect to goods movement in Indiana are Agriculture, Mining, Manufacturing and Retail.

Agriculture

Figure 5.6 illustrates one typical agricultural logistics pattern for grain and feed products in Indiana, which is representative of the State's larger agricultural industry. This illustration highlights the key trends in grain logistics patterns, and is not intended to depict a particular operation or the complete set of movements. The key aspects of agricultural logistics are outlined below.

Figure 5.6   A Representative Grain and Feed Logistics Pattern in Indiana
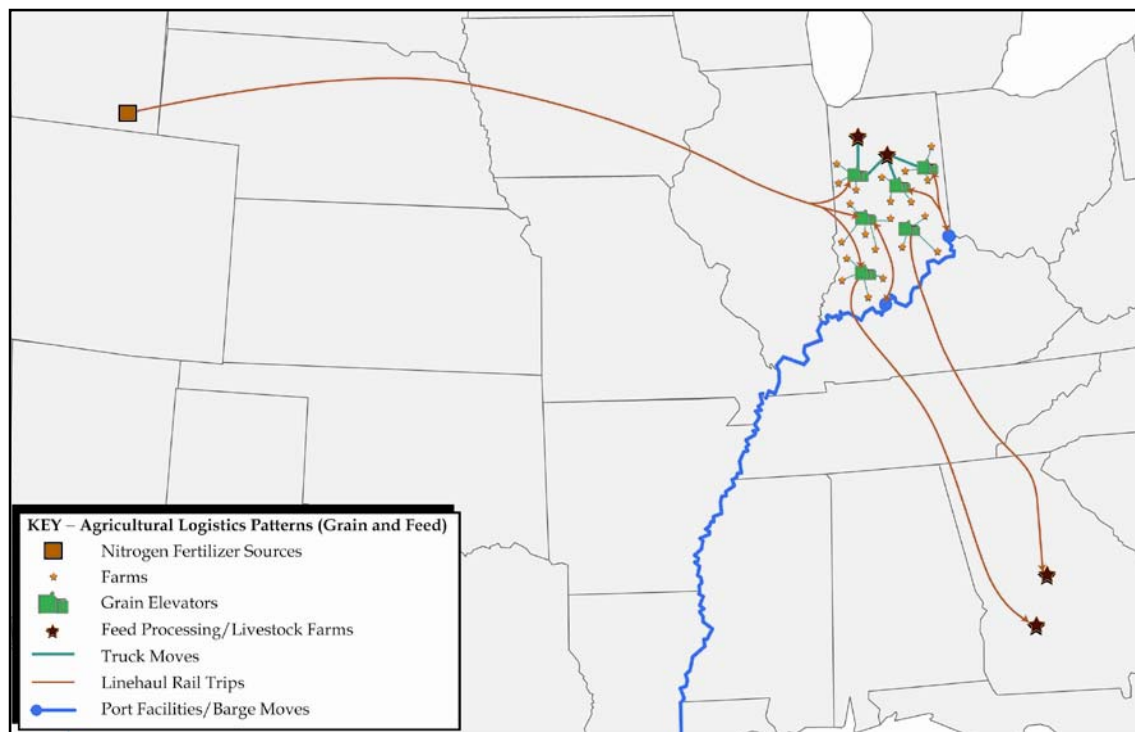
Grain is produced on farms spread throughout central and southern Indiana and transported by truck to local grain elevators, where it is consolidated with grain from neighboring farms into concentrated shipments. This local consolidation is consistent with a "hub and spoke" logistics pattern.

From the consolidation elevators, outbound grain travels to one of three major destinations:

1. Roughly 60 percent of the State's grain production is shipped to feed processing plants or livestock farms within Indiana. The relatively short distance of these moves means that most of these shipments are moved by truck.

2. Some grain travels to major centers of poultry production in the Southeast states (Georgia, Mississippi, Louisiana, and Florida). The longer distances and large volumes of these line-haul moves are a strong match for rail freight service.

3. A portion of Indiana's grain is also transported to the State's Ohio River and Great Lakes ports, where it is shipped by barge through the inland waterway system to serve both domestic and export markets.

Inbound shipments of fertilizers and other agricultural input commodities generally use the same logistics chain in the reverse direction to reach local farms. Potash fertilizers are shipped to Indiana from Canada; phosphate fertilizers are sent from the Southeastern and western states, and ammonia-based fertilizers are imported through New Orleans and transported by barge up the Mississippi. Often, these inbound fertilizers can be carried in the same vehicles that carry outbound grain products. Although the volumes of outbound grain exceed the volume of inbound fertilizer, these "backhaul" opportunities provide significant cost-efficiency to the agricultural logistics chain.

In general, Indiana's grain industry is highly rail dependent, because the industry relies on low-cost bulk transportation to remain competitive in the global market. Although other modes are used in specific applications, rail freight provides a key competitive advantage that allows the agriculture industry to thrive in Indiana.

Manufacturing

Figure 5.7 illustrates one representative logistics pattern for manufacturing in Indiana. As with Figure 5.6, this illustration does not represent a particular company or manufacturing industry.

The dominant characteristic of this logistics chain is the "network pattern" of point-to-point interplant moves connecting manufacturing sites responsible for different stages of the production cycle. For larger volumes of heavier components traveling longer distances, this point-to-point connection could be accomplished by rail; however, these time-sensitive moves are generally made by truck.

Low-value bulk inbound commodities (such as steel rolls) generally arrive by ship, whereas high-value inputs (such as electronic components) are generally shipped by air. Depending on the type of product being manufactured and the location of the ultimate retailer, outbound shipments of the final product may travel by rail, air or truck.

Figure 5.7   A Representative Manufacturing Logistics Pattern in Indiana
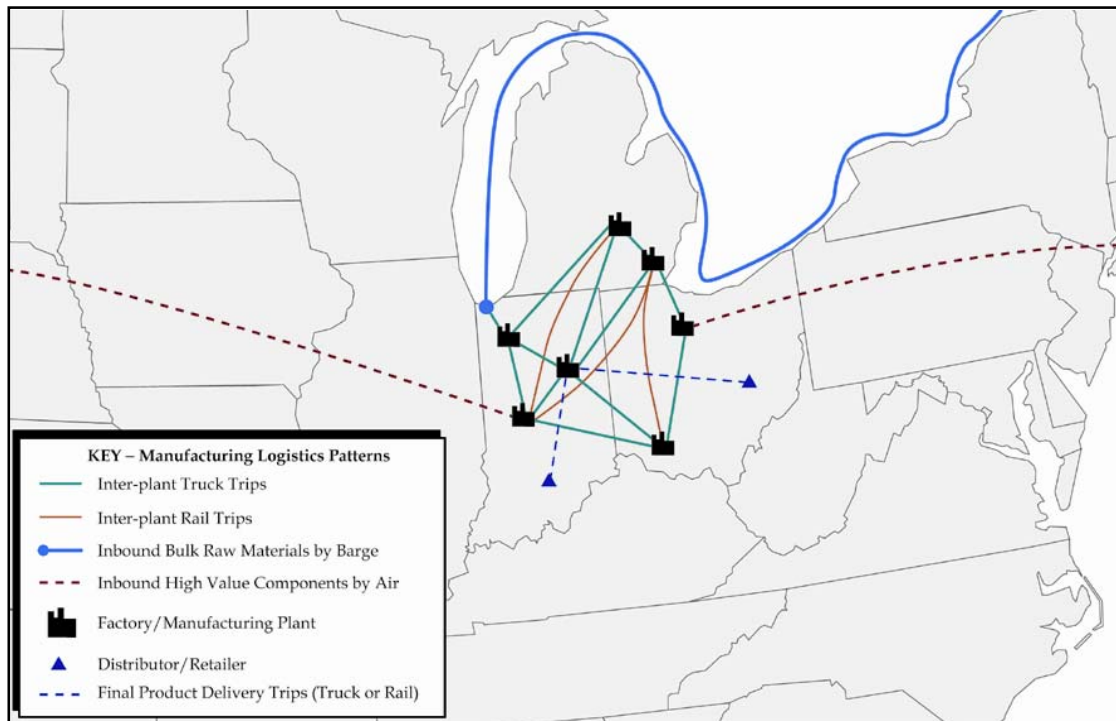
While other modes are used, Indiana's manufacturing industry as a whole seems particularly dependent on truck transportation to provide cost-effective and reliable connections between time-sensitive plant operations. Indiana's abundant highway network and efficient truck service were frequently cited as key advantages by manufacturing stakeholders.

Mining

Figure 5.8 shows a conceptual illustration of mining and quarrying operations in Indiana. Key aspects of the logistics pattern are outline below.

Mining operations in Indiana are concentrated in the Southwest corner of the State. While some coal and minerals are consumed within Indiana itself, the majority is transshipped to out-of-state markets, using Indiana's Ohio River and Great Lakes ports. Rail freight provides a critical line-haul link between mine locations and the maritime gateways for tremendous volumes of low-value mining and quarrying materials. In fact, the particularly attractive service provided by the Class I railroads from western states to Indiana have made the Indiana ports a gateway for coal from the Powder River Basin in Wyoming and Montana, as well as locally produced resources.

Figure 5.8   A Representative Mining/Quarrying Logistics Pattern in Indiana

Mining operations in Indiana are extremely dependent on low-cost bulk transport, such as rail freight and barge. Because low-value bulk products compete almost exclusively on the basis of final price to the consumer, and are moved in large quantities. Efficient bulk transportation can be the most significant determining factor in the ability to serve a given market from a particular source.

Retail

Figure 5.9 provides a representative retail distribution chain. This diagram and accompanying description covers the major concepts of retail distribution, rather than an actual retail operation. The key aspects of the retail logistics chain are outlined below.

Figure 5.9   A Representative Retail Logistics Pattern in Indiana
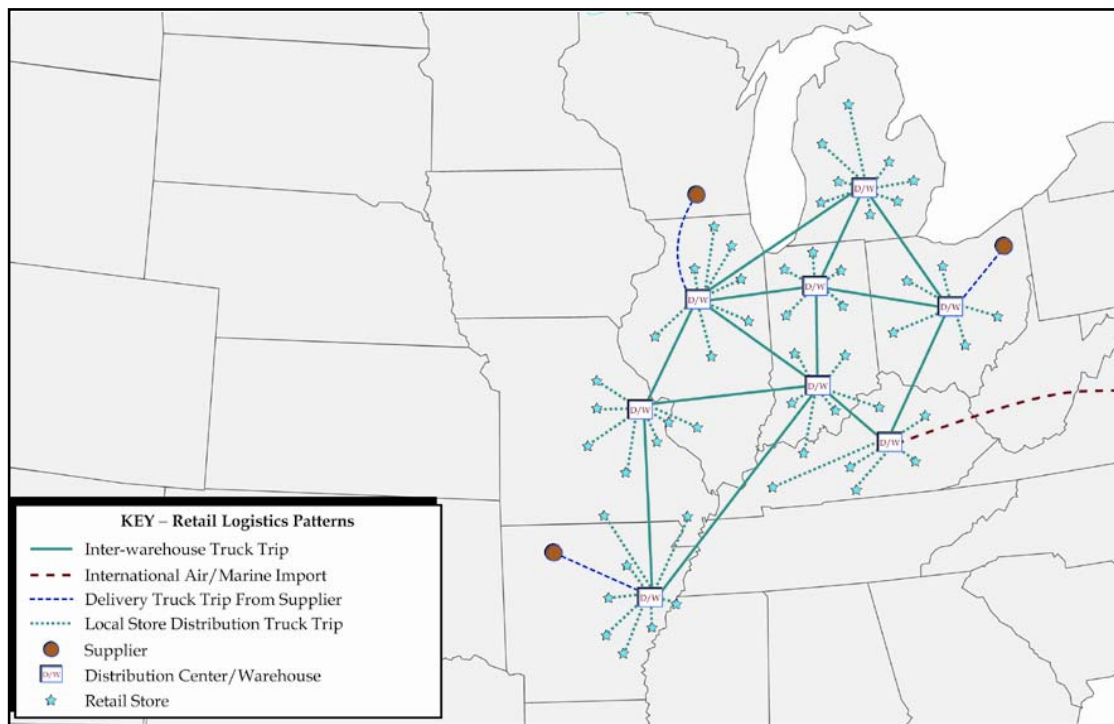
A retail logistics chain combines the "network" patterns discussed previously for the *manufacturing* sector, and the "hub and spoke" pattern utilized in the *agricultural* sector.

- Inbound retail goods are received from suppliers at one distribution center either via truck from local suppliers[8], or via air or marine gateways for imported goods.

- Goods are moved by truck between a network of distribution centers and warehouses. This is the process by which inventories are balanced at each distribution center, and retail goods are eventually moved from a single supplier to multiple warehouses.

- Finally, each distribution center acts as a supply hub for several retail stores. Inventory for each store is distributed regularly by truck from the warehouses directly to each store.

The retail industry is almost exclusively dependent on trucking to provide flexible, cost-effective, and time-critical goods movement. Airfreight is significantly more important to retail goods movements than to any of the industries discussed previously, but still repre-sents a relatively small portion of the total tonnage transported in Indiana.

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[8] This element is the retail logistics corollary to the "distributor/retailer" element in the *manufacturing* logistics chain, and represents the point where logistics for the two industries interconnect.

■ 5.4 Feedback from Freight Stakeholders

Cambridge Systematics conducted interviews with shippers, receivers, carriers, and other freight system users in Indiana. These interviews were designed to give the freight community a voice in the planning and maintenance of the State's transportation network, and to help INDOT better understand:

- The way freight stakeholders use the State's transportation system;

- The links in the network that are critical to freight movement;

- The freight system's current strengths;

- Areas for improvement; and

- Specific modifications suggested by members of the freight community.

Results from the first two of these topics have already been presented in the context of a discussion of Indiana's key freight infrastructure and the major commodity flow and logistics patterns that shape goods movement in the State. This portion of this section deals specifically with the interviewees' opinions on how well Indiana's transportation system meets the demands for freight movement, and how the system can be improved.

Cambridge Systematics staff conducted interviews with 22 members of the freight community in Indiana. The list of interviewees was generated through discussions with INDOT staff, members of other state authorities, trade associations, and industry groups. The interviewees represent both the shipper and carrier perspectives, include a range of larger and smaller stakeholders, and run the gamut of modes and industries in Indiana.

Prior to the interview, participants were given a one-page background on the study, including: the project purpose; how the interviews fit into the project; and how information from the interview would be used. Appendix F has the freight interview guides.

Depending on what was most convenient for the interviewee, the interview itself was conducted either as an informal telephone discussion, or as a more formal written survey that was e-mailed to the freight stakeholder, and submitted once completed. In either case, the topics of discussion depended on whether the interviewee represented a freight shipper or carrier, and used the interview guides included below as a framework to shape the discussion.

Key Strengths of Indiana's Freight Transportation Network

Central Location – A majority of interviewed freight stakeholders identified Indiana's central location as a key asset to doing business in Indiana. As shown in Figure 5.10, a majority of the U.S. population lives within a one-day truck service radius of Indiana (each ring in the figure represents 200 miles, for a total radius of 800 miles). This makes Indiana a desirable location for concentrated warehousing and distribution facilities that serve multi-state markets.

Figure 5.10   Major Metropolitan Areas[1] within a One-Day Delivery Radius of Indiana
Scaled By Population
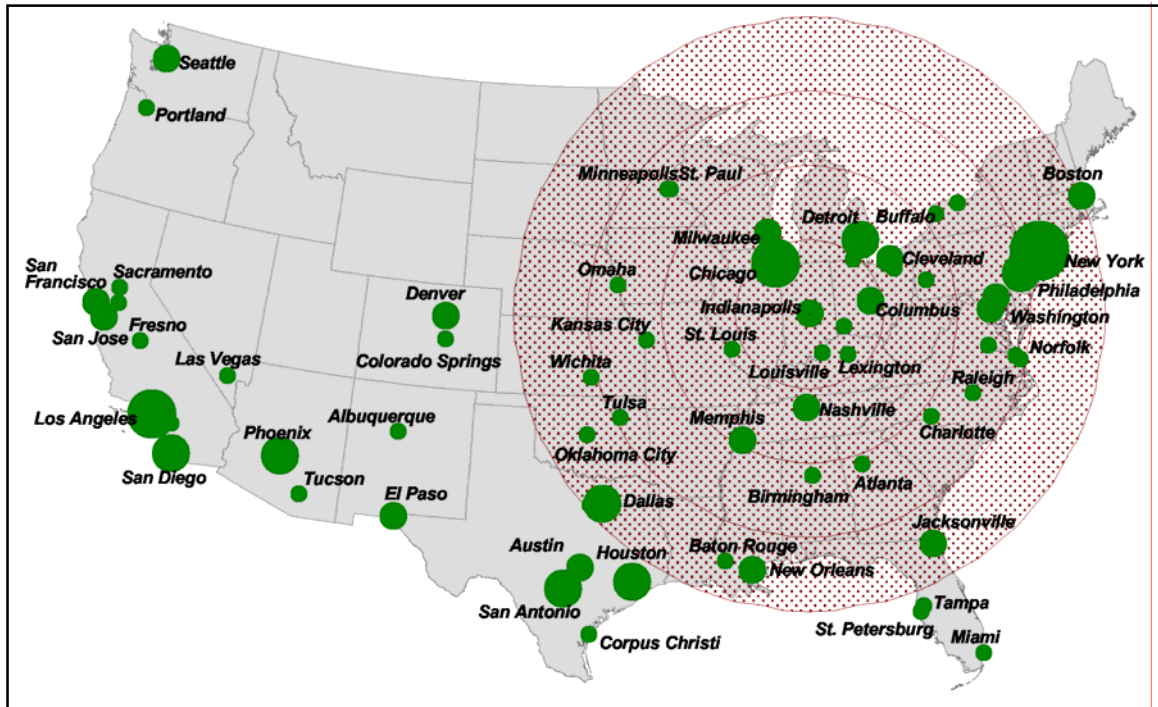
[1] Cities with a population greater than 250,000 residents.

Abundant and well-maintained interstate highway infrastructure – Many freight stakeholders identified Indiana's excellent interstate highway network as a key asset to goods movement in the State. In particular, members of the freight community felt that Indiana's Interstates are maintained in a better condition than Interstate highways in neighboring states, and that the interstate highway network connected most of the State's major metropolitan areas.

Little roadway congestion – Most freight stakeholders identified congestion and its associated costs as a significant consideration in their logistics decisions. These interviewees were quick to point out that there is less congestion on Indiana roadways than elsewhere in the country.

Fewer toll roads than neighboring states – Trucking carriers praised the fact that there are relatively few toll roads in Indiana's highway network, particularly in comparison to Illinois where tolled roads comprise a significant portion of the interstate network (at least around Chicago). The carriers believe that reduced operating costs allow them to provide more effective service to businesses located in Indiana.

Quality rail service – Shippers and receivers moving large volumes of low-value goods identified Indiana's competitive rail service by four Class I and many short-line railroads as fundamental to their operations. While many of these shippers, such as agribusinesses and mining companies, are located in Indiana because of its natural resources rather than for transportation reasons, they cited effective rail transportation as critical to their ability to compete in the global market. One interviewee also noted that because Fort Wayne, Indiana is the nexus of Norfolk Southern Railway's (NS) "Triple Crown" intermodal service, his Indiana location allowed him to compete better in major Eastern markets served by NS. The railroads attribute their ability to offer highly competitive service in Indiana to the State's location on several major east-west rail corridors.

Strong modal connections for bulk goods – Members of the agricultural industry, in particular, cited the State's well-established network of grain elevators, port bulk transfer terminals, and other terminals that facilitate the transfer of goods between modes. For cost-sensitive bulk industries, efficient transfers between modes allow the State's shippers to utilize the most appropriate mode of transport for each link of the logistics chain.

Taxes and economic development incentives – One interviewee noted that his decision to locate in Indiana had been based, in part, on tax incentives. While economic development incentives are not directly relevant to INDOT's established mission, it is a consideration for freight stakeholders, and is thus included here for completeness.

Identified Shortcomings and Challenges

Goods movement in Indiana also faces several current shortcomings or emerging challenges. This section presents the deficiencies identified in the interview process. For the purposes of discussion, challenges are segmented by mode.

Highway

Gap in north-south I-69 corridor and poor access to southwest Indiana – Every stakeholder interviewed identified the lack of an interstate highway connection between Indianapolis and Evansville as a major shortcoming of the State's freight transportation network. Members of the agricultural and mining industry felt that improved truck access to major farming and mining centers in Southwest Indiana would greatly increase the productivity of operations there. Carriers and manufactures identified the route as a major gap in the North-South NAFTA corridor, linking production centers in the Midwest with both Canada and Mexico. Even railroad operators suggested that the roadway link would improve their market in Southwest Indiana by helping local businesses.

Increasing congestion at bottleneck locations – Although congestion on Indiana's roads is generally lower than in much of the rest of the country, chronic congestion problems are beginning to emerge at several critical bottleneck locations across the State. Particular locations identified in the market research include: the Borman Expressway in Northwestern Indiana, and the intersection of I-69 and I-465 in Northeastern Indianapolis.

Limited capacity to cross Ohio River – One interviewee noted that the Ohio River presents a major barrier to freight exchange with Kentucky and points south. In particular, the I-65 Bridge at New Albany, Indiana is the only roadway crossing in the vicinity of the busy trade corridor with Louisville, Kentucky. This results in bridge congestion that, among other things, impedes goods movement.

Substandard physical geometries at older interchanges and ramps – Trucking carriers identified tight turning radii, confined lane widths, poor sightlines, and short merges at older interchanges as a safety concern for commercial vehicles. In addition to exacerbating congestion, these substandard geometries increase the danger of truck rollovers and other accidents. INDOT has already begun a program of interchange upgrades on some of its older and more heavily used highways, such as I-465 in Indianapolis.

Non-interstate roadway system – Several stakeholders with operations outside of Indiana's major population centers observed that Indiana's state and local highways are not as well maintained as the interstate highways, and that even with these roadways there are still large gaps in the State's truck network. Since virtually all interviewed businesses identified access to high-quality transportation as a major factor in their location decision, this suggests that large portions of the State may be economically hampered because of poor truck access.

Not enough rest areas for long-distance truckers – A few trucking carriers with major operations throughout the Midwest commented that there are not enough rest areas on Indiana highways to serve the needs of long-distance truckers operating through the State. Particularly in light of recent changes to Federal hours-of-service regulations, INDOT should consider evaluating the location of its current rest areas, and augment or relocate these facilities as needed to meet current use patterns.

High cost of truck litigation and damages – One stakeholder observed that recent dramatic escalation in the cost of litigation and damages resulting from accidents involving commercial vehicles have increased the cost of doing business in general (not just in Indiana). While this appears to be a national trend, it suggests that there are significant secondary economic benefits to programs that improve highway safety or reduce dangerous roadway conditions.

Rail

Increasing size of bulk rail equipment – Currently, the most significant trend in railroading is a steady increase in the weight and dimensions of bulk rail cars, and the increasing length of unit trains carrying grain and minerals. This trend is driven by clear economies of scale for the major Class I railroads, which can haul the same traffic with fewer trains and crew. It is, however, more difficult for short-line railroads and local terminal operators to support rapid upgrades to their facilities to accommodate these large trains. With their more limited markets and financial resources, many short-line railroads cannot afford to upgrade their lines to the new 286 thousand pound-per-axle track standard required by modern bulk cars. Similarly, smaller terminal and elevator operators often do not have the resources to lengthen sidings to accommodate more cars. Failure to upgrade, however, prevents these lines from offering competitive service, and undermines their market.

Ultimately, many of the State's short-lines and grain elevators could face closure, resulting in a significant increase in the flow of trucks carrying farm products longer distances to a smaller pool of larger rail terminals.

Shortage of covered hopper cars – The agricultural industry is experiencing a national shortage of covered hopper cars, which are essential to the movement of grain and other bulk farm products. Larger producers have purchased their own cars, but smaller producers cannot justify the cost. These companies are still wrestling with the full delays and uncertainty resulting from the hopper-car shortage.

Marine

Winter closure of Indiana ports – Barge and vessel traffic in Indiana generally serves a specialized niche market that has adapted to the unique strengths and limitations inherent in the inland waterway network. One such limitation is the fact that the St. Lawrence Seaway is closed for maintenance in the winter months, and that the Ohio River freezes and becomes impassable.

Air

No challenges to the region's airfreight system were identified during the course of the interviews. While the focus of the interview was on surface transportation issues, Indiana freight users seem generally happy with the quality of the State's airfreight service.

All Modes

Though not mentioned in the outreach interviews, there has been recent discussion among freight stakeholders about how Indiana's practice of not adopting daylight saving time in part of the state adversely impacts freight costs. The impacts come not only from missed deliveries due to carriers not being aware of the change, but also in the need to reprint schedules.

Suggested Improvements

The interviewed stakeholders suggested several improvements to address the challenges that they observed for the freight system. These suggestions are summarized below, organized by the mode that is most impacted.

Highway

I-69 Extension from Indianapolis to Evansville – Not surprisingly, the extension of I-69 south from Indianapolis to Evansville was the most frequent suggestion for improving the State's freight system. While this improvement has been controversial among certain sectors of the public, it appears to be eagerly embraced by the business and goods movement community.

Geometric improvements to older interchanges – To combat dangerous geometries on older highways, several stakeholders suggested a comprehensive interchange upgrade program

designed specifically to improve commercial vehicle safety. INDOT is already in the process of upgrading interchanges on I-465 in Indianapolis. This program could be expanded to a more comprehensive statewide program.

Second crossing of the Ohio River at Louisville, Kentucky – The stakeholder that commented on the limited number of Ohio River Crossings in the New Albany/Louisville area suggested that another crossing should be constructed in the vicinity. No specific alignment or location was suggested.

Rail

Loans to short lines to upgrade tracks – Several rail stakeholders reinforced an idea that has already been proposed under the Indiana Statewide Rail Plan. Namely, that INDOT provide financial assistance to short-line railroads to help them upgrade their tracks to the new 286,000-pound weight standard. The most common vision of this aid is a government-sponsored loan to help provide supplementary capital. By helping to bridge the near-term capital gap, INDOT could enable short lines to provide more cost-effective service that would translate into operating economies in the future. These operating efficiencies could be used to repay the initial loan.

Loans to smaller shippers to expand sidings and terminal facilities – Building on the rail loan concept, stakeholders also suggested that INDOT loans could be used to help private shippers and terminal owners to upgrade their facilities to accommodate the longer unit trains that form an increasingly significant portion of the rail bulk market. The same principles of near-term support enabling long-term operating efficiencies apply to this situation as well.

■ 5.5 Recommended Next Steps Related to Freight

Based on the results of the freight interviews, INDOT should examine its current efforts to see whether they support the identified strengths or address the identified shortcomings. The business community's input may provide added importance to existing initiatives that advance goods movement, or may suggest additional measures that INDOT should take to improve the State's freight system.

A number of the interviewed freight stakeholders expressed interest in continuing to actively coordinate with INDOT on freight planning issues. In light of this interest and the valuable perspective that members of the freight community could bring to a statewide freight planning effort, INDOT should consider establishing a standing freight stakeholders committee to provide a formal and ongoing dialogue with industry representatives.

6.0 Market Research Implications for Policy Plan

This section provides some thoughts as to how the market research findings might influence the policy plan. In the subsections below, we have reflected on the main findings of the each of the market research topic areas, and indicated how these findings could be reflected in INDOT's Policy Plan. A markup version of the Policy Plan showing how these might be made is included in Appendix G.

For some of the actions raised by either the general public or other stakeholders, INDOT already has policies reflecting the desired action. In these cases, we indicate which INDOT policy covers that concern, and reference the appropriate page number in the Policy Plan.

It is important to note that these suggestions and the accompanying markup of the Policy Plan in Appendix F represent Cambridge Systematics interpretation of how to implement policies and actions that arose from the market research. They do not represent agreement by INDOT to adopt these policies. Any modification to INDOT's Policy Plan would occur through an open public process.

■ 6.1 General Market Research

The general market survey revealed that the nine policy areas are still relevant. In addition, the survey found that people think INDOT should focus on:

1. **Congestion Management.** A CMS is included in the Transportation System Effectiveness portion of the policy plan (page 1-6).

2. **Improved Highway Maintenance**. Direction to "implement roadway management systems to protect the state's investment in the existing highway system through a maintenance and preservation program that provides the best level of service and minimizes long term costs" is included in the plan (page 1-7).

3. **Scheduling of Construction and Maintenance Projects**. Respondents were concerned about construction projects being completed on time. Timely completion of projects is not specifically referenced right now in the plan. One could argue that this is not a planning issue; however it could reasonably be added to the Transportation System Effectiveness portion of the plan, under Highway Strategies. A potential strategy

might be: "INDOT will use all reasonable means of completing construction projects in a timely fashion." (Draft language has been added to the Transportation System Effectiveness section.)

The survey also probed into how Hoosiers viewed some emerging issues. The emerging issues that were most important and ways to address them in the policy plan are discussed below:

1. **Land Resources (i.e., preserve open spaces, farmlands, forests).** Land resource and preservation issues are not explicitly discussed in the Policy Plan. A strategy addressing farmland preservation could be included in the Demographic Changes and Quality of Life section (draft language has been added). There are already policies related to open spaces and forests in the Natural Environment and Energy section (e.g., "INDOT will minimize disruption of environmentally sensitive areas, communities and aesthetics").

2. **Improve Homeland Security.** Homeland security is not explicitly addressed in the current plan. It might be appropriate to change the Transportation Safety section to be Transportation Safety and Security. Wording of the policy statement could be changed, and a strategy included to address security. (Policy and strategy text have been added.)

3. **Treat All Parts of the State Fairly.** There are no policies or strategies that address this. An appropriate place would be in Demographic Changes and Quality of Life. We agreed that INDOT needs to consider whether it wants to consider such a policy – geographic fairness is not now a criteria for project selection. No changes to the policy plan have been suggested.

■ 6.2 Environmental Justice

Section 3.0 of this report identified 12 potential actions to improve the manner in which potential issues of environmental justice are addressed in agency decision-making. The twelve actions, and how they might be reflected in the Demographic Changes and Quality of Life section of the Policy Plan, if appropriate, are discussed below.

1. **Establish a Department-Wide Environmental Justice Policy.** The section Demographic Changes and Quality of Life would be the appropriate place to state this policy. Draft text has been added to the policy statement. Particular strategies could be built upon the other recommendations discussed below.

2. **Continue to move toward customer orientation in all aspects of INDOT's planning and operations.** A strategy to take a human and community view in all aspects of agency decision-making would be appropriate. This would encourage context-sensitive solutions and "thinking beyond the pavement." This strategy has been added.

3. **Assess environmental justice for INDOT policies and system plans.** Include environmental justice in the set of performance measures being developed by INDOT. A strategy has been written to accomplish this.

4. **Move away from using threshold-based approaches to identifying environmental justice populations.** This might not work well as a policy or strategy, but may be something that INDOT would want to work towards. No changes have been made to the Policy Plan.

5. **Establish a department-wide working group, including representative of other state agencies, to identify potentially important environmental justice issues and to coordinate approaches.** This has been made a strategy in the Demographic Changes and Quality of Life policy section.

6. **Expand the multimodal program orientation of the department, especially with respect to the availability of public transportation services and the means these services can be accessed by persons of limited income.** This has been addressed in the Public Transit Strategies subsection of the Transportation System Effectiveness policy section.

7. **Develop more in-house professional expertise, including consideration of hiring and promotional practices so as to broaden employee diversity.** This is an internal operations issue, and is not needed in the Policy Plan.

8. **Provide additional training to help mainstream considerations of environmental justice throughout all aspects of planning, maintaining, and operating Indiana's transportation system.** This training should extend to MPOs and transit agencies, and include issues associated with working and living in a multicultural environment. A strategy in the Demographic Changes and Quality of Life policy section has been added.

9. **Broaden the usage of community impact analysis in developing transportation system plans as well as for project-level planning and design.** Learn to understand and work within the informal structures that exist within all communities rather than relying primarily or even exclusively on formal structures. We have drafted a strategy under Demographic Changes and Quality of Life.

10. **Broadly communicate to people, organizations, and agencies the opportunities that are available to provide input to the transportation planning process, and the different approaches that can be used in achieving this interaction.** We agreed that this is not something that should be added to the Policy Plan.

11. **A number of the interviewees recommended that INDOT work cooperatively with MPOs to jointly develop guidelines for the conduct of environmental justice analyses, building upon already existing resource materials.** We agreed that this is not something that should be added to the Policy Plan.

12. **Continue to implement the practice of Context Sensitive Solutions, for systems planning as well as for project planning and development.** A strategy to look for context sensitive solutions has been added based on item 2, above.

■ 6.3 Land Resources

Section 4.0 of this report on land resource issues had several potential actions that INDOT might take. All of the potential actions listed below might become strategies in the Policy Plan under the Natural Environment and Energy policy. We have annotated the strategies that have been included in the markup of the policy plan.

Coordination, Outreach, and Training

1. Conduct more extensive outreach and coordination with local officials, stakeholder groups, and the general public, starting at the early stages of the transportation planning and project development processes. (Added.)

2. Assist local jurisdictions, through coordination and training, in establishing appropriate land use policies to maximize positive impacts and minimize negative impacts related to transportation investment. (Added.)

3. Improve the visibility and treatment of land resource issues in the statewide planning process. (Excluded. Can be considered part of items 1 and 2.)

Analytical Capabilities

1. Complete the implementation of a uniform, comprehensive, and accessible GIS system at the state level for use in project design and impact assessment.

2. Develop and apply tools for evaluating the impacts of transportation projects on land resources/land use and urban growth, both at a micro level (e.g., interchange) and a macro level (city/region).

The above suggestions were added as one strategy.

Design, Operation, and Management of the Transportation System

1. Implement access management policies, to maintain traffic flow on arterial roads. (Added to the Transportation System Effectiveness section.)

2. Revise landscaping and roadside maintenance practices to reduce the spread of invasive species. (Added.)

3. Protect right-of-way for future new transportation facilities, facility expansion, and interchange development. (Not included. This is not consistent with INDOT current practice.)

4. Acquire development rights in selected impact areas, such as wetlands adjacent to an improved highway. (Not included. This is not consistent with INDOT current practice.)

In addition, we had a potential action that said:

> *"Work to overcome an image as an adversary or an agency that acts without considering feedback from others, and instead work to build a reputation as a collaborator."*

This is probably not the kind of language that would become a strategy in the Policy Plan. However, it does highlight the perception of those interviewed as to what INDOT has to do to be more responsive and proactive with regards to land resource issues.

INDOT may also want to reword the Natural Environment and Energy policy to embrace land resource planning issues – it is silent on that right now. This is something we can discuss.

■ 6.4 Freight

Section 5.0 of this report identified shortcomings and challenges, as well as suggested improvements. Each of the items raised, and how they might be handled in the Policy Plan are provided below.

1. **Gap in the North-South I-69 Corridor and Poor Access to Southwest Indiana.** Specific projects are not mentioned in the Policy chapter of the plan. The I-69 project has clearly been an INDOT priority, and is in the Long Range Plan.

2. **Limited Capacity to Cross the Ohio River.** Again, this is a project specific recommendation.

3. **Substandard physical geometries at older interchanges and ramps.** There are several strategies that would support this:

    a.   INDOT will identify and work in partnership with Indiana transportation system users to strengthen intermodal transportation connections for people, goods, and freight to intrastate, interstate, and international markets (page 1-17).

    b.   INDOT will pursue the expansion, improvement and intermodal solutions necessary to ensure that the transportation system supports growth of the state's economy, demand for mobility of people and goods, and improvement of the environment (page 1-7).

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4. **Non-interstate roadway system not as well maintained as the interstates.** There is plenty in the policy plan that covers this. For example: the Highway Strategy on page 1-7 related to roadway management systems. This issue is one of implementation, rather than policy.

5. **Not enough rest areas for long-distance truckers.** There is nothing that specifically covers this. It may be appropriate to add a strategy to the safety policy dealing with rest areas. A potential strategy has been added.

6. **High cost of truck litigation and damages.** This is not necessarily something that should alter the policy plan, and would fit well within the safety policy.

7. **Short lines need to accommodate larger bulk rail equipment.** This includes upgrading track to accommodate 286 thousand pound-per axle standards, as well as longer sidings. There are several strategies under the Economic Development policy that would support this:

    a. INDOT will encourage the development and preservation of the existing rail freight network in Indiana… (page 1-17).

    The actual actions to carry this out might involve loans to the short lines or shippers for the upgrades.

8. **Shortage of covered hopper cars.** This was identified as a national problem, and could be covered under the same policy noted above.

9. **Winter closure of Indiana ports.** This was identified as a shortcoming/challenge. No specific changes were suggested.

![Cambridge Systematics logo](Cambridge Systematics)

Market Research Project

appendices

prepared for

Indiana Department of Transportation

prepared by

Cambridge Systematics, Inc.

with

Indiana University Public Opinion Laboratory
The Blackstone Group, Inc.

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July 2004

Table of Contents

Appendix A

Focus Group Report

INDOT Market Research Study

Summary of March 5, 2003 Focus Groups

technical memorandum

prepared for
Indiana Department of Transportation

prepared by
Cambridge Systematics, Inc.
The Blackstone Group

April 2003

May 6, 2003

Steven C. Smith, AICP
Manager, Long-Range Transportation Planning Section
Indiana Department of Transportation (INDOT)
N901 100 North Senate Avenue
Indianapolis, IN 46204-2219

Re: INDOT Market Research Project
         Summary of March 5, 2003 Focus Groups

Dear Mr. Smith:

Cambridge Systematics, Inc. is pleased to provide this technical memorandum that summarizes the results of two focus groups held on March 5, 2003. The focus groups were facilitated, and this technical memorandum was drafted by Kathi Rose of The Blackstone Group.

The focus groups provide some valuable insights into the attitudes of some of INDOT's customers in the Indianapolis metropolitan area. However, the findings are not statistically significant. The focus groups were undertaken to assist Cambridge Systematics develop a general survey which will have statistically significant findings.

Please let us know if you have any questions on this material

Sincerely,

CAMBRIDGE SYSTEMATICS, INC.

Jeffrey N. Buxbaum, AICP
Senior Associate

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Objectives

- **To identify opportunities to improve the questionnaire for the large-scale telephone survey scheduled for May, 2003**

- **To gain insights into INDOT's customers' view of the nine policy areas in "Transportation in Indiana," INDOT's 1995 policy plan**

- **To explore customer attitudes towards INDOT and priorities related to transportation in Indiana**

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Approach

- **Two consumer focus groups held in Indianapolis on March 5, 2003**

- **Participant profile**

  - **Registered voters from the Indianapolis metropolitan area, ages 19 to 70, at least a high school education, aware of INDOT**

  - **Group 1 (N = 10)**

    - Younger, more urban, more transit-oriented (four had ridden IndyGo buses in the past 30 days)

  - **Group 2 (N = 9)**

    - Older, more suburban, drivers with no recent transit use

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Relationship of Focus Groups to Telephone Survey

- **Focus group participants are not a scientifically selected random sample, so the results can't be projected to all INDOT customers**

  - **The focus groups included Indianapolis-area residents only**

  - **The telephone survey will use random sampling to represent Indiana's residents overall**

- **Focus groups explore the opinions of a relatively few individuals to develop insights and ideas – not definitive conclusions. As such, the results of the focus groups can serve as a useful supplement to the general telephone survey**

- **The numbers in this report are for general understanding and comparison – they are not statistically significant findings**

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Proposed Improvements to the Telephone Questionnaire

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Proposed Improvements to Telephone Questionnaire

- **Fix specific wordings – clarify "finishing highway construction fast," split "quality of life" into two items, etc.**

- **Eliminate the paired trade-offs as they may yield usable results**

  - **In particular, the participants resisted the forced choice between "help rural areas keep their character" and "help rural areas develop economically"**

    - "There is a town outside of Albuquerque, New Mexico, where the interstate runs above the town, and it's the cleanest town I've ever seen. Everybody was happy. Everybody was making money. It can be done [without] interfer[ing] with the quality of life."

Proposed Improvements to Telephone Questionnaire (continued)

- **Add measures of INDOT's actual and perceived performance**

    - **Recall of most recent highway experience – trip length, construction, accidents, congestion, etc.**

    - **Ratings of specific attributes – e.g., highway signage, cleanliness, toll collection, etc.**

    - **Perceptual and attitudinal statements – e.g., INDOT's leadership role, use of technology, role in sprawl, etc.**

    - **Overall performance measures in addition to satisfaction – level of trust, changing for the better, fairness, etc.**

Proposed Improvements to Telephone Questionnaire (continued)

- **Add items to pinpoint emergent issues**

  - **Implications of growth**

  - **Demographic trends – e.g., aging population, increasing numbers of Hispanic residents, etc.**

  - **New policy goals – homeland security, etc.**

- **Add one or two open-ended questions**

  - **"What are the transportation issues you feel most strongly about?"**

  - **"What improvements would you recommend?"**

  - **"What would you like to be able to do that you cannot do using the transportation services available in Indiana?"**

How Do Customer Priorities Compare to the 1995 Policy Goals?

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INDOT's Policy Areas

1995 INDOT Policy Plan	Description for Focus Group
Transportation System Effectiveness	Expand transportation options and connect them into an efficient system
Transportation Safety	Reduce transportation accidents
Demographic Changes and Quality of Life	Improve recreational travel and make it easier for low income, elderly, and disabled persons to get around
Transportation Finance	Obtain more funding for transportation
Intergovernmental Coordination	Improve transportation planning
Economic Development	Support economic development in Indiana
Natural Environment and Energy	Develop the transportation system in a way that protects the environment
Bicycle and Pedestrian Facilities	Make it easier for pedestrians and bicyclists to get around
New Technology	Use new transportation technologies

Policy Priorities

- **In a collaborative exercise, the participants allocated, on average, about half of their budget of 100 "dollars" to two of INDOT's nine policy goals**

  - **Improving transportation planning – $26**

  - **Expanding transportation options and connecting them into an efficient system – $23**

- **Two of the 1995 goals appeared to rank as second-tier priorities**

  - **Using new transportation technologies – $12**

  - **Working with government officials to get more funding for transportation – $9**

Policy Priorities *(continued)*

- **Four goals received relatively low priority**

  - **Supporting economic development in Indiana – $7**

  - **Developing the transportation system in ways that protect the environment – $7**

  - **Making it easier for pedestrians and bicyclists to get around – $6**

  - **Reducing transportation accidents – $5**

- **Combining two seemingly unrelated ideas, "raising quality of life by improving recreational travel and by making travel easier for low income, elderly, and disabled" caused difficulties and scored differently on paper ($14) than in the group exercise ($4)**

Policy Priorities (continued)

- **On their own, the participants did not propose to add to the 1995 policy goals**

  - **Asked specifically about homeland security, Group 2 judged it as outside INDOT's sphere of responsibility**

Commentary on Customer Views of Policy Areas

- **Focus groups generally confirmed validity of INDOT's nine current policy areas**

- **Transforming INDOT's nine policy areas, each encompassing multiple technical elements, into unidimensional, easy-to-understand concepts is an important challenge in conducting customer oriented research**

- **Transportation planning ranked highest of the policy areas examined**
  - **Participants interpreted this very broadly, including**
    - The need for long-range planning horizons,
    - Process streamlining and timely project delivery, and
    - Taking responsibility for coordinating the transportation ramifications of planning, project implementation, and economic development activities undertaken by local, regional, and state agencies

Commentary on Customer Views of Policy Areas (continued)

- **Viewing the "economic development" policy goal as a low priority is consistent with the findings of other consumer research that Cambridge Systematics has conducted – e.g., Vermont**

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Customer Attitudes Towards Transportation in Indiana

How Did the Participants View Transportation Services in Indiana?

- **The participants viewed Indiana as lagging behind elsewhere in the U.S. and Europe**

    - "Indianapolis is 30 years behind . . . Denver"

    - "Indianapolis is not really up to date on their road systems"

    - "Indiana [is notorious] for not keeping up or planning properly"

    - "They follow other states and see what other states do successfully and they try to replicate that"

How Did the Participants View Transportation Services in Indiana? *(continued)*

- **In general, traffic congestion seems to have gotten a little worse in the past 12 months**

    - **Weighting participants' responses (from 1 = "got a lot worse" to 5 = "got a lot better") produced a mean rating of 2.2**

        - "There are just too many people."

        - "It's terrible. Traffic is congested . . . I think it's getting worse. All the cars and construction."

- **Specific aspects of the system have improved**

        - "The northwest side of 465 has had a lot of neon signs put up in the last two years . . . The signs have really helped bottlenecks. You can jump off."

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How Did the Participants View Transportation Services in Indiana? (continued)

- **Overall, though, the participants did not perceive Indiana as being proactive in addressing transportation needs**

  - "I do not think the city of Indianapolis has did [sic] very well at planning. I think they have had their head stuck in the cornfield."

  - "When they do build the homes, they don't build the roads to go with them."

  - "Instead of planning for future growth and putting two extra lanes in, they just add one to keep up or to catch up with . . . the amount of traffic growth that we have had . . . They do not seem to be proactive."

  - "Planning is supposed to be for tomorrow. We plan everything we do in Indiana for today."

What do Participants Think About INDOT?

■ **Participant awareness of INDOT came from multiple sources**

- • **TV, radio, and newspapers – general reports, major stories (e.g., I-69), public service announcements**

- • **Direct experience – work crew sightings, phone calls, work-related contact**

- • **Personal information seeking – in newspapers, on INDOT's web site**

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What do Participants Think About INDOT? *(continued)*

- **Though fuzzy about the full scope and details, the participants were broadly familiar with INDOT's responsibilities**

  - **Highway planning, construction, maintenance, repair**

  - **All aspects of transportation in Indiana**

  - **High-speed transit/public transit (cited by a few)**

  - **Truck licensing/freight permits (mentioned when aided)**

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What do Participants Think About INDOT? *(continued)*

- **In both groups many of the participants' top-of-mind associations with INDOT were less than favorable**

    - **Aggravation**

    - **Construction**

    - **Delays**

    - **Failure to perform road maintenance**

    - **Financially broke**

    - **Low productive work crews**

What do Participants Think About INDOT?
(continued)

- **Not all comments, though, were negative**
  - "Traffic on the interstate . . . is not congested going to work. It does not seem as backed up."
  - "They revamped the 465 and 74 interchange . . . It was so futuristic, it was like the Jetsons. I thought, 'This is really nice.'"

- **Direct questioning revealed that Group 2 largely viewed INDOT as trustworthy and fair**
  - "They are charged with such a huge responsibility that they have. I think they do a fairly good job."
  - "I am sure they do a lot of good things that happen every day that we do not give them credit for because it is not in the news."

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Perspective on the Views Expressed of INDOT and Transportation in Indiana

- **Customers' satisfaction with an organization is the result of both their *image* of it and their *direct experiences* with it**

- **INDOT's *image* is shaped by several factors**

  - **Government is not held in high esteem today**

  - **Negative media stories have more impact than positive ones**

  - **Participants did not clearly differentiate between local transportation agencies' responsibilities and INDOT's – partly from lack of knowledge, but also because they perceive INDOT, the state agency, as being "responsible for everything"**

    - This perception is not likely to change

Perspective on the Views Expressed of INDOT and Transportation in Indiana (continued)

- **Customers expect good performance, so they take many things for granted**

  - "Indiana has a beautiful highway system, in terms of being able to get from one city to another. It's perfectly laid out."

- **Direct questioning and statistical analyses are needed to distinguish between customers "normal expectations" for high quality services and specific improvements that will raise customer performance satisfaction**

- **Bottom line – INDOT can best develop an understanding of customer satisfaction by including in the telephone survey questions on image attributes and performance measures, in combination with questions about customers' personal experiences on Indiana's highways**

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What Are Participants' Expectations of INDOT?

What Are Participants' Expectations of INDOT?

1. **Recognize that the future won't be the same as the past**

2. **INDOT should be fully responsible**

3. **INDOT should lead –**

    a. **Put the team together**

    b. **Plan**

    c. **Involve the public so that the plans serve the collective good, not just special interests**

    d. **Make decisions**

    e. **Act**

4. **Educate and communicate more**

5. **Develop a customer service culture**

What Are Participants' Expectations of INDOT?
(continued)

1. **Recognize that the future won't be the same as the past**

- "You're talking about an old highway system here. . . . It's an antique . . . We need a fast, efficient train system or rail system or bus system . . . Why not expand your ideas of public transportation?"

- "We need an efficient combination of trains, buses, airport, and an efficient highway system for individual automobiles. But the individual automobile has to, some day soon, come down to a reasonable number. We will have to use more public transportation."

- "Get someone from California or someplace like Washington or Denver or wherever to come in . . . Bring in new technology and new ideas."

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What Are Participants' Expectations of INDOT? *(continued)*

2. ***INDOT should be fully responsible***

- "The Department of Transportation of the state should be responsible for every little bitty inch of [the system]. The city of Indianapolis is a part of the state. If you're going to have an efficient system, it has to be state wide."

- "Real development is . . . broad . . . You've got to branch out."

What Are Participants' Expectations of INDOT? *(continued)*

3. **INDOT should lead**

    a. **Put the team together**

        - "[INDOT] should see that, as a team, everybody's working together to build the city. They have a responsibility."

What Are Participants' Expectations of INDOT? *(continued)*

3. **Lead *(continued)***

 b. **Plan**

 - "I believe their responsibility is to plan – design, with public input, within a reasonable budget, an efficient, futuristic highway system or public transportation system . . . efficient, clean, safe transportation for an optimal number of people."

 - "Geological studies. Transportation studies. Study every aspect of it. Blueprint it out . Forecast what's going to happen. Itineraries. Timelines. How's it going to happen? When's it going to happen? How are you going to pay for it to happen? That's planning. That's everything. That's the foundation of what happens."

What Are Participants' Expectations of INDOT? *(continued)*

3. *Lead (continued)*

    c. **Involve the public so that the plans serve the collective good, not just special interests**

- "It's a clique . . . It's the whole 'you scratch mine, I'll scratch yours.'"

- "They are pulled by God knows how many different factions . . . [If] they got a guy in South Bend that wants something . . . it is according to how much juice he has got as to whether he can . . . exert enough pressure on them to get what he wants."

- "They need to have more public meetings open to the public, instead of [just listening to] these little cities."

What Are Participants' Expectations of INDOT? *(continued)*

3. *Lead (continued)*

   d. **Make decisions**

- "Hire somebody with the guts to go in there, go to a meeting and say, 'Come on, guys, let's do something.'"

   e. **Act**

- "Indiana is notorious for having many general assembly discussions and spending a lot of money and never producing any efforts."

- "You're going to have to get up off your little tutu and do some work . . . You can't sit at a table and just have meetings. You've got to move. You've got to do something."

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What Are Participants' Expectations of INDOT? (continued)

4. *Educate and communicate more*

- "They can do a better job of identifying themselves so the public knows who they are and what they're responsible for."

5. *Develop a customer service culture*

- "Nobody has a clue that their main responsibility is to be of public service."

Appendices *(Under Separate Cover)*

Focus Group Pre-Screener Questionnaire

Focus Group Survey and Analysis

Focus Group Protocol

Focus Group Transcripts

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Appendix B

Phone Survey Instrument

INDOT Market Research Project
General Survey
Draft Survey Instrument

0. *From telephone exchange, identify rough geography of the household for possible customization.*

1. Hello, my name is _____, and I'm calling from the Indiana University Public Opinion Research Laboratory. We are conducting a public opinion survey about travel and transportation in Indiana, and we'd like very much to represent your household in the study. This is not a sales call. All of your household's opinions will be kept completely confidential.

Refusal	1	**Thank/Terminate**
Business/Non-residential	2	**Thank/Terminate**
Language	3	**Thank/Terminate**

WARM-UP/GENERAL TRAVEL BEHAVIOR SECTION

2. We would like to begin by asking some questions about how you use Indiana's transportation facilities. How many registered automobiles, motorcycles, and light trucks does your household have available?

    Record number of vehicles (DK/refused=9): _____

    (IF Q.5=0, GOTO Q8)

3. During the past 12 months, about how many miles, in total, did you yourself drive . . . (READ LIST)? (RECORD ONE RESPONSE ONLY.) *(IF REQUIRED)* Your best estimate is fine.

Under 5,000 miles	1
5,000 to under 10,000 miles	2
10,000 to under 15,000 miles	3
15,000 to under 20,000 miles	4
20,000 miles or more	5
DK/Refused	9

4. During the past 12 months, about how many miles, in total, did all the members in your household, including yourself, drive . . . (READ LIST)? (RECORD ONE RESPONSE ONLY.) *(IF REQUIRED)* Your best estimate is fine.

Under 10,000 miles	1
10,000 to under 20,000 miles	2
20,000 to under 30,000 miles	3
30,000 to under 40,000 miles	4
40,000 miles or more	5
DK/Refused	9

5. *(ASK ALL)* In the past 30 days, how many times have you yourself ridden local public buses and commuter trains? *(IF REQUIRED)* Your best estimate is fine.

    Record number of times (DK/refused=99): _____

6. How many times have you made a trip of more than 75 miles one way from your home in the past 12 months?

    Record number of trips (DK/refused=99): _____

7. **(ASK ALL)** In the past 12 months, how many times have you yourself ridden Amtrak rail or intercity bus services? **(IF REQUIRED)** Your best estimate is fine.

    Record number of times (DK/refused=99): _____

8. **(ASK ALL)** Over the past 12 months, how many times have you and the other members of your household traveled through one of Indiana's airports? **(IF REQUIRED)** Your best estimate is fine.

    Record number of flights (DK/refused=99): _____

9. How did you usually get to work LAST WEEK **(IF REQUIRED)** **(**If this person usually used more than one method of transportation during the trip, indicate the one used for most of the distance?)

Car, truck or van	1	**{Q. 13}**
Bus	2	**{Q. 14}**
Commuter Rail	3	**{Q. 14}**
Taxicab	4	**{Q. 14}**
Motorcycle	5	**{Q. 14}**
Bicycle	6	**{Q. 14}**
Walked	7	**{Q. 14}**
Worked at home	8	**[Q. 14]**
Don't know / Refused	9	**{Q. 14}**

10. How many people, including yourself, usually rode to work in the car, truck or van LAST WEEK *(IF REQUIRED.)* Your best estimate is fine.

    Record number of minutes(DK/refused=99999): _____

IMPORTANCE SECTION

Subsection 1: POLICIES

The next few questions are about the role of state agencies that have responsibility for transportation facilities and systems.

I'd like to know **in general** how important or unimportant various aspects of a state transportation agency's role are to you. I'm going to read a list of aspects and ask you to rate each one on a scale of 0 to 10, where 0 means "not at all important" and 10 means "extremely important." You can choose any number from 0 to 10. Keep in mind that I'm **not** asking for ratings of how well your state transportation agency is doing. Instead, I'm talking **in general**

about **how important or unimportant** various aspects of a state transportation agency's role are to you.

Let's start. On a scale of 0 to 10, how **important or unimportant** is it to you for a state transportation agency to . . . (INSERT FIRST ITEM IN RANDOMIZATION)? (CONFIRM THAT RESPONDENT UNDERSTANDS SCALE. THEN CONTINUE WITH REMAINING ITEMS IN RANDOMIZED ORDER. RECORD ONE RESPONSE ONLY FOR EACH ITEM.)

	Question	
11.	Reduce traffic congestion	
12.	Improve transportation safety	
13.	Improve access to business, recreation and cultural sites	
14.	Make it easier for low income, elderly, and disabled persons to get around	
15.	Actively coordinate with and assist other agencies	
16.	Support economic development in the state	
17.	Protect the environment	
18.	Make it easier for pedestrians and bicyclists to get around	
19.	Use new transportation technologies	
	[EMERGENT ISSUES:]	
20.	Have a long-term vision	
21.	Improve bus services	
22.	Improve passenger rail services	
23.	Preserve open spaces, farmlands, forests, and other land resources	
24.	Preserve rural lifestyles	
25.	Improve homeland security	

Subsection 2: SERVICES

I'd like to know **in general** how important or unimportant various transportation agency services are to you. I'm going to read a list of services and ask you to rate each one on a scale of 0 to 10, where 0 means "not at all important" and 10 means "extremely important." Please keep in mind that I'm **not** asking you to rate INDOT. Instead, I'm talking **in general** about **how important or unimportant** various transportation agency services are to you.

Let's start. On a scale of 0 to 10, how **important or unimportant** to you is . . . (INSERT FIRST ITEM IN RANDOMIZATION)? (CONFIRM THAT RESPONDENT UNDERSTANDS SCALE. THEN CONTINUE WITH REMAINING ITEMS IN RANDOMIZED ORDER. RECORD ONE RESPONSE ONLY FOR EACH ITEM.)

[PROGRAM TO ALLOW FOR DK
AND REF RESPONSES FOR EACH ITEM.]

26.	Building and expanding highways to keep pace with land development	
27.	Keeping highway surfaces smooth and free of potholes	
28.	Maintaining bridges in good repair	
29.	Keeping highways clean	
30.	Keeping highways safe	
31.	Providing highway signs that are easy to see and understand	
32.	Keeping highways free of traffic congestion	
33.	Keeping truck traffic flowing smoothly on the highways	

Here is some information about the Indiana Department of Transportation, sometimes called INDOT (read "in dot") . . . (READ SLOWLY AND CLEARLY):

INDOT is directly responsible for numbered state highways, U.S. routes, and interstate highways. INDOT also provides financial support and works with other agencies to provide other types of transportation in Indiana, including public transit, airports, and railroads. INDOT is **not directly** responsible for local city or town streets or county access roads or transit services

For the remainder of this questionnaire, when I say INDOT, I'm talking about the Indiana Department of Transportation.

PRIORITIES SECTION

34. Using a scale of 0 to 10 where 0 means "disagree completely" and 10 means "agree completely," please rate your **agreement or disagreement** with the following statement: "When it comes to improving transportation in Indiana, I feel that, overall, INDOT has got the right priorities." You can choose any number from 0 to 10. (REREAD STATEMENT IF NECESSARY. CONFIRM THAT RESPONDENT UNDERSTANDS SCALE. RECORD ONE RESPONSE ONLY.)

Disagree Completely										**Agree Completely**	**DK/REF**
0	1	2	3	4	5	6	7	8	9	10	99

I'm going to read several transportation policy areas. For each area, please tell me whether, in your opinion, INDOT gives it **too little attention, about the right amount of attention**, or **too much attention**. (READ ITEMS IN RANDOMIZED ORDER. RECORD ONE RESPONSE ONLY FOR EACH ITEM.)

Too little attention:	1
About the right attention	2
Too much attention	3

	Question	
35.	Reduce traffic congestion	
36.	Improve transportation safety	
37.	Improve access to business, recreation and cultural sites	
38.	Make it easier for low income, elderly, and disabled persons to get around	
39.	Actively coordinate with and assist other agencies	
40.	Support economic development in the state	
41.	Protect the environment	
42.	Make it easier for pedestrians and bicyclists to get around	
43.	Use new transportation technologies	
	[EMERGENT ISSUES:]	
44.	Creating a long-term vision	
45.	Improve bus services	
46.	Improve passenger rail services	
47.	Preserve open spaces, farmlands, forests, and other land resources	
48.	Preserve rural lifestyles	
49.	Improve homeland security	

50.   In your opinion, what should be INDOT's top priorities in the future? What others? (CLARIFY AND PROBE.)

51.   Last year, INDOT spent about 70 percent of its available construction funds on paving and maintaining highways and repairing bridges. INDOT spent 20 percent of its funds on new roadway projects, and another 10 percent of its funds on non-highway programs, like public transit and airports. If it were up to you , would you use the same allocation?

<div align="right">

Yes   1   **{Q. 69}**
No   2   **{Q. 66}**
DK/Ref   9   **{Q. 69}**

</div>

52.   Do you think INDOT should spend **more** or **less** than 70 percent of its available funds on paving and maintaining highways and repairing bridges?

<div align="right">

More   1
Less   2
Keep   3
DK/Ref   9

</div>

53. Do you think INDOT should spend **more** or **less** than 20 percent of its available funds new roadway projects?

More	1
Less	2
Keep	3
DK/Ref	9

54. Do you think INDOT should spend **more** or **less** than 10 percent of its available funds on non-highway programs, like public transit and airports?

More	1
Less	2
Keep	3
DK/Ref	9

CUSTOMER SATISFACTION SECTION

Subsection 1: Services

Now I'm going to read some statements about INDOT and ask you how much you agree or disagree with each one. We'll be using a scale of 0 to 10 where 0 means "disagree completely" and 10 means "agree completely." You can choose any number from 0 to 10.

Let's start. On a scale of 0 to 10, how would you rate your **agreement or disagreement** with the statement, "INDOT . . . (INSERT FIRST ITEM IN RANDOMIZATION)? (CONFIRM THAT RESPONDENT UNDERSTANDS SCALE. THEN CONTINUE WITH REMAINING ITEMS IN RANDOMIZED ORDER. RECORD ONE RESPONSE ONLY FOR EACH ITEM.)

[PROGRAM TO ALLOW FOR DK
AND REF RESPONSES FOR EACH ITEM.]

55.	Builds and expands highways as needed to keep pace with land development	
56.	Keeps highway surfaces smooth and free of potholes	
57.	Maintains bridges in good repair	
58.	Keeps highways clean	
59.	Keeping highways safe	
60.	Provides highway signs that are easy to see and understand	
61.	Keeps highways free of traffic congestion	
62.	Keeps truck traffic flowing smoothly on the highways	

63.   In the past 12 months, would you say that INDOT's overall performance has . . . (READ EACH ITEM, ONE AT A TIME)? (RECORD ONE RESPONSE ONLY.)

Gotten a lot worse	1
Gotten a little worse	2
Stayed about the same	3
Gotten a little better	4
Gotten a lot better	5
DK/Ref	9

Subsection 2: Image

I'm going to read some phrases that people might or might not use to describe INDOT. As I read each phrase, please think about how well that phrase describes INDOT, and choose a number from 0 to 10, where 0 means "does not describe INDOT at all" and 10 means "describes INDOT extremely well." You can choose any number from 0 to 10. There are no right or wrong answers. I'm just interested in your impressions of INDOT, based on your experiences or on what you've seen or heard about it.

Let's start with the phrase . . . "(INSERT FIRST PHRASE IN RANDOMIZATION)." On a scale of 0 to 10, how well does that phrase describe INDOT? (CONFIRM THAT RESPONDENT UNDERSTANDS SCALE. THEN CONTINUE WITH REMAINING ITEMS IN RANDOMIZED ORDER. RECORD ONE RESPONSE ONLY FOR EACH ITEM.)

[PROGRAM TO ALLOW FOR DK
AND REF RESPONSES FOR EACH ITEM.]

64.	Treats all parts of the state and all groups of people fairly	
65.	Is trustworthy	
66.	Puts its funds to good use	
67.	Keeps drivers safe	
68.	Completes highway construction and repairs on time	
69.	Is good at managing growth	
70.	Helps Indiana's economy	
71.	Provides leadership to move Indiana forward	
72.	Protects Indiana's natural environment	

73. Which one of these statements best describes how much you've heard about INDOT lately . . . (READ LIST)? (RECORD ONE RESPONSE ONLY.)

I have not heard about INDOT lately	1
I've heard something about INDOT lately	2
I've heard a lot about INDOT lately	3
DK/REF	9

Subsection 3: Most Recent Highway Experience

74. Thinking just about the past 30 days, how frequently did you encounter unacceptable levels of traffic congestion on a numbered state highway, U.S. route, or interstate highway in Indiana? Would you say . . . (READ LIST)? (RECORD ONE RESPONSE ONLY.)

Never	1
Rarely	2
Sometimes	3
Frequently	4
Almost Every Day	5
DK/NR	9

75. 75. Thinking just about the past 30 days, how frequently did you encounter unacceptable levels of pavement quality on a numbered state highway, U.S. route, or interstate highway in Indiana? Would you say . . . (READ LIST)? (RECORD ONE RESPONSE ONLY.)

Never	1
Rarely	2
Sometimes	3
Frequently	4
Almost Every Day	5
DK/NR	9

76. Thinking just about the past 30 days, how frequently did you encounter unsafe road conditions on a numbered state highway, U.S. route, or interstate highway in Indiana? Would you say . . . (READ LIST)? (RECORD ONE RESPONSE ONLY.)

Never	1
Rarely	2
Sometimes	3
Frequently	4
Almost Every Day	5
DK/NR	9

77. Thinking just about the past 30 days, how frequently did you encounter locations that needed signs or that had confusing signs on a numbered state highway, U.S. route, or interstate highway in Indiana? Would you say . . . (READ LIST)? (RECORD ONE RESPONSE ONLY.)

Never	1
Rarely	2
Sometimes	3
Frequently	4
Almost Every Day	5
DK/NR	9

Subsection 4: Overall Satisfaction

78. Overall, how would you rate your **satisfaction or dissatisfaction** with INDOT? We'll use a scale of 0 to 10 where 0 means "extremely dissatisfied" and 10 means "extremely satisfied." You can choose any number from 0 to 10. (CONFIRM THAT RESPONDENT UNDERSTANDS SCALE. RECORD ONE RESPONSE ONLY.)

Extremely Dissatisfied										**Extremely Satisfied**	**DK/REF**
0 1	2	3	4	5	6	7	8	9	10		99

79. What ideas, suggestions, or recommendations would you make to improve INDOT's policies or services?

SOCIOECONOMIC CHARACTERISTICS SECTION

80. What is your zip code? (If asked, zip code of the home—not mailing address)

Record zip code (DK/refuse=99999) _____

81. How many years have you lived in the state of Indiana? (RECORD A SPECIFIC NUMBER – NO RANGES.)

Enter years (less than 1 year=0; DK/refuse=99) ____

82. 82. How many people live in your household, **including yourself**? (RECORD A SPECIFIC NUMBER – NO RANGES.)

Record number in household (DK/refuse=999) ____

83. How many people in your household work outside the home?
    Record number in household (DK/refuse=999) ____

84. Are you . . . (READ LIST)? (RECORD ONE RESPONSE ONLY.)

Employed full time	1
Employed part time	2
Self employed	3
Retired	4
A full-time student	5
A full-time homemaker	6
Not presently employed	7
OTHER (SPECIFY:) _____	8
DK/REF	9

85. In what year were you born?

    Year (DK/refuse=9999) ____

86. GENDER (RECORD – DO NOT ASK:)

Male	1
Female	2

87. Are you . . . (READ LIST)? (RECORD ONE RESPONSE ONLY.)

African American or black	1
Caucasian or white	2
Hispanic or Latino	3
Asian American or Pacific Islander	4
American Indian or Native American	5
MULTIRACIAL/BIRACIAL	6
OTHER (SPECIFY:) _____	8
DK/REF	9

88. Which one of the following categories best describes your total annual household income before taxes? Just stop me when I read the right one. Is it … (read responses)
*****Check with IUPOR to use consistent income categories*****

Under $15,000	1
$15,000 to under $25,000	2
$25,000 to under $35,000	3
$35,000 to under $50,000	4
$50,000 to under $75,000	5
$75,000 to under $100,000	6
$100,000 or more	7
DON'T KNOW	X
REFUSED	R

That's the end of the survey. Thank You.

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Appendix C

Summary of General Market Research Responses

Autos in the Household				
autos	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No autos	38	3.4	38	3.4
One auto	257	22.8	295	26.2
Two autos	442	39.2	736	65.3
Three or more autos	391	34.7	1,127	100.0

Frequency Missing = 5.7141131248

Miles traveled by respondent in the past 12 months				
miles_per	Frequency	Percent	Cumulative Frequency	Cumulative Percent
<5000 miles	352	31.3	352	31.3
5K to 10K miles	263	23.4	615	54.6
10k to 15K miles	221	19.6	836	74.3
15k to 20K miles	107	9.5	943	83.8
20k miles or more	141	12.6	1,084	96.4
DK/Refused	41	3.6	1,125	100.0

Frequency Missing = 8.0776132786

Miles traveled by all household members in past 12 Months				
miles_hh	Frequency	Percent	Cumulative Frequency	Cumulative Percent
<10,000 miles	337	30.0	337	30.0
10K to 20K miles	299	26.6	636	56.6
20k to 30K miles	201	17.9	837	74.4
30k to 40K miles	112	10.0	949	84.4
40k miles or more	136	12.1	1,086	96.5
DK/Refused	39	3.5	1,125	100.0

Frequency Missing = 8.0776132786

Rode public bus/train in the past 30 days?				
BSTRN_bin	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Atleast Once	48	4.2	48	4.2
None/zero	1,080	95.3	1,127	99.5
Do not know/refused	6	0.5	1,133	100.0

_____

Frequency of Transit Usage in the Past Month				
BUSTRAINg	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
Zero	1,085	95.8	1,085	95.8
1-4 times per month	27	2.4	1,113	98.2
5-10 times per month	8	0.7	1,121	98.9
More than 10 times per month	12	1.1	1,133	100.0

Frequency of Trips of 75 Miles or More in Past 12 Months				
ONEWAYg	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
Zero	175	15.4	175	15.4
1-5 times	474	41.8	648	57.2
6-10 times	193	17.0	841	74.2
11-20 times	157	13.9	998	88.1
21-50 times	78	6.9	1,076	95.0
More than 50 times	57	5.0	1,133	100.0

Rode AMTRAK in past 12 months?				
AMTRK_bin	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
Atleast Once	70	6.2	70	6.2
None/zero	1,061	93.7	1,132	99.9
Do not know/refused	1	0.1	1,133	100.0

Frequency of Trips of AMTRAK Usage in Past 12 Months				
AMTRAKg	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
Zero	1,063	93.8	1,063	93.8
1-5 times per month	51	4.5	1,113	98.3
More than 5 times per month	20	1.7	1,133	100.0

_____

Traveled through IN airports in past 12 months?				
AIRPT_BIN	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Atleast Once	487	43.0	487	43.0
None/zero	639	56.4	1,126	99.4
Do not know/refused	7	0.6	1,133	100.0

Frequency of Usage of an Indiana Airport in Past 12 Months				
AIRPORTg	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Zero	646	57.0	646	57.0
1-5 times per month	400	35.3	1,045	92.3
6-10 times per month	58	5.1	1,103	97.4
More than 10 times per month	30	2.6	1,133	100.0

Frequency Col Pct

Table of BSTRN_bin by stratum							
	stratum(Geographic Stratum)						
BSTRN_bin(Rode public bus/train in the past 30 days?)	Indianapolis (Marion County)	Gary (Lake County)	N.Indiana counties with cities Pop.>= 20k	S.Indiana counties with cities Pop.>= 50k	Other Northern Indiana counties	Other Southern Indiana counties	Total
Atleast Once	11.6 6.81	8.3 9.36	20.1 6.02	1.0 0.61	2.8 1.81	4.0 1.81	47.8
None/zero	159.4 93.19	79.3 89.79	311.0 93.37	160.2 98.18	153.7 97.59	215.8 98.19	1,079.5
Do not know/refused	0.0 0.00	0.8 0.85	2.0 0.60	2.0 1.21	0.9 0.60	0.0 0.00	5.7
Total	171.1	88.4	333.1	163.2	157.5	219.8	1,133.0

Mode taken to work last week				
mode2wrk	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Car,Truck, or Van	786	96.7	786	96.7
Bus	6	0.8	792	97.4
Commuter Rail	0	0.0	793	97.5
Bicycle	6	0.7	798	98.2
Walked	15	1.8	813	100.0

Respondent Gender				
GENDER	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Male	555	49.0	555	49.0
Female	578	51.0	1,133	100.0

Respondent Age Group				
AGEGROUP	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Under 18 yrs	20	1.8	20	1.8
18-25 yrs of age	101	9.0	122	10.7
25-35 yrs of age	175	15.4	297	26.2
35-50 yrs of age	331	29.2	627	55.4
50-65 yrs of age	298	26.3	925	81.6
Over 65 yrs of age	208	18.4	1,133	100.0

_____

County of Residence				
COUNTY	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Adams	6	0.5	6	0.5
Allen	72	6.4	78	6.9
Bartholomew	15	1.3	93	8.2
Benton	3	0.3	96	8.4
Blackford	4	0.3	99	8.8
Boone	4	0.3	103	9.1
Brown	5	0.5	108	9.6
Carroll	5	0.4	113	10.0
Cass	9	0.8	122	10.7
Clark	19	1.7	141	12.4
Clay	4	0.4	145	12.8
Clinton	11	1.0	156	13.8
Daviess	4	0.4	160	14.1
Dearborn	11	0.9	170	15.0
Decatur	3	0.2	173	15.3
Dekalb	7	0.6	180	15.9
Delaware	22	1.9	202	17.8
Dubois	9	0.8	211	18.6
Elkhart	30	2.7	241	21.3
Fayette	5	0.5	247	21.8
Floyd	11	1.0	257	22.7
Fountain	3	0.3	260	23.0
Franklin	3	0.2	263	23.2
Fulton	6	0.5	269	23.7
Grant	14	1.2	283	24.9
Greene	7	0.6	290	25.6
Hamilton	44	3.9	334	29.5
Hancock	11	0.9	344	30.4
Harrison	13	1.2	358	31.6
Hendricks	26	2.3	384	33.9
Henry	12	1.1	396	34.9
Howard	10	0.9	406	35.8
Huntington	4	0.3	410	36.2
Jackson	3	0.2	412	36.4

County of Residence				
COUNTY	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Jasper	6	0.5	418	36.9
Jay	4	0.3	422	37.2
Jefferson	7	0.6	429	37.8
Jennings	7	0.6	435	38.4
Johnson	18	1.6	453	40.0
Knox	3	0.2	456	40.2
Kosciusko	12	1.1	468	41.3
Lagrange	7	0.6	475	41.9
Lake	88	7.8	563	49.7
Laporte	4	0.4	567	50.0
Lawrence	9	0.8	576	50.9
Madison	20	1.8	596	52.6
Marion	171	15.1	767	67.7
Marshall	9	0.8	777	68.6
Martin	4	0.4	781	68.9
Miami	9	0.8	789	69.7
Monroe	30	2.6	819	72.3
Montgomery	7	0.6	826	72.9
Morgan	9	0.8	835	73.7
Noble	8	0.7	843	74.4
Ohio	1	0.1	844	74.5
Orange	1	0.1	845	74.6
Owen	1	0.1	846	74.7
Parke	4	0.4	850	75.1
Perry	1	0.1	852	75.2
Pike	5	0.5	857	75.6
Porter	28	2.5	885	78.1
Posey	3	0.2	888	78.4
Pulaski	2	0.2	890	78.5
Putnam	4	0.4	894	78.9
Randolph	9	0.8	902	79.6
Ripley	4	0.4	906	80.0
Rush	5	0.5	912	80.5
St. Joseph	48	4.3	960	84.7

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County of Residence				
COUNTY	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Scott	9	0.8	969	85.5
Shelby	7	0.6	976	86.1
Spencer	3	0.2	978	86.3
Starke	7	0.6	985	86.9
Steuben	4	0.3	989	87.3
Sullivan	3	0.2	991	87.5
Tippecanoe	28	2.5	1,019	90.0
Tipton	3	0.3	1,022	90.2
Union	1	0.1	1,024	90.3
Vanderburgh	38	3.3	1,061	93.7
Vermillion	4	0.4	1,065	94.0
Vigo	15	1.3	1,080	95.3
Wabash	5	0.4	1,085	95.7
Warren	3	0.3	1,088	96.0
Warrick	9	0.8	1,097	96.8
Washington	7	0.6	1,103	97.4
Wayne	12	1.0	1,115	98.4
Wells	4	0.3	1,119	98.8
White	2	0.2	1,121	98.9
Whitley	12	1.1	1,133	100.0

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Employment Status of Respondent				
EMPSTAT	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
Employed full-time	558	49.2	558	49.2
Employed part-time	109	9.6	666	58.8
Self-employed	91	8.1	758	66.9
Retired	218	19.2	975	86.1
A full-time student	29	2.6	1,004	88.7
A full-time homemaker	39	3.5	1,044	92.1
Not presently employed	55	4.9	1,099	97.0
DK/refused	8	0.7	1,107	97.7
Permanently disabled/on disability	11	0.9	1,117	98.6
Employed and a college student	14	1.3	1,131	99.9
Maternity Leave	1	0.1	1,132	99.9
Seasonal Employment	1	0.1	1,133	100.0

Q89A-Race/ethnic identity				
RACE_A	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
African American or black	69	6.1	69	6.1
Caucasian or white	1,010	89.1	1,079	95.2
hispanic or latino	10	0.9	1,089	96.1
Asian american or Pacific Islander	8	0.7	1,097	96.8
American Indian or Native American	8	0.7	1,105	97.5
Multiracial/Biracial	11	1.0	1,116	98.5
Other	1	0.1	1,117	98.6
DK/Refused	15	1.3	1,132	99.9
Black and American Indian	1	0.1	1,133	100.0

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# People in the household(>=6 grouped as 6)				
size_hh	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	190	16.9	190	16.9
2	396	35.3	586	52.2
3	232	20.6	818	72.8
4	171	15.2	989	88.1
5	88	7.9	1,077	96.0
Six or more people in the household	45	4.0	1,123	100.0

Frequency Missing = 10.339929992

# People who work outside the home(>=3 grouped as 3)				
numworkers	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No workers outside the home	217	19.3	217	19.3
One worker outside the home	345	30.7	561	50.0
Two workers outside the home	409	36.4	970	86.5
Three or more workers outside the home	152	13.5	1,122	100.0

Frequency Missing = 11.252136119

Total Annual Household Income Before Taxes				
HHINCOME	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Below $15K	70	6.2	70	6.2
$15K to $25K	124	10.9	194	17.1
$25K to $35K	167	14.8	362	31.9
$35K to $50K	186	16.4	548	48.4
$50K to $75K	237	20.9	785	69.3
$75K to $100K	115	10.2	900	79.5
Above $100K	80	7.0	980	86.5
DK	12	1.1	992	87.6
Refused	141	12.4	1,133	100.0

Respondent and Household Demographics

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Autos in the Household				
autos	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No autos	38	3.4	38	3.4
One auto	257	22.8	295	26.2
Two autos	442	39.2	736	65.3
Three or more autos	391	34.7	1,127	100.0

Frequency Missing = 5.7141131248

Years of Residence in Indiana				
INyears	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Less than five years	78	6.9	78	6.9
5 to 15 years	88	7.8	166	14.7
15 to 30 years	242	21.4	408	36.0
30 or more years	725	64.0	1,133	100.0

Mean Ratings for Importance of INDOT policies, Scale of 0-10

Importance of INDOT Policies	All Respondents
Alleviate traffic congestion	8.11
Improve transportation safety	8.21
Improve access to business, recreation, cultural sites	6.96
Easier mobility for low income, elderly, disabled	8.37
Coordinate with other agencies	6.82
Support economic development	7.93
Protect the environment	8.32
Easier mobility for peds and bicyclists	6.99
Use new transportation technologies	7.12
Have a long-term vision	7.83
Improve bus services	5.72
Improve passenger rail services	5.79
Preserve open spaces, farmlands, forests	8.08
Preserve rural lifestyles	7.49
Improve homeland security	8.06
Build and expand highways to keep pace with land development	7.61
Keep highways smooth and free of potholes	9.17
Maintain bridges in good repair	9.09
Keep highways clean	8.45
Keep highways safe	9.21
Provide clear highway signs	8.93
Keep highways free of congestion	8.49
Keep truck traffic flowing smoothly on the highways	8.54

Mean Ratings for Importance of INDOT policies, Scale of 0-10
Categorized by EJ/non EJ and Geographic Stratum

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Importance of INDOT Policies	All Respondents	EJ Household?	
		No	Yes
Alleviate traffic congestion	8.11	8.12	8.06
Improve transportation safety	8.21	8.12	8.57
Improve access to business, recreation, cultural sites	6.96	6.87	7.34
Easier mobility for low income, elderly, disabled	8.37	8.24	8.91
Coordinate with other agencies	6.82	6.71	7.33
Support economic development	7.93	7.90	8.06
Protect the environment	8.32	8.20	8.79
Easier mobility for peds and bicyclists	6.99	6.81	7.73
Use new transportation technologies	7.12	7.07	7.33
Have a long-term vision	7.83	7.77	8.08
Improve bus services	5.72	5.42	6.94
Improve passenger rail services	5.79	5.56	6.75
Preserve open spaces, farmlands, forests	8.08	8.04	8.24
Preserve rural lifestyles	7.49	7.52	7.38
Improve homeland security	8.06	8.00	8.29
Build and expand highways to keep pace with land development	7.61	7.58	7.76
Keep highways smooth and free of potholes	9.17	9.17	9.20
Maintain bridges in good repair	9.09	9.07	9.18
Keep highways clean	8.45	8.42	8.59
Keep highways safe	9.21	9.20	9.25
Provide clear highway signs	8.93	8.90	9.07
Keep highways free of congestion	8.49	8.47	8.58
Keep truck traffic flowing smoothly on the highways	8.54	8.52	8.61

Mean Ratings for Importance of INDOT policies, Scale of 0-10
Categorized by EJ/non EJ and Geographic Stratum

Importance of INDOT Policies	Geographic Stratum					
	Indianapolis (Marion County)	Gary (Lake County)	N.Indiana counties with cities Pop.>= 20k	S.Indiana counties with cities Pop.>= 50k	Other Northern Indiana counties	Other Southern Indiana counties
Alleviate traffic congestion	8.44	8.88	8.22	8.46	7.37	7.60
Improve transportation safety	8.06	8.58	8.22	8.46	8.17	7.99
Improve access to business, recreation, cultural sites	7.11	7.48	6.85	6.97	6.82	6.87
Easier mobility for low income, elderly, disabled	8.32	8.53	8.33	8.54	8.27	8.36
Coordinate with other agencies	6.83	7.22	7.20	6.61	6.61	6.38
Support economic development	7.85	8.24	7.99	7.99	7.76	7.86
Protect the environment	8.30	8.67	8.38	8.28	8.20	8.19
Easier mobility for peds and bicyclists	7.18	7.48	7.17	6.87	6.81	6.55
Use new transportation technologies	7.23	7.61	7.03	7.26	7.17	6.84
Have a long-term vision	8.03	7.94	7.95	8.06	7.21	7.71
Improve bus services	6.40	6.22	6.00	5.69	4.66	5.29
Improve passenger rail services	6.46	6.60	6.20	5.49	5.39	4.83
Preserve open spaces, farmlands, forests	7.89	8.28	8.25	7.80	8.14	8.05
Preserve rural lifestyles	7.19	7.34	7.48	7.66	7.46	7.70
Improve homeland security	8.08	8.28	8.12	8.04	7.99	7.90
Build and expand highways to keep pace with land development	7.73	8.11	7.70	7.87	7.37	7.18
Keep highways smooth and free of potholes	9.24	9.29	9.21	9.15	9.14	9.05
Maintain bridges in good repair	9.10	9.03	9.20	9.20	9.00	8.92
Keep highways clean	8.40	8.65	8.39	8.61	8.42	8.40
Keep highways safe	9.15	9.29	9.24	9.36	9.32	8.99
Provide clear highway signs	8.83	9.11	8.90	9.05	9.04	8.82
Keep highways free of congestion	8.40	8.97	8.65	8.65	8.27	8.15
Keep truck traffic flowing smoothly on the highways	8.54	8.96	8.48	8.43	8.68	8.45

Mean Ratings for Importance of INDOT policies, Scale of 0-10
Categorized by Gender and Age Group

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Importance of INDOT Policies	All Respondents	Gender	
		Male	Female
Alleviate traffic congestion	8.11	7.81	8.39
Improve transportation safety	8.21	7.82	8.57
Improve access to business, recreation, cultural sites	6.96	6.83	7.08
Easier mobility for low income, elderly, disabled	8.37	7.94	8.78
Coordinate with other agencies	6.82	6.53	7.11
Support economic development	7.93	7.81	8.05
Protect the environment	8.32	7.97	8.64
Easier mobility for peds and bicyclists	6.99	6.38	7.56
Use new transportation technologies	7.12	6.90	7.33
Have a long-term vision	7.83	7.64	8.01
Improve bus services	5.72	5.29	6.13
Improve passenger rail services	5.79	5.37	6.20
Preserve open spaces, farmlands, forests	8.08	7.68	8.46
Preserve rural lifestyles	7.49	7.15	7.81
Improve homeland security	8.06	7.49	8.60
Build and expand highways to keep pace with land development	7.61	7.34	7.88
Keep highways smooth and free of potholes	9.17	9.01	9.33
Maintain bridges in good repair	9.09	8.92	9.25
Keep highways clean	8.45	8.26	8.64
Keep highways safe	9.21	8.96	9.45
Provide clear highway signs	8.93	8.57	9.28
Keep highways free of congestion	8.49	8.23	8.73
Keep truck traffic flowing smoothly on the highways	8.54	8.36	8.72

Mean Ratings for Importance of INDOT policies, Scale of 0-10
Categorized by Gender and Age Group

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Importance of INDOT Policies	Respondent Age Group					
	Under 18 yrs	18-25 yrs of age	25-35 yrs of age	35-50 yrs of age	50-65 yrs of age	Over 65 yrs of age
Alleviate traffic congestion	8.06	7.69	8.41	8.30	7.98	7.93
Improve transportation safety	9.04	7.63	8.49	8.28	8.13	8.18
Improve access to business, recreation, cultural sites	8.16	6.68	7.16	7.02	7.10	6.48
Easier mobility for low income, elderly, disabled	8.67	7.96	8.43	8.56	8.20	8.43
Coordinate with other agencies	7.68	5.92	6.87	7.13	7.00	6.37
Support economic development	8.96	7.52	7.84	7.99	8.07	7.82
Protect the environment	9.03	8.11	8.36	8.61	8.13	8.11
Easier mobility for peds and bicyclists	7.73	6.42	7.61	7.28	6.68	6.62
Use new transportation technologies	8.40	6.31	7.35	7.35	7.22	6.65
Have a long-term vision	9.06	7.11	7.65	8.12	8.06	7.41
Improve bus services	7.73	4.96	6.00	5.91	5.57	5.56
Improve passenger rail services	7.43	5.16	5.98	5.75	5.61	6.15
Preserve open spaces, farmlands, forests	9.06	7.77	8.14	8.26	8.03	7.86
Preserve rural lifestyles	8.18	6.71	7.65	7.75	7.55	7.16
Improve homeland security	8.60	7.57	7.91	8.31	7.99	8.05
Build and expand highways to keep pace with land development	8.16	7.16	7.59	7.62	7.71	7.63
Keep highways smooth and free of potholes	9.63	9.02	9.30	9.20	9.24	8.95
Maintain bridges in good repair	9.66	8.42	9.03	9.30	9.11	9.04
Keep highways clean	8.94	8.03	8.51	8.51	8.44	8.48
Keep highways safe	9.69	8.46	9.18	9.32	9.24	9.33
Provide clear highway signs	9.25	8.55	8.85	8.83	9.09	9.08
Keep highways free of congestion	8.79	8.30	8.54	8.54	8.38	8.59
Keep truck traffic flowing smoothly on the highways	8.76	8.34	8.57	8.69	8.42	8.52

Mean Ratings for Importance of INDOT policies, Scale of 0-10
Categorized by Income Group and Years of Residence in Indiana

Importance of INDOT Policies	All Respondents	Income group of household (low, mid, high)		
		Low Income Group	Medium Income Group	High Income Group
Alleviate traffic congestion	8.09	7.92	8.12	8.34
Improve transportation safety	8.17	8.21	8.16	8.11
Improve access to business, recreation, cultural sites	6.99	6.90	7.12	6.85
Easier mobility for low income, elderly, disabled	8.38	8.52	8.38	8.11
Coordinate with other agencies	6.85	6.80	6.87	6.88
Support economic development	7.98	7.87	7.97	8.20
Protect the environment	8.31	8.38	8.33	8.12
Easier mobility for peds and bicyclists	6.96	7.08	6.96	6.73
Use new transportation technologies	7.10	6.84	7.15	7.47
Have a long-term vision	7.87	7.70	7.84	8.24
Improve bus services	5.77	6.03	5.50	5.88
Improve passenger rail services	5.80	5.97	5.51	6.15
Preserve open spaces, farmlands, forests	8.08	8.15	8.13	7.87
Preserve rural lifestyles	7.53	7.47	7.68	7.30
Improve homeland security	8.03	8.12	7.90	8.12
Build and expand highways to keep pace with land development	7.62	7.56	7.58	7.82
Keep highways smooth and free of potholes	9.16	9.15	9.18	9.12
Maintain bridges in good repair	9.10	9.14	9.07	9.08
Keep highways clean	8.47	8.59	8.42	8.39
Keep highways safe	9.19	9.21	9.14	9.27
Provide clear highway signs	8.91	8.93	8.93	8.84
Keep highways free of congestion	8.50	8.52	8.49	8.45
Keep truck traffic flowing smoothly on the highways	8.57	8.59	8.58	8.52

Mean Ratings for Importance of INDOT policies, Scale of 0-10
Categorized by Income Group and Years of Residence in Indiana

Importance of INDOT Policies	Years of Residence in Indiana			
	Less than five years	5 to 15 years	15 to 30 years	30 or more years
Alleviate traffic congestion	7.96	8.41	8.19	8.03
Improve transportation safety	8.04	8.03	8.28	8.16
Improve access to business, recreation, cultural sites	6.38	7.47	7.11	6.95
Easier mobility for low income, elderly, disabled	8.05	8.54	8.40	8.39
Coordinate with other agencies	6.27	7.43	6.71	6.89
Support economic development	7.59	8.07	7.91	8.04
Protect the environment	8.07	8.53	8.23	8.34
Easier mobility for peds and bicyclists	6.56	7.52	7.28	6.82
Use new transportation technologies	7.05	7.74	6.94	7.09
Have a long-term vision	7.27	8.34	7.76	7.91
Improve bus services	6.01	6.13	6.01	5.61
Improve passenger rail services	5.34	6.48	5.81	5.77
Preserve open spaces, farmlands, forests	7.55	8.43	8.17	8.07
Preserve rural lifestyles	7.03	7.70	7.45	7.59
Improve homeland security	7.69	7.99	8.08	8.05
Build and expand highways to keep pace with land development	7.12	7.58	7.64	7.67
Keep highways smooth and free of potholes	8.95	9.38	9.20	9.14
Maintain bridges in good repair	9.00	9.07	8.89	9.18
Keep highways clean	8.40	8.66	8.39	8.49
Keep highways safe	9.29	9.27	9.01	9.24
Provide clear highway signs	8.59	8.97	8.77	8.99
Keep highways free of congestion	8.56	8.81	8.50	8.45
Keep truck traffic flowing smoothly on the highways	8.28	8.81	8.56	8.57

Frequency Distributions for Importance Questions

Alleviate traffic congestion				
Q14	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
not at all important	27	2.4	27	2.4
1	3	0.3	30	2.7
2	8	0.7	38	3.4
3	13	1.2	51	4.6
4	22	1.9	73	6.5
5	116	10.3	189	16.8
6	47	4.2	236	21.1
7	97	8.7	333	29.7
8	171	15.3	504	45.0
9	137	12.2	642	57.2
extremely important	479	42.8	1,121	100.0

Frequency Missing = 12.172305537

Improve transportation safety				
Q15	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
not at all important	26	2.3	26	2.3
1	2	0.2	27	2.4
2	10	0.9	38	3.4
3	12	1.1	50	4.4
4	11	1.0	61	5.4
5	103	9.2	164	14.6
6	50	4.4	214	19.0
7	99	8.8	312	27.8
8	192	17.1	504	44.9
9	112	10.0	617	54.9
extremely important	506	45.1	1,123	100.0

Frequency Missing = 10.108648654

Frequency Distributions for Importance Questions

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Improve access to business, recreation, cultural sites				
Q16	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
not at all important	48	4.3	48	4.3
1	11	1.0	59	5.3
2	19	1.7	78	7.0
3	30	2.7	108	9.7
4	22	2.0	131	11.8
5	180	16.2	311	28.0
6	99	8.9	409	36.9
7	167	15.1	577	51.9
8	216	19.5	793	71.4
9	73	6.5	866	77.9
extremely important	245	22.1	1,111	100.0

Frequency Missing = 22.162661292

Easier mobility for low income, elderly, disabled				
Q17	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
not at all important	21	1.8	21	1.8
1	1	0.1	22	1.9
2	13	1.2	35	3.1
3	8	0.7	43	3.8
4	11	1.0	54	4.8
5	82	7.3	136	12.1
6	49	4.3	185	16.4
7	100	8.9	286	25.3
8	189	16.7	475	42.1
9	109	9.7	584	51.7
extremely important	545	48.3	1,128	100.0

Frequency Missing = 4.6956065624

Frequency Distributions for Importance Questions

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Coordinate with other agencies				
Q18	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
not at all important	58	5.4	58	5.4
1	8	0.7	65	6.1
2	25	2.3	90	8.4
3	27	2.5	117	10.9
4	35	3.3	152	14.1
5	221	20.5	374	34.6
6	69	6.3	442	40.9
7	113	10.4	555	51.4
8	195	18.1	750	69.5
9	75	7.0	826	76.4
extremely important	254	23.6	1,080	100.0

Frequency Missing = 52.864796206

Support economic development				
Q19	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
not at all important	32	2.8	32	2.8
1	3	0.3	35	3.1
2	8	0.7	43	3.9
3	21	1.9	64	5.8
4	24	2.2	88	7.9
5	103	9.2	191	17.2
6	64	5.8	255	23.0
7	117	10.5	372	33.4
8	176	15.8	547	49.3
9	123	11.1	670	60.3
extremely important	441	39.7	1,111	100.0

Frequency Missing = 22.03518526

Frequency Distributions for Importance Questions

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Protect the environment				
Q20	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
not at all important	12	1.1	12	1.1
1	3	0.3	15	1.4
2	6	0.5	21	1.9
3	8	0.8	30	2.7
4	21	1.9	51	4.5
5	101	9.0	152	13.6
6	50	4.5	202	18.0
7	101	9.0	303	27.0
8	198	17.7	501	44.7
9	99	8.9	601	53.6
extremely important	521	46.4	1,122	100.0

Frequency Missing = 11.362500051

Easier mobility for peds and bicyclists				
Q21	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
not at all important	52	4.6	52	4.6
1	10	0.9	61	5.4
2	29	2.6	90	8.0
3	47	4.2	138	12.2
4	34	3.1	172	15.3
5	181	16.0	353	31.3
6	60	5.3	413	36.6
7	140	12.4	553	49.1
8	193	17.1	746	66.2
9	73	6.5	819	72.7
extremely important	307	27.3	1,126	100.0

Frequency Missing = 6.6619613176

Frequency Distributions for Importance Questions

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Use new transportation technologies				
Q22	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
not at all important	50	4.6	50	4.6
1	9	0.8	59	5.4
2	20	1.9	79	7.3
3	30	2.8	109	10.1
4	41	3.8	150	13.8
5	155	14.3	305	28.1
6	81	7.5	386	35.6
7	123	11.3	509	46.9
8	192	17.7	700	64.6
9	77	7.1	777	71.7
extremely important	307	28.3	1,084	100.0

Frequency Missing = 49.168648731

Have a long-term vision				
Q23	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
not at all important	39	3.6	39	3.6
1	6	0.5	45	4.1
2	8	0.8	54	4.9
3	13	1.2	67	6.1
4	14	1.2	80	7.3
5	124	11.3	205	18.6
6	52	4.8	257	23.4
7	126	11.5	383	34.9
8	203	18.5	586	53.3
9	83	7.6	669	60.9
extremely important	429	39.1	1,098	100.0

Frequency Missing = 34.607308229

Frequency Distributions for Importance Questions
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Improve bus services				
Q24	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
not at all important	147	13.6	147	13.6
1	16	1.5	163	15.1
2	51	4.7	214	19.8
3	56	5.1	269	25.0
4	44	4.1	313	29.0
5	212	19.6	525	48.7
6	73	6.8	599	55.5
7	90	8.4	689	63.9
8	138	12.8	827	76.7
9	50	4.6	877	81.2
extremely important	202	18.8	1,079	100.0

Frequency Missing = 54.092362933

Improve passenger rail services				
Q25	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
not at all important	133	12.2	133	12.2
1	22	2.0	155	14.3
2	58	5.3	213	19.6
3	66	6.1	279	25.7
4	51	4.7	330	30.4
5	171	15.7	501	46.2
6	71	6.6	572	52.8
7	109	10.0	681	62.8
8	140	12.9	821	75.7
9	58	5.4	879	81.0
extremely important	206	19.0	1,084	100.0

Frequency Missing = 48.509020995

Frequency Distributions for Importance Questions
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Preserve open spaces, farmlands, forests				
Q26	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
not at all important	26	2.3	26	2.3
1	2	0.2	28	2.5
2	11	1.0	39	3.4
3	16	1.4	55	4.9
4	13	1.1	68	6.0
5	133	11.8	200	17.8
6	64	5.7	264	23.5
7	78	6.9	342	30.4
8	167	14.8	509	45.2
9	121	10.8	630	56.0
extremely important	495	44.0	1,124	100.0

Frequency Missing = 8.5100231735

Preserve rural lifestyles				
Q27	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
not at all important	27	2.4	27	2.4
1	6	0.5	33	2.9
2	13	1.2	45	4.1
3	30	2.7	76	6.8
4	28	2.6	104	9.4
5	174	15.6	278	25.0
6	69	6.2	347	31.2
7	114	10.3	461	41.5
8	203	18.2	664	59.7
9	90	8.1	754	67.8
extremely important	358	32.2	1,112	100.0

Frequency Missing = 21.075901718

Frequency Distributions for Importance Questions

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Improve homeland security				
Q28	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
not at all important	33	2.9	33	2.9
1	6	0.6	39	3.5
2	14	1.2	53	4.7
3	31	2.8	84	7.5
4	18	1.6	102	9.1
5	97	8.6	199	17.7
6	50	4.5	249	22.1
7	84	7.5	333	29.6
8	162	14.4	496	44.1
9	103	9.2	599	53.3
extremely important	525	46.7	1,124	100.0

Frequency Missing = 8.7604338375

Build and expand highways to keep pace with land development				
Q29	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
not at all important	26	2.3	26	2.3
1	4	0.4	30	2.7
2	7	0.6	37	3.3
3	13	1.2	51	4.5
4	30	2.6	81	7.1
5	139	12.3	219	19.4
6	86	7.6	305	27.1
7	154	13.6	459	40.7
8	239	21.2	698	61.9
9	88	7.8	786	69.8
extremely important	341	30.2	1,127	100.0

Frequency Missing = 5.5147852858

Frequency Distributions for Importance Questions
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Keep highways smooth and free of potholes				
Q30	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
not at all important	3	0.2	3	0.2
1	0	0.0	3	0.3
2	4	0.4	7	0.7
3	5	0.5	13	1.1
4	4	0.3	16	1.5
5	30	2.6	46	4.1
6	19	1.7	66	5.8
7	43	3.8	108	9.6
8	164	14.5	272	24.0
9	130	11.5	403	35.5
extremely important	730	64.5	1,133	100.0

Maintain bridges in good repair				
Q31	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
not at all important	2	0.2	2	0.2
1	0	0.0	3	0.2
2	1	0.1	4	0.3
4	4	0.4	8	0.7
5	43	3.8	52	4.6
6	21	1.9	73	6.4
7	58	5.1	131	11.6
8	183	16.2	314	27.7
9	129	11.3	443	39.1
extremely important	690	60.9	1,133	100.0

Frequency Distributions for Importance Questions

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Keep highways clean				
Q32	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
not at all important	7	0.6	7	0.6
1	0	0.0	7	0.6
2	3	0.3	11	0.9
3	12	1.0	22	2.0
4	9	0.8	31	2.7
5	85	7.5	116	10.2
6	39	3.4	154	13.6
7	122	10.7	276	24.4
8	225	19.9	501	44.2
9	130	11.5	632	55.7
extremely important	501	44.3	1,133	100.0

Keep highways safe				
Q33	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
not at all important	5	0.4	5	0.4
1	2	0.2	7	0.6
2	1	0.1	8	0.7
3	3	0.3	11	1.0
4	3	0.2	14	1.2
5	33	2.9	47	4.2
6	16	1.5	63	5.6
7	52	4.6	115	10.2
8	145	12.9	261	23.0
9	102	9.0	362	32.0
extremely important	769	68.0	1,131	100.0

Frequency Missing = 2.0066385542

Frequency Distributions for Importance Questions

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Provide clear highway signs				
Q34	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
not at all important	8	0.7	8	0.7
1	0	0.0	9	0.8
2	4	0.3	12	1.1
3	2	0.2	14	1.2
4	8	0.7	22	1.9
5	47	4.2	69	6.1
6	24	2.1	93	8.2
7	63	5.6	156	13.8
8	192	17.0	348	30.8
9	132	11.6	480	42.4
extremely important	651	57.6	1,131	100.0

Frequency Missing = 2.0066385542

Keep highways free of congestion				
Q35	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
not at all important	10	0.8	10	0.8
2	10	0.9	20	1.7
3	4	0.4	24	2.1
4	12	1.0	36	3.2
5	73	6.4	108	9.6
6	45	4.0	153	13.6
7	121	10.7	274	24.3
8	201	17.8	475	42.1
9	122	10.8	597	52.9
extremely important	531	47.1	1,128	100.0

Frequency Missing = 5.0770656498

Frequency Distributions for Importance Questions
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Keep truck traffic flowing smoothly on the highways				
Q36	Frequency	Percent	Cumulative Frequency	Cumulative Percent
not at all important	9	0.8	9	0.8
1	1	0.1	10	0.9
2	3	0.2	12	1.1
3	10	0.9	22	2.0
4	10	0.9	33	2.9
5	63	5.6	96	8.5
6	46	4.1	142	12.6
7	104	9.2	247	21.9
8	232	20.5	478	42.4
9	119	10.5	597	52.9
extremely important	531	47.1	1,128	100.0

Frequency Missing = 4.7417572161

Ratings for Overall INDOT Priorities

Overall INDOT has got its priorities right (0-10)				
Q37	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
disagree completely	46	4.3	46	4.3
1	2	0.2	48	4.6
2	16	1.5	64	6.1
3	34	3.2	99	9.3
4	39	3.7	138	13.0
5	269	25.3	407	38.3
6	121	11.4	528	49.7
7	181	17.0	709	66.7
8	167	15.7	877	82.5
9	29	2.7	906	85.2
agree completely	157	14.8	1,063	100.0

Frequency Missing = 70.039838939

Mean Ratings of Overall INDOT Priorities

INDOT Priorities	All Respondents	EJ Household? No	EJ Household? Yes
Overall INDOT has got its priorities right (0-10)	6.43	6.42	6.48

INDOT Priorities	Geographic Stratum Indianapolis (Marion County)	Gary (Lake County)	N.Indiana counties with cities Pop.>= 20k	S.Indiana counties with cities Pop.>= 50k	Other Northern Indiana counties	Other Southern Indiana counties
Overall INDOT has got its priorities right (0-10)	6.33	6.69	6.26	6.18	6.73	6.65

INDOT Priorities	Gender Male	Female	Under 18 yrs	18-25 yrs of age	25-35 yrs of age	35-50 yrs of age	50-65 yrs of age	Over 65 yrs of age
Overall INDOT has got its priorities right (0-10)	6.26	6.62	5.59	6.05	6.55	6.36	6.32	6.90

INDOT Priorities	Income group of household (low, mid, high) Low Income Group	Medium Income Group	High Income Group	Years of Residence in Indiana Less than five years	5 to 15 years	15 to 30 years	30 or more years
Overall INDOT has got its priorities right (0-10)	6.60	6.37	6.26	6.21	6.09	6.48	6.49

Mean Ratings for INDOT Priorities, Scale of 1-4

INDOT Priorities	All Respondents
Reduce traffic congestion	1.52
Improve safety	1.77
Improve access to business, recreation, cultural sites	1.78
Make it easier for low income, elderly, disabled	1.47
Coordinate with other agencies	1.78
Support economic development in the state	1.70
Protect environment	1.65
Mobility for pedestrians and bicyclists	1.61
Use new transportation technologies	1.56
Create long-term vision	1.62
Improve bus services	1.62
Improve passenger rail services	1.55
Preserve open spaces, farmlands, forests	1.62
Preserve rural lifestyles	1.66
Improve homeland security	1.71

Mean Ratings for INDOT Priorities, Scale of 1-4
Categorized by EJ/non EJ and Geographic Stratum

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INDOT Priorities	All Respondents	EJ Household?	
		No	Yes
Reduce traffic congestion	1.52	1.50	1.57
Improve safety	1.77	1.78	1.69
Improve access to business, recreation, cultural sites	1.78	1.80	1.69
Make it easier for low income, elderly, disabled	1.47	1.49	1.38
Coordinate with other agencies	1.78	1.81	1.67
Support economic development in the state	1.70	1.70	1.72
Protect environment	1.65	1.68	1.56
Mobility for pedestrians and bicyclists	1.61	1.64	1.52
Use new transportation technologies	1.56	1.56	1.60
Create long-term vision	1.62	1.61	1.65
Improve bus services	1.62	1.65	1.50
Improve passenger rail services	1.55	1.53	1.59
Preserve open spaces, farmlands, forests	1.62	1.63	1.60
Preserve rural lifestyles	1.66	1.66	1.68
Improve homeland security	1.71	1.72	1.66

Mean Ratings for INDOT Priorities, Scale of 1-4
Categorized by EJ/non EJ and Geographic Stratum
_____

INDOT Priorities	Geographic Stratum					
	Indianapolis (Marion County)	Gary (Lake County)	N.Indiana counties with cities Pop.>= 20k	S.Indiana counties with cities Pop.>= 50k	Other Northern Indiana counties	Other Southern Indiana counties
Reduce traffic congestion	1.51	1.41	1.51	1.43	1.65	1.55
Improve safety	1.76	1.69	1.81	1.74	1.75	1.76
Improve access to business, recreation, cultural sites	1.76	1.77	1.79	1.77	1.81	1.78
Make it easier for low income, elderly, disabled	1.44	1.42	1.46	1.42	1.49	1.52
Coordinate with other agencies	1.76	1.76	1.75	1.72	1.86	1.83
Support economic development in the state	1.74	1.68	1.64	1.65	1.68	1.84
Protect environment	1.57	1.64	1.63	1.66	1.70	1.72
Mobility for pedestrians and bicyclists	1.57	1.62	1.62	1.53	1.64	1.68
Use new transportation technologies	1.50	1.62	1.49	1.57	1.67	1.63
Create long-term vision	1.61	1.66	1.56	1.58	1.70	1.66
Improve bus services	1.54	1.48	1.63	1.61	1.67	1.68
Improve passenger rail services	1.46	1.51	1.56	1.45	1.59	1.65
Preserve open spaces, farmlands, forests	1.60	1.71	1.53	1.71	1.64	1.66
Preserve rural lifestyles	1.71	1.68	1.64	1.65	1.66	1.66
Improve homeland security	1.74	1.72	1.67	1.73	1.72	1.71

Mean Ratings for INDOT Priorities, Scale of 1-4
Categorized by Gender and Age Group

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INDOT Priorities	All Respondents	Gender	
		Male	Female
Reduce traffic congestion	1.52	1.54	1.49
Improve safety	1.77	1.79	1.74
Improve access to business, recreation, cultural sites	1.78	1.79	1.77
Make it easier for low income, elderly, disabled	1.47	1.54	1.39
Coordinate with other agencies	1.78	1.79	1.77
Support economic development in the state	1.70	1.69	1.71
Protect environment	1.65	1.70	1.61
Mobility for pedestrians and bicyclists	1.61	1.68	1.55
Use new transportation technologies	1.56	1.53	1.60
Create long-term vision	1.62	1.58	1.66
Improve bus services	1.62	1.69	1.54
Improve passenger rail services	1.55	1.58	1.51
Preserve open spaces, farmlands, forests	1.62	1.68	1.56
Preserve rural lifestyles	1.66	1.70	1.63
Improve homeland security	1.71	1.74	1.67

Mean Ratings for INDOT Priorities, Scale of 1-4
Categorized by Gender and Age Group
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INDOT Priorities	Respondent Age Group					
	Under 18 yrs	18-25 yrs of age	25-35 yrs of age	35-50 yrs of age	50-65 yrs of age	Over 65 yrs of age
Reduce traffic congestion	1.26	1.49	1.50	1.52	1.52	1.56
Improve safety	1.60	1.70	1.77	1.80	1.79	1.71
Improve access to business, recreation, cultural sites	1.41	1.78	1.79	1.80	1.79	1.75
Make it easier for low income, elderly, disabled	1.28	1.55	1.46	1.44	1.43	1.53
Coordinate with other agencies	1.85	1.88	1.85	1.78	1.71	1.74
Support economic development in the state	1.55	1.65	1.73	1.76	1.65	1.70
Protect environment	1.39	1.52	1.63	1.59	1.73	1.77
Mobility for pedestrians and bicyclists	1.30	1.56	1.58	1.59	1.69	1.63
Use new transportation technologies	1.52	1.56	1.66	1.46	1.54	1.71
Create long-term vision	1.42	1.66	1.66	1.60	1.58	1.67
Improve bus services	1.40	1.72	1.65	1.62	1.56	1.61
Improve passenger rail services	1.30	1.81	1.65	1.55	1.43	1.49
Preserve open spaces, farmlands, forests	1.64	1.57	1.63	1.61	1.64	1.65
Preserve rural lifestyles	1.56	1.73	1.62	1.67	1.67	1.65
Improve homeland security	1.60	1.72	1.69	1.71	1.74	1.68

Mean Ratings for INDOT Priorities, Scale of 1-4
Categorized by Income Group and Years of Residence in Indiana

INDOT Priorities	All Respondents	Income group of household (low, mid, high)		
		Low Income Group	Medium Income Group	High Income Group
Reduce traffic congestion	1.52	1.53	1.50	1.53
Improve safety	1.77	1.70	1.82	1.78
Improve access to business, recreation, cultural sites	1.77	1.73	1.81	1.78
Make it easier for low income, elderly, disabled	1.46	1.41	1.49	1.49
Coordinate with other agencies	1.78	1.72	1.78	1.87
Support economic development in the state	1.71	1.73	1.73	1.60
Protect environment	1.64	1.59	1.64	1.74
Mobility for pedestrians and bicyclists	1.62	1.57	1.64	1.66
Use new transportation technologies	1.57	1.65	1.55	1.49
Create long-term vision	1.62	1.63	1.62	1.61
Improve bus services	1.62	1.58	1.64	1.67
Improve passenger rail services	1.54	1.59	1.54	1.47
Preserve open spaces, farmlands, forests	1.62	1.59	1.59	1.74
Preserve rural lifestyles	1.66	1.65	1.66	1.68
Improve homeland security	1.71	1.65	1.75	1.75

Mean Ratings for INDOT Priorities, Scale of 1-4
Categorized by Income Group and Years of Residence in Indiana

INDOT Priorities	Years of Residence in Indiana			
	Less than five years	5 to 15 years	15 to 30 years	30 or more years
Reduce traffic congestion	1.56	1.42	1.46	1.54
Improve safety	1.74	1.80	1.76	1.77
Improve access to business, recreation, cultural sites	1.75	1.84	1.77	1.77
Make it easier for low income, elderly, disabled	1.47	1.46	1.43	1.47
Coordinate with other agencies	1.82	1.75	1.82	1.76
Support economic development in the state	1.80	1.69	1.68	1.70
Protect environment	1.71	1.64	1.58	1.66
Mobility for pedestrians and bicyclists	1.60	1.59	1.55	1.64
Use new transportation technologies	1.52	1.44	1.57	1.59
Create long-term vision	1.62	1.52	1.66	1.62
Improve bus services	1.73	1.51	1.63	1.63
Improve passenger rail services	1.84	1.39	1.66	1.49
Preserve open spaces, farmlands, forests	1.72	1.66	1.61	1.61
Preserve rural lifestyles	1.80	1.63	1.69	1.64
Improve homeland security	1.71	1.68	1.67	1.73

Frequency Distributions for INDOT Priority-Related Questions

Reduce traffic congestion				
Q38	Frequency	Percent	Cumulative Frequency	Cumulative Percent
too little attention	546	51.2	546	51.2
about the right amount of attention	491	46.0	1,036	97.2
too much attention	30	2.8	1,067	100.0

Frequency Missing = 66.356483953

Improve safety				
Q39	Frequency	Percent	Cumulative Frequency	Cumulative Percent
too little attention	288	27.5	288	27.5
about the right amount of attention	719	68.5	1,007	96.0
too much attention	42	4.0	1,049	100.0

Frequency Missing = 84.170245501

Improve access to business, recreation, cultural sites				
Q40	Frequency	Percent	Cumulative Frequency	Cumulative Percent
too little attention	277	26.3	277	26.3
about the right amount of attention	733	69.5	1,010	95.7
too much attention	45	4.3	1,055	100.0

Frequency Missing = 77.649157344

Make it easier for low income, elderly, disabled				
Q41	Frequency	Percent	Cumulative Frequency	Cumulative Percent
too little attention	575	56.4	575	56.4
about the right amount of attention	413	40.6	989	97.0
too much attention	30	3.0	1,019	100.0

Frequency Missing = 114.17277252

Frequency Distributions for INDOT Priority-Related Questions

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Coordinate with other agencies				
Q42	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
too little attention	220	26.5	220	26.5
about the right amount of attention	574	69.0	794	95.5
too much attention	37	4.5	831	100.0

Frequency Missing = 302.03358536

Support economic development in the state				
Q43	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
too little attention	358	36.4	358	36.4
about the right amount of attention	559	56.9	917	93.2
too much attention	66	6.8	984	100.0

Frequency Missing = 149.47131082

Protect environment				
Q44	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
too little attention	424	40.6	424	40.6
about the right amount of attention	557	53.4	982	94.1
too much attention	62	5.9	1,044	100.0

Frequency Missing = 89.465472597

Mobility for pedestrians and bicyclists				
Q45	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
too little attention	461	44.0	461	44.0
about the right amount of attention	530	50.6	991	94.6
too much attention	56	5.4	1,048	100.0

Frequency Missing = 85.345601974

Frequency Distributions for INDOT Priority-Related Questions

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Use new transportation technologies				
Q46	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
too little attention	461	47.8	461	47.8
about the right amount of attention	464	48.0	925	95.8
too much attention	41	4.2	966	100.0

Frequency Missing = 167.44612043

Create long-term vision				
Q47	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
too little attention	400	42.2	400	42.2
about the right amount of attention	509	53.8	909	96.0
too much attention	38	4.0	948	100.0

Frequency Missing = 185.24759908

Improve bus services				
Q48	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
too little attention	375	42.2	375	42.2
about the right amount of attention	480	54.0	855	96.2
too much attention	34	3.8	889	100.0

Frequency Missing = 243.65557752

Improve passenger rail services				
Q49	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
too little attention	454	51.8	454	51.8
about the right amount of attention	368	41.9	821	93.7
too much attention	55	6.3	877	100.0

Frequency Missing = 256.38382694

Frequency Distributions for INDOT Priority-Related Questions

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Preserve open spaces, farmlands, forests				
Q50	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
too little attention	450	43.4	450	43.4
about the right amount of attention	527	50.9	977	94.3
too much attention	59	5.7	1,036	100.0

Frequency Missing = 96.551204589

Preserve rural lifestyles				
Q51	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
too little attention	387	38.3	387	38.3
about the right amount of attention	579	57.2	966	95.5
too much attention	45	4.5	1,011	100.0

Frequency Missing = 121.58691371

Improve homeland security				
Q52	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
too little attention	342	36.3	342	36.3
about the right amount of attention	535	56.7	877	93.0
too much attention	66	7.0	943	100.0

Frequency Missing = 189.79285891

Frequency Distributions for Funding Allocation Questions

Would you use same allocation of funds as INDOT				
Q54	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
Yes	813	75.9	813	75.9
No	258	24.1	1,070	100.0

Frequency Missing = 62.834802794

How should INDOT change the 70% Allocation to Repair and Maintenance of Highways				
funds_rep	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
Keep the Same	813	80.4	813	80.4
Increase	83	8.2	895	88.6
Decrease	115	11.4	1,010	100.0

Frequency Missing = 122.74399633

How should INDOT change the 10% Allocation to Public Transit/Airports				
funds_trnst	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
Keep the Same	813	79.5	813	79.5
Increase	153	15.0	966	94.5
Decrease	56	5.5	1,022	100.0

Frequency Missing = 111.15578608

How should INDOT change the 20% Allocation to New Roadways				
funds_newhwy	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
Keep the Same	813	80.1	813	80.1
Increase	131	12.9	943	93.0
Decrease	72	7.0	1,015	100.0

Frequency Missing = 118.19089467

Overall Satisfaction with INDOT

Overall Satisfaction with INDOT				
Q81	Frequency	Percent	Cumulative Frequency	Cumulative Percent
extremely dissatisfied	21	1.8	21	1.8
1	2	0.2	23	2.0
2	15	1.3	38	3.4
3	26	2.3	63	5.6
4	53	4.8	117	10.4
5	257	22.9	374	33.3
6	137	12.2	510	45.5
7	245	21.8	755	67.3
8	266	23.7	1,021	91.0
9	48	4.2	1,068	95.2
extremely satisfied	54	4.8	1,122	100.0

Frequency Missing = 10.722057088

Frequency Distributions for INDOT Service Satisfaction Questions

Builds and expand highways				
Q58	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
disagree completely	33	3.0	33	3.0
1	1	0.1	34	3.1
2	27	2.5	61	5.6
3	72	6.6	133	12.2
4	76	7.0	209	19.2
5	238	21.8	447	41.1
6	108	9.9	555	51.0
7	155	14.3	710	65.3
8	195	17.9	905	83.2
9	50	4.6	955	87.8
agree completely	133	12.2	1,088	100.0

Frequency Missing = 45.013690515

Keeps highways smooth and free of potholes				
Q59	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
disagree completely	60	5.3	60	5.3
1	21	1.9	82	7.2
2	56	5.0	138	12.2
3	89	7.9	227	20.2
4	111	9.8	338	30.0
5	250	22.2	589	52.2
6	127	11.3	716	63.5
7	177	15.7	893	79.2
8	121	10.8	1,014	89.9
9	39	3.4	1,053	93.3
agree completely	75	6.7	1,128	100.0

Frequency Missing = 5.1635001025

Frequency Distributions for INDOT Service Satisfaction Questions

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Maintains bridges in good repair				
Q60	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
disagree completely	15	1.4	15	1.4
1	3	0.3	18	1.7
2	14	1.3	32	2.9
3	22	2.0	54	4.9
4	35	3.2	89	8.1
5	183	16.5	272	24.6
6	113	10.2	386	34.8
7	217	19.6	603	54.4
8	250	22.6	853	77.0
9	81	7.3	934	84.3
agree completely	174	15.7	1,107	100.0

Frequency Missing = 25.69804586

Keeps highways clean				
Q61	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
disagree completely	27	2.4	27	2.4
1	7	0.6	34	3.0
2	10	0.9	44	3.9
3	48	4.3	92	8.2
4	45	4.0	137	12.1
5	172	15.2	309	27.3
6	120	10.6	428	38.0
7	191	16.9	619	54.9
8	286	25.3	906	80.2
9	79	7.0	984	87.2
agree completely	144	12.8	1,129	100.0

Frequency Missing = 4.0594277621

Frequency Distributions for INDOT Service Satisfaction Questions

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Keeps highways safe				
Q62	Frequency	Percent	Cumulative Frequency	Cumulative Percent
disagree completely	18	1.6	18	1.6
1	7	0.6	24	2.2
2	14	1.3	39	3.5
3	30	2.7	68	6.1
4	27	2.4	95	8.5
5	193	17.3	288	25.9
6	111	10.0	399	35.8
7	228	20.5	627	56.3
8	287	25.8	914	82.1
9	63	5.6	977	87.7
agree completely	137	12.3	1,114	100.0

Frequency Missing = 19.354357447

Provides clear highways signs				
Q63	Frequency	Percent	Cumulative Frequency	Cumulative Percent
disagree completely	20	1.7	20	1.7
1	7	0.6	27	2.4
2	7	0.6	34	3.0
3	31	2.7	65	5.8
4	38	3.4	103	9.1
5	138	12.3	241	21.4
6	112	10.0	353	31.4
7	167	14.8	520	46.2
8	288	25.5	808	71.8
9	98	8.7	906	80.4
agree completely	220	19.6	1,126	100.0

Frequency Missing = 7.2354872853

Frequency Distributions for INDOT Service Satisfaction Questions

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Keeps highways free of traffic congestion				
Q64	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
disagree completely	60	5.3	60	5.3
1	17	1.5	77	6.9
2	44	3.9	121	10.8
3	74	6.6	195	17.4
4	110	9.8	305	27.2
5	272	24.2	577	51.4
6	137	12.2	713	63.6
7	160	14.3	873	77.8
8	143	12.7	1,016	90.6
9	38	3.4	1,054	93.9
agree completely	68	6.1	1,122	100.0

Frequency Missing = 11.119693591

Keeps truck traffic moving smoothly on highways				
Q65	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
disagree completely	38	3.4	38	3.4
1	13	1.1	50	4.5
2	33	2.9	83	7.4
3	43	3.9	126	11.3
4	73	6.5	199	17.8
5	203	18.1	401	35.9
6	111	10.0	513	45.9
7	230	20.6	743	66.5
8	209	18.7	952	85.1
9	60	5.4	1,012	90.5
agree completely	106	9.5	1,118	100.0

Frequency Missing = 14.866583286

Overall Performance of INDOT in the Past 12 Months

INDOT overall performance in the past 12 months				
Q66	Frequency	Percent	Cumulative Frequency	Cumulative Percent
gotten a lot worse	17	1.6	17	1.6
gotten a little worse	79	7.2	96	8.8
stayed about the same	646	59.1	742	67.9
gotten a little better	295	27.0	1,037	95.0
gotten a lot better	55	5.0	1,093	100.0

Frequency Missing = 40.454531889

Mean Ratings for Satisfaction with INDOT Services, Scale of 0-10
Categorized by EJ/non EJ and Geographic Stratum

Satisfaction with INDOT Services		EJ Household?	
	All Respondents	No	Yes
Builds and expand highways	6.28	6.19	6.66
Keeps highways smooth and free of potholes	5.47	5.45	5.53
Maintains bridges in good repair	7.06	7.02	7.23
Keeps highways clean	6.83	6.78	7.02
Keeps highways safe	6.90	6.89	6.94
Provides clear highways signs	7.27	7.28	7.22
Keeps highways free of traffic congestion	5.55	5.48	5.84
Keeps truck traffic moving smoothly on highways	6.32	6.27	6.53

Satisfaction with INDOT Services	Geographic Stratum					
	Indianapolis (Marion County)	Gary (Lake County)	N.Indiana counties with cities Pop.>= 20k	S.Indiana counties with cities Pop.>= 50k	Other Northern Indiana counties	Other Southern Indiana counties
Builds and expand highways	6.18	6.22	6.21	6.20	6.75	6.23
Keeps highways smooth and free of potholes	5.32	5.24	5.53	5.68	5.46	5.43
Maintains bridges in good repair	6.69	6.95	7.18	7.29	7.25	6.89
Keeps highways clean	6.62	6.79	6.96	6.76	6.99	6.75
Keeps highways safe	6.81	6.89	6.85	7.05	7.19	6.74
Provides clear highways signs	7.22	7.45	7.33	7.37	7.30	7.04
Keeps highways free of traffic congestion	5.25	4.85	5.64	5.49	5.99	5.67
Keeps truck traffic moving smoothly on highways	6.12	5.13	6.40	6.26	6.93	6.44

Mean Ratings for Satisfaction with INDOT Services, Scale of 0-10
Categorized by Gender and Age Group

Satisfaction with INDOT Services	All Respondents	Gender	
		Male	Female
Builds and expand highways	6.28	6.11	6.45
Keeps highways smooth and free of potholes	5.47	5.40	5.54
Maintains bridges in good repair	7.06	7.03	7.08
Keeps highways clean	6.83	6.59	7.06
Keeps highways safe	6.90	6.89	6.91
Provides clear highways signs	7.27	7.33	7.21
Keeps highways free of traffic congestion	5.55	5.48	5.62
Keeps truck traffic moving smoothly on highways	6.32	6.23	6.41

Satisfaction with INDOT Services	Respondent Age Group					
	Under 18 yrs	18-25 yrs of age	25-35 yrs of age	35-50 yrs of age	50-65 yrs of age	Over 65 yrs of age
Builds and expand highways	5.61	6.67	6.40	6.18	6.35	6.12
Keeps highways smooth and free of potholes	4.95	5.35	5.23	5.42	5.69	5.54
Maintains bridges in good repair	6.29	7.27	6.96	7.05	7.15	6.99
Keeps highways clean	6.67	6.55	6.69	6.76	6.90	7.10
Keeps highways safe	6.22	6.99	6.94	6.91	6.90	6.88
Provides clear highways signs	6.30	7.40	7.24	7.36	7.21	7.25
Keeps highways free of traffic congestion	6.10	5.62	5.52	5.36	5.61	5.72
Keeps truck traffic moving smoothly on highways	6.15	6.15	6.17	6.09	6.48	6.68

Mean Ratings for Satisfaction with INDOT Services, Scale of 0-10
Categorized by Income Group and Years of Residence in Indiana

Satisfaction with INDOT Services	All Respondents	Income group of household (low, mid, high)		
		Low Income Group	Medium Income Group	High Income Group
Builds and expand highways	6.29	6.45	6.22	6.16
Keeps highways smooth and free of potholes	5.45	5.62	5.32	5.42
Maintains bridges in good repair	7.06	7.21	6.84	7.28
Keeps highways clean	6.82	6.99	6.74	6.68
Keeps highways safe	6.93	7.05	6.87	6.83
Provides clear highways signs	7.30	7.26	7.25	7.47
Keeps highways free of traffic congestion	5.55	5.74	5.45	5.41
Keeps truck traffic moving smoothly on highways	6.32	6.70	6.14	6.02

Satisfaction with INDOT Services	Years of Residence in Indiana			
	Less than five years	5 to 15 years	15 to 30 years	30 or more years
Builds and expand highways	6.38	6.08	6.36	6.28
Keeps highways smooth and free of potholes	5.48	4.97	5.27	5.57
Maintains bridges in good repair	6.82	7.08	7.05	7.09
Keeps highways clean	6.41	6.83	6.88	6.84
Keeps highways safe	6.61	6.86	7.03	6.94
Provides clear highways signs	6.92	7.31	7.58	7.24
Keeps highways free of traffic congestion	5.10	5.40	5.59	5.60
Keeps truck traffic moving smoothly on highways	5.86	5.99	6.18	6.46

How Much Have You Heard About INDOT Lately

How much have you heard about INDOT lately				
Q76	Frequency	Percent	Cumulative Frequency	Cumulative Percent
I have not heard about INDOT lately	458	40.5	458	40.5
I have heard something about INDOT lately	513	45.3	971	85.8
I have heard a lot about INDOT lately	160	14.2	1,132	100.0

Frequency Missing = 1.3648595745

INDOT Overall Performance in the Last 12 Months

INDOT overall performance in the past 12 months				
Q66	Frequency	Percent	Cumulative Frequency	Cumulative Percent
gotten a lot worse	17	1.6	17	1.6
gotten a little worse	79	7.2	96	8.8
stayed about the same	646	59.1	742	67.9
gotten a little better	295	27.0	1,037	95.0
gotten a lot better	55	5.0	1,093	100.0

Frequency Missing = 40.454531889

Frequency Distributions for INDOT Image and Awareness Questions

Treats all parts of the state and all groups fairly				
Q67	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Does not desribe INDOT at all	63	6.5	63	6.5
1	29	3.0	93	9.5
2	45	4.6	138	14.1
3	74	7.5	211	21.6
4	65	6.6	276	28.2
5	213	21.8	489	50.1
6	77	7.9	566	57.9
7	121	12.3	687	70.3
8	134	13.7	821	84.0
9	33	3.4	854	87.4
Desribes INDOT extremely well	123	12.6	977	100.0

Frequency Missing = 155.66005565

Is Trustworthy				
Q68	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Does not desribe INDOT at all	31	3.2	31	3.2
1	12	1.3	44	4.5
2	25	2.6	68	7.1
3	28	2.9	96	10.0
4	53	5.5	150	15.6
5	232	24.0	381	39.6
6	74	7.7	455	47.2
7	158	16.4	613	63.6
8	184	19.1	797	82.7
9	50	5.2	846	87.9
Desribes INDOT extremely well	117	12.1	963	100.0

Frequency Missing = 169.59861976

Frequency Distributions for INDOT Image and Awareness Questions
_____

Puts funds to good use				
Q69	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Does not desribe INDOT at all	37	3.6	37	3.6
1	21	2.0	57	5.5
2	25	2.4	82	7.9
3	45	4.3	127	12.3
4	69	6.7	196	18.9
5	227	22.0	423	40.9
6	108	10.4	531	51.3
7	189	18.3	720	69.6
8	171	16.5	890	86.1
9	48	4.7	939	90.8
Desribes INDOT extremely well	96	9.2	1,034	100.0

Frequency Missing = 98.723189695

Keeps drivers safe				
Q70	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Does not desribe INDOT at all	22	2.0	22	2.0
1	8	0.7	29	2.7
2	16	1.4	45	4.1
3	26	2.4	71	6.5
4	36	3.3	107	9.8
5	237	21.7	343	31.6
6	125	11.5	468	43.0
7	224	20.6	692	63.6
8	232	21.3	924	84.9
9	60	5.6	985	90.5
Desribes INDOT extremely well	104	9.5	1,088	100.0

Frequency Missing = 44.773059703

Frequency Distributions for INDOT Image and Awareness Questions
_____

Completes construction and maintenance on time				
Q71	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
Does not desribe INDOT at all	66	6.2	66	6.2
1	26	2.4	92	8.6
2	85	8.0	177	16.7
3	94	8.8	271	25.5
4	98	9.2	368	34.7
5	209	19.7	578	54.4
6	83	7.8	660	62.2
7	144	13.6	805	75.8
8	156	14.7	961	90.5
9	48	4.5	1,009	95.0
Desribes INDOT extremely well	53	5.0	1,062	100.0

Frequency Missing = 71.390873648

Is good at managing growth				
Q72	**Frequency**	**Percent**	**Cumulative Frequency**	**Cumulative Percent**
Does not desribe INDOT at all	34	3.3	34	3.3
1	15	1.4	48	4.7
2	23	2.3	72	7.0
3	54	5.3	126	12.3
4	71	6.9	197	19.2
5	278	27.1	474	46.3
6	133	13.0	607	59.3
7	166	16.2	773	75.5
8	134	13.1	907	88.6
9	41	4.0	948	92.6
Desribes INDOT extremely well	76	7.4	1,024	100.0

Frequency Missing = 109.43589203

Frequency Distributions for INDOT Image and Awareness Questions
_____

Helps IN economy				
Q73	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Does not desribe INDOT at all	33	3.1	33	3.1
1	10	0.9	42	4.0
2	31	3.0	73	7.0
3	34	3.3	108	10.2
4	49	4.6	157	14.9
5	211	20.1	368	34.9
6	141	13.4	509	48.3
7	203	19.2	712	67.6
8	170	16.1	882	83.7
9	50	4.7	931	88.4
Desribes INDOT extremely well	122	11.6	1,053	100.0

Frequency Missing = 79.790833889

Provides leadership to move IN forward				
Q74	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Does not desribe INDOT at all	44	4.4	44	4.4
1	9	0.8	53	5.2
2	22	2.2	75	7.4
3	50	4.9	125	12.3
4	74	7.3	199	19.6
5	248	24.5	447	44.1
6	123	12.1	569	56.2
7	166	16.4	735	72.5
8	146	14.4	881	87.0
9	41	4.0	922	91.0
Desribes INDOT extremely well	91	9.0	1,013	100.0

Frequency Missing = 119.50212348

Frequency Distributions for INDOT Image and Awareness Questions
_____

Protects IN natural environment				
Q75	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Does not desribe INDOT at all	28	2.6	28	2.6
1	14	1.4	42	4.0
2	25	2.4	67	6.4
3	55	5.2	122	11.5
4	75	7.1	197	18.6
5	273	25.8	470	44.5
6	108	10.2	578	54.7
7	175	16.6	753	71.2
8	182	17.3	936	88.5
9	39	3.7	975	92.2
Desribes INDOT extremely well	83	7.8	1,057	100.0

Frequency Missing = 75.503227198

Mean Ratings for INDOT Image and Awareness, Scale of 0-10
Categorized by EJ/non EJ and Geographic Stratum

INDOT-Image and Awareness	All Respondents	EJ Household?	
		No	Yes
Treats all parts of the state and all groups fairly	5.70	5.64	5.98
Is Trustworthy	6.39	6.35	6.51
Puts funds to good use	6.13	6.10	6.26
Keeps drivers safe	6.61	6.59	6.71
Completes construction and maintenance on time	5.30	5.29	5.34
Is good at managing growth	5.91	5.81	6.35
Helps IN economy	6.38	6.32	6.61
Provides leadership to move IN forward	6.00	5.93	6.31
Protects IN natural environment	6.06	6.06	6.04

INDOT-Image and Awareness	Geographic Stratum					
	Indianapolis (Marion County)	Gary (Lake County)	N.Indiana counties with cities Pop.>= 20k	S.Indiana counties with cities Pop.>= 50k	Other Northern Indiana counties	Other Southern Indiana counties
Treats all parts of the state and all groups fairly	5.76	5.53	5.92	5.22	5.99	5.59
Is Trustworthy	6.16	6.34	6.54	6.32	6.51	6.32
Puts funds to good use	6.06	6.12	6.16	5.93	6.48	6.06
Keeps drivers safe	6.41	6.47	6.74	6.67	6.76	6.50
Completes construction and maintenance on time	5.12	5.51	5.30	4.99	5.75	5.30
Is good at managing growth	5.85	5.80	5.90	5.61	6.35	5.93
Helps IN economy	6.39	6.45	6.37	6.25	6.58	6.30
Provides leadership to move IN forward	5.75	6.11	6.03	5.79	6.31	6.07
Protects IN natural environment	5.86	6.25	6.07	5.98	6.45	5.91

Mean Ratings for INDOT Image and Awareness, Scale of 0-10
Categorized by Gender and Age Group

INDOT-Image and Awareness	All Respondents	Respondent Gender	
		Male	Female
Treats all parts of the state and all groups fairly	5.70	5.64	5.77
Is Trustworthy	6.39	6.20	6.58
Puts funds to good use	6.13	5.99	6.27
Keeps drivers safe	6.61	6.59	6.64
Completes construction and maintenance on time	5.30	5.18	5.43
Is good at managing growth	5.91	5.71	6.12
Helps IN economy	6.38	6.30	6.45
Provides leadership to move IN forward	6.00	5.81	6.19
Protects IN natural environment	6.06	5.94	6.18

INDOT-Image and Awareness	Respondent Age Group					
	Under 18 yrs	18-25 yrs of age	25-35 yrs of age	35-50 yrs of age	50-65 yrs of age	Over 65 yrs of age
Treats all parts of the state and all groups fairly	3.42	6.47	5.79	5.62	5.50	5.74
Is Trustworthy	6.66	6.57	6.07	6.22	6.35	6.90
Puts funds to good use	4.82	6.40	5.97	6.01	6.13	6.43
Keeps drivers safe	5.21	7.20	6.60	6.65	6.56	6.46
Completes construction and maintenance on time	5.23	4.41	4.84	5.24	5.55	5.95
Is good at managing growth	5.24	6.19	5.90	5.83	5.78	6.13
Helps IN economy	5.47	6.59	6.25	6.35	6.39	6.50
Provides leadership to move IN forward	5.40	6.52	6.05	5.74	5.92	6.28
Protects IN natural environment	4.83	6.03	5.97	5.96	6.02	6.47

Mean Ratings for INDOT Image and Awareness, Scale of 0-10 Categorized by Income Group and Years of Residence in Indiana

INDOT-Image and Awareness	All Respondents	Income group of household (low, mid, high)		
		Low Income Group	Medium Income Group	High Income Group
Treats all parts of the state and all groups fairly	5.76	5.99	5.65	5.59
Is Trustworthy	6.41	6.48	6.41	6.30
Puts funds to good use	6.17	6.32	6.14	5.97
Keeps drivers safe	6.67	6.72	6.71	6.49
Completes construction and maintenance on time	5.33	5.43	5.36	5.10
Is good at managing growth	5.96	6.21	5.93	5.59
Helps IN economy	6.41	6.40	6.49	6.24
Provides leadership to move IN forward	6.05	6.29	6.02	5.68
Protects IN natural environment	6.05	6.17	6.03	5.88

INDOT-Image and Awareness	Years of Residence in Indiana			
	Less than five years	5 to 15 years	15 to 30 years	30 or more years
Treats all parts of the state and all groups fairly	6.09	6.44	5.77	5.65
Is Trustworthy	6.08	6.74	6.47	6.39
Puts funds to good use	6.20	6.28	6.34	6.09
Keeps drivers safe	6.51	6.66	6.81	6.64
Completes construction and maintenance on time	4.95	5.08	4.96	5.54
Is good at managing growth	6.20	5.95	6.07	5.89
Helps IN economy	6.64	6.64	6.51	6.32
Provides leadership to move IN forward	6.26	6.30	6.21	5.94
Protects IN natural environment	6.35	5.81	6.05	6.05

Mean Ratings for Recent Travel Experience, 1 = Never, 5 = Everyday
Categorized by EJ/non EJ and Geographic Stratum

Most Recent Travel Experience	All Respondents	EJ Household?	
		No	Yes
Unacceptable Congestion	3.10	3.09	3.14
Unacceptable pavement quality	2.97	2.97	2.98
Unsafe road conditions	2.32	2.29	2.43
Locations that need signs	2.15	2.11	2.31

Most Recent Travel Experience	Geographic Stratum					
	Indianapolis (Marion County)	Gary (Lake County)	N.Indiana counties with cities Pop.>= 20k	S.Indiana counties with cities Pop.>= 50k	Other Northern Indiana counties	Other Southern Indiana counties
Unacceptable Congestion	3.27	3.49	3.15	3.18	2.75	2.91
Unacceptable pavement quality	2.93	2.96	2.98	3.05	2.91	3.00
Unsafe road conditions	2.27	2.34	2.27	2.36	2.18	2.47
Locations that need signs	2.06	2.15	2.12	2.19	2.12	2.25

Mean Ratings for Recent Travel Experience, 1 = Never, 5 = Everyday
Categorized by Gender and Age Group

Most Recent Travel Experience	All Respondents	Respondent Gender	
		Male	Female
Unacceptable Congestion	3.10	3.13	3.06
Unacceptable pavement quality	2.97	3.02	2.93
Unsafe road conditions	2.32	2.36	2.27
Locations that need signs	2.15	2.13	2.17

Most Recent Travel Experience	Respondent Age Group					
	Under 18 yrs	18-25 yrs of age	25-35 yrs of age	35-50 yrs of age	50-65 yrs of age	Over 65 yrs of age
Unacceptable Congestion	3.28	3.06	3.24	3.22	3.08	2.80
Unacceptable pavement quality	3.02	3.08	3.23	3.06	2.87	2.70
Unsafe road conditions	2.61	2.24	2.22	2.32	2.40	2.28
Locations that need signs	2.82	2.00	2.30	2.11	2.20	2.03

Mean Ratings for Recent Travel Experience, 1 = Never, 5 = Everyday
Categorized by Income Group and Years of Residence in Indiana

Most Recent Travel Experience	All Respondents	Income group of household (low, mid, high)		
		Low Income Group	Medium Income Group	High Income Group
Unacceptable Congestion	3.11	2.99	3.17	3.23
Unacceptable pavement quality	3.01	3.00	3.03	2.97
Unsafe road conditions	2.32	2.35	2.37	2.17
Locations that need signs	2.15	2.19	2.15	2.10

Most Recent Travel Experience	Years of Residence in Indiana			
	Less than five years	5 to 15 years	15 to 30 years	30 or more years
Unacceptable Congestion	3.04	3.21	3.24	3.07
Unacceptable pavement quality	3.10	3.06	3.10	2.95
Unsafe road conditions	2.26	2.26	2.24	2.37
Locations that need signs	2.26	2.21	2.11	2.15

Frequency Distributions for Recent Travel Experience Questions

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Unacceptable Congestion				
Q77	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Never	105	9.5	105	9.5
Rarely	267	24.0	372	33.5
Sometimes	334	30.1	706	63.6
Frequently	223	20.1	929	83.7
Almost everyday	181	16.3	1,110	100.0

Frequency Missing = 23.048102205

Unacceptable pavement quality				
Q78	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Never	94	8.4	94	8.4
Rarely	306	27.6	400	36.0
Sometimes	378	34.0	778	70.0
Frequently	202	18.1	979	88.2
Almost everyday	132	11.8	1,111	100.0

Frequency Missing = 21.868304665

Unsafe road conditions				
Q79	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Never	258	23.1	258	23.1
Rarely	438	39.3	696	62.4
Sometimes	280	25.1	976	87.6
Frequently	86	7.7	1,062	95.3
Almost everyday	53	4.7	1,115	100.0

Frequency Missing = 18.121414971

Frequency Distributions for Recent Travel Experience Questions

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Q80	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Locations that need signs				
Never	322	29.0	322	29.0
Rarely	431	38.8	753	67.7
Sometimes	253	22.8	1,006	90.6
Frequently	79	7.1	1,085	97.7
Almost everyday	26	2.3	1,111	100.0

Frequency Missing = 22.043526122

What should be INDOT's Top Priorities - Choice 1

Q53A What should be INDOT top priorities				
PRIOR_1	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Build new/better roads	78	6.9	78	6.9
Improve construction efficiency/safety	30	2.6	107	9.5
Maintain existing roads (repair potholes, etc.)	197	17.4	305	26.9
Reduce traffic congestion	87	7.7	392	34.6
Keeping roads safe and secure	216	19.0	608	53.6
Protecting the environment/wildlife/reducing pollution	75	6.6	682	60.2
Increase public/mass transportation availability	107	9.4	789	69.7
More/better signs on roads and highways	2	0.2	791	69.8
Make it easier for disabled/low income/elderly to get around	70	6.2	862	76.0
Helping Indiana businesses thrive	29	2.6	891	78.6
Bicycle/pedestrian safety	3	0.3	894	78.9
Build more bike/pedestrian trails	4	0.3	898	79.2
Increase police interdiction (speeding/drunk driving)	6	0.5	903	79.7
More sidewalks in residential areas	1	0.1	905	79.8
Reduce truck traffic	4	0.4	909	80.2
Improve snow removal	1	0.1	910	80.4
Preserve rural way of life	7	0.6	917	80.9
Managing funds carefully	14	1.3	932	82.2
Keeping roads and highways clean	3	0.2	934	82.4
Focusing on new technology	16	1.4	950	83.9
Ban cell phones in cars	1	0.1	951	84.0
Planning/long-term vision	31	2.7	982	86.7
Publicize activities/educate public about INDOT	5	0.4	987	87.1
More stop lights	1	0.1	988	87.2
Fewer billboards/advertisements on highways	1	0.1	989	87.3
Dont know	71	6.2	1,060	93.5
No more responses	73	6.5	1,133	100.0

What should be INDOT's Top Priorities - Choice 2

Q53B What should be INDOT top priorities				
PRIOR_2	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Build new/better roads	36	3.6	36	3.6
Improve construction efficiency/safety	22	2.2	57	5.8
Maintain existing roads (repair potholes, etc.)	75	7.6	132	13.4
Reduce traffic congestion	53	5.4	185	18.7
Keeping roads safe and secure	38	3.9	223	22.6
Protecting the environment/wildlife/reducing pollution	51	5.2	275	27.8
Increase public/mass transportation availability	36	3.7	311	31.4
More/better signs on roads and highways	8	0.8	319	32.3
Make it easier for disabled/low income/elderly to get around	38	3.9	357	36.1
Helping Indiana businesses thrive	15	1.5	372	37.7
Bicycle/pedestrian safety	9	0.9	381	38.6
Build more bike/pedestrian trails	5	0.6	387	39.1
Increase police interdiction (speeding/drunk driving)	11	1.1	398	40.2
Reduce truck traffic	5	0.5	402	40.7
Improve snow removal	4	0.4	407	41.1
Preserve rural way of life	3	0.3	409	41.4
Managing funds carefully	8	0.8	418	42.2
Keeping roads and highways clean	8	0.8	425	43.0
Focusing on new technology	6	0.6	431	43.6
Raise speed limits	1	0.1	432	43.7
More/better lights	1	0.1	433	43.8
Planning/long-term vision	19	2.0	452	45.7
Publicize activities/educate public about INDOT	0	0.0	453	45.8
More stop lights	1	0.1	454	45.9
No more responses	535	54.1	989	100.0

Frequency Missing = 144.16658903

What should be INDOT's Top Priorities - Choice 3

Q53C What should be INDOT top priorities				
PRIOR_3	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Build new/better roads	7	1.6	7	1.6
Improve construction efficiency/safety	6	1.3	13	2.9
Roadside emergency motorist assistance	1	0.2	14	3.1
Maintain existing roads (repair potholes, etc.)	15	3.3	29	6.4
Reduce traffic congestion	17	3.7	46	10.1
Keeping roads safe and secure	7	1.5	53	11.6
Protecting the environment/wildlife/reducing pollution	9	2.0	62	13.6
Increase public/mass transportation availability	9	2.0	71	15.6
More/better signs on roads and highways	3	0.7	74	16.3
Make it easier for disabled/low income/elderly to get around	10	2.1	84	18.4
Helping Indiana businesses thrive	6	1.3	89	19.7
Bicycle/pedestrian safety	3	0.7	92	20.3
Build more bike/pedestrian trails	2	0.4	94	20.7
Increase police interdiction (speeding/drunk driving)	1	0.2	95	20.9
More sidewalks in residential areas	1	0.2	96	21.0
Reduce truck traffic	3	0.7	98	21.7
Improve snow removal	1	0.3	100	22.0
Preserve rural way of life	4	0.9	104	22.9
Managing funds carefully	2	0.5	106	23.4
Focusing on new technology	1	0.2	107	23.5
More/better lights	2	0.5	109	24.0
Planning/long-term vision	6	1.3	115	25.2
Publicize activities/educate public about INDOT	2	0.5	117	25.8
Fewer billboards/advertisements on highways	1	0.2	118	26.0
Access to recreational areas	1	0.2	119	26.2
No more responses	335	73.8	454	100.0

Frequency Missing = 678.89580205

Recommendation to improve INDOT policies/services - Recommendation 1

Q82A Recommendation to improve INDOT policies/services				
RECO_1	Frequency	Percent	Cumulative Frequency	Cumulative Percent
More/better road signs	40	3.5	40	3.5
Maintain existing roads and highways	112	9.9	152	13.4
Improve construction efficiency and safety	89	7.9	241	21.3
INDOTs doing a good job	63	5.6	304	26.8
Protect environment/greenspace	10	0.9	314	27.8
Advertise INDOTs responsibilities/projects	38	3.3	352	31.1
Plan projects better/create long-term vision	19	1.7	372	32.8
Treat all parts of the state equally	16	1.5	388	34.3
Reduce/ease traffic congestion	29	2.6	417	36.8
Help Indiana businesses/create jobs	6	0.5	423	37.3
More/better mass and public transit	37	3.3	460	40.6
Improve snow removal/winter road maintenance	8	0.7	468	41.3
Raise Indiana speed limits	3	0.3	471	41.6
Improve highway safety and security	17	1.5	488	43.0
Cater to bicyclists and pedestrians	3	0.2	490	43.3
Build more roads/widen and expand roads	48	4.2	538	47.5
Pay attention to public opinion	24	2.1	562	49.6
Develop new technologies	7	0.6	569	50.2
Manage funds better/secure more funding	35	3.1	605	53.4
Reduce truck traffic	8	0.7	613	54.1
Keep roadways clean	5	0.4	617	54.5
Make it easier for disabled/low income/elderly to get around	10	0.9	627	55.4
Stop new road construction	9	0.8	636	56.1
More police on roads and highways	4	0.4	640	56.5
More interagency cooperation	3	0.3	643	56.8
More/better lights on highways	4	0.3	647	57.1
Improve INDOTs management/employees	5	0.5	652	57.6
Less billboards/advertisements on highways	1	0.1	653	57.6
Dont know	120	10.6	773	68.3
No more responses	360	31.7	1,133	100.0

Recommendation to improve INDOT policies/services - Recommendation 2

Q82B Recommendation to improve INDOT policies/services				
RECO_2	Frequency	Percent	Cumulative Frequency	Cumulative Percent
More/better road signs	6	1.0	6	1.0
Maintain existing roads and highways	46	7.0	52	8.0
Improve construction efficiency and safety	40	6.2	93	14.2
INDOTs doing a good job	8	1.2	101	15.4
Protect environment/greenspace	8	1.2	109	16.6
Advertise INDOTs responsibilities/projects	6	1.0	115	17.6
Plan projects better/create long-term vision	12	1.9	127	19.5
Treat all parts of the state equally	9	1.4	136	20.9
Reduce/ease traffic congestion	29	4.5	166	25.4
Help Indiana businesses/create jobs	4	0.6	170	26.0
More/better mass and public transit	16	2.5	186	28.5
Improve snow removal/winter road maintenance	1	0.1	187	28.6
Raise Indiana speed limits	1	0.1	188	28.7
Improve highway safety and security	16	2.4	203	31.1
Cater to bicyclists and pedestrians	3	0.5	206	31.6
Build more roads/widen and expand roads	18	2.8	225	34.4
Pay attention to public opinion	9	1.3	234	35.8
Develop new technologies	2	0.3	235	36.0
Manage funds better/secure more funding	7	1.1	243	37.1
Reduce truck traffic	3	0.4	245	37.6
Keep roadways clean	4	0.6	249	38.1
Make it easier for disabled/low income/elderly to get around	10	1.5	259	39.6
Stop new road construction	5	0.8	264	40.4
More police on roads and highways	4	0.6	268	41.0
More interagency cooperation	0	0.1	268	41.1
More/better lights on highways	0	0.1	269	41.2
No more responses	384	58.8	653	100.0

Frequency Missing = 479.89947729

Recommendation to improve INDOT policies/services - Recommendation 3

Q82C Recommendation to improve INDOT policies/services				
RECO_3	Frequency	Percent	Cumulative Frequency	Cumulative Percent
More/better road signs	2	0.8	2	0.8
Maintain existing roads and highways	7	2.6	9	3.4
Improve construction efficiency and safety	8	3.0	17	6.4
Protect environment/greenspace	3	1.1	20	7.5
Plan projects better/create long-term vision	6	2.3	26	9.8
Reduce/ease traffic congestion	5	1.9	32	11.7
Help Indiana businesses/create jobs	1	0.3	32	12.0
More/better mass and public transit	2	0.9	35	12.9
Improve snow removal/winter road maintenance	1	0.4	36	13.3
Raise Indiana speed limits	1	0.4	37	13.6
Improve highway safety and security	1	0.5	38	14.1
Cater to bicyclists and pedestrians	3	1.0	41	15.1
Build more roads/widen and expand roads	4	1.4	44	16.5
Manage funds better/secure more funding	5	2.0	50	18.5
Keep roadways clean	1	0.5	51	19.0
Make it easier for disabled/low income/elderly to get around	2	0.7	53	19.8
More police on roads and highways	1	0.4	54	20.1
More interagency cooperation	1	0.3	55	20.4
Improve INDOTs management/employees	0	0.1	55	20.6
No more responses	214	79.4	269	100.0

Frequency Missing = 864.21404894

Appendix D

Experience of Other States and Regions in Incorporating Land Resource Considerations into Transportation Planning

Experience of Other States and Regions in Incorporating Land Resource Considerations into Transportation Planning

■ Introduction

This appendix reviews the practices of selected state DOTs and other agencies who are incorporating land use and land resource issues into transportation planning at the state-wide and metropolitan levels. While the review is not comprehensive, it does provide a broad sampling of recent state activities. The review finds that many state DOTs are increasingly addressing not only the direct land resource and environmental impacts of transportation projects, but also the indirect impacts of these projects on development patterns. Their activities are taking many forms, including:

- Earlier consideration of land resource issues in the transportation planning process, including long-range planning and the examination of secondary and cumulative impacts;

- Developing geographic information systems (GIS)-based data to support the analysis and mitigation of land resource impacts;

- Developing analytical tools to assess secondary and cumulative impacts, including land use impacts, in corridor and systems-level planning;

- Providing technical assistance and/or financial resources to local communities to better consider transportation issues in their local comprehensive planning processes;

- Directly working with communities on land use issues related to corridor planning/preservation and access management;

- Reducing or mitigating the impacts of projects through strategies such as wetlands banking, purchase of development rights, and context-sensitive design; and

- Adopting environmental stewardship practices in operations and maintenance.

This appendix also briefly reviews approaches taken by metropolitan planning organizations (MPO) and states to incorporating land use issues into metropolitan transportation planning. The result is a base of experience upon which INDOT can build in taking actions to better integrate land resource considerations in transportation policy and planning decision-making.

■ Data and Geographic Information Systems

North Carolina: Environmental GIS – North Carolina DOT's statewide transportation systems planning process incorporates environmental considerations and is supported by GIS data that conveys site-specific environmental information. The process includes specific early involvement by the regulatory/resource agencies who are responsible for safeguarding environmental, cultural, and historical sites. The goal of this approach is to address major environmental issues early in the transportation systems planning process, in order to identify and gain consensus on the most environmentally acceptable corridor for each system improvement to be included in the systems plan and future STIPs.

Source: FHWA. *Case Study #3: NCDOT: Use of GIS to Support Environmental Analysis During System Planning.* Transportation Case Studies in GIS, September 1998.

Tennessee: Statewide Land Use Database – The Tennessee Department of Finance and Administration is sponsoring the development of a statewide parcel-level GIS land use database. Digitized images from EarthData's aerial photographic studies are being matched with digital linework and symbology representing individual parcels, roadways, bodies of water, and other map features. The parcel graphics will be logically linked to the non-graphic data, giving the State a visual index to property information such as deed description and acreage, ownership, assessed value, and proximity to features such as schools, industry, churches, utilities, roads, and bodies of water. The project was initiated in 2000 and will take five years.

Source: http://www.sds-inc.com/tenn.htm

Maryland: Statewide Land Use Database – The Maryland Office of Planning assembled a statewide GIS land use database, including data such as land classification, zoned densities, amount of land recently developed, and amount of land available for development. The office also sponsored the development of analytical tools for looking at watershed and other environmental impacts resulting from land use changes, and has done exploratory work with the Maryland DOT to link transportation with land use and environmental models.

Utah: Data for Regional Planning – The Utah Governor's Office of Planning and Budget provided financial resources and technical assistance to develop databases and modeling tools for growth scenario analysis in the 10-county northern Utah region. From a land use standpoint, this effort involved the consolidation of comprehensive plan land use data from over 90 jurisdictions into a single GIS database; a workshop-based public process for creating alternative land development scenarios along with different transportation scenarios; and

modeling the transportation impacts and infrastructure costs of these regional land development scenarios. Further work is underway to develop a land use model for the region.

Source: FHWA Toolbox for Regional Policy Analysis. http://www.fhwa.dot.gov/planning/toolbox/index.htm

■ Analytical Methods

Michigan: Quantitative Modeling of Land Use Impacts – For the U.S. 31 Study between Holland and Grand Haven, Michigan, the Michigan DOT undertook a major analysis of secondary and cumulative impacts, which were of significant concern to local communities. The study consultants included the Geography Department at Michigan State University, which led the land use modeling for this project. The study looked at the impacts of different levels of connectivity to the system. The construction of some interchanges is contingent upon local jurisdictions implementing zoning to protect farmland and restrict growth.

Maryland: Qualitative/Expert Panel Forecasting – The Maryland Department of Transportation and Office of Planning sponsored the development of qualitative, expert panel-based approaches to forecasting the potential land use impacts of transportation projects. These approaches have been used in conjunction with Maryland 301, a proposed suburban cross-county connector in the Washington, D.C. area; corridor alternatives for I-270 outside of Washington, D.C.; and a proposed widening of a two-lane highway to four lanes west of Baltimore. These approaches have been assisted by the extensive GIS land use database assembled by the Office of Planning. Expert panels also have been used by the Wisconsin and Washington State DOTs.

Oregon: Transportation/Land Use Modeling – Oregon DOT has developed a statewide transportation and land use model. The model is grid cell-based to allow for integration of data at different levels of spatial aggregation. The model permits the assessment of land use and economic impacts of major transportation improvements.

Source: Oregon DOT web site, http://www.odot.state.or.us/tddtpau/modeling.html

Quantitative population and employment allocation models have been applied by state DOTs to assess the land use impacts of transportation corridor projects in Rochester, New York and Winston-Salem, North Carolina.

■ Assistance with Local Comprehensive Planning

Wisconsin – Via legislation adopted in 2000, the state has required communities to perform comprehensive planning. The state also is providing grants to assist communities with planning that encourages "smart growth." Grants are available specifically for transportation planning (transportation element of the plan) as well as for general planning.

Aid also is offered for communities with adopted plans meeting certain smart growth criteria. Legislation provides model ordinances for traditional neighborhood developments and conservation subdivisions.

In support of this initiative, the Wisconsin DOT developed resources for agency staff and local communities to better incorporate transportation issues into comprehensive planning. In 2001, WisDOT published a *Transportation Planning Resource Guide* that is intended to assist local communities in the development of the transportation element of local comprehensive plans. The resource guide covers topics such as needs assessment, local transportation plan development, consideration of transportation needs from a regional perspective, transportation-land use relationships, access management/corridor planning, environmental impacts, implementation and funding, coordination with stakeholder agencies and groups, public participation, state and regional agency contacts, and further resources. This guide is located on their web site along with other information on local government programs and on transportation-land use coordination.

WisDOT also created guidance for its district staff on participating in local comprehensive planning. The guidance acknowledges that what local governments include in their plans will directly impact WisDOT's work and efforts, and encourages staff to reach out to communities

Source: Wisconsin Department of Administration, Office of Land Information Services.
Wisconsin's Comprehensive Planning Legislation. September 24, 2001.
http://www.doa.state.wi.us/olis/
http://www.dot.state.wi.us/localgov/land/index.htm

Pennsylvania – PennDOT has developed a Sound Land Use Implementation Plan to establish policy for the department. The plan discusses actions under three categories: educating agency staff, incorporating local land use planning into agency decisions, and identifying actions likely to have a significant effect on land use. As one component of this plan, PennDOT provides funds on a competitive basis for studies that coordinate transportation and land use, providing over $600,000 in FY 2001-2002. Other actions taken under the Sound Land Use Implementation Plan include providing training to district staff on land use planning, applying context-sensitive design principles, hosting conferences on land use and transportation, and integrating land use planning issues into corridor studies.

Source: http://www.dot.state.pa.us → General Information → Land Use

Delaware – The Delaware Department of Transportation (DelDOT) has developed a Corridor Capacity Preservation Program. The types of corridor access desired are based on area type (five statewide categories). For example, reinvestment is encouraged in existing developed areas and designated growth areas. DelDOT is using Purchase of Development Rights (PDR) to direct development, limit access, and preserve capacity, and works with town working groups to discourage the subdivision of properties in areas where growth is deemed undesirable.

North Carolina – The NCDOT has developed Traditional Neighborhood Development (TND) design guidelines that supersede standard subdivision design guidelines in designated

TNDs. These can be customized and adopted by local communities as a way of reducing the potential transportation impacts of new development.

Source: http://www.doh.dot.state.nc.us/operations/

■ Corridor Planning and Access Management

Kentucky: Integrated Corridor Planning Approach – The Kentucky Transportation Cabinet (KYTC) developed an outreach-oriented corridor planning process that includes working with local jurisdictions on land use planning issues. Their involvement was motivated by concerns that corridor improvement projects on the fringes of metropolitan areas would lead to strip development and urban sprawl. For one project in Bowling Green, KYTC worked with the city and county planning and zoning commission and other stakeholders to create an overlay district specifying allowable uses, building design, and landscaping features. KYTC also implemented access controls along the new road-way alignment.

Source: Federal Highway Administration. TCSP Case Study #11

Access Management – States that have implemented various forms of access management programs include (but are not limited to) Colorado, Florida, Maine, Michigan, Minnesota, Montana, New Jersey, Ohio, Oregon, South Dakota, and Wisconsin. For example, the Michigan and Ohio DOTs have developed manuals and training programs on access management. In Michigan, the training program was developed by a zoning consultant and is intended to assist township/local government officials with adopting ordinances to protect right-of-way and highway access.

Sources: Center for Urban Transportation Research. *Access Management Manual.* Devel-oped for FHWA with oversight by TRB Access Management Committee. Sched-uled for publication in spring 2003.

The TRB Access Management Committee also has a CD-ROM library of access management documents and proceedings of conferences. See: http://www.accessmanagement.gov/

Michigan: Noise Program – As part of a noise program, Michigan DOT is beginning to work with communities to implement setbacks in order to keep growth from bordering too close to the right-of-way, and therefore minimize future needs for noise reduction or conflicts from community noise problems.

■ Impact Mitigation

Wisconsin: Purchase of Development Rights – To reach agreement on a long-stalemated proposal to widen U.S. Highway 12 north of Madison, the Wisconsin DOT agreed to contribute funds for the purchase of land, easements, and development rights in sensitive natural areas in the corridor. The DOT also is providing funding to help local communities plan for growth related to the highway.

Pennsylvania: Secondary Impact Assessment – A corridor study of Pennsylvania 23 in Lancaster County led to the undertaking of a study of the cumulative effects of transportation and urban sprawl on the Mennonite/Amish communities. The study, led by PennDOT and the Lancaster County Planning Commission, proposed land use and transportation actions to lessen the cumulative effects on these communities. As part of the Pennsylvania 23 EIS (underway), PennDOT organized a two-day Land Use Visioning Conference to review past and current land use practices and predict future trends in land use.

Source: http://www.paroute23.com/

Context-Sensitive Design – A number of state DOTs, including Connecticut, Kentucky, Maryland, Minnesota, New Jersey, New York, Utah, Vermont, and Washington, are adopting context-sensitive design principles for highway construction and reconstruction projects. Context-sensitive design can improve the capability of transportation facilities with adjacent land uses, especially in areas of significance such as older community centers and scenic and natural areas. This concept is now being broadened to Context Sensitive Solutions, encouraging application of the same principles throughout the transportation planning process.

Source: http://www.fhwa.dot.gov/csd/index.htm

Wetlands Mitigation – A number of states have established wetlands assessment and mitigation techniques. See NCHRP Synthesis Report 302, *Mitigation of Ecological Impacts.*

■ Environmental Stewardship

Several state DOTs have implemented environmental stewardship practices in operations and maintenance. For example, the New York State DOT has published their own environmental handbook addressing environmental issues in the roadside. The Utah DOT is very experienced in dealing with invasive species. The Oregon DOT has successfully formed interagency partnerships and is a leader in restoration of native grasses. The Iowa DOT is recognized for its prairie passage program, an environmentally related public awareness program, and their roadside trust, and Florida requires weed free sod in construction and reconstruction.

Sources: New York State DOT – *Environmental Handbook for Transportation Operations*
    NCHRP Synthesis Report 305 – *Interaction Between Roadways and Wildlife Ecology*

■ Other State Programs and Activities

Local Aid – The Illinois DOT has sponsored a state "Transportation and Community and System Preservation" (TCSP) program, modeled after the Federal TCSP program, which provides grants to communities to undertake projects that address transportation and land use in an integrated manner and reduce transportation impacts on the environment.

Systems Planning – Wisconsin DOT has included a qualitative discussion of secondary and cumulative impacts (including land use impacts) of recent statewide long-range transportation plans, as part of their social, economic, and environmental (SEE) impact assessment of these plans (including plans for each mode as well as an overall systems policy plan).

■ Metropolitan Systems Planning

Portland, Oregon and Honolulu, Hawaii have developed transportation-land use models (UrbanSim) that allow for the testing of alternative transportation investments on regional growth and land use. Similar models are under development in Baltimore, Salt Lake City, and Seattle. Less sophisticated accessibility-based models (e.g., DRAM EMPAL) have been applied for many years in a number of other metropolitan areas, sometimes being used to test the impacts of transportation investments on land use. Models have been developed or applied by research agencies in New York City and Sacramento, California.

MPOs or regional nonprofits in Charlottesville, Virginia; Denver, Colorado; Gainesville, Florida; Lansing, Michigan; Portland, Oregon; Seattle, Washington; and other cities have led regional visioning processes, in which alternative growth scenarios are defined and their impacts modeled. Typically, three or four alternative land use and transportation scenarios are constructed through an extensive stakeholder and public involvement/ outreach process. Their impacts are then modeled using the regional travel demand model. State DOTs have been involved in some of these efforts in the form of providing technical input on modeling activities.

Appendix E

Freight Interview Guides

Freight Interview Guides

■ Background Information Provided to Interviewees

Purpose of the Interview

Cambridge Systematics is conducting a customer involvement/market research study for the Indiana Department of Transportation (INDOT). As part of the study, Cambridge Systematics will be meeting with and interviewing a selection of major freight system users in the State of Indiana. This effort will help INDOT to better understand how companies use the State's transportation system to move goods, and help define a regional strategy for improving statewide freight mobility.

The interview format will be more of an informal discussion, but during the course of the discussion we would like to touch on the following topics:

- How do your logistics operations work? (major facilities, supply chain, etc.)

- What sorts of goods do you move, and how do you prefer to move them?

- What parts of Indiana's transportation system are most important to you?

- From your perspective, what are the current strengths or weaknesses of the State transportation system?

Use of Information from the Interview

Obviously, the more detailed the information discussed in the interview is, the better the final freight plan will be; however, we will not ask you to divulge any information that you are not comfortable discussing. To help you decide what information you are comfortable discussing the following is a description of how we intend to use the information from the interview:

- The results of the interview process will be used to support the identification of trends, deficiencies, and possible solutions in the regional plan. The interview process and results will also be documented at a very summary level in one of the project reports. No company or contact names will be used in the documentation. The reports use company types, such as "medium-sized consumer goods manufacturer."

- If you feel that a particular piece of information would be useful to the project, but is sensitive and should not be disclosed directly, please mention this to your interviewer and they will note this accordingly.

- You will have an opportunity to review text resulting from your interview before it is made available to the public.

For More Information

If you have any questions or comments, please contact Alexander Brown of Cambridge Systematics at (617) 354-0167 or ajb@camsys.com, or Steve Smith of INDOT at (317) 232-5646 or ssmith@indot.state.in.us.

■ Carrier Interview Guide

The following is the interview guide used with carriers.

Company Name:
Contact:
Title/Position:
Phone/Fax:
Address:
E-mail:

Purpose of Study

Cambridge Systematics is conducting a customer involvement/market research study for the Indiana Department of Transportation (INDOT). As part of the study, Cambridge Systematics will be meeting with and interviewing a selection of major freight system users in the State of Indiana. This effort will help INDOT to better understand how companies use the State's transportation system to move goods, and help define a regional strategy for improving statewide freight mobility.

We currently are conducting interviews with the region's freight stakeholders, consisting of public planning agencies, motor carriers, railroads, airlines, steamship lines, and shippers/receivers to accurately understand how the existing freight infrastructure is being used, what the strengths and weaknesses are, and provide all involved parties with the opportunity to participate in developing the list of recommended improvements.

The purpose of our interview today is to collect information from you on your operations and give you an opportunity to identify any key issues facing your operation. I'd like to start by having you describe your operation, then walk me through your service network, and wrap up with a discussion on what you think the strengths and weaknesses are of the existing freight system.

The more detailed the information is the more it will help us, however we are not asking you to divulge any data you believe would be confidential.

Description of Operation

- Describe the primary function of your operation. What are your day-to-day responsibilities?

- What type of service(s) do you provide?

- Is this your headquarters? If no, where is it? How many terminals/facilities do you have?

- How many employees do you have in the region? How many in total?

- What is the average length of haul for your trips? What is a typical range of trip lengths?

- What transportation equipment do you use (tractors, trailers, airplanes, box cars, containers, etc.)? Please provide the number of each.

- What type of sorting or storage facilities do you use (cross-dock facilities, warehouses, distribution centers, classification yards, etc.)?

- Describe your receiving/shipping facilities (rail yards, loading docks, etc.).

- Do you have good access to other modes of transportation? Please describe.

- What volume of freight is moved by your operation per week/month/year?

- Define the average size shipment handled (by volume and unit). What is the range of sizes?

- Categorize the type of freight you move (by weight, by value, by commodity).

- Describe the primary markets served (where is the freight originating and terminating).

- Are your customers mode-dependent? Yes or No. If yes, how?

- Do you have balanced freight flows (backhaul)? Yes or No. Explain implications whether yes or no. How long is your typical deadhead trip length to pickup your next load?

- Is your operation dependent on any other mode of transportation? If so, which one(s) and why (level of intermodal/multimodalism)?

- How would you characterize the transportation services you provide (e.g., expedited, reliable, time definite, guaranteed, economical, etc.)?

- How do you communicate with your customers (both shipper and receiver)? Do you provide en-route shipment status? Yes or No. If yes, how?

- Describe the typical flow of freight through your operation (e.g., from the time a load is picked up until it is delivered). Describe any uses of technology.

- Who are your major customers?

- Who are your major competitors?

- Do you have any expansion plans? Yes or No. If yes, what are they?

General Questions

- Do you use the Internet for business operations? Do you maintain your own web page?

- What other types of technology do you use (on-board computers, transponders, track and trace, etc.)? Have these improved or hindered your operations? How?

- What type of security protocols do you have in place?

- How has the increased emphasis on homeland security impacted your operations?

- What are the strengths of the State's freight transportation system?

- What are the weaknesses of the State's freight transportation system?

- How could the existing transportation system be operated differently to improve your operations?

- How could the existing transportation system physically be changed to improve your operations?

- Are you familiar with any freight planning that takes place in Indiana? Have you participated? If yes, how? If no, would you like to participate in the future?

- Are you aware of any planned improvements?

- Do you have any other comments, concerns, or issues that we have not addressed?

■ Shipper/Receiver Interview Guide

The following is the guide used for shippers and receivers interview.

Company Name:
Contact:
Title/Position:
Phone/Fax:
Address:
E-mail:
HQ Location:

Purpose of Study

Cambridge Systematics is conducting a customer involvement/market research study for the Indiana Department of Transportation (INDOT). As part of the study, Cambridge Systematics will be meeting with and interviewing a selection of major freight system users in the State of Indiana. This effort will help INDOT to better understand how companies use the State's transportation system to move goods, and help define a regional strategy for improving statewide freight mobility.

We currently are conducting interviews with the region's freight stakeholders, consisting of public planning agencies, motor carriers, railroads, airlines, steamship lines, and shippers/receivers to accurately understand how the existing freight infrastructure is being used, what the strengths and weaknesses are, and provide all involved parties with the opportunity to participate in developing the list of recommended improvements.

The purpose of our interview today is to collect information from you on your operations and give you an opportunity to identify any key issues facing your operation. I'd like to start by having you describe your operation, then walk me through your supply chain, and wrap up with a discussion on what you think the strengths and weaknesses are of the existing freight system.

The more detailed the information is the more it will help us, however we are not asking you to divulge any data you believe would be confidential

Description of Operations

- Describe the primary function of your operation. What are your day-to-day responsibilities?

- Describe the products/services your company provides.

- Why are you based here? or Why do you have a branch here? Does Indiana have competitive advantages over other areas? What are they?

- Is this your headquarters? If not, where is it?

- Do you have other locations/terminals/plants? If so, where are they located?

- How many employees do you have at this location? How many in total?

- Do you manage your own transportation/logistics? If not, who does your logistics management? Do they handle both your inbound and outbound transportation needs?

- If you have your own fleet of trucks, please provide number of power units, number of trailers, and dimensions of trailers. Does your fleet have backhaul opportunities?

Inbound Flows

- What are the primary raw materials brought in for production?

- Where are your suppliers located, geographically? Does your selection of suppliers depend on their business location?

- How do you place orders? Is it technology driven (automated)? If so, how?

- What modes are used for delivery of these materials? Why do you use these modes? Or, why don't you use other modes?

- Are your materials mode specific/dependent?

- For truck deliveries, how many loading/unloading docks do you have?

- If you use rail, do you have a rail siding? How many cars does it hold?

- What volume of freight do you receive weekly or monthly (by mode)?

- What service requirements do you have for these shipments? Do you have any penalties for late or missed shipments?

Production Process

- Is your manufacturing process automated? If so, what system are you using?

- How important is timeliness of delivery to your production lines? How do you ensure reliable delivery? Do you require service contracts?

- Do you maintain an inventory of raw materials? If so, how many days worth? If not, are you operating on JIT? Have you ever had to shut down a production line due to a missed shipment?

- How long does a production run take? Are your orders customized or do you make standard products?

- Do you maintain an inventory of finished products? If so, how many days?

- Do you have your own warehouse space? If so, how much warehouse space do you have (in square feet) for raw materials and then for finished products? If not, do you use a public warehouse? Please describe.

Outbound Flows

- What are the primary products manufactured/distributed?

- How do customers place orders? Is it technology driven (automated)? If so, how?

- What modes are used for delivery of these products?

- Are your products mode specific/dependent?

- For truck deliveries, how many loading/unloading docks so you have?

- If you use rail, do you have a rail siding? How many cars does it hold?

- What volume of freight do you send out weekly or monthly (by mode)?

- What service requirements do you have for these shipments? Do you have any penalties for late or missed shipments?

General Questions

- Do you use the Internet for business operations? Do you maintain your own web page?

- What other types of technology do you use (on-board computers, order systems, track and trace, etc.)? Have these improved or hindered your operations? How?

- What type of security protocols do you have in place?

- How has the increased emphasis on homeland security impacted your operations?

- What are the strengths of the State's transportation infrastructure?

- What are the weaknesses of the State's transportation infrastructure?

- How could the existing infrastructure be operated differently to improve your operations?

- How could the existing infrastructure physically be changed to improve your operations?

- Are you familiar with any freight planning that takes place in Indiana? Have you participated? If yes, how? If no, would you like to participate in the future?

- Are you aware of any planned improvements?

Appendix F

Markup of Policy Plan

Transportation In Indiana:
Multimodal Issues, Policies and Strategies
For The 1990s And Beyond

Prepared By:

Indiana Department of Transportation
100 North Senate Avenue, Room 901N
Indianapolis, Indiana 46204

Policy Plan Preface

T *ransportation In Indiana: Multimodal Issues, Policies and Strategies For The 1990s And Beyond*, is a broad update of the long-range multimodal transportation policy plan for the State of Indiana. Indiana's first long-range multimodal transportation policy plan was developed by the Indiana Department of Transportation, Transportation Planning Division, and published in March 1992. Significant changes in national transportation policy brought about by congressional passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) in December 1991 necessitated a refinement of Indiana's multimodal transportation policies and strategic priority directions.

This policy plan update, *Transportation In Indiana: Multimodal Issues, Policies and Strategies For The 1990s and Beyond*, is designed to:

- Identify issues of major importance to the users of Indiana's transportation system and to the Indiana Department of Transportation, particularly given passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) in December 1991, and the subsequent promulgation of Federal requirements and guidelines;

- Formulate multimodal policies and strategies that will place the Indiana Department of Transportation in a proactive position with regard to Indiana's future transportation challenges and opportunities, and;

- Serve as a broad policy guide for continued development of Indiana's multimodal transportation system over the next 10 to 20 years.

The issues, policies and strategies outlined in this policy plan were developed over the past eight months by diverse issue-related working groups, including the Department's technical, professional, and management staff, other state agencies, constituent groups, and the general public. Their assistance in the development of this update is sincerely appreciated.

Many of the policies and strategies presented here are "in place" and support the programs currently underway in the Indiana Department of Transportation. With the careful review and assistance of our customers, the Department intends to continuously develop and articulate these issues, policies and strategies beyond the final publication of this document.

The updated long-range policy plan ultimately adopted by the State's policymakers will serve as strategic guidance for transportation system development by the State of Indiana and the Indiana Department of Transportation.

> Division of Transportation Planning
> Indiana Department of Transportation
> Indianapolis, Indiana 46204

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Multimodal Issues, Policies and Strategies For The 1990s And Beyond

Transportation System Effectiveness

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Demographic Changes And Quality of Life

Transportation Finance

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Economic Development

Natural Environment and Energy

Bicycle And Pedestrian Facilities

New Technology

TRANSPORTATION SYSTEM EFFECTIVENESS

Policy Statement

INDOT will strive to develop an efficient and well-integrated multimodal transportation system. This will be pursued through cost-efficient and cost-effective management and maintenance of existing facilities and services, through appropriate expansion of capacity, and through removal of bureaucratic constraints to efficient and effective transportation of people, goods and freight.

Intermodal Strategies

- INDOT will develop a long-range multimodal transportation system plan that will identify the current condition of the system, forecast growth, and identify transportation system improvements that will meet travel demand and support economic growth.

- INDOT will develop a comprehensive set of planning tools that will allow for system-level analyses of the state transportation system. These tools will include a geographic transportation information system, multimodal travel demand forecasting capabilities, and methodologies to identify the economic impact of transportation investments.

- INDOT will develop an Intermodal Management System to better integrate and connect the various modes of transportation into a unified system.

- INDOT will develop, in coordination with the State's Metropolitan Planning Organizations, a Congestion Management System to alleviate congestion and enhance the mobility of people, goods and freight through the efficient use of the transportation system. Preference will be given to strategies that reduce single-occupant vehicle travel, especially in urban areas facing air quality non-attainment.

Aviation Strategies

- INDOT will support improved air carrier service to small communities and will work with local governments to assure that scheduled passenger service is maintained and extended to all communities where it is justified by demand.

- INDOT will work to maintain existing access and will support efforts to gain new small community access to large and medium air carrier hub airports.

- INDOT will support and implement local development programs that maximize the efficiency of the existing airport system, and which preserve and enhance the capacity of that system, without creating or intensifying competition between existing individual facilities.

- INDOT will actively support airport investments that foster and complement regional economic growth and development, including airport expansion programs and new airport construction programs that fill gaps in the existing system, increase regional operational capacity, and promote intermodal connections.

Highway Strategies

- INDOT will implement roadway management systems to protect the State's investment in the existing highway system through a maintenance and preservation program that provides the best level of service and minimizes long-term costs.

- INDOT will pursue the expansion, improvement, and intermodal solutions necessary to ensure that the transportation system supports growth of the State's economy, demand for mobility of people and goods, and improvement of the environment.

- INDOT will encourage state and local policies, especially land use policies, that offer transportation alternatives to the single-occupant vehicle.

- INDOT will work closely with other state and local agencies to develop non-traditional transportation programs, such as the transportation enhancement program, and to plan and evaluate projects proposed under these programs.

- INDOT will pursue the relinquishment of state roads superseded by new construction or realignment. A signed relinquishment agreement will be executed prior to the letting date of new construction, realignment or improvements to the existing route.

- INDOT will use all reasonable means of completing construction projects in a timely fashion

- INDOT will implement access management policies to maintain traffic flow on arterial roads.

Ports and Waterways Strategies

- INDOT will work closely with the Indiana Port Commission to ensure that Indiana's ports are easily accessible to other modes of transportation.

- INDOT will enhance its long-range planning efforts by coordinating these activities with those of the Indiana Port Commission.

- INDOT will support initiatives of the Indiana Port Commission that improve intermodal freight movement and that enhance economic development efforts in Indiana.

Public Transit Strategies

- INDOT supports the efforts of transit operators to increase their share of person-trips carried by providing more efficient and effective service. Transit service includes all forms of high-occupancy and non-motorized travel.

- INDOT will work with local public transit systems and will encourage solutions to achieve more efficient and effective services.

- INDOT will encourage better coordination of transit operations in regions where service overlaps and gaps exist.

- INDOT will develop a Public Transit Management System using performance analysis to identify needs and improve investment decision-making.

- INDOT will encourage the expansion of specialized transportation services to better serve the general public.

- INDOT will encourage improved bicycle and pedestrian access to transit services.

- INDOT will expand the multimodal program orientation of the department, especially with respect to the availability of public transportation services and the means these services can be accessed by persons of limited income.

Rail Strategies

- INDOT will examine all potential sources of revenue to encourage continued operation of the rail freight system serving customers in Indiana.

- INDOT will work with shippers and short line railroads to encourage the preservation of rail service.

- INDOT will coordinate safety improvements for both the railroad industry and the public along the existing rail freight network and at rail/highway intersections. Safety improvements include, but are not limited to, implementation of warning devices, improvement of track conditions, and closure of rail/highway intersections.

- INDOT will provide leadership in the railroad abandonment process. INDOT will lead the Abandoned Rail Corridor Advisory Group to establish recommendations for the future transportation uses of abandoned rail corridors. INDOT will work with the appropriate public or private agencies to develop and implement alternative uses for abandoned rail corridors.

- INDOT will identify corridors where the development of rail passenger service, including the development of high-speed passenger service is a good investment. INDOT will facilitate and work with the various established rail passenger groups to create dialogue, examine options for implementation, and explore funding mechanisms.

- INDOT will continue to monitor and investigate improvements in rail technology, such as tiltable trains and railcars, magnetic levitation (MAGLEV) and other high-speed rail technologies, for their applicability to Indiana.

TRANSPORTATION SAFETY AND SECURITY

Policy Statement

INDOT will work to ensure that safety and security are considered and implemented, as appropriate, in all phases of transportation planning, design, construction, maintenance, and operations. INDOT will strive to raise the safety and security awareness of both the transportation industry and users of transportation facilities. INDOT will work closely with other local, state, and Federal agencies to improve information reporting on transportation crashes, exposure to risks, and trend analysis, in order to identify potential safety problems, analyze potential solutions and implement appropriate actions.

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Strategies

- INDOT will act as the lead agency in the development and implementation of a Safety Management System, with the overall goal of reducing the number and severity of traffic crashes on all public roads in Indiana.

- INDOT will continually improve the highway crash analysis system in partnership with the Indiana State Police and the Bureau of Motor Vehicles to provide more reliable data for planning, programming and design decisions.

- INDOT will strive to reduce crashes at rail-highway grade crossings by recommending those projects with the highest return on investment regardless of jurisdictional boundaries, by using the Federal Railroad Administration crash prediction formula on a statewide basis, and by closing rail-highway crossings where feasible.

- INDOT will enforce the proper operation of railroad crossing warning devices.

- INDOT will identify and implement cost-effective actions to eliminate hazardous intersections and transportation segments.

- INDOT will design and construct transportation projects to accepted safety standards.

- INDOT will certify all public and private use airports, regulate the height and location of tall structures, regulate the use of noise sensitive land as it affects airports, and inspect all public use airports annually.

- INDOT will promote airport safety through inspections of airport pavement, supporting the need for an Automated Weather Observation System Program, and implementing the Airport Obstruction Evaluation Program.

- INDOT will study and improve work site safety in construction and maintenance zones for INDOT and contractor employees, as well as the traveling public. INDOT will encourage the use of law enforcement patrols in work zones and other innovative efforts that promote safe vehicle speeds through work zones.

- INDOT will increase public awareness of transportation safety issues through promotional activities such as Operation Lifesaver.

- INDOT will perform bridge inspections to assure their safe load carrying capacity to identify maintenance or construction needs.

- INDOT will measure pavements with the purpose of eliminating pavement rutting, distress and slippery pavements.

- INDOT will maintain all traffic signs, signals, and pavement markings to promote the safety of the public.

- INDOT will minimize hazardous road conditions during times of inclement weather.

- INDOT will act to protect the motoring public by providing traffic control during times of emergency road closures.

- INDOT will emphasize research projects that promote engineering decisions based on safety studies.

- INDOT will require all employees who operate INDOT vehicles to have a national Commercial Drivers License or attend defensive driving educational courses.

- INDOT will consider the safety of non-motorized traffic in the design or redesign of routes with significant non-motorized use.

- INDOT will consider the benefits of additional rest areas on highway safety

- INDOT will consider the implications of its decisions on homeland security.

DEMOGRAPHIC CHANGES AND QUALITY OF LIFE

Policy Statement

INDOT is committed to develop a transportation system that responds to demographic change and contributes to the quality of life. INDOT will provide safe and efficient intermodal access to the diverse business, recreational, and cultural opportunities of Indiana. INDOT will consider environmental justice issues when evaluating transportation projects.

Strategies

- INDOT will coordinate the development and use of a set of consensus socioeconomic forecasts, working with appropriate state agencies, to determine past, present, and emerging demographic changes that affect future demands on the State's transportation system.

- INDOT will identify and eliminate institutional barriers to the State's transportation system, whether it be for citizens with disabilities who are dependent upon specific motorized and non-motorized modes of transportation or commercial vehicles that need to travel efficiently across many states.

- INDOT will continue to improve the aesthetics of its facilities, roads and bridges and will minimize adverse impacts on environmentally sensitive areas.

- INDOT will continue and expand upon its customer focus, providing high-quality service and reduction in user costs for each dollar spent on Indiana's transportation system.

- INDOT will work closely with the Department of Commerce and the Department of Natural Resources to foster the development of recreational and cultural assets, and to capture and capitalize upon Indiana's unique tourism opportunities.

- INDOT will encourage appropriate accommodations for bicycle, pedestrian and other non-motorized recreational travel as a means to expand the overall quality of life for Hoosiers.

- INDOT will consider farmland preservation in making decisions regarding transportation infrastructure.

- INDOT will take a human and community view in all aspects of agency decision-making, and encourage context sensitive solutions.

- INDOT will develop performance measures to assess whether it is adequately addressing environmental justice issues.

- INDOT will establish a department-wide working group, including representative of other state agencies, to identify potentially important environmental justice issues and to coordinate approaches.

- INDOT will provide additional training to help mainstream considerations of environmental justice throughout all aspects of planning, maintaining, and operating Indiana's transportation system

- INDOT will broaden the usage of community impact analysis in developing transportation system plans as well as for project-level planning and design.

TRANSPORTATION FINANCE

Policy Statement

INDOT supports adequate and reliable funding for Indiana's transportation system from all sources: Federal, state, and local governments; and the private sector.

Strategies

- INDOT will work with Indiana's Congressional delegation to increase Indiana's Federal funding for transportation.

- INDOT will provide the Indiana State Legislature the information necessary to assess statewide transportation funding needs.

- INDOT will encourage and support efforts by cities, towns, and counties to increase local sources of transportation funding to meet local needs.

- INDOT will, independently and in conjunction with other state agencies and local jurisdictions, solicit private sector funding for transportation investment whenever feasible.

- INDOT will take whatever actions are necessary, within its power, to ensure that Indiana's Federal transportation funding resources do not lapse or are not lost due to sanctions.

- INDOT will continue to pursue efficiency improvements and cost savings in its operations in order to maximize the funds available for preserving and improving Indiana's transportation infrastructure.

- INDOT will consider specific project return on investment analyses in the utilization of transportation funds.

- INDOT will provide funding for creative, intermodal transportation solutions whenever appropriate and feasible.

- INDOT will refine transportation funding allocation criteria to more closely align distributions with relative needs.

- INDOT will simplify the application process for all transportation funding to improve local government access to these resources.

INTERGOVERNMENTAL COORDINATION

Policy Statement

INDOT will actively solicit greater coordination and cooperation with other agencies, units of government and other stakeholders with the goal of developing a state transportation plan that will guide the selection of investments that offer the best value while providing support for Indiana's continued economic growth.

Strategies

- INDOT will continually communicate with elected officials, local governments and the public on upcoming transportation improvements in their areas. INDOT will communicate project timetables and nature of work directly to the media prior to a project's onset, so that the public and the transportation community will be informed.

- INDOT will provide all necessary information to local governments such that they are able to use Federal funds successfully to upgrade the quality of their transportation systems. INDOT will provide technical expertise in project planning, project development, and construction and will strive continually to simplify the Federal-aid process for transportation.

- INDOT will continually improve the transportation planning process to assure that it is consistent with Federal regulations, identifies those transportation investments that have the greatest impact on system performance at the lowest possible cost, and minimizes environmental and social impacts on communities. INDOT will work closely with the State's Metropolitan Planning Organizations (MPOs) during the planning process to assure system connectivity and to acknowledge the MPO's role in transportation planning for their urbanized areas.

- INDOT will establish intergovernmental committees to promote and coordinate the use of appropriate management systems at local levels of government as an aid in developing transportation plans. INDOT will provide guidelines, support, and education for the development and continued use of the systems at the local level.

- INDOT will work with local units of government, MPOs and other stakeholders to assure that the planning process for transportation and land use protects the functional integrity and financial investment of Indiana's highways through an active access management process.

- INDOT will continue working with Indiana counties and small urban areas to establish management systems and other planning tools that will serve as guidance for transportation investment decisions on the local level.

- INDOT will select and develop projects consistent with the State's goals to protect and improve the natural environment. INDOT will consider the Indiana Department of Natural Resources (IDNR) programs for natural and historic lands and soil conservation, the Indiana Department of Environmental Management (IDEM) plans for environmental cleanup and clean water, the State's waterway and coastal zone management plans, and the state implementation plan for air quality, in planning the transportation system.

ECONOMIC DEVELOPMENT

Policy Statement

INDOT has a unique role in sustaining and fostering Indiana's economy and recognizes that policy decisions and transportation infrastructure investments have major effects on economic growth and development. To support economic competitiveness, INDOT will improve upon Indiana's high-quality transportation system to reduce the cost of moving people, goods and freight, connect Indiana with regional, national, and international markets, provide communities with an edge in competing for jobs and business locations, and connect people with economic opportunities.

Strategies

- INDOT will develop a transportation investment model and an economic impact model in association with the Indiana Department of Commerce and the Indiana Economic Development Council to provide estimates of transportation induced regional employment, income benefits, and changes in economic activity.

- INDOT will work with state and local economic development groups to plan and coordinate transportation and land use to meet state and local economic goals.

- INDOT will work with state and local economic development groups to promote the competitive advantages that Indiana's economy has over other areas of the nation. INDOT will identify infrastructure investments that enhance the value of Indiana's products and services, improve market accessibility, improve productivity, and support community development.

- INDOT will support efforts of Indiana's international airports and international ports to secure greater direct access to the global travel and trading environment. INDOT will coordinate this effort with state and local economic development groups to best support the production and service industries of Indiana that require international export and import accessibility.

- INDOT will actively promote opportunities for disadvantaged business enterprises.

- INDOT will support Indiana businesses.

- INDOT will encourage local entities to consider transit, pedestrian, bicycle, and other non-motorized transportation in land use and transportation planning.

- INDOT will identify and work in partnership with Indiana transportation system users to strengthen intermodal transportation connections for people, goods, and freight to intrastate, interstate, and international markets.

- INDOT will encourage the development and preservation of the existing rail freight network in Indiana. INDOT will seek to expand rail freight service in areas where corridors currently exist, where trackage is available for freight service, and demand for service justifies new investment.

- INDOT will encourage active local efforts to attract development that will improve local economies and the overall economy of the State. INDOT will make major transportation investments for purposes of economic development in concert with demonstrated local efforts.

NATURAL ENVIRONMENT AND ENERGY

Policy Statement

INDOT will establish and maintain a transportation system that is consistent with the State's commitment to protect the environment. INDOT will contribute to energy conservation efforts by promoting efficiency in all modes of travel and by encouraging the most efficient use of transportation systems.

Strategies

- INDOT will plan, design, develop, construct and maintain transportation facilities to ensure minimal impacts on the environment from noise, air and water pollution. INDOT will minimize disruption of environmentally sensitive areas, communities and aesthetics.

- INDOT will promote the wise use of energy while meeting the long-range needs of the State's transportation system.

- INDOT will monitor changes in Federal and state regulations and statutes, including the *State Implementation Plan*, to adjust the department's operations as needed for compliance. INDOT will influence proposed changes in these statutes and regulations when it benefits the objectives of the state transportation planning process.

- INDOT will use the best techniques to minimize environmental damage and loss at departmental facilities and worksites.

- INDOT will support public education programs to increase environmental awareness and energy conservation.

- INDOT will improve the environmental compatibility of its facilities, roads, and bridges through landscape planning and erosion control. Indigenous materials such as prairie plantings, wildflowers, and native trees, will be used wherever possible, if such materials meet the needs of the project and are not cost prohibitive.

- INDOT will endorse the use of public transportation, improved intermodal connections, and traffic demand management techniques to promote efficient use of state transportation resources and facilities.

- INDOT will support ridesharing activities and vanpool programs for state employees in order to achieve more efficient use of state transportation facilities.

- INDOT will emphasize the use of recyclable materials in construction projects and at our facilities, once these materials have been proven to be environmentally beneficial and structurally appropriate.

- INDOT will plan, develop and construct transportation projects that comply with the Clean Air Act Amendments (CAAA) and meet the air quality emissions budget.

- INDOT will solicit input from other agencies when assessing the environmental impacts of transportation investment decisions.

- INDOT will conduct more extensive outreach and coordination with local officials, stakeholder groups, and the general public, starting at the early stages of the transportation planning and project development processes.

- INDOT will assist local jurisdictions, through coordination and training, in establishing appropriate land use policies to maximize positive impacts and minimize negative impacts related to transportation investment.

- INDOT will complete the implementation of a uniform, comprehensive, and accessible GIS system at the state level for use in project design and impact assessment. INDOT will develop and apply tools for evaluating the impacts of transportation projects on land resources/land use and urban growth, both at a micro level (e.g., interchange) and a macro level (city/region).

- INDOT will revise landscaping and roadside maintenance practices to reduce the spread of invasive species.

BICYCLE AND PEDESTRIAN FACILITIES

Policy Statement

INDOT will support non-motorized modes of travel as a means to increase system efficiency of the existing surface transportation network, reduce congestion, improve air quality, conserve fuel and promote tourism benefits. INDOT will work to remove unnecessary barriers to pedestrian and bicycle travel.

Strategies

- INDOT will support local efforts to establish or enhance bikeway and pedestrian facilities by continuing to actively participate in local and regional facility planning.

- Through INDOT's administration of the Transportation Enhancement Activities (TEA) program, INDOT will participate in the right-of-way acquisition of abandoned rail corridors as supported by local governments and the Department of Natural Resource's *Indiana Trails 2000 Plan*.

- INDOT will adopt pedestrian and bicycle standards to be applied to projects during their planning phase and retrofit to projects in design where possible. The standards will be made available to local public agencies and Metropolitan Planning Organizations.

- INDOT will consider bicycle and pedestrian needs in all transportation projects. Items such as lane width, pavement surfaces, sidewalk location and pedestrian crossings will be considered. Current transportation actions will not preclude future consideration of pedestrian and bicycle needs.

- INDOT will support increased accommodation of bicyclists and pedestrians at public transportation, air and rail facilities.

- INDOT will encourage new land use and urban design strategies that incorporate opportunities for pedestrian and bicycle movements. INDOT will also encourage continuous facility accommodations for bicycles and pedestrians.

- INDOT will accommodate horse-drawn vehicles in areas of the State where those forms of transportation are common.

NEW TECHNOLOGY

Policy Statement

INDOT will provide leadership for the State of Indiana to develop and deploy advanced transportation technologies. INDOT will embrace a broad-based, comprehensive research program to support all elements of intermodal transportation.

Strategies

- INDOT will continue to invest in basic and applied research and development through its transportation programs. The initiative to involve all major state universities and industry through partnering in research and development will be continued and expanded. The effort to improve technology transfer methods will include the development of a formal departmental technology assessment and distribution process. The initiative of Federal Highway Administration, INDOT, the Highway Extension and Research Project for Indiana Counties and Cities (HERPICC), and the Rural Transit Assistance Program to improve the process for technology transfer is encouraged.

- INDOT will develop an agencywide database system of detailed and dynamic information on all modes of transportation within Indiana. The information will be shared, supported, and accessible in simple formats by all divisions of INDOT. INDOT will explore methods to develop a resource of shared information among state and local agencies.

- INDOT will continually develop improved methods to communicate and to share information electronically among public and private organizations. This information might include construction data, traffic statistics, agency bulletins, or research information.

- INDOT will continue to incorporate innovative technologies and techniques, such as those identified in the *Indiana Policy on the Quality of Highways* and those implemented to optimize our operating procedures, in order to reduce our construction and maintenance costs.

- INDOT will aggressively pursue the implementation of intelligent vehicle highway system technologies to meet transportation demand and satisfy user needs in Indiana. Implementation of these technologies will reduce operating costs, save energy, reduce pollution, offer cost-effective alternatives to additional highway capacity, and provide better information and a more reliable transportation system to motorists, transit riders, and commercial vehicle operators.

- INDOT will promote the development of new transportation technologies including those developed by Indiana-based enterprises.