

# 2013

## Indiana's 2013-2035 Future Transportation Needs Report *"Keeping Indiana Moving"*



Indiana Department of Transportation

Version 4/16/2013



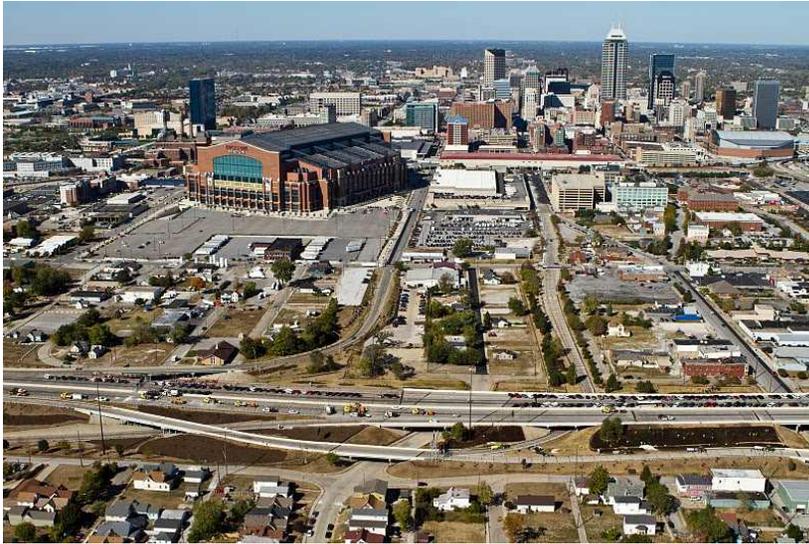
# Table of Contents

- Introduction ..... 5
  - The Purpose of the Report..... 5
  - Federal Legislation ..... 6
  - The New Format ..... 6
  - What Happened to the Projects? ..... 6
  - INDOT’s Transportation Responsibility ..... 7
- INDOT Vision Statements..... 9
  - Statewide System Planning Mobility Corridors ..... 12
- Major Moves Highway Program ..... 14
  - Major Moves Program Benefits ..... 15
- INDOT High Priority Corridors..... 16
- Transportation Trends, Challenges, & Opportunities ..... 22
  - Population Trends ..... 22
  - Demographic Trends ..... 24
    - Physical Limitations of the Elderly ..... 25
    - Elderly Transportation Needs ..... 26
  - Land Use Development and Transportation Demand Trends ..... 27
  - Vehicle Miles Traveled Trends ..... 30
  - Travel Time to Work & Auto Ownership Trends..... 31
    - INDOT Strategies ..... 32
    - Other INDOT Opportunities: ..... 38

- Public Transit Trends ..... 39
- Bike and Pedestrian Trends ..... 42
- Freight Trends ..... 44
  - Intermodal needs ..... 44
  - Overweight Trucks ..... 45
- Dedicated Truck Lanes ..... 46
- Increased Global Competition ..... 47
- Volatile Revenues and Costs ..... 48
- Understanding the Gas Tax..... 48
- Aging Infrastructure ..... 49
- Technological Advances/Trends ..... 50
  - Alternative Fuels ..... 52
  - Hybrid Vehicles ..... 53
  - INDOT Research ..... 53
  - High Speed Rail ..... 53
  - Communication Systems..... 55
- Climate Change ..... 56
- Traffic Safety ..... 57
  - Indiana Work Zone Safety..... 60
  - Non-motorized Safety ..... 61
- INDOT Planning Process ..... 62
  - INDOT Primary Planning Partners ..... 65
    - Federal Highway Administration (FHWA) ..... 65

Federal Transit Administration (FTA).....	65	Sustainable Maintenance Activities:.....	87
Metropolitan Planning Organizations (MPOs).....	65	Adopt a Highway Program .....	87
Rural Planning Organizations (RPOs) .....	67	Use of Technology.....	88
Public & Stakeholder Input .....	68	Sustainable Developments.....	88
Website .....	68	Greencastle Community Stellar Project .....	89
INDOT Activities .....	69	North Vernon Community Stellar Project .....	90
Public Involvement Plan and Community Advisory Committees	69	Environmental Planning .....	91
District Meetings.....	70	Air Quality Conformity .....	91
Early Coordination Meetings .....	71	Transportation Conformity .....	92
INDOT Public and Stakeholder Comments .....	71	Streamlined National Environmental Policy Act (NEPA)	
Economic Analysis.....	73	Procedures .....	94
Economic Analysis Tools .....	73	Multi-Modal Planning .....	95
Economic Impact Definition.....	74	Inter-modal coordination.....	96
Categories of Economic Impacts.....	75	Railroads.....	97
Types of Economic Effects .....	76	PUBLIC TRANSIT .....	100
Environmental Justice .....	76	Indiana Mass Transit Study .....	101
Environmental & Greening Initiatives.....	79	Aviation .....	104
Hoosier Roadside Heritage Program.....	80	Freight .....	106
Native Plants Emphasized .....	80	Bicycle and Pedestrian Transportation .....	107
Sowing Our Own Seed Source .....	81	Safe Routes to School .....	109
Environmental Mitigation .....	81	Indiana Trails, Greenways, and Bicycle Paths .....	110
The Indiana Land Resources Council.....	84	Bike & Pedestrian Trail Funding Sources .....	111
Recycling & Waste .....	84		

Moving Ahead for Progress in the 21st Century Act (MAP-21) .....	111	Comments Regarding High-Speed Rail Improvements:.....	1
Transportation Enhancement (TE).....	111	Comments Regarding Bicycle and Pedestrian Improvements:..	2
Congestion Mitigation and Air Quality Improvement Program (CMAQ) Funds.....	111	Comments Regarding Complete Streets:.....	3
Recreational Trails Program (RTP) .....	111	Comments expressing concerns over INDOT public involvement efforts in updating the Indiana Future Needs Report.....	3
Federal Lands Highway Program (FLHP) .....	112		
Other Funding Sources.....	112		
National Scenic Byways Program.....	113		
Accessibility/ADA .....	114		
Context Sensitive Solutions Policy .....	115		
Complete Streets Concept .....	119		
INDOT Policies, Strategies, and Performance Measures .....	120		
Asset Management .....	120		
INDOT Funding.....	124		
Innovative/Cost Effective Solutions.....	127		
Addressing the Federal Planning Factors.....	128		
Conclusion.....	133		
Tell us what you think!.....	133		
Appendix A: Public Comments.....	0		
General Public and Stakeholder Comments and Responses .....	0		
Comments Regarding Specific Project Improvements: .....	1		
Comments Regarding Transit and Light Rail Development: .....	1		



Transportation acts as a lifeline for moving raw materials to manufacturing facilities; farm produce to processing facilities and markets; and finished products to distributors or customers.

The 2035 Indiana Future Transportation Needs Report provides vision statements for future developments and investments on the Indiana Department of Transportation (INDOT) state transportation system. This Report builds upon a number of earlier planning studies which address transportation policy, system development, and infrastructure investment. These investments are intended to provide Hoosiers with the highest level of mobility and safety possible; stimulate economic development; and improve quality of life into the next quarter century.

## Introduction

Transportation is critical in supporting economic vitality and quality of life for Hoosiers across the state of Indiana. People and communities throughout the state depend on transportation services to meet their mobility needs. For families and individuals, transportation puts goods on store shelves; supports our travel to work; providing health care services; school and recreational activities; and takes us across the nation and around the world for business and leisure.

Transportation is also essential for the thousands of manufacturing, retail, wholesale, and agricultural businesses within the state.

## The Purpose of the Report

Future transportation planning is a continuous, cooperative, and comprehensive activity. It establishes a vision for future transportation investments, examining critical trends, issues, and needs. The Future Transportation Needs Report provides the framework for long-range transportation planning activities for INDOT jurisdictional facilities (Interstates, US highways, and state routes). It draws from and provides direction to the many modal, specialty plans, and transportation needs studies developed by INDOT and its partners: Federal Highway Administration (FHWA), Federal Transit Administration (FTA), Metropolitan Planning Organizations (MPOs), Rural Planning Organization (RPOs), stakeholders, local governments, and numerous others.

The Future Transportation Needs Report is an evolving document that will be amended and frequently updated on an as needed basis. All needs, policies, and strategies discussed in this document will be revisited as necessary to respond to: new federal transportation authorization bills, transportation challenges, as well as opportunities. Revisions will be based on available data, quantitative analysis, public input, INDOT planning partner input, and stakeholder involvement.



## Federal Legislation

An important part of the report development process is guided by state and federal regulations and statutes. The most recent federal transportation authorization bill; Moving Ahead for Progress in the 21st Century Act (MAP-21)" signed into law on July 6, 2012. [23 USC 135(c)] requires states to develop and periodically update statewide transportation plans with a minimum 20-year planning horizon.

MAP-21 prescribes a series of factors that each state planning process should consider as well as the identification of basic plan components.

## The New Format

Previous INDOT long-range transportation planning documents were "Project Specific" identifying specific highway expansion projects to meet identified transportation needs and stated goals. Projects included costs and ready for construction dates through 2030.

Innovative, timely, context-appropriate, cost-effective, and creative transportation solutions are critical. For this report, INDOT has adopted a "Needs-Based" approach that identifies future transportation needs and describes overarching strategies and opportunities to accomplish future results (e.g., improved mobility, safety, economic development, etc.). The needs-based approach will provide a flexible and opportunistic framework for addressing transportation issues and needs for the next 20-25 years.

The new format also provides a number of web links throughout this document to allow the reader access to more detailed information on subjects, INDOT activities, studies, and mode-specific planning documents.

## What Happened to the Projects?

Given the new format, the Future Transportation Needs Report will not list specific projects. The report will link to INDOT's Statewide Transportation Improvement Program (STIP): <http://www.in.gov/indot/2348.htm>. This 4-year program will coordinate and synchronize multiple projects, thereby minimizing

disruptions to the traveling public. The construction program will be updated periodically, but no less than every four years and will provide guidance to the development of various INDOT transportation improvement projects. Selected improvements will be optimized and prioritized based on statewide needs analysis and available funding.

Beyond the 4-year construction program, the report will identify future-year, non-project specific, non-funded transportation needs. The goal is to maintain a flexible and opportunistic approach to addressing future transportation needs and issues. All possible options will need to be explored, optimized, and prioritized based on: public and stakeholder input; input from Indiana's various planning partners; available funding; and context-appropriateness.

Although the report will not display specific projects, a "High Priority Corridors" section of the document was developed to show INDOT's commitment to fund specific corridor improvements. These improvements are discussed in more detail in subsequent sections.



I-70 CONSTRUCTION INDIANAPOLIS



### INDOT's Transportation Responsibility

INDOT is directly responsible the development and maintenance of the state jurisdictional roadway system which include interstates\*, U.S. Routes, and state routes, and related adjacent overpasses and ramps for these roadways. INDOT also maintains state institutional roadways found in state parks and recreational areas and some of those roadways leading to national parks/recreation areas. In all, INDOT maintains more than 11,000 centerline miles of the total 95,701 roadway miles in the State of Indiana and over 6,000 bridges. Local cities, counties, and towns are responsible for all other roadways that are not state jurisdictional facilities.

*\*Interstate 90 and most of Interstate 80 in Indiana make up the 157 miles of the Indiana Toll Road which is operated by the Indiana Toll Road Concession Company with oversight from the Indiana Toll Road Oversight Board.*

**Railroads:** INDOT does not own, but is responsible for regulating approximately 4,500 rail miles in Indiana. INDOT’s Rail Section directs funding and provides oversight of those funds to Indiana’s rail system. The Indiana Industrial Rail Service Fund (IRSF) was established in 1982. The fund receives a percentage of the state sales tax which is deposited into the IRSF account on a quarterly basis. Revenue also comes through repayment of IRSF loans as directed by IC 8-3-1.7-6. The Indiana Department of Transportation administers the fund.

In FY2011 IRSF grants totaling \$1,498,407 were awarded to eight railroads in the state. The state-funded Railroad Grade Crossing Fund was instituted by the Indiana State Legislature in 1997 to

provide funding for railroad crossing safety improvement projects throughout the state.

Intercity passenger rail travel is provided by the National Railroad Passenger Corporation, also known as Amtrak, to a limited number of cities across Indiana’s northern and central regions. Commuter rail service in Northern Indiana is provided by the Northern Indiana Commuter Transportation District (NICTD).



FIGURE 1 - MIDWESTERN HIGH SPEED RAIL CORRIDORS

**High-Speed Passenger Rail:** Indiana continues to study high-speed inter-city passenger rail service as a possible way to move people more efficiently and reduce the stress on Indiana’s highways. This type of rail service is designed to carry travelers from cities that are anywhere from 150 to 400 miles apart, on trains that reach speeds of 110 miles per hour. Indiana and eight Midwestern states are partnering to research and analyze various technologies and routes to connect major Midwest cities via high-speed passenger trains.

In January 2010, INDOT’s Office of Rail collaborated with the Office of Freight Mobility to secure \$71.4 million in high-speed inter-city passenger rail funding from the Federal Railroad Administration under the American Recovery and Reinvestment Act (ARRA). The funds will be used to build passing tracks and high-speed crossovers and improve signal systems, relieving congestion in northwest Indiana.

**Aviation:** Through its Office of Aviation INDOT regulates more than 110 public access airports and more than 560 private access airports across the state. The Office of Aviation is also responsible for administering the state funds available for airport development. The Indiana State Legislature appropriates funds to the Airport Development Fund every 2 years. The Aviation Office programs the expenditure of these funds through the use of a statewide Airport Capital Improvement Program (CIP). The CIP is a multi-year document that is updated annually and includes planning, equipment and airport development projects for airports within the Indiana State Aviation System Plan.



**Public Transportation:** INDOT does not own or operate any public transportation facilities in the State of Indiana. However, the INDOT Office of Transit does provide financial and technical assistance to providers of public transportation (public transit corporations PTC, cities, towns and county rural providers). Through workshops, training sessions and compliance reviews, the Office of Transit assists with applying for state and federal dollars. The state funds are used for operating and capital assistance. The State of Indiana provides funding for public transportation through its Public Mass

Transportation Fund (PMTF) which formerly was a dedicated fund that generated revenue from a slight percentage of the overall sales tax. That status changed in 2011 when the Indiana General Assembly removed the dedicated funding for the PMTF. The PMTF is now funded from the State's General Fund through the biennial budgeting process.

#### **Civil Right Act of 1964 (Title VI)**

INDOT will implement compliance with Title VI of the Civil Rights Act of 1964; 49 CFR § 26; and its related statutes and regulations to ensure that no person is excluded from participation in, denied the benefits of, or subjected to discrimination under any program or activity receiving federal financial assistance from the U.S. Department of Transportation (DOT) on the grounds of race, color, age, sex, disability, national origin or income status.

## **INDOT Vision Statements**

### **Transportation Safety**

INDOT will ensure that safety is considered and implemented, as appropriate, in all phases of transportation planning, design, construction, maintenance, and operations. INDOT will raise the safety 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.

**Economic Development**

INDOT will improve upon Indiana's 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.

**Transportation System Effectiveness**

INDOT will develop an efficient and well-integrated multimode transportation system. This will be through cost-efficient and cost-effective management and maintenance of existing facilities and services, and through appropriate expansion of capacity to efficiently and effectively transport people, goods and freight.

**New Technology**

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 multimode transportation.

**Demographic Changes and Quality of Life**

INDOT is committed to developing a transportation system that responds to demographic change and contributes to improved quality of life. INDOT will provide safe and efficient multimode access to the diverse business, recreational, and cultural opportunities of Indiana.

**Transportation Finance**

INDOT supports adequate and reliable funding for Indiana's transportation system from all sources: federal, state, and local government, and the private sector.

**Bicycle and Pedestrian Facilities**

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. Section 504 of the Vocational Rehabilitation Act requires that INDOT ensure that all pedestrian facilities meet the minimum accessibility standards set forth by law.

**Natural Environment and Energy**

INDOT will establish and maintain a transportation system in a manner to support 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.

**Intergovernmental Coordination**

INDOT will actively solicit coordination and cooperation with other agencies, units of government and other stakeholders with the goal of developing a state transportation plan and program which will guide the selection of investments that offer the best value while

providing support for Indiana's continued economic growth.  
Statewide and Mobility Corridors

### **Highway System Definition**

The state highway system definition process attempts to identify the importance of the various components of the road network in terms of the movement of people and goods. The various elements of the highway system are evaluated in terms of their statewide significance based on levels of passenger or freight travel. A major focus is the enhancement of connectivity between major activity centers in order to support the state's economy. Highway corridors were evaluated on the basis of:

- Accessibility measures between major urban area concentrations
- Designation as a Principal Arterial under FHWA's Functional Classification System
- Designation as part of the National Highway System
- High volumes of commercial traffic and commodity movements
- High volumes of passenger vehicle traffic

A highway's classification identifies its role in the state system, aids in the identification of future improvements, and guides INDOT in determining the appropriate level of capital investment. The system definition also aids INDOT in setting priorities, and allocating resources among various corridors. This ensures that highway investments achieve system-performance goals in a cost-effective manner.

**Statewide System Planning Mobility Corridors**

INDOT's long-range planning process is based upon a mobility corridor hierarchy system for statewide prioritization. This hierarchy has three levels:

- Statewide Mobility Corridors**  
 These corridors are the top-end of the highway system, and are meant to provide mobility across the state. They provide safe, high-speed connections for long-distance trips between the metropolitan areas of Indiana, and those of the surrounding states. They serve as the freight arteries of the state, and thus, vital for economic development. INDOT has as a strategic goal to directly connect metropolitan areas of 25,000 in population or greater.
- Regional Corridors**  
 These corridors are the middle tier of the highway system, and are meant to provide mobility within regions of the state. They provide safe, high-speed connections for medium-distance trips between smaller cities and towns.
- Sub-Regional Corridors**  
 These corridors make up the remainder of highway system. They are the bottom level of the system, and are used for safe, lower speed, short-distances trips. They provide access between local land uses and the rest of the state network.

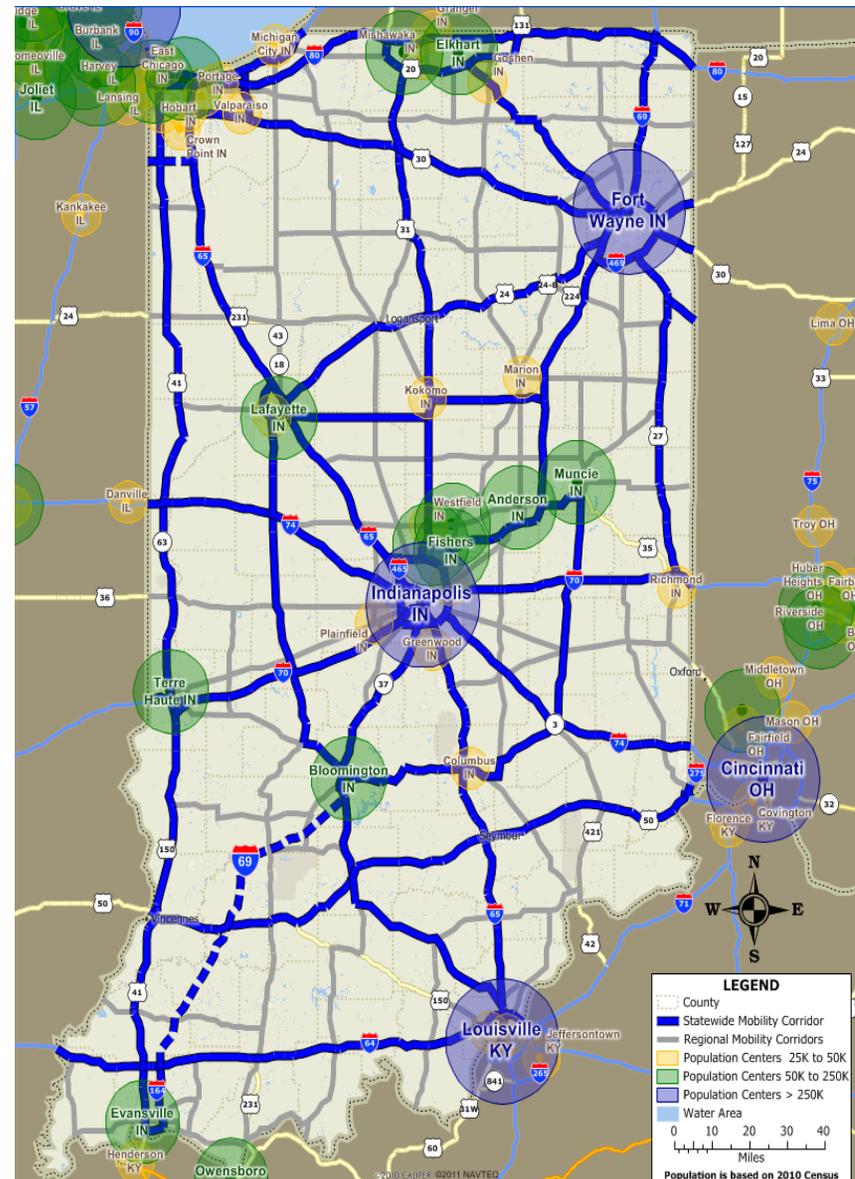


FIGURE 2 - INDOT MOBILITY CORRIDOR HIERARCHY MAP

**National Highway System**

A major factor in the development of the Statewide Mobility Corridor System is the National Highway System (NHS), a system of roadways determined to have the greatest national importance to transportation, commerce, and defense in the United States. It consists of the Interstate Highway System, logical additions to the Interstate System, selected other principal arterials, and other facilities which meet the requirement of one of the subsystems of the NHS. The NHS represents approximately 4% to 5% of the total public road mileage in the United States. Therefore, the total Indiana mileage is somewhat restricted in terms of actual highway segments assigned to the National Highway System. Specifically, the National Highway System was intended to contain the following subsystems:

- **Interstates** - - The current Interstate System retains its separate identity within the NHS along with specific provisions to add mileage to the existing Interstate subsystem.
- **Other Principal Arterials** - - These include highways in rural and urban areas which provide access between an arterial route and a major port, airport, public transportation facility or other inter-modal transportation facility.
- **Strategic Highway Network** - - A network of highways which are important to the United States' strategic defense policy and which provide military access, continuity and emergency capabilities for national security purposes.
- **Major Strategic Highway Network Connectors** - - Highways which provide access between major military installations and the Strategic Highway Network.

- **Intermodal Connecting Links**--- highways that connect NHS routes to inter-modal transportation facilities. These facilities can be ports, international border crossings, airports, public transportation & transit centers, interstate bus terminals, and rail yards.

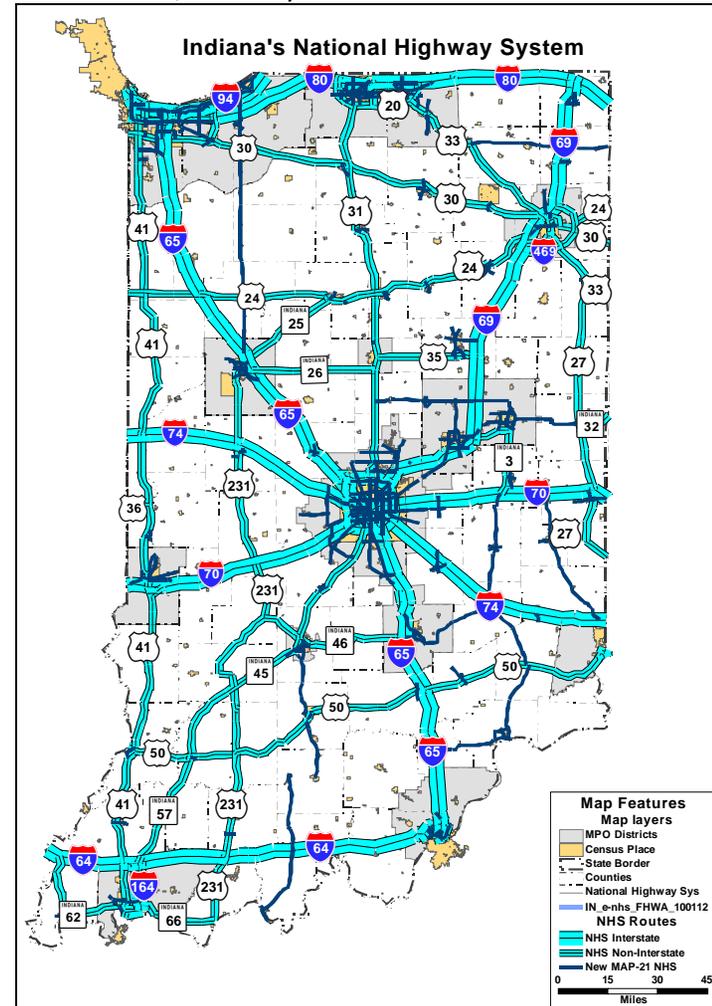


FIGURE 3 - NATIONAL HIGHWAY SYSTEM MAP



## Major Moves Highway Program

The Major Moves Program is an innovative, \$10 billion, 10-year transportation program that is unique to Indiana. The major objectives of the program are:

- Creating a 10-year Construction Plan that uses a weighted, data-driven scoring formula to prioritize projects into a program. This program is sub-divided into Major New Construction and Major Pavement Preservation.
- Securing additional funding sources for construction through innovative financing techniques such as:
  - Public-private partnerships
  - Value engineering projects to save money
  - Increased special permitting fees
  - Generating revenue streams by increasing user fees on selected new added capacity projects.

In August 2005, INDOT developed a draft project plan and held 12 meetings across Indiana to gather local input. More than 3,000 citizens attended these meetings.



In the fall of 2005, the Major Moves highway plan was announced. The plan included more than 200 new construction and 200 major preservation highway projects. The funding would come from a combination of federal and state gas tax monies and revenues from leasing the Indiana Toll Road (ITR) to a private company, and various innovative financing strategies.

In November 2005, the Indiana Finance Authority (IFA), which owns the ITR, began soliciting bids to manage and lease the highway. Leasing the ITR required approval from the Indiana General Assembly. The IFA soon announced a \$3.85 billion offer to maintain and operate the ITR for 75 years. The offer came from Cintra-Maquarie, an Australian-Spanish consortium which operates more than 40 toll facilities worldwide - including the Chicago Skyway which connects at the ITR's western end. In late March 2006, Governor Daniels signed the Major Moves legislation into law.

In May 2006, INDOT introduced the 10-year funded Major Moves highway plan. The INDOT Major Moves Program can be accessed at the following web link: <http://www.in.gov/indot/2407.htm>.



## Major Moves Program Benefits

Prior to Major Moves, the state averaged nearly \$750 million per construction year from 2001-2005. Of that \$750 million, an average of nearly \$250 million per year was spent on new construction while an average of approximately \$500 million per year was spent on preservation projects. Backed by Major Moves funding, INDOT will average more than \$1 billion in construction dollars invested annually between 2005 and 2012.

INDOT was able to accelerate 30 roadway projects compared to the 2007 transportation plan. INDOT was also able to take advantage of lower construction costs in 2008-2010, which resulted in more efficient use of tax revenues.

Since the program's inception, approximately \$2.9 billion has been spent on new and expansion highway projects with 41 corridors that have been completed and over 588 bridges replaced or rehabbed. It is anticipated that a total of 87 corridors will be completed or substantially under construction; 1,190 bridges (21.6% of the state's inventory) will be rehabilitated; 4,000 miles of highway (36% of the state's inventory) will be resurfaced and; an additional 413 miles of new roadway will be constructed by the completion of the program in 2015.

Projects in the program are re-evaluated annually and prioritized based on up-to-date traffic, safety, mobility, and economic development information and trends. Projects can be accelerated, delayed, or the scope of work can be modified to better meet projected needs and fiscal requirements. The re-evaluation process will also feed into the development of INDOT's upcoming 5-Year Construction Program.

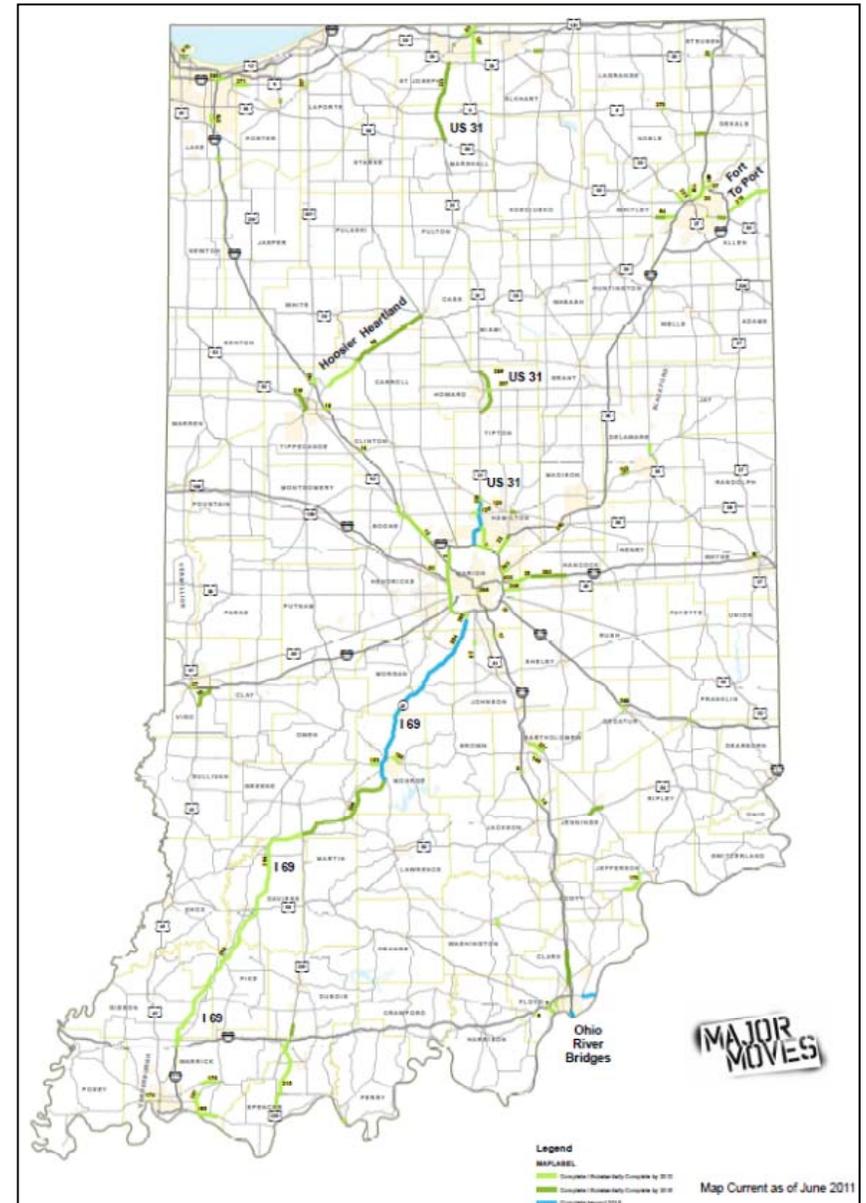


FIGURE 4 – 2011 MAJOR MOVES, MAJOR EXPANSION MAP



collaborative approach that involves all stakeholders to develop a facility that fits into its surroundings and preserves scenic, aesthetic, historic, and environmental resources while maintaining safety and mobility.

The purpose of CSS is to gather and consider input on the project from all interested stakeholders, and to encourage design flexibility to incorporate environmental and community values as well as meet transportation objectives.

Public involvement is a key component of CSS and is strongly encouraged during the study. There will be many opportunities for the public to provide input on their needs and potential solutions within identified study areas for each committed corridor project. INDOT has identified 4-Committed Corridor Projects to be discussed in this section of the planning document.

## INDOT High Priority Corridors

INDOT has identified a number of corridors as “High Priority Corridors” over the course of the long-range transportation plan development. Due to their size, complexity, and cost, these are comprised of multiple projects. These projects will be designed and built over longer periods of time, extending beyond 2020. By designating these corridors as “High Priority Corridors,” INDOT is demonstrating its commitment to their implementation, subject to the National Environmental Protection Act (NEPA) approval.

These High Priority Corridors are to be funded through a variety of funding sources including both traditional and new funding revenues. INDOT plans to optimize the use of innovative financing techniques to deliver these Corridors as appropriate. INDOT is using Context Sensitive Solutions (CSS) on these corridor projects. CSS is a



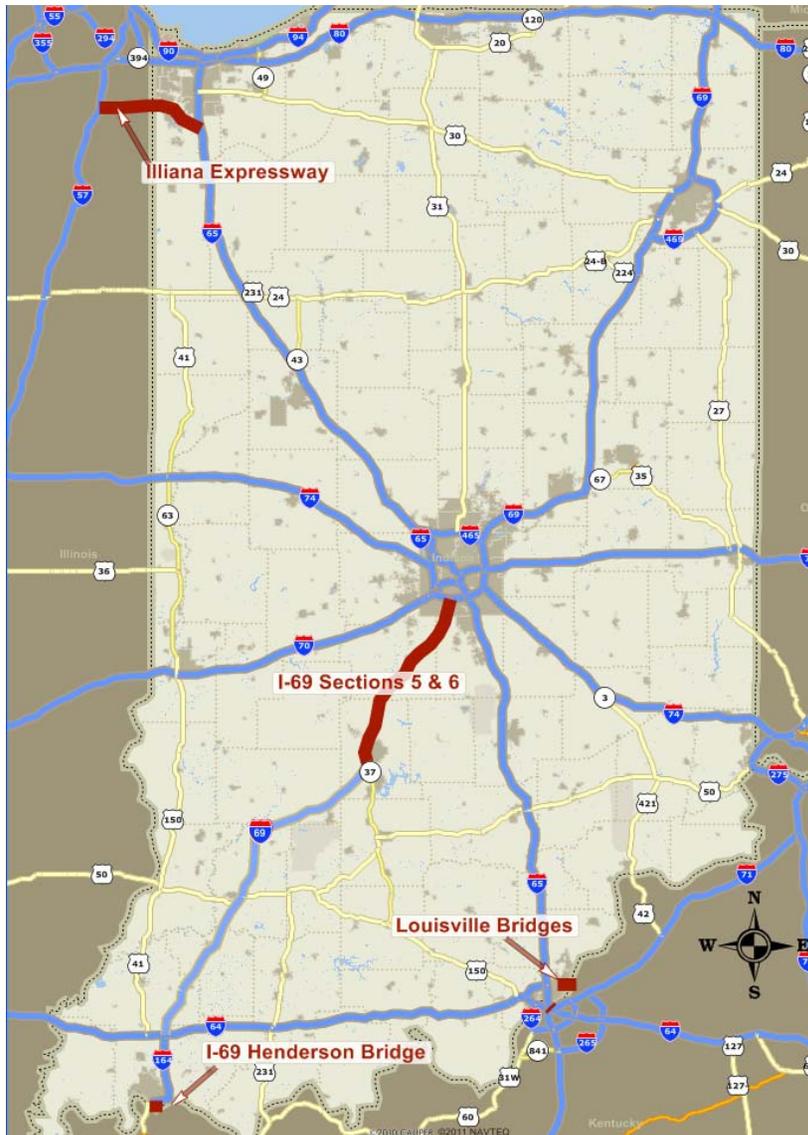


FIGURE 5 - INDOT HIGH PRIORITY CORRIDORS MAP

**Ohio River Bridges Project:**

The Louisville-Southern Indiana Ohio River Bridges Project is a "high priority" national transportation project which addresses long-term, cross-river transportation needs in Louisville, Kentucky and Southern Indiana. It is one of the largest transportation projects in the country and will result in safer travel, less congestion and improved access to destinations in the region.

The project includes two new interstate bridge crossings over the Ohio River, with new alignment and a new interchange for the eastern bridge and the replacement of the bridge crossings over the Ohio River in downtown Louisville. This includes the modernization of the Kennedy interchange to the south. A Record of Decision was approved by the Federal Highway Administration in 2003.



FIGURE 6 - OHIO RIVER BRIDGES MAP

In 2009, both Indiana and Kentucky passed legislation authorizing the creation of a bi-state Ohio River Bridges Authority that would be charged with funding and building the Ohio River Bridges Project. The Commission has since completed the necessary steps to set a course of action involving a public-private partnership to deliver the new east-end bridge and its approaches.

For more information on the Ohio River Bridges and opportunities to get involved, please visit: <http://www.kyinbridges.com>.

**Illiana Expressway Corridor:**

The proposed Illiana Expressway Corridor provides a connection between I-65 in Indiana with I-55 and I-57 in Illinois in the northern areas of both states. In 2006 both states entered into a Bi-State Agreement that provided a framework for the study of the corridor.

In May 2007 the passage of SB 105 by the Indiana Legislature directed INDOT to perform a feasibility study to determine the needs of the corridor, financing options, alternative routes, environmental and economic impacts. Following the successful completion of the feasibility study, Indiana and Illinois jointly initiated preparation of an Environmental Impact Statement (EIS) in 2011. The engineering and environmental studies with extensive public and stakeholder participation is being conducted as a Tiered EIS with an overall corridor alignment and improvement concept being identified in Tier 1 followed by more detailed engineering and environmental studies for segments of the corridor in the Tier 2 portion of the study. Currently a recommended preferred build alternative (B3) and a no build alternative are proposed to be

carried forward for detailed evaluation in the Tier 1 EIS. The Tier 1 EIS is scheduled to be completed in 2013.

For more information about the Illiana Expressway Study please visit the project website at <http://www.illianacorridor.org>

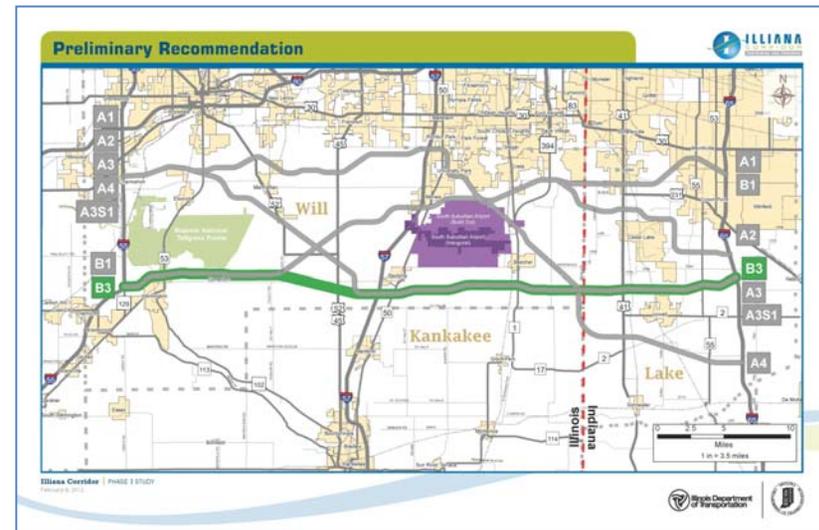


FIGURE 7 - PROPOSED ILLIANA EXPRESSWAY CORRIDOR (UNDER STUDY)

**I-69 Henderson, Kentucky to Evansville, Indiana:**

The I-69 Henderson Bridge will serve as a vital national link for the I-69 Corridor, providing an interstate link between Henderson, Kentucky and Evansville, Indiana. This segment of independent utility will extend the I-69 Corridor northward from the Edward T. Breathitt Parkway (or simply the Breathitt Parkway, formerly known as the Pennyryle Parkway) in Kentucky to Interstate 164 (I-164) in Indiana. The project will also provide an additional Ohio River crossing between these two metropolitan areas.

Cost estimates were updated in 2008 in a report commissioned by the Kentucky Transportation Cabinet entitled, Conceptual Financing Plan. The 2008 estimated cost for the project which included a new Ohio River Bridge, new alignment approach work and an interchange modification was \$1.4 billion dollars. The Indiana share of the project cost was estimated at \$467 million dollars. In 2009, both Indiana and Kentucky passed legislation authorizing the creation of a bi-state Ohio River Bridges Authority that would be charged with funding and building the bridges including the I-69 bridge project.



I-69 INTERCHANGE CONSTRUCTION

**I-69 Sections 5 & 6 Bloomington to Indianapolis:**

The Indiana Department of Transportation has been aggressively constructing the I-69 Corridor from Evansville to Indianapolis. A Record of Decision (ROD) was signed by the Federal Highway Administration for the Tier 1 document which selected the corridor

to be studied. For the current Tier 2 Studies, the corridor is divided into six geographic sections. (See **Figure 8**) Tier 2 RODs have been approved for Sections 1, 2, 3 and 4 from I-64 north of Evansville. Sections 1, 2, and 3 from Evansville to US 231 near Crane, 67 miles in length, have been completed and is open to the public as of November, 2012.

The DEIS for Sections 5 and 6 from SR 37 near Bloomington to Indianapolis are currently underway. Section 5 and 6 will be funded through the use of potential innovative financing sources but would rely upon traditional financing to fill in any funding gaps in the future years.

For more information on the progress of the I-69 Corridor Studies and to get involved, please visit the I-69 Tier 2 Study website at:

[www.i69indyevn.org](http://www.i69indyevn.org).

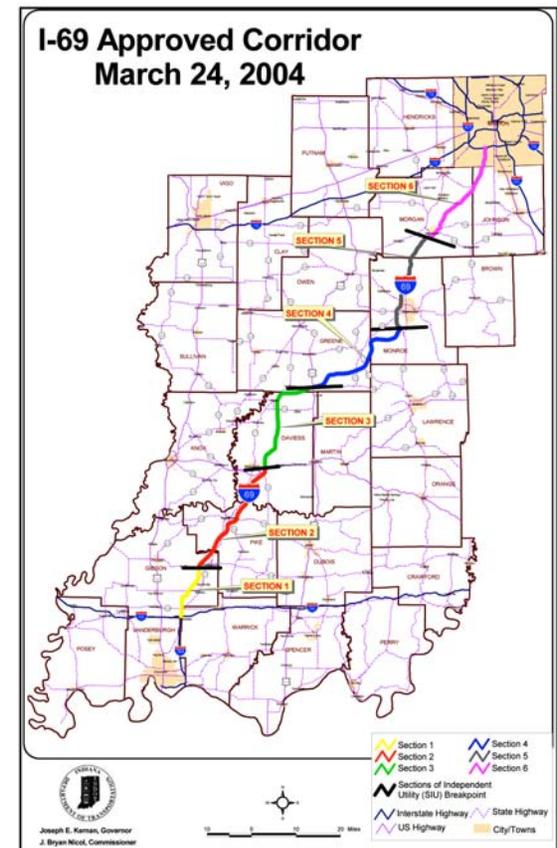


FIGURE 8 – I-69 CORRIDOR SECTIONS MAP

### Other Project Concepts Being Studied:

In addition to the “High Priority Corridors”, several longer range concepts are being investigated to provide for the value pricing of benefits such as dedicated truck lanes, which could generate revenues from trucking and freight companies by increasing their productivity.

### Innovative Financing Strategies

“Innovative Finance” for transportation refers to variety of techniques used to supplement traditional highway financing. Historically, through the Federal-Aid Program, FHWA has financed highways primarily through fuel tax through the Highway Trust Fund (HTF) that generally cover up to 80 percent of project costs. However, because this approach alone cannot meet the nation’s current and future transportation investment needs, U.S. DOT’s innovative finance initiatives respond to the need to supplement – rather than replace – traditional financing techniques. *Source: US DOT Innovative Finance Primer*

A number of innovative financing tools and programs are available. These include, but are not limited to:

- **TIFIA Program** (authorized by the Transportation Infrastructure Finance and Innovation Act of 1998) offering direct loans, loan guarantees and lines of credit for surface transportation projects of "regional and national significance;
- Tax-exempt **Private Activity Bonds (PAB)**, issued by state and local governments to aid in financing privately funded transportation projects;

- Taxable **Build America Bonds (BAB)** whose interest rates are subsidized by the Federal government, lowering the net borrowing costs for state and local government issuers of the bonds;
- **State Infrastructure Banks (SIBs)** which provide credit assistance in the form of loans, loan guarantees and letters of credit and serve as revolving infrastructure investment funds for state-sponsored surface transportation projects;
- **Grant Anticipation (GARVEE) bonds**, debt instruments secured by a pledge of future Title 23 (highway) and Title 49 (transit) Federal-aid funding; and Availability Payments Concessions (APCs) which allow private public partnership arrangements in projects where the public agency supplements project generated revenues with payments over a fixed term of a concessionaire agreement.
- **National Infrastructure Innovation and Finance Fund (I-Fund)** The USDOT envisions a \$ 25 billion I-Fund program to serve as a one-stop clearinghouse for financing and funding high-value multi-modal transportation projects of regional or national significance.

These examples are intended to demonstrate a range of innovative financing techniques that may be used.



US 421 BRIDGE OVER THE OHIO RIVER

### Indiana's Experience with Innovative Finance

Innovative finance techniques are not new to the State of Indiana. The State already has a record of utilizing innovative financing programs. The largest and most successful of these programs is the recent "Major Moves Program" where \$3.85 billion dollars in proceeds were generated from the lease of the Indiana Toll Road.

Leasing the toll road provided funding to INDOT and local governments to advance the production and delivery of over 100 corridors that, if funded under the traditional pay-as-you go approach, would have taken many decades to complete.

Bonding has also been used by the State of Indiana with The Crossroads 2000 Highway Program in 1997, and Accelerated

Construction Effort (ACE) programs. The Crossroads program was funded by combining a one-time \$70 million allocation from a state budget surplus with slight increases in Bureau of Motor Vehicle fees. The ACE was from an increase in the State gasoline tax. Revenues generated from these bonds were then used to finance the construction of transportation projects.

In 2009, the Indiana legislature passed enabling legislation (SB382) allowing toll concessions to be used for construction of the Illiana Expressway in the far northwest of the state and toll bridges over the Ohio River in the southeast. This was signed into law by Governor Mitch Daniels allowing the state to move forward to develop toll concessions or public-private partnerships for the Illiana Expressway and Ohio River bridges.

While the legislative foundation has been established for innovative finance program specifics have not been developed. Many of the details will not be known until future national highway funding programs are formulated, such as the upcoming USDOT reauthorization program for the surface transportation program which expired in 2009.

The purpose of this section however has been to identify a list of "High Priority Corridors" the state is committed to advancing beyond 2020 using both traditional and innovative funding sources, pending NEPA approval. It has also identified a range of options that are available and that have been utilized by the State of Indiana in the past, to demonstrate there is a record of using innovative financing to meet transportation needs.

# Transportation Trends, Challenges, & Opportunities



The Indiana Future Transportation Needs Report identifies and analyzes emerging trends and their impact on transportation needs. Items such as population, demographic, land-use, energy consumption,

funding, and others impact local, regional, and statewide demand for the mobility of people and commodities throughout the state. Assessing these trends is one of many planning activities that help identify future transportation needs.

## Population Trends

Population projection is literally the starting point for most future transportation planning needs analysis and new urban development. Population can determine public infrastructure needs such as schools, office buildings, and transportation infrastructure.

Indiana’s population in 2010 was 6.46 million and is projected to increase 20% by 2035. As shown in **Figure 11** both population and labor force are on a gradual upward trend since 1990 and are projected to grow to 7.5 million people and 4.4 million jobs by 2035.

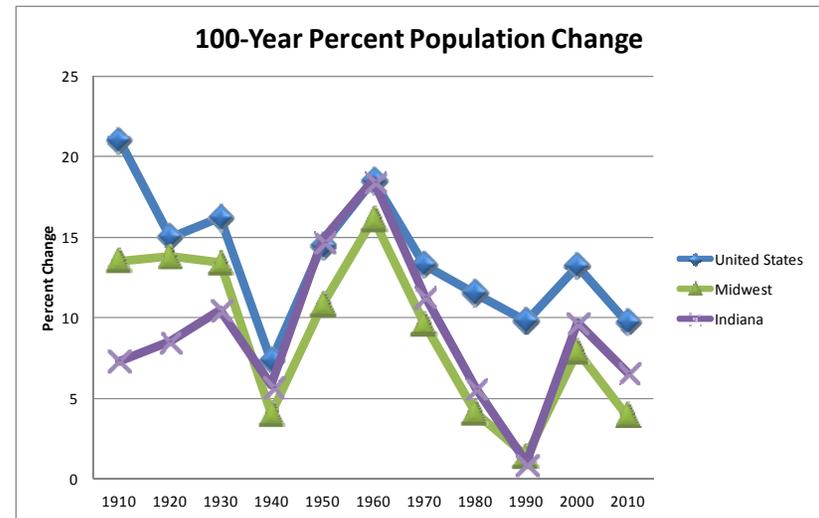


FIGURE 9 - 100-YEAR POPULATION PERCENT CHANGE CHART

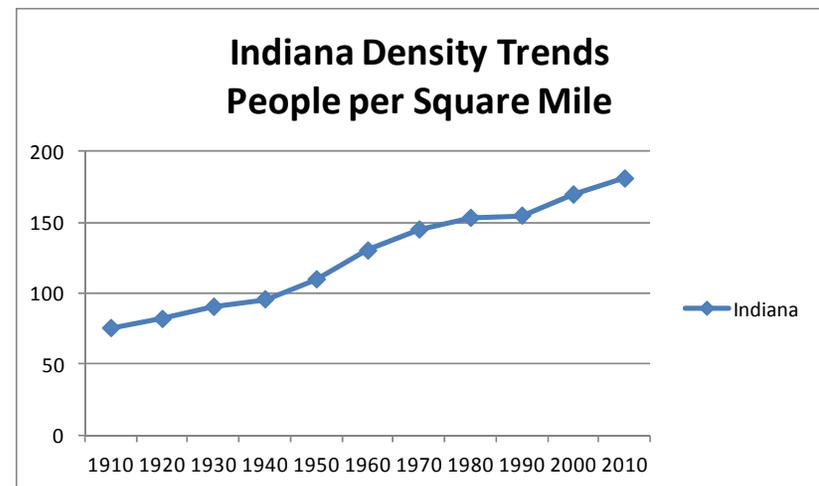


FIGURE 10 - 100-YEAR POPULATION DENSITY CHART

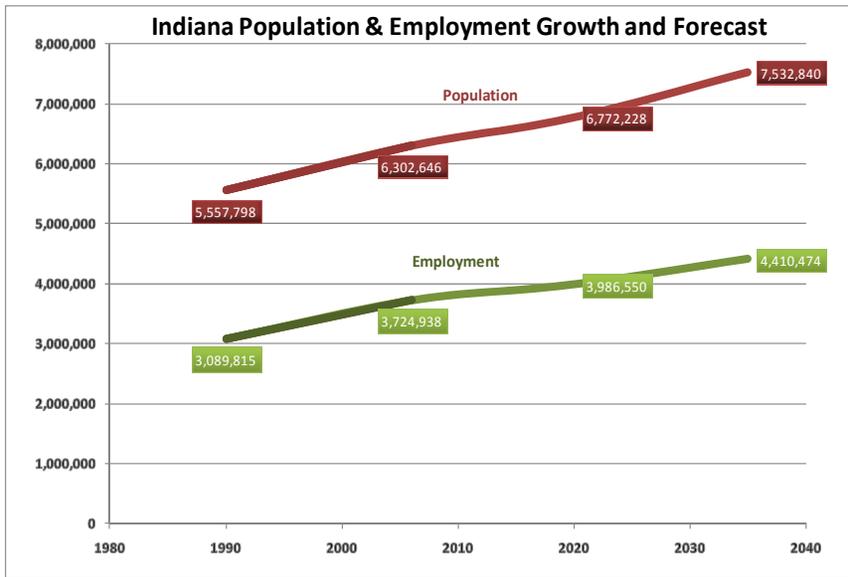


FIGURE 12 - POPULATION AND EMPLOYMENT GROWTH & FORECAST CHART

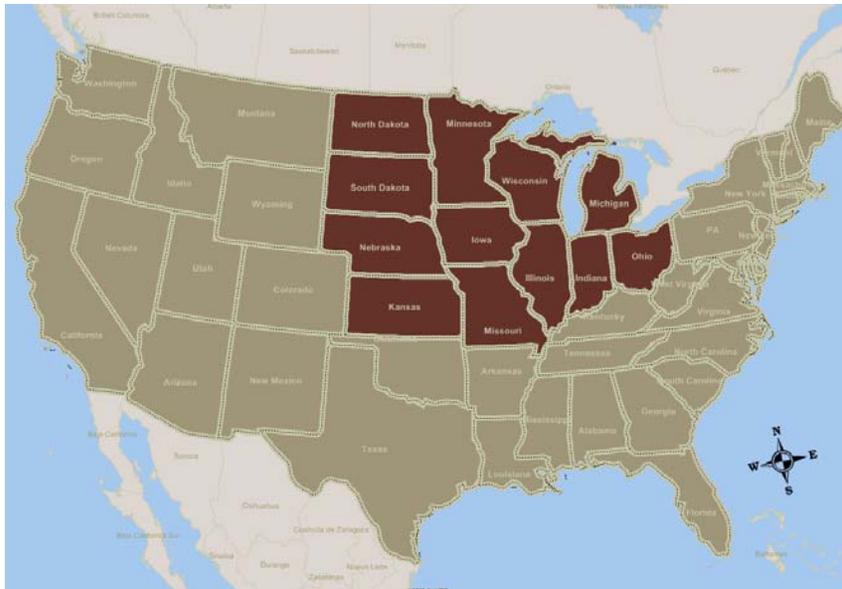
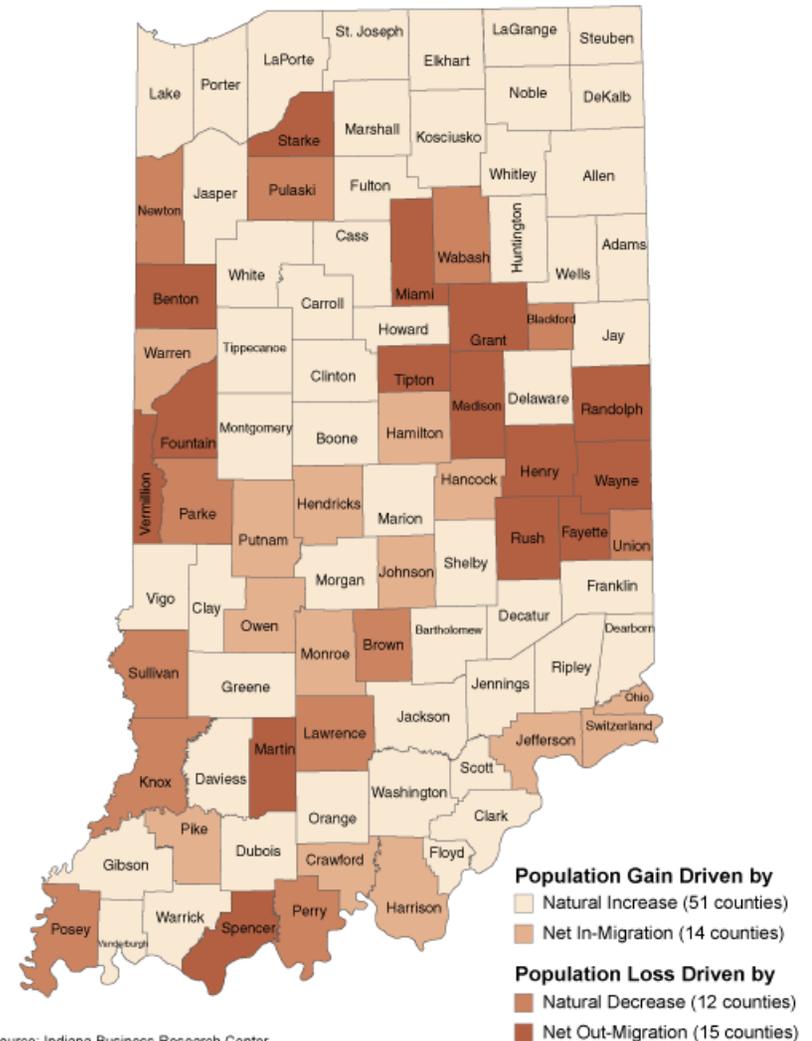


FIGURE 11 - MIDWEST STATES MAP

Population Projections

Components of Change, 2005 to 2040



Source: Indiana Business Research Center  
November 2007

FIGURE 13 - COUNTY POPULATION PROJECTION MAP

Indiana is ranked #4 in the Midwestern States in terms of resident population change and # 20 nationwide with an average percent change of 5.6 from 2000-2009 (US Census Information).

Indiana has also ranked # 18 over the past 20-years for population density and has recently improved to #16 with over 181.7 inhabitants per square mile. Population density is critical in determining transportation needs and is calculated by taking the ratio of resident population divided by total land area.

INDOT will use the new 2011 to 2035 population projections as a key input into the update of the statewide travel demand simulation model as we advance our horizon planning year from 2030 to 2035.

The sources for the 2011 to 2035 Indiana Population and Employment

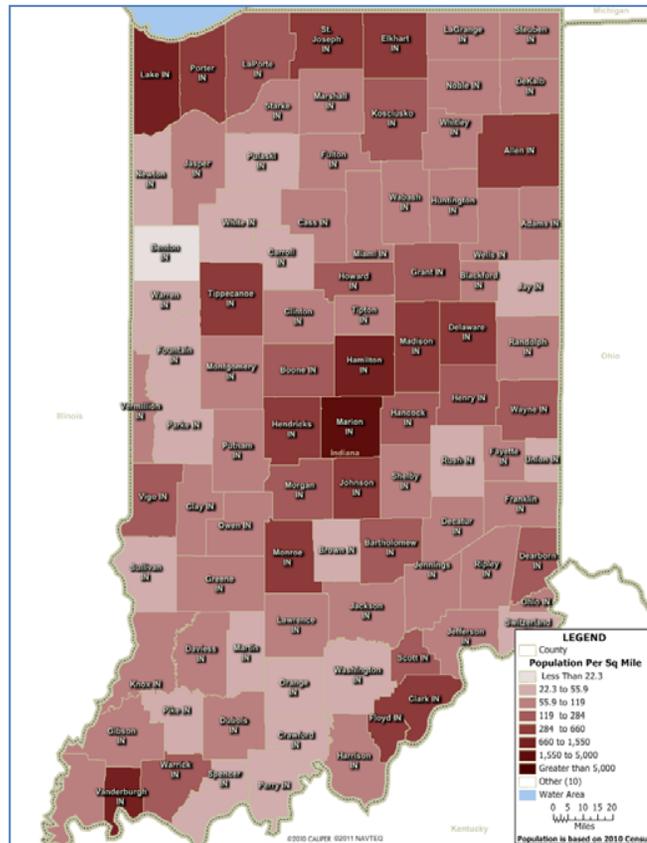


FIGURE 14 - COUNT POPULATION DENSITY MAP

Growth forecasts are based upon the Regional Economic Models, Inc. (REMI) and Woods & Poole Economics, Inc. forecasts.

### Demographic Trends

The surface transportation system for the future must address the economic and demographic changes that have taken place over the past 50 years, and deal effectively with the changes expected for the next 20-25 years.

Indiana will experience a growing population that is aging and is more diversified. The aging population will slightly reduce the number of people able to work relative to the total population. In 2006, the participation rate (labor force divided by population) was estimated to be almost 51%, but, by 2035 will decrease to 49% as the baby boomer generation ages.

To further illustrate these demographic changes, consider the percentage of the population in different age groups in the years 2006 and projections to 2035:

- For the zero to 19 age group; primarily children in school or not in the labor force, the 2006 share is 27 percent but is expected to fall to 25 percent even though the total number will grow by almost 165,200.
- For the 20-44 age group; often considered prime working ages, their share of total population is estimated to decline from 34 percent to 30 percent by 2035, with only an increase in population of 19,000.
- For the 65 and over age group, the trend is much different. The share in 2006 is 12 percent, but is expected to grow to

over 20 percent by 2035, representing an increase in population of nearly 771,400.

The aging of the population will also affect travel demand. Personal travel is closely related to the lifestyle of the individual. Persons exhibit peak travel activity at 35 to 50 years of age. As the population ages, the rate of trip making declines, providing a moderating impact on future travel demand growth. This moderating impact will be most pronounced in the rural areas of the state where the median age of the population tends to be higher.

Source: INDOT 2007 Long-Range Plan & Indiana Business Review <http://www.ibrc.indiana.edu/ibr/2008/summer/implications.html>

As the baby-boom generation began to turn 65 in 2011, the long anticipated ‘age wave’ began. Older drivers, older workers, older pedestrians are the future.

**Physical Limitations of the Elderly**

As we age, our vision and hearing change. For example, to see the same distance, older people require 3 to 10 times more illumination than younger people. Our walking speeds and information processing speeds also slow down as we get older. However, roads, sidewalks, traffic signals and signs do not change as we do. In fact, as most transportation infrastructure ages, conditions become more dangerous for the elderly (e.g., faded signs and striping).

Source: *Safe Transportation for an Aging Population, 2004*

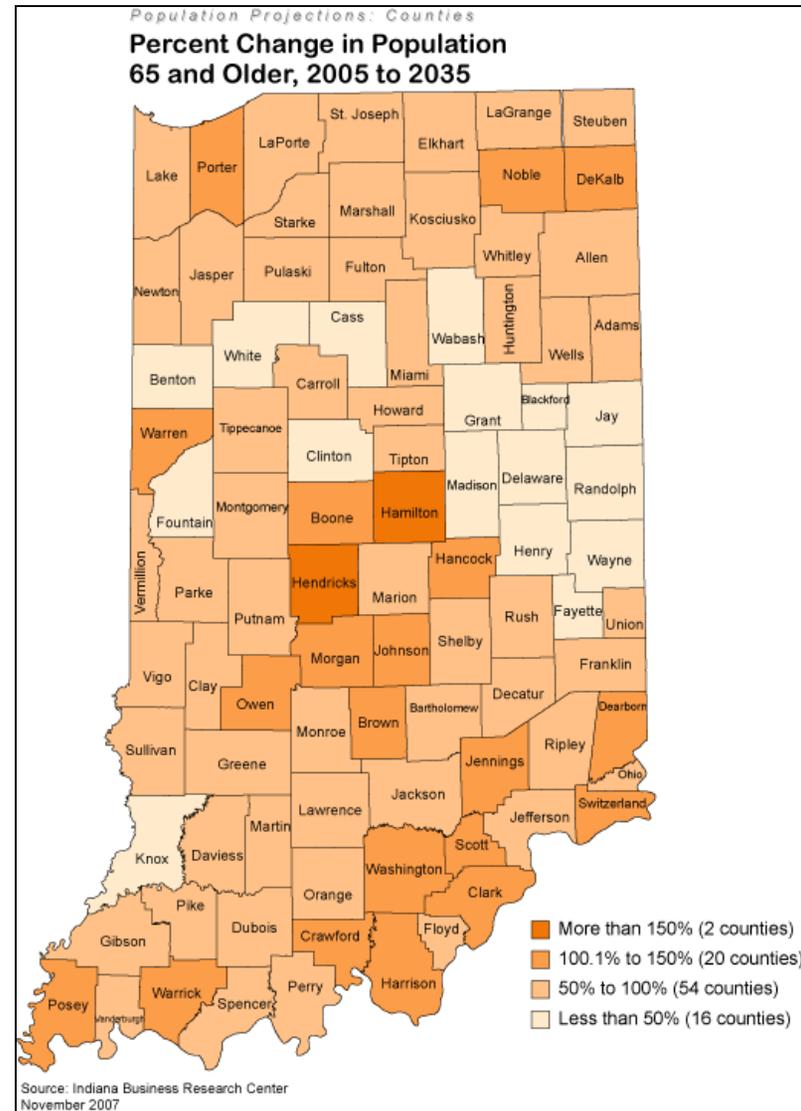


FIGURE 15 - COUNTY PERCENT CHANGE IN POPULATION 65+MAP

**Opportunities:****Intersection Improvements**

- Crossing Signals Extend street crossing time to an assumed walking speed of 2.5 ft/sec (0.85 m/sec), which studies shows is more realistic for the majority of older pedestrians, versus the average walking speed is 4 feet per second.
- Provide a leading pedestrian interval of at least 3 seconds at signalized intersections with crosswalks.
- Provide countdown signal heads in areas with a large number of seniors.
- Provide placards at intersections that explain the meaning of pedestrian crossing signals.
- Place pedestrian crossing signals on medians of divided roadways.
- Provide accessible (audible) signals

**Lighting and Signage**

- Install additional pedestrian level lighting and new florescent yellow-green signage.
- Add advanced warning signs, overhead warning signs, flashing beacons, and/or in-pavement lighting at select intersections.

**Public Awareness**

- Provide information to communities about the increased risk of backing vehicles, winter month risks, and the importance of wearing bright clothing
- Older pedestrians may be at higher risk because they are focused on watching their step rather than watching the

vehicles around them and may not be aware of backing vehicles.

***Elderly Transportation Needs***

As our senior population booms over the next 20-years, the nation will see a new wave of highly mobile citizens who want to pursue tourism and recreation, traveling on the nation's highways. Providing transportation for those who are unable to drive will increase. The rising demand in rural areas from the growing elderly populations will create an increasing need for more transit in these areas. In many rural areas, the senior population is choosing to age in place. Therefore, the need for providing access to healthcare, community centers, grocery stores, shopping, and recreation activities will continue to grow. Without these services, many older residents have to move from their communities and into assisted living facilities, nursing homes, or family members.

The same will be the case for urbanized area. Currently, INDOT works with rural county transit providers, MPOs, and RPOs that are

directly involved with local public transportation planning. For more information on local transit planning needs and activities in your, please contact your local public transit provider or visit <http://www.indianatransportationassociation.com/indianatransitprov.htm>

#### Opportunities:

- Highway capacity analysis will need to take into consideration of the growing needs of tourism travel both in urban and rural areas.
- Work with Indiana's Tourism Agencies
- Public awareness of future public transportation needs.
- Coordination with local and regional organizations, community leaders, and special interest groups in identify needs and develop appropriate and cost-effective solutions and policies.
- Reviewing transportation connectivity between modes.
- Working with local transit providers and transportation planning departments in assessing public transportation needs and understanding INDOT's role.
- Evaluate street design, signal timing, and transit designs to ensure they meet needs.
- Developing performance metrics for rural transportation activities and needs.
- Ensuring adequate sidewalks exists on INDOT state routes and US highways in urbanized areas.

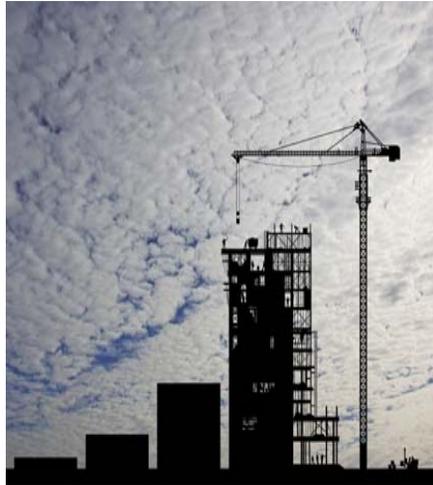
## Land Use Development and Transportation Demand Trends

Hundreds of decisions are made each day that affect transportation demand and land use development. Land use involves the management and modification of the natural environment to meet human needs.

Land use development and transportation demand are very interactive. The primary driving forces for transportation demand are: population growth, economic development, travel behavior, location of utilities (water and sewer), and land use. The relationship between land use and transportation demand is complex and can vary based on: area type, regional needs, density, local amenities, and local policies, proximity to major urban areas, land accessibility, transportation connectivity, land-prices, and zoning ordinances.

**Note:** *INDOT has little control over local land-use development and practices. Land use and transportation planning have been conducted in a largely independent manner, and at different levels of government. There is increased recognition that this lack of coordination leads to unintended consequences. As a result, considerable attention is being given to the interconnections between transportation and land use decision-making. INDOT is working to improve this coordination with regional and local governments in Indiana. Examples of this coordination can be found in cooperative approaches to access management where INDOT and local planning agencies coordinate land development along state jurisdictional highways.*

Urban development is associated with population growth as new residences and businesses are developed to accommodate increasing population. The population projections developed by the Indiana Business Research Center show where these changes will be the greatest and provide the basis for transportation needs planning.



The distribution of projected population growth across Indiana’s counties is very uneven. Just sixteen counties have projected population increases from 2005 to 2040 of 10,000 or more. These sixteen counties (shown in figure 16) account for 86 percent of the net population growth projected for Indiana to 2040. The counties are located within or adjacent to the largest metropolitan areas in the state or are the homes of Indiana’s two largest public universities. These are the counties that will see the largest amounts of urban development and the highest levels of conversion of rural land to urban uses.

An additional 12 counties are projected to have population growth in excess of 5,000 persons by 2040, accounting for an additional 9 percent of the state’s projected population growth. These counties will also be facing significant urban development.

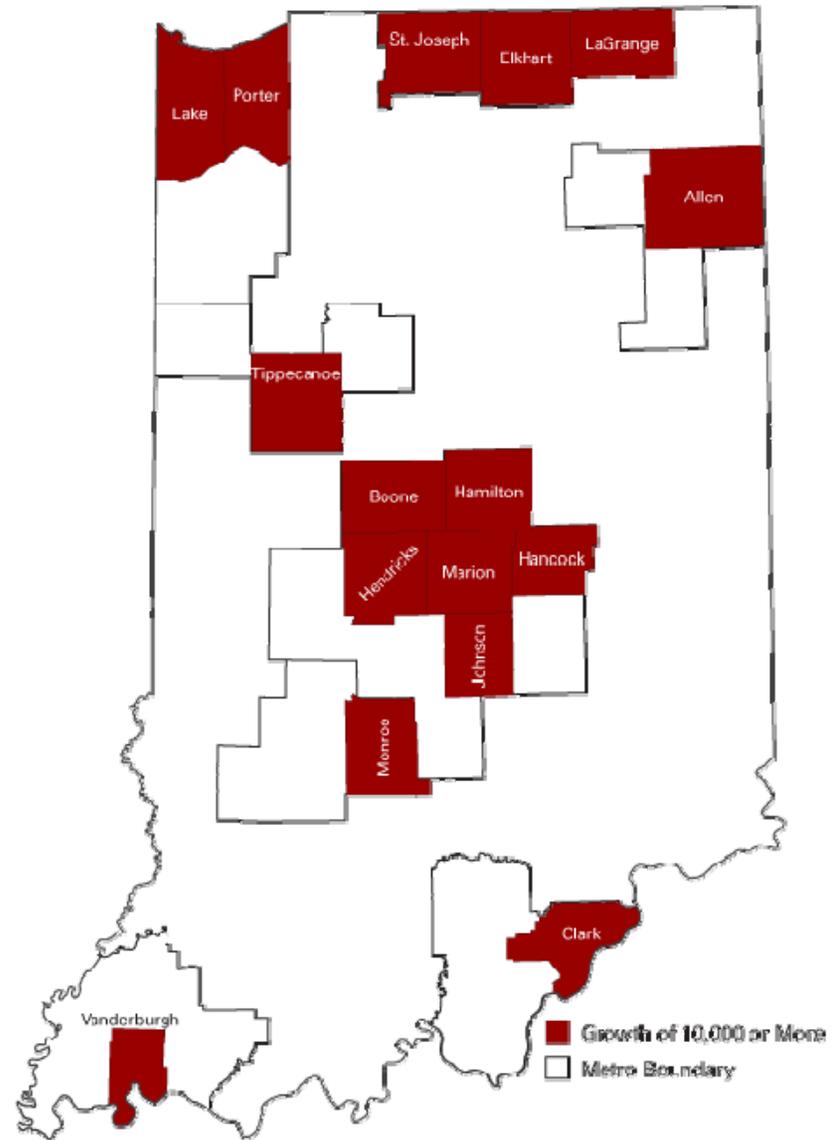


FIGURE 16 - COUNTIES WITH POPULATION GROWTH >5,000 PERSONS.  
 SOURCE: [HTTP://WWW.IBRC.INDIANA.EDU/IBR/2008/SUMMER/IMPLICATIONS.HTML](http://www.ibrc.indiana.edu/ibr/2008/summer/implications.html)

Population projections are literally the starting point for planning for new urban development. Comprehensive plans and zoning ordinances set guidelines for development. The development of these tools requires careful consideration of the population to be accommodated and the residential, commercial, and industrial development needed for that population.

Source: Dr. John R. Ottensmann; Indiana University Indiana Business Review <http://www.ibrc.indiana.edu/ibr/2008/summer/implications.html>

Given that most growth is occurring in urban fringe areas within MPO areas, coordination with our local planning partners is critical in achieving sound policies and support for sustainable, smart growth initiatives that will support stronger, interconnected, statewide systems of green-space and natural resources, public highways, bike and pedestrian trail connection, and utility infrastructure. INDOT Planning works with our regional MPO and RPO partners as well as local planning agencies in identifying transportation needs and coordinating land development issues.



MADISON RIVERFRONT

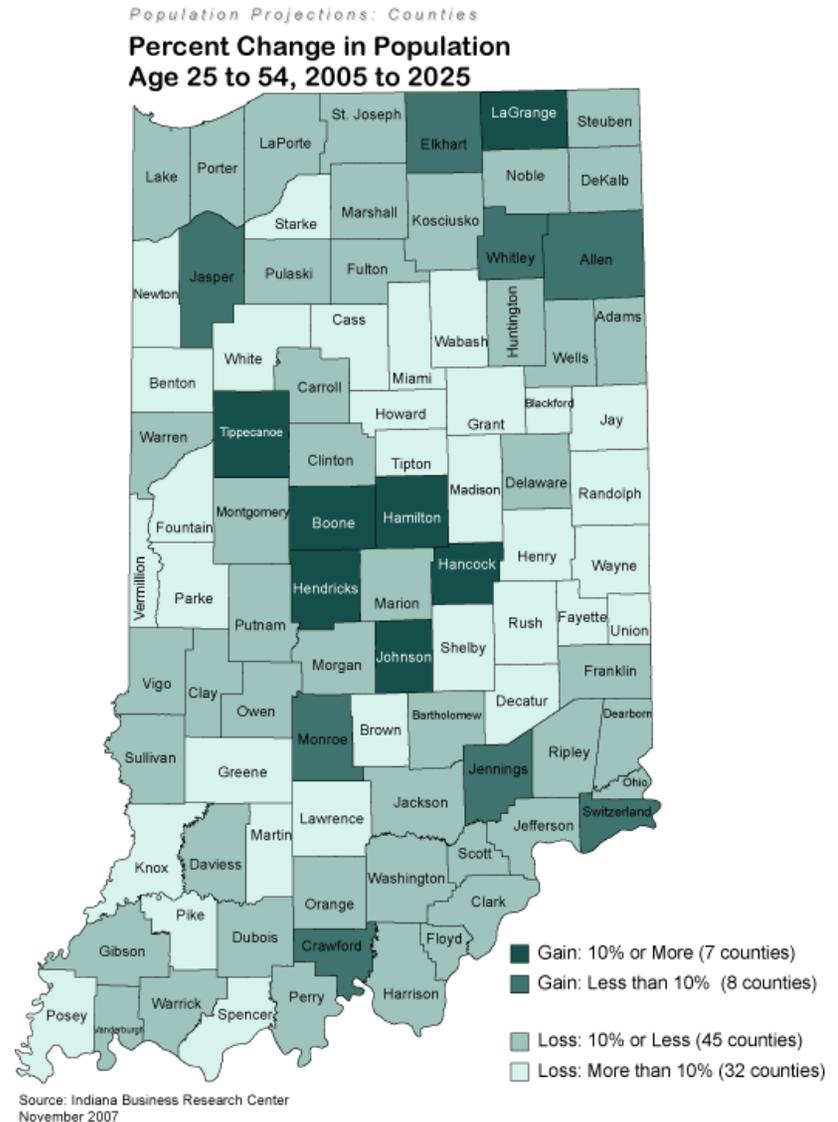


FIGURE 17 - WORKING POPULATION PERCENT CHANGE MAP

## Vehicle Miles Traveled Trends

A basic measure of travel demand is vehicle miles of travel (number of vehicles times distance traveled) or VMT. As of 2010, nearly 78.6 billion vehicle miles traveled are logged annually by Hoosiers, commercial vehicles carrying freight, and visitors to the Hoosier state which translates to a great deal of fuel purchase. By law, INDOT currently receives a portion of the gasoline and diesel fuel taxes collected at the pump. The total dollar amount collected can negatively or positively impact our budget based on many factors.

Indiana's cities and towns have developed to accommodate motor vehicles. Most local and regional mobility in the state rely on cars and other personal motor vehicle travel. Urban form that most cities implemented was designed to take advantage of motor vehicle travel by spreading growth out in low density residential subdivisions.

Indiana has historically experienced high VMT growth from the late 1980's to the late 1990's due to strong population growth and suburban developments in various major metropolitan areas. VMT began leveling off in the early 2000's due to economic recession activities and higher fuel costs. In the late 2000's to current, VMT has started increasing as the economy recovers.

Despite the recent increases, it is not expected that VMT growth will reach high levels experienced in the late 1980 thru late 1990 timeframe for various reasons:

- Motorists are becoming accustomed to minimizing their travels
- Fuel prices remained unstable

- New urbanism trends showing populations moving into dense urban areas with mixed use developments (residential housing, shopping, schools, jobs, and commercial activity centers are within walking distance)
- More dense development in urban areas

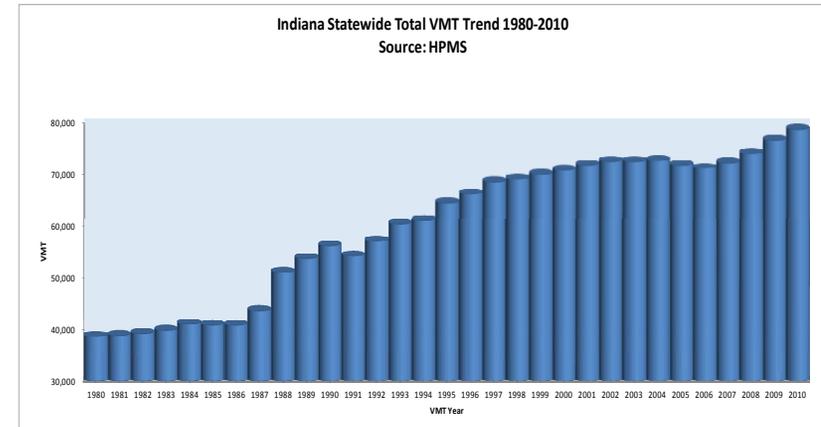


FIGURE 18 -30-YEAR VMT TRENDS (SOURCE: FHWA HPMS DATA)

### Opportunities:

- Coordinating infrastructure needs with local governments
- Encourage and support local smart growth initiatives to reduce infrastructure needs.
- Implement corridor preservation strategies such as: access management (minimizing driveway and intersections to commercial developments) and operational improvements
- Work with local transit providers in determining future ridership and capacity needs

### Travel Time to Work & Auto Ownership Trends

Travel time to work will continue to increase as transportation congestion increases. Travel time to work refers to the total number of minutes that it usually takes a person to get from home to work each day during the referenced week. The elapsed time includes time spent waiting for public transportation, picking up passengers in carpools, and time spent in other activities related to getting to work.

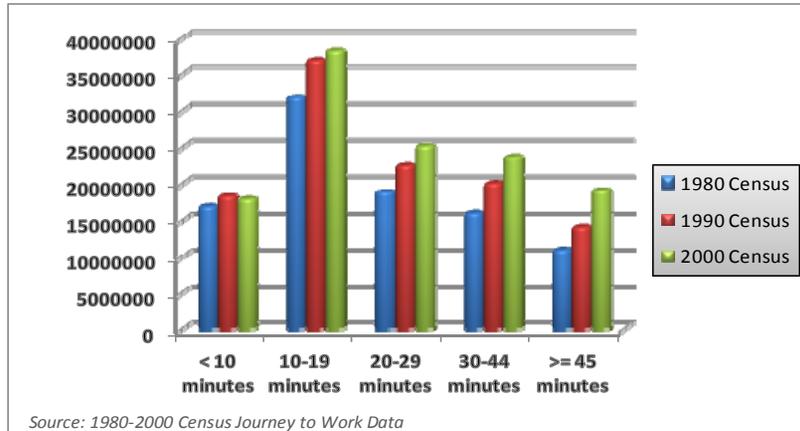


FIGURE 20 - 20-YEAR AVERAGE TRAVEL TO WORK CHART

Population and employment growth; land-use changes; and development patterns play a large role in transportation demand. As more growth and development occurs in rural and suburban areas, vehicle miles traveled and travel time to work, will increase.

To further compound this issue, auto ownership per household has leveled off over the past few years. This trend is expected to continue until 2035. Individuals are also keeping their vehicles longer; 10.2-years in 2010 compared to 5.6-years in 1975. (Source: USA Today) Older fleet vehicles will have an impact on vehicle emission rates and air quality rates. This condition may create the need to implement vehicle inspection and maintenance activities to prevent adverse impact to air quality.

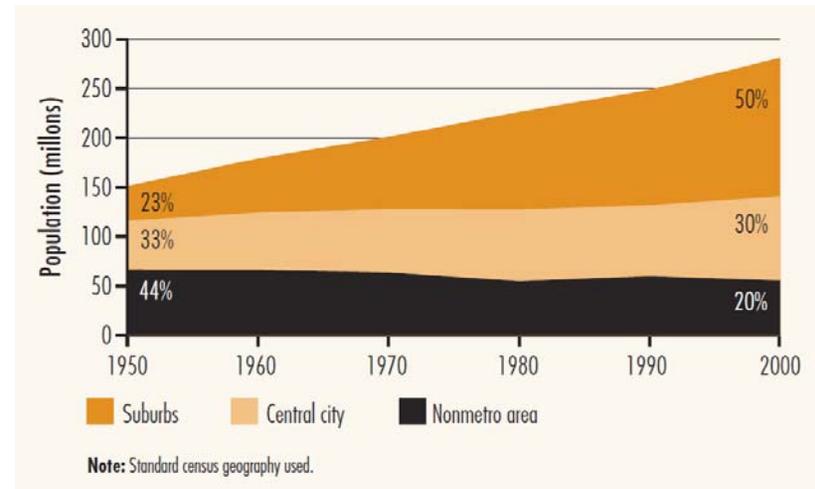


FIGURE 19 – LONG TERM POPULATION TRENDS CHART  
SOURCE: NCHRP 550/TCRP 110 COMMUTING IN AMERICA III

**INDOT Strategies**  
**Planning Coordination**

INDOT in cooperation with our MPO planning partners is continuing to work on addressing congested conditions and excessive travel times through multiple transportation improvement strategies focused on increasing the efficiency of the transportation system, adding capacity at critical locations, managing travel demand and providing travel options.

**Access Management**

Access management is a series of strategic techniques designed to preserve existing corridor performance for future developments. INDOT has adopted an asset management process to identify cost effective and efficient transportation improvements.

Increasing the efficiency of the transportation system can stretch the existing system through intersection improvements, traffic signal optimization, improved traffic operations from lane and freeway ramp modifications, and intelligent transportation system treatments such as incident management and traffic surveillance and control.

INDOT will utilize corridor specific access management plans that will focus on all aspects of roadway access such as: driveways, public street connections, signalization and spacing, and medians along the corridor. Access management plans will include a base map or schematic of the corridor, which shows the existing property lines and available right-of-way; roadway and intersection cross-section; traffic signalization; and existing and anticipated future land uses. All existing driveways along the corridor along with

designation of parcels as developed or undeveloped will be inventoried and analyzed for future transportation needs.

**Corridor Benefits:**

- Reduced traffic congestion over longer periods of time
- Preservation of the flow of traffic and roadway capacity
- Improved traffic safety and reduced frequency of crashes
- Supports economic growth via consistent travel times and improve access to businesses and homes
- Preserves the public investment in the transportation infrastructure

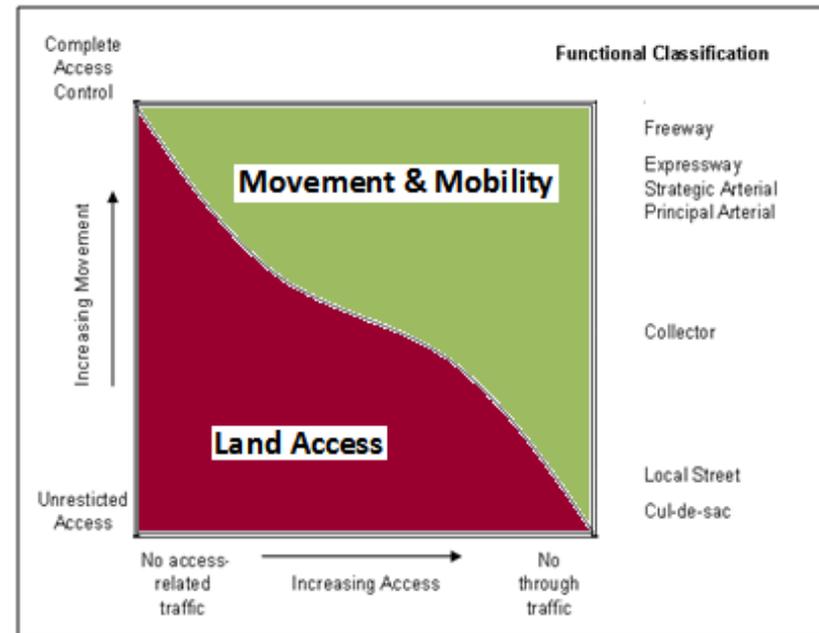


FIGURE 21 – ROADWAY CLASSIFICATION FUNCTION CONCEPT

**Figure 21** illustrates the balance between movement and access functions for roadways of various functional classifications. Higher-order roadways such as freeways, expressways, and arterials have a higher degree of access control to preserve their movement function. On the other hand, local streets have less restrictive access control because they are intended primarily to provide access to abutting properties.

In order to accommodate access to existing and future development in a safe and efficient manner, INDOT seeks to manage the location, design, and type of property access on non-freeway, higher functional classification roadways in urban and suburban areas.

### **Inter-Government Coordination**

The need for coordination between INDOT and local governments with respect to land use and transportation decisions is extremely important for coordinated decision-making.

Historically, the relationships between State and local jurisdictions regarding access management have been informal and found to vary widely throughout Indiana.

The conflict between vehicle movement and land access increases as development continues in both urban and rural areas. The challenge is how best to coordinate vehicular access with land development in a way that encourages economic activity while simultaneously preserving mobility and providing adequate property access.

Land use planning and development review all take place at the local level where the authority resides. A key objective of the

transportation process, therefore, is to coordinate transportation and land use. This is especially important for access management and corridor preservation. The actions of local jurisdictions in planning, reviewing, and approving land development can significantly impact the ability of other agencies to implement their transportation plans. A key feature of successful access management is coordination with land use decisions made by local jurisdictions.

### **INDOT Access Management Guide**

In 2009, INDOT prepared an Access Management Guide for both INDOT and local agencies. This guide is intended to be used by transportation officials at both the state and local levels to develop and implement access management techniques in Indiana. It contains specific guidelines that can be directly applied as well as local access management ordinance that can be used as a template for developing access management standards for local governments.

The guide also contains information regarding legal authority of government agencies in Indiana as it relates to access management and driveway permits.

Implementation and use of the INDOT Access Management Guide will be increased as INDOT addresses the current and projected needs of the Indiana Transportation System. The INDOT Access Management Guide which can be found in its entirety at: [http://www.in.gov/indot/files/guide\\_total.pdf](http://www.in.gov/indot/files/guide_total.pdf).

### Intelligent Transportation System

The mission of INDOT's Traffic Management Business Unit is to reduce congestion, improve safety, and provide reliable travel times on existing Indiana highways by deploying Intelligent Transportation Systems (ITS) technologies, providing traffic incident management services and incorporating traditional traffic engineering methods. The initial deployment of field devices has focused on the Interstate System in and adjacent to the state's three largest metropolitan areas: Northwest Indiana near Chicago, Indianapolis, and Southern Indiana near Louisville. Detailed deployment information can be found in the INDOT Traffic Management Strategic Deployment Plan, [http://www.in.gov/indot/files/TMC\\_TrafficManagementStrategicPlan\\_v2-4.pdf](http://www.in.gov/indot/files/TMC_TrafficManagementStrategicPlan_v2-4.pdf). Additional Traffic Management initiatives are being pursued on key INDOT arterials, primarily related to traffic signals.

There are several factors that will guide INDOT's deployment of ITS.

1. Deployment will support INDOT and FHWA's strategic plans.
2. Funding constraints will not allow for a statewide systems deployment that will meet everyone's expectations.
3. ITS will be deployed in a manner that maximizes available resources. The initial deployment will focus on areas which offer the best return on investment. As a result, ITS deployment will focus mainly on the interstates and other freeways due to traffic volume and composition along with their limited flexibility to divert users in case of incidents. It will seek to take advantage of on-going major construction projects in order to implement the system in a coordinated manner, and focus on major urban areas such as Marion and Lake Counties.

### Traffic Incident Management

The more quickly obstructions, including disabled or wrecked vehicles, debris or spilled cargo can be cleared from the road, the safer for everyone, because secondary crashes can be avoided.

In 2007, INDOT partnered with the Indiana State Police to address the issue in a structured way, and the outcome of that collaboration was a group named IN-TIME, Indiana's Traffic Incident and Management Effort. Its mission is "to provide a common framework for development of traffic incident management policies and training programs across the various responder disciplines." IN-TIME took its message of coordinated work and communications to state agencies first, and in fiscal year 2010, widened its reach by hosting a statewide workshop for public safety officials, tow-truck drivers, first responders, environmental experts, state officials, emergency operations personnel and others. IN-TIME also worked with state legislators to update pertinent laws and policies. On average, this initiative results in one hour and 39 minutes of time saved per road closing event.

### Alerting Travelers

INDOT is continually improving its methods to keep drivers informed of any problems they may encounter. In fiscal year 2010, INDOT upgraded its Traffic Wise Traveler Information website ([www.trafficwise.in.gov](http://www.trafficwise.in.gov))



which receives anywhere from 40,000 to 90,000 hits per month from people checking traffic and road conditions. INDOT also added a new toll-free number, 800-261-ROAD. On the highways, INDOT continues to use dynamic message signs to alert motorists about travel information so informed decisions can be made while traveling.



### Predicting Travel Times

In early 2010, a travel time sign was installed on westbound I-80/94 (Borman Expressway) in Lake County to let motorists know how long it will take to get through traffic at a given time of day. The sign displays travel times to both S.R. 912 (Cline Avenue) and the Illinois state line. Sensors on the roads measure many factors including: average vehicle speed, traffic volumes, and projected travel times change as the data changes. Using such technology to reduce congestion, improve safety and smooth traffic flow on busy interstates has proven to be very successful in aiding motorists with

their travels. Nearly 54 travel time signs have been installed in Indiana since 2012. Approximately 25 more of these signs will be installed in future years.

### Freeway Service Patrol Program

INDOT operates Freeway Service Patrols on high-volume Interstates in Northwest Indiana near Chicago, Indianapolis, and Southern Indiana near Louisville and has a partnership with State Farm Insurance. Announced in October 2011, State Farm Insurance will exclusively sponsor the Hoosier Helper FSP program. The program will now be known as the INDOT Hoosier Helper Freeway Service Program sponsored by State Farm. State Farm logos will be included on Hoosier Helper vehicles, operator uniforms and signs indicating Hoosier Helper service areas.

Over the next three years under this sponsorship agreement, State Farm will contribute \$1.1 million to INDOT. The contract may be extended for two additional years and all the sponsorship fees will



be used to support the Hoosier Helper program. Partnering with State Farm will help promote the mission of INDOT's Hoosier Helper program while providing services at the lowest possible cost to taxpayers. Hoosier Helpers make our urban interstates safe and efficient while providing a high level of customer service.

A Purdue University study of the Hoosier Helper program on the Borman Expressway (I-80/94) in northwest Indiana where Hoosier Helpers aid approximately 12,000 motorists a year reported a measurable payoff to tax payers:

- Hoosier Helpers make driving easier by clearing incidents quickly, thus reducing traffic congestion.
- Hoosier Helpers make driving safer by reducing the number of secondary crashes – those that occur in traffic backups created by traffic incidents.
- Every dollar spent on the Hoosier Helper program saves motorists more than 10 times that much in time and fuel wasted while sitting in traffic.

This program underscores INDOT's commitment to help make our roads safer and more efficient.

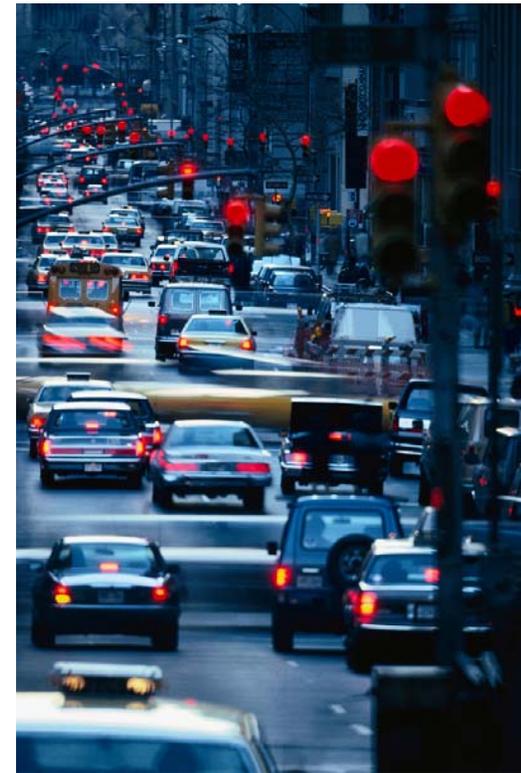


### Corridor Development Management Program

The Capital Program Management Business Unit is developing a new Corridor Development and Management Program (CDMP) that will identify statewide transportation corridor needs and strategies that will preserve, significantly improve, transform in function or design, or recommend new corridors over the next 20-25 years.

A CDMP, in conjunction with a comprehensive plan and zoning,

enables partnering agencies to address changes in the corridor in comprehensive manner versus a piecemeal approach. This will pay significant dividends in the future in terms of more orderly growth, better progression and transportation vision, enhanced aesthetics, increased tax base and values of private investment, and lower costs for future transportation capital investments.



CDMP will utilize a number of strategic techniques listed in this report to preserve or improve corridor performance:

- **Operational Improvements** - dedicated turn lanes, signal modernization, passing blisters, one-way roadways, reversible lanes, turning restrictions, and others.
- **Access Management** - focus on all aspects of roadway access such as: driveways, public street connections, signalization and spacing, and medians along the corridor.
- **Intelligent Transportation System (ITS)** – ITS include a broad range of diverse technologies which can be used by transportation managers to automate and monitor transportation and inform travelers about their options. The intelligent transportation infrastructure includes real time traffic information, in-vehicle navigation systems, automatic incident detection and management, advanced traffic surveillance control, electronic toll collection, and automated vehicle identification and clearance for commercial vehicles. When combined, these technologies are expected to save lives, time, and money. INDOT has developed Traffic Wise, which includes real-time traffic data and camera views of traffic conditions in the Indianapolis metropolitan area and Northwest Indiana. This information enables motorists to review current traffic conditions on freeways before leaving their home or workplace. Real-time traffic in Southern Indiana in the Louisville, Kentucky metropolitan area is available via TRIMARC.

### Operational Improvements

INDOT understands that you cannot build your way out of congestion. Capacity issues are problematic and can sometimes

require operational improvements at intersections such as incorporation of dedicated turn lanes and traffic signal modernization. INDOT has a team of planners and engineers that will evaluate needs to determine if operational fixes can solve the issue.

### Congestion Management Process (CMP) Coordination

INDOT Planning and District staff will continue to work with MPO staff reviewing and providing input into local and regional Congestion Management Processes (CMP). CMP is a systematic approach, collaboratively developed and implemented throughout a metropolitan region that provides for the safe and effective management and operation of new and existing transportation facilities through the use of demand reduction and operational management strategies.

CMP is a 7-step process:

1. Development of Congestion Management Objectives
2. Identify Area of Application and Define System or Network of Interest
3. Develop System Performance Measures
4. Institute System Performance Monitoring Plan
5. Identify and Evaluate Strategies
6. Implement Selected Strategies and Manage Transportation System
7. Monitor Strategy Effectiveness.

The CMP is required to be developed and implemented as an integral part of the metropolitan planning process in urbanized areas with a population over 200,000. CMP represents the

state-of-the-practice in addressing congestion, and should be considered in metropolitan areas that are facing current and future congestion challenges.

### Added System Capacity

Adding system capacity at critical locations can address system bottlenecks to serve growing travel demand and avoid congestion. Managing travel demand and providing travel options are strategies focused on high growth urban areas in cooperative program with our MPO planning partners. Improvements such as better management of arterial street access and travel in higher occupancy vehicles can provide congestion savings and provide additional system capacity.

### *Other INDOT Opportunities:*

- Encourage and support local smart growth initiatives to reduce future transportation infrastructure needs
- Work with local transit providers in determining future ridership and capacity needs in major urban areas to reduce corridor transportation demand in future years
- Identify future corridor congestion issues and develop strategies to preserve corridor performance levels
- Study demand management strategies such as congestion pricing for efficient use of existing transportation facilities
- Work with locals in determining improvements to local corridors to minimize system added capacity needs and allow for more efficient use of local and INDOT roadway facilities

**Congestion Pricing** - Congestion pricing, sometimes called value pricing, is a way of harnessing the power of the market to reduce the waste associated with traffic congestion. Congestion pricing, a national discussed topic, works by shifting purely discretionary rush hour highway travel to other transportation modes or to off-peak periods, taking advantage of the fact that the majority of rush hour drivers on a typical urban highway are not commuters. By removing a fraction (even as small as 5%) of the vehicles from a congested roadway, pricing enables the system to flow much more efficiently, allowing more cars to move through the same physical space. Similar variable charges have been successfully utilized in other industries - for example, airline tickets, cell phone rates, and electricity rates. There is a consensus among economists that congestion pricing represents the single most viable and sustainable approach to reducing traffic congestion. Other options include alternate routes, car pooling, or mass transit. *(Source: FHWA Publication Congestion Pricing: A Primer)*



Proponents argue that the demand for urban travel is continually growing and that congestion pricing provides a solution when the construction of additional road capacity is not possible. Advocates maintain that electronic tolling technologies can greatly reduce implementation costs and that congestion pricing is a cost-effective strategy for the reduction of mobile source air emissions and energy consumption.

Opponents of congestion pricing contend that issues such as public opposition to new taxes, geographic and economic equity concerns, lack of regional coordination, and a lack of alternatives to driving alone during peak hours are all problematic when attempting to implement congestion pricing. In addition, opponents argue that changes in pricing may not significantly affect consumer demand and that the primary result may be adverse effects on the poor.

## Public Transit Trends

The proportion of households without access to a vehicle has been in continuous decline from 1960 until now. Growth in commuter distance; long distance commutes to work; and the mobility of the aging baby boomer population (born between 1946-1964) are reaching ages where driving will become more problematic. The aging baby-boomer generation market will continue to grow over the next 25-years. This trend peaks in 2030 where the number of people over age 65 will soar to 71.5 million (nearly one in every five Americans). Industries such as recreation, leisure, and American Association of Retired Persons (AARP) have recognized this and are adapting to the changes required to serve this market.

Trends listed previously will also have a major impact on public transportation needs in both the short and long-term. An aging



population and auto ownership have an impact on mobility; access to jobs as jobs are moving to suburban areas; and lack of consolidated transportation authorities make access to these areas difficult. Suburbs are capturing most population and employment gains. “Small urban and rural America is now home to 56 million residents in 2,303 non-metropolitan counties, as well as 35 million more residents living in rural settings on the fringes of metropolitan areas. The bulk of these communities lack public access to transportation.

*Source: the Benefits of Public Transportation Mobility for America's Small Urban and Rural Communities*

Transit agencies will need to coordinate with organizations in their communities that work with older people and that plan and provide for their needs. Examples include area agencies on aging, senior centers, and senior living and care facilities. Most transit agencies

already work with these groups in the context of ADA paratransit service, but involving them in all service planning will become increasingly important as the older portion of population grows.

Agencies that receive funding from three Federal Transit Administration (FTA) programs (New Freedom, Section 5310 transit assistance program for elderly individuals and individuals with disabilities, and Job Access / Reverse Commute) are required by provisions of the Moving Ahead for Progress in the 21st Century Act (MAP-21) to participate in a coordinated planning process. All projects funded under these programs must be derived from a locally developed, coordinated public transit-human services transportation plan. INDOT Planning works with our MPO and RPO partners in insuring transportation needs for both motorized and non-motorized modes are addressed. MPOs are driven by policy boards that consist of representatives of local elected officials and land use decision makers. Note: FTA funds can be used for sidewalk and bicycle path improvements within one-half mile and three miles of transit stops, respectively. Please visit the federal register at <http://www.gpo.gov/fdsys/pkg/FR-2011-08-19/pdf/2011-21273.pdf> for more information.

Most transit trips, especially non-commute trips, involve some amount of walking to and from transit stops and stations. Older people and other transit users would benefit from pedestrian safety improvements in the immediate vicinity of bus stops. Measures that would particularly favor older pedestrian safety include benches, pedestrian activated longer crossing signals, audible crossing signals, and countdown signals.

Removing uneven surfaces in crosswalks and on sidewalks, and providing sidewalks with a clear path of travel for people using wheelchairs, not obstructed by news boxes, light posts, fire hydrants, etc., help all pedestrians, older people, and others with mobility limitations. Measures that help all pedestrians also help older pedestrians.

Usually, these improvements are the responsibility of state and local transportation agencies rather than transit agencies. As a result there would typically be no cost to transit agencies. A useful program would be one that makes funding for transit-related pedestrian improvements available to cities to be spent in coordination with transit agencies.



**Opportunities:**

For local transportation agencies, elements of planning and interagency coordination include:

- More visible crosswalks and simplifying intersection geometry to make avoiding conflict with vehicles less confusing.
- Coordinating potential park and ride facilities.
- Median refuges for crossing wide streets, and improved lighting. Incorporating travel patterns of older people and mobility issues in placement of transit stops and route planning.
- Consideration of traffic calming measures near transit stops, which can also improve pedestrian access.
- Identifying and planning for additional services and measures to address needs of older people.

- Establishing liaisons between transit agencies and groups that represent or advocate for older people.
- Promoting inclusion of senior mobility in regional land use planning.
- Promoting inclusion of senior mobility in local planning, including plans for new residential and commercial development.
- Coordinating with efforts to educate seniors about how their location decisions will affect mobility when they can no longer drive.
- Working with healthcare providers, including county programs, to incorporate maintaining the ability to walk to transit stops as an element of senior fitness programs
- Coordinating with efforts to educate seniors, families and healthcare providers about safe driving and driving limitation.





### Outreach and Training

Older people who are beginning to have trouble driving may have little recent experience with transit and may have unrealistically negative impressions based on outdated experience or news stories. Programs that help older people learn about and become comfortable using transit service can include marketing programs, educational programs like presentations and demonstrations at senior centers, “ambassador” programs involving volunteer peers who provide information to fellow seniors, group field trips or training, and one-on-one travel training. Having information published in local media, BMV Offices, public libraries, and online. This is a clear need that is easily associated with a growing older population.

### Bike and Pedestrian Trends

Transportation planning has changed significantly in the last 10 years as cities, counties, and states have adopted policies to encourage planning and design for all transportation modes.

Walking and bicycling modes of travel is healthy, efficient, low cost, and available to nearly everyone. Walking is the most basic form of transportation. Almost everyone is a pedestrian at some point in the day, as walking is often the quickest way to accomplish short trips in urban areas. Pedestrians also include persons using wheelchairs and other forms of mobility devices. Bicycling is the most energy efficient form of transportation today. A car will only travel 280 feet on the number of calories that a bicyclist needs to travel three miles.

However, it is challenging to present an accurate picture of bicycling and walking trends at any level, particularly at the state level. This is primarily due to the cost of collecting data and the lack of good data sources. Currently, the most reliable data source for trend analysis is the U.S. Decennial Census. The U.S. Census has collected journey to work data that include bicycling and walking categories since 1980. However, the Census information is very limited only surveys people over the age of 16, eliminating most school-based trips which are often done on foot or by bicycle.

Walking and bicycling help communities achieve the larger goals of developing and maintaining “livable communities;” making neighborhoods safer and friendlier; and reducing transportation-related environmental impacts, mobile emissions, and noise. They provide transportation system flexibility by providing alternative mobility options, particularly in combination with transit systems, to

people of all ages and abilities. There is also growing interest in encouraging walking and bicycling as a means for improving public health. Increasingly, public health organizations are looking to metropolitan and state transportation planners to create more walkable and bikeable communities that encourage healthier lifestyles.

INDOT is integrating bicycling and pedestrian facilities into the transportation system as a means to improve the mobility and safety of non-motorized traffic. This includes complying with Bicycling and the American Disabilities Act (ADA), providing adequate bicycling space on roadways, and designing facilities with context sensitivity.

Additional trends affecting transportation includes geographic migration of people from rural areas to more suburban, central city revitalization, mixed use developments, and a return to central cities for living, working, and recreation. Economic development, environmental, property value and construction trends favor a re-birth of housing in central cities, combined with work and recreation, the '24/7 city' as it is called. Such a development will put a higher premium on pedestrian transport, and on efficient within-city transport, as compared to classic commuter traffic.

#### Opportunities:

- Continue working with local and regional planning organizations in analyzing local plans, policies, and programs related to bicycle and pedestrian issues and ensure INDOT projects meets local goals and objectives.

- Work with local special interest groups in ensuring transportation infrastructure improvements does not hinder bike and pedestrian connectivity
- Research other statewide bicycle and pedestrian plans and evaluate goals and policies for consideration into INDOT planning activities and development of future policies.
- Incorporate the benefits of bicycling and walking, characteristics and needs of bicyclists and pedestrians in state transportation planning activities with discussion of statewide attractors and generators.
- Working with locals and regional agencies in promoting and education of the public on bicycle facilities.
- Incorporate sharing the road safely inserts into Indiana's Driver Handbook to address the need to be aware of other roadway users.
- Coordination with Indiana Health Department and local Health Program on transportation planning decision and stakeholder involvement
- Considering local and regional complete streets initiatives in transportation capital improvements





## Freight Trends

The demand for freight services has greatly expanded due to shifts in the economy and rapid growth in international trade. This is resulting in a freight transportation crisis impacting all modes. The railroads are operating near capacity and have begun shedding less profitable traffic. Consequently, trucks are picking up most of the unmet demand for freight rail, creating greater burdens on the highway networks that are already congested from passenger automobile traffic. Due to a number of factors, including its strategic location in close proximity to large consumer markets and an excellent multimodal transportation network, Indiana is feeling more than its share of the increased burden of increasing freight

mobility demands. Forecasts from the USDOT's Freight Analysis Framework expect Indiana freight movements to double by 2035.

### *Intermodal needs*

Comprehensive freight planning must consider all transportation modes including rail, water, and air, as well as highways. Intermodal facilities include port terminals, airports, and a variety of connections to the rail system. These facilities are particularly vital to the state's rail network because rail carriers typically rely upon trucking for pick-up and delivery. In most cases transportation efficiency via other modes is affected by integration with the roadway network, given that the "last mile" of the trip is usually via truck. Rail and water modes can take pressure off the highway system and present efficient and environmentally friendly alternatives to truck transport.

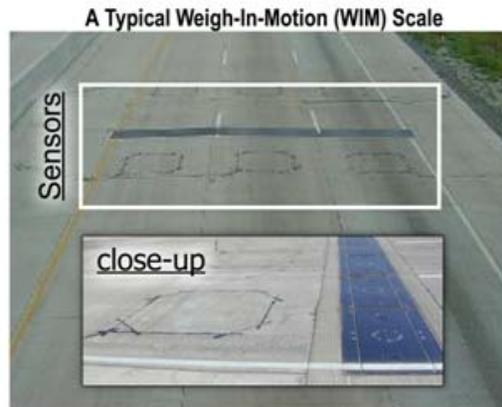
As the information age allows vendors to more effectively reach widely disbursed customers with a greater variety of products, the movement of raw materials and finished products continues to increase. Further, the shift to "Just in time" manufacturing increases dependence on a reliable and efficient transportation network able to move goods predictably around the state and to and from destinations around the globe. While VMT has leveled off, truck traffic makes up a larger percentage of that VMT. Trucks are also making fewer trips with empty return trailers resulting in greater wear on the roads. Freight-related traffic is also expected to increase more rapidly than passenger traffic due to the increased dispersion of population and employment, increases in income driving demand for consumer goods, and the longer trip lengths associated with the global economy.

### Overweight Trucks

Overweight vehicles remain a problem in Indiana. Each year, millions of dollars of uncompensated damage to state highways are attributed to vehicles that exceed state weight limits. One legal, 80,000 pound, five-axle tractor-trailer truck does as much damage to road pavement as 9,600 cars. (Source: Highway Research Board, NAS, 1962). Adding more weight to the same truck will sharply escalate pavement damage. At 100,000 pounds, the truck will do as much damage as 27,000 cars. (Source: AASHTO Pavement Design Guide)

Pavement damage is proportional to the volume of truck traffic. This damage—causes pavement to wear out faster. The volume of truck traffic has increased rapidly on the highway system. The overloaded truck also contributes to premature pavement fatigue. This requires the development of new methods of pavement damage estimation and fatigue reduction techniques

One technology that INDOT is pursuing performs both functions. Virtual weigh-in-motion (WIM) stations use in-ground sensors to estimate the weight of trucks as they drive by. As the truck passes, sensors estimate the vehicle's weight and axle spacing. The system can be equipped with a camera that can take a photo of the truck, and forward it to a state trooper via his laptop for enforcement



action. The State Police can also use the data collected to target problem areas leading to a more efficient use of manpower.

#### INDOT Strategies:

While not a substitute for traditional permanent weigh stations, virtual weigh stations are a cost-effective complement because they are cheaper to install and operate. They allow for targeting violators while not inconveniencing legal truckers. By focusing on overweight trucks, they allow for more effective enforcement. This will eventually reduce the number of overweight trucks on Indiana's highways through a combination of compliance and deterrence. Fewer overweight trucks will extend the life of the road between maintenance cycles, and reduce the risk to motorists from trucks whose weight exceeds the safe operating limits of the vehicle.

Since the system collects information on all trucks, it provides data that can be integrated with pavement management systems to predict fatigue and assist planners in better estimating future pavement needs. Better data will allow for improved forecasting of pavement wear, and better allocation of resources.

INDOT has partnered with the Indiana Department of Revenue, and the Indiana State Police on a \$300,000 state and federal grant to purchase and install the first pilot systems. Currently, 50 stations already exist around the state. INDOT is working to convert these into virtual WIMs, calibrate them, integrate them with other information streams, and distribute the information to those who need it. The long term plan is to gradually increase the number of WIM stations by piggy-backing on existing projects and prioritizing sites based upon factors such as truck volumes and functional classification.

## Dedicated Truck Lanes

The dedicated truck lanes concept is based on the hypothesis that separating trucks from other traffic could reduce congestion, improve mobility and enhance safety, while improving the flow of goods and encouraging commerce and economic growth throughout the Midwest and the nation. Interstate 70, one of the heaviest traveled roadways in America, has experienced steady increases in traffic volumes and studies shows this trend will continue. While private automobile volumes have increased, commercial truck volumes have increased at an even higher rate.

In September of 2007, the U.S. Department of Transportation selected 800 miles of I-70 through Indiana, Illinois, Missouri and Ohio as a "Corridor of the Future," one of six significant transportation corridors identified nationally.

The four-state Coalition (made up of Departments of Transportation from Indiana, Illinois, Missouri and Ohio) applied for and received funding from the U.S. Department of Transportation to study the feasibility of constructing dedicated truck lanes on I-70. The feasibility study led by INDOT was completed in November 2011 found that the dedicated truck lane concept was effective, workable and achieved significant improvements in congestion reduction, safety conditions, mobility and in stimulating economic growth and job creation. The study found a public, private partnership with innovative financing could provide over 80% of the costs of the corridor improvements. Currently Missouri is conducting environmental studies for improving I-70 from Kansas City to St. Louis and INDOT and the Ohio Department of Transportation are considering I-70 improvements from Indianapolis to Columbus. The

four-state coalition continues to meet to review I-70 Corridor developments and opportunities for advancing a dedicated truck lane improvement concept.

For more information, please visit the I-70 Dedicated Truck Lanes Feasibility Study Site: <http://www.i70dtl.org/feasibilitystudy.html>



FIGURE 22 - FOUR STATE COALITION MAP

For information on Freight Mobility, please visit our website: <http://www.in.gov/indot/2677.htm>



### Increased Global Competition

In order to compete in the global economy, firms in the United States have in recent years restructured their manufacturing processes with an emphasis towards increased production efficiency and quality. On-site inventory levels have been reduced through the use of a concept that is commonly known as “just-in-time delivery”. As its name suggests, just-in-time delivery in the manufacturing process requires that part components and materials be delivered to the manufacturing assembly point as and when needed. This concept reduces the need for costly warehousing and increases the demand for an efficient and reliable transportation system. Finished products are frequently shipped directly to the customer shortly after production.

The rise of the Internet and the application of business-to-business software have also helped to streamline and accelerate the manufacturing process. Orders for products can now be placed and processed in “real time”. Computer integrated manufacturing systems can automatically monitor and record part component and material consumption in the assembly process thereby increasing the timeliness of placing and fulfilling orders for product production and delivery.

“Just in time delivery” places greater demand and expectations upon the transportation infrastructure. Demand increases as more freight is transported along the highway system at any given point in time. The efficiency and reliability (i.e. reduced congestion) of the transportation system affects business costs in terms of travel time and delivery of materials and products from plant to plant and from plant to retail outlet.

With economic globalization and information technology development, businesses will continue to lose their links to the specific communities in which they are located. This may result in a continued trend in employment and residential decentralization, further increasing travel on our state’s highway and local road systems.

#### Opportunities:

- Coordinating infrastructure needs with freight carriers and trucking institutions; transportation partners in neighboring states; economic development agencies, local entities, MPOs, and other stakeholders

- Develop context appropriate improvements to transportation network to facilitate timely delivery and movement of freight
- Implement corridor preservation strategies such as: access management (minimizing driveway and intersections to commercial developments) and operational improvements

## Volatile Revenues and Costs

The steady increase in statewide vehicle miles traveled (VMT) since the 1970s peaked in 2005. In 2006, VMT in the state of Indiana began to decline, reaching a 10-year low. The travel reduction coupled with increased vehicle fuel efficiency has led to reductions in federal and state motor fuel tax revenues.

The current economic recession could lead to lower construction costs but also declining revenues. The volatility in revenues and costs creates a challenging framework for planning improvements to the system during both the short- and long-term, and requires careful attention to risk management.

Since 1973, there has been a gradual improvement in the fuel efficiency of motor vehicles. Spikes in fuel prices caused by increases in the global demand for oil and disruptions in supply have led to a gradual increase in the demand for more fuel-efficient vehicles. This has allowed motorists to drive more, and pay less in taxes.



## Understanding the Gas Tax

Exacerbating the situation is the fact that fuel taxes are not indexed for inflation. The federal excise tax on gasoline was raised to 18.4 cents per gallon in 1993. It has lost 35% of its buying power since then. The state excise tax on gasoline was raised to 18 cents per gallon in 2002. By 2011, it has lost 22% of its purchasing power. If both taxes had been indexed, motorists would be paying a combined 52 cents per gallon today instead of 36.4 currently charged.

These trends have been offset somewhat by the overall growth in vehicle miles traveled (VMT), but the result has been revenues that have not kept up with the cost of operating and maintaining the system. While a short-term benefit to motorists, the overall trend poses a challenge to INDOT which has had to face growing traffic volumes, aging infrastructure, and rising construction costs with stagnant revenues. In the long term, highway users will bear the costs of congestion, and deteriorating pavement caused by funding shortfalls.

Spurred by rapid growth in the global demand for oil along with disruptions in supply, petroleum prices began to rise sharply in 1999, and peaked at a record \$147 per barrel in July, 2008. This pushed gasoline prices over \$4 per gallon, and renewed demand for more fuel-efficient vehicles. In addition to renewed interest in smaller, more efficient vehicles, motorists began to explore alternatives to the gasoline-power. In 2000, the introduction of hybrid electric vehicles (HEV) that combine battery-powered electric motors with gasoline-powered internal combustion engines was one response to this interest. Currently, hybrids make up 3 percent of the vehicle fleet today, and that share is expected to rise to 10 percent by 2015. Another response has been the introduction of alternative fuel vehicles that rely on electricity, natural gas, or bio-fuels. Many of these fuels are not subject to state and federal fuel taxes. It can be expected that the adoption of these technologies will eventually decrease INDOT's future revenues since VMT growth can no longer be counted on to offset efficiency improvements.

In Indiana, VMT has been rapidly increasing since 1986. Due to high fuel prices, this trend began to slow, and finally halted by 2004. VMT began to decline in 2004, and bottomed out in 2006 in response to record fuel prices and the

subsequent economic downturn. Since then, VMT has begun to increase slowly, but it is not anticipated to grow quickly due to fuel prices and anemic economic growth.

While INDOT has benefited from the reduction in construction costs as a result of the economic downturn, a drop in VMT from 2004-2006 caused by the same downturn also led to reduced revenues. While construction costs have stabilized, and VMT has started to creep upwards, current economic conditions do not favor a positive revenue forecast. Instead, INDOT can anticipate that volatility in the energy markets will translate to spur the adoption of technology that will serve to reduce its revenue.



## Aging Infrastructure

As Indiana's existing transportation infrastructure ages, the state will continue to have a need to preserve and rehabilitate bridges, pavement, and other assets. Indiana will face the challenge to provide additional roadway capacity, enhance passenger transportation, and address the growing movement of freight by aviation, rail, and waterway—all with limited funds. Some of the key implications related to changes in Indiana's transportation system are discussed throughout this document.

Both nationally and within Indiana, the average annual number of miles that vehicles travel,

specifically trucks will continue to grow. People will drive longer distances and make more trips. Travel is expected to grow at a much faster rate than capacity improvements to the transportation system. This differential is contributing to increased traffic congestion. (Source: FHWA Relationships between Asset Management and Travel Demand Publication)

The increased amount of travel in new suburban areas has resulted in traffic congestion in these locations. Higher speed limits and the desire to improve the safety of travel has led the FHWA to require more stringent design standards in the construction of future highway projects. While this is desirable, it will lead to higher project costs and possibly less flexibility where projects are located. The amount of freight moved by truck continues to increase. Higher levels of truck traffic have implications on traffic congestion and on the durability of highways and bridges.

#### Strategies:

In response to anticipated transportation demand and aging infrastructure, the INDOT Capital Program Management Business Unit was developed. The Unit is responsible for planning, programming, engineering, road inventory, and construction project management for all principal INDOT asset areas: planning and programming of projects; traffic mobility; traffic safety, bridge, road/pavement; corridor development, and road inventory/data collection. The Unit develops and implements strategic investment methods to ensure the best use of resources and establishes performance measures and standards for core transportation functional areas and physical assets. All activities are executed in concert and cooperation with various parties and transportation partners.

Several formal reports are produced within the business unit, many of them federally required and others for the purpose of understanding and communicating the condition/performance of each of the transportation functional assets and consequences of various program investment strategies. INDOT 2011 Capital Program Report can be found at: [http://www.in.gov/indot/files/Capital\\_Program\\_Report\\_111711.pdf](http://www.in.gov/indot/files/Capital_Program_Report_111711.pdf)

### Technological Advances/Trends

The impact of technological changes in the past decade or so on transportation has been enormous. Technology has the power to change transportation, making it more efficient, safer, less costly, and friendlier to the public.

Accessibility can no longer be measured only in terms of travel time, distance, generalized travel cost. Information technology gives people and industries virtual accessibility to a wide variety of activities. Hand held internet, notepads and iPads, Google Map Directions, GPS units have altered travel behavior in Indiana and throughout the world allowing travelers to bypass bottleneck congestion and problem areas with up to date traffic information.



Computer technology has allowed more access to information and have allowed INDOT engineers to process traffic information faster, develop computer simulation models to test the impacts of transportation decision on the environment, draft infrastructure design, test alternatives, simulate the economy, determine economic impacts of transportation decisions, track infrastructure conditions and transportation system without significant capital investments.

Computer technology has also allowed engineers to program and perform large scale coordination of traffic signals, use of dynamic messaging signs to warn and provide information to motorist, and much more. Technology is constantly changing and will continue to impact transportation decisions and travel behavior.

Examples of computer technological changes that have impacted transportation behavior and infrastructure needs:

- E-Commerce: E-merchants, manufactures, selling online, fee/subscription-based companies, airline tickets, entertainment (streamline movies to home). Individuals no longer have to drive to video/music stores, banking institutions, or physical store locations to shop.
- Video and web conferencing equipment, which reduces the need to travel to remote locations for face to face meetings.
- Global Positioning System (GPS) navigation technology – allows the tracking of commercial vehicles, provides geographic location information to travelers, routing information, turn-by-turn direction, locations of desired amenities (gas stations, restaurants, ATM, and other), and real-time traffic feedback/directions.

- Intelligent Transportation System that tracks transportation system performance, travel times, and provides real-time travel condition information to transportation system users.
- Electronic Transportation Demand Devices - Electronic toll technology, internet parking reservations, electronic parking meters that accept credit cards and paper cash. GPS, toll passes, reserved parking, electronic parking meters that take credit cards and paper money, and others.

It is likely that future transportation systems will be the outcome of private initiatives with the market (transportation demand) the ultimate judge about the true potential of a new transportation technology. History has shown that the market will always try to find and adopt the most efficient form of transportation available. Some transportation systems or technologies have become obsolete and have been replaced by other that are more efficient and cost effective based upon the prevailing input conditions such as labor, energy and commodities. This fundamental behavior is likely to endure in the setting of future transportation systems, which will reflect the level of resources and materials available; energy costs; environmental policies; federal initiatives; and other legislative mandates.

In future planning efforts, identification of future transportation needs and planning evaluations will need to take into account technology and how it will impact travel patterns; statewide transportation related policies and laws; and overall infrastructure needs.

### *Alternative Fuels*

Alternative fuels describes a class of fuels that are largely non-petroleum and which yield environmental benefits. Fuels recognized as alternative fuels include Methanol and Ethanol in blends of 70% or greater, bio-diesel in blends of 20% or greater (B20), compressed or liquefied natural gas, liquefied petroleum gas (propane), hydrogen, coal-derived liquid fuels, electricity, and fuels derived from biological materials. Currently, Indiana has 169 E85 and 13 B20 fuel filling stations. These numbers are expected to rise steadily over the next 25 years.



INDOT is involved in many alternative fuel initiatives. Along with other state agencies, INDOT has instituted a policy to purchase flex-fuel vehicles whenever possible. Flex-fuel vehicles can operate on either E85 or regular gasoline. INDOT also requires that these vehicles be refueled with E85 when available.

Another initiative is the I-65 Bio-fuels Corridor project which will ensure that motorists can drive the 886 miles from Gary to Mobile, Alabama, and never be more than a quarter of a tank from an E85 or B20 pump. Indiana has partnered with Kentucky, Tennessee, and Alabama to secure grants from the U.S. Department of Energy. Funds from this grant will be used to install 19 E85 pumps on the I-65 corridor, and build a biodiesel blending facility in Indiana.

In 2010, Indiana embarked on its most ambitious alternative fuels program yet when the state announced the implementation of a

\$23 million alternative fuel project. The project is a joint public-private partnership effort of the Indiana Office of Energy Development (OED) and Greater Indiana Clean Cities Coalition (GICCC) along with INDOT, Citizens Energy, Lassus Brothers Oil, KAKCO, Sysco Distribution, RUAN Trucking, and the Cities of Indianapolis and Fort Wayne. The project has the goal of reducing state petroleum reduction by 1 million gallons per year through the use of alternative fuels.

As part of this program, INDOT will retrofit 200 F250 pick-up trucks to run on propane, and install 115 propane fueling stations around the state. INDOT will also purchase 119 plow trucks that will run on compressed natural gas. Once fully implemented, this conversion is expected to replace 500,000 gallons of gasoline or diesel fuel per year with propane or compressed natural gas.



### *Hybrid Vehicles*

This mainly concerns existing mode but the sources of fuel, or the engine technology, are modified. For instance, hybrid vehicles involve the use of two types of motor technologies, commonly an internal combustion engine and an electric motor. Simplistically, breaking is used to recharge a battery, which then can be used to power the electric motor. Although the gasoline appears to be the most prevalent fuel choice, diesel has a high potential since it can also be made from coal or organic fuels. Diesel can thus be a fuel part of a lower petroleum dependency energy strategy.

Hybrid engines have often been perceived as a transitional technology to cope with higher energy prices. There is also a possibility of greater reliance on bio-fuels as an additive (and possibly a supplement) to petroleum, but their impacts on food production must be carefully assessed.

Far more reaching in terms of energy transition are fuel cells, which involve an electric generator using the catalytic conversion of hydrogen and oxygen. The electricity generated can be used for many purposes, such as supplying an electric motor. Current technological prospects do not foresee high output fuel cells, indicating they are applicable only to light vehicles, notably cars, or to small power systems. Nevertheless, fuel cells represent a low environmental impact alternative to generate energy and fuel cell cars are expected to reach mass production by 2015. Additional challenges in the use of fuel cells involve hydrogen storage (especially in a vehicle) as well as establishing a distribution system to supply the consumers.

### *INDOT Research*

One important area of research is to explore the productivity-enhancing innovations that are being introduced into existing transport systems. A framework should be provided and benchmarks should be established for understanding the broad



economic consequences of these innovations. To be assured that research encompasses the issues important to decision makers in the new millennium; a system-wide and regional economic perspective will have to be maintained. Researchers must be mindful of the direct social effects of transportation investment as well as the economic effects.

### *High Speed Rail*

High speed rail is a system that generally travels in excess of 90 miles per hour, which makes it competitive with air and/or auto on a door to door basis for trips of 100 to 600 miles. Indiana is a member of the Midwest Regional Rail Initiative (MRRI). The initiative concerns Indiana and involves updating existing rail lines for high-speed travel. High-speed rail includes a family of technologies that range from upgraded steel-wheel on rails to magnetically levitated vehicles.



A fundamental component of future transport systems, freight and passengers alike, is that they must provide increased flexibility and adaptability to changing market circumstances (origins, destinations, costs, speed, etc.), some of which unforeseen, while complying to an array of environmental, safety and security regulations. Through recent history, there are few, if any, cases where a revolutionary transport technology was the outcome of a public endeavor. Still, the public sector came to play a growing role as transport innovations became more complex and incited a concerted approach in infrastructure, management or regulation. For instance, the massive diffusion of the automobile in the 20th century was associated with regulations concerning operations (e.g. speed limits), safety (e.g. seatbelts), emissions, as well as public investments in road infrastructures. While vehicle production came to be dominantly private, road infrastructures were perceived as a public good and provided as such

In terms of future intercity rail passenger service, Indiana would be served by the Federal Railroad Administration’s presently designated high-speed routes between the hub at Chicago and Detroit, Cleveland, Indianapolis and Cincinnati. These routes are part of the Midwest Regional Rail Initiative, a cooperative, multi-state effort to develop an improved and expanded network. This proposed 3,000-mile network includes a fleet of trains operating up to 110 mph. The capital investment required is about \$12.9 billion and the plan forecasts revenues sufficient to cover annual operating costs. See map in **Figure 23**.



FIGURE 23 - MIDWESTERN HIGH SPEED RAIL CORRIDORS MAP

Indiana continues to take part in the planning efforts of the Midwest Regional Rail Initiative as well as the Midwest Interstate Passenger Rail Commission. The Midwest Interstate Passenger Rail Commission brings together the region's leaders to advocate for expansion of improvements to the Midwest's passenger rail system. The commission seeks to provide a unified voice for the region in calling for federal support of passenger rail development as a key component of a strong, multimodal transportation system for the future.

High speed rail provides for passenger rail travel times significantly less than conventional rail travel which would make passenger rail travel complete with air travel and/or automobile travel in corridors of under 600miles. The high speed rail concept includes a family of technologies that range from upgraded steel wheels on rail to magnetically levitated vehicles. Indiana is a member of the Midwest Regional Rail Initiative (MRRI) made up of Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Nebraska, Ohio and Wisconsin to develop high speed rail service operating up to 110 mph. This service concept envisions shared track with advanced grade crossing protection or separation.

In January 2010, INDOT's Office of Rail collaborated with the Office of Freight Mobility to secure \$71.4 million in high-speed inter-city passenger rail funding from the Federal Railroad Administration under the ARRA. The funds will be used to build tracks and crossovers and improve signal systems, relieving congestion in northwest Indiana. Additional information on the MMRI is provided at <http://www.in.gov/indot/files/MWRRS1.pdf>.



### *Communication Systems*

Indiana's ability to accommodate communications system conduits in transportation rights-of-way or on other properties and facilities is essential now and will be imperative in the future. It is important for the state's communications providers and INDOT to establish the institutional structures needed to enable shared right-of-way agreements. Technology brings an increased flexibility to work or shop from home, thus reducing the necessity of some automobile trips.

The growth in information technology (IT) has already affected the nation's transportation system. IT will have an even greater impact in the future; however, determining the impact of the digital economy remains a challenge. The U.S.-based technology industry should continue to expand in the worldwide market. Technology has helped to create new relationships and to streamline the supply chain processes. As these changes are occurring, the roles of logistic intermediaries such as Federal Express and UPS are expanding.

Electronic commerce can reduce the influence of distance as a factor in personal and business decision making, and can alter the concept of community. People can maintain contact over long distances and have online communities with global memberships. These global markets, however, can result in companies becoming less loyal to the communities in which they are physically situated. Decentralization will enable businesses and individuals to locate in remote areas and commute less.

## Climate Change

Climate change is defined as a significant and lasting change in the average weather condition over long periods of time from decades to centuries (e.g., more or fewer extreme weather events). Climate change is said to have natural and man-made contributors. These contributors add large amounts of heat, heat-trapping gases such as carbon dioxide and dust to the atmosphere or further warm the earth's surface temperature. Major contributors include: volcanic eruptions, forest fires, solar radiation changes from the sun, power plant emissions, deforesting, and fossil fuel burning from motor vehicles, industrial emissions, and natural gases.

Climate changes in Indiana will have both positive and negative impacts ranging from milder winters and longer agricultural growing seasons to severe environmental impacts (air quality, water quality, land erosion, plant & animal species) and severe and more frequent flooding. While annual average precipitation may not change much, Indiana may grow drier overall because rainfall cannot compensate for the drying effects of a warmer climate, especially in the summer.

## Opportunities:

- Support the clean motor vehicle and efficiency programs
- Support and encourage smart growth strategies and regional policies, zoning, and building codes that improves land-use practices
- Support renewable energy generation and improved agricultural and forestry productivity
- Work with locals in incorporating transit, bike, and pedestrian consideration into transportation designs and decision making
- Planning for climate changes – drainage consideration, wet land mitigation, replacing forests, and flood protection
- Ongoing update of emergency management strategies and plans to address weather extremes



2008 ROADWAY FLOOD DAMAGE NORTH OF MARTINSVILLE, IN

### Traffic Safety

Improving highway safety is vital to the health and well-being of every Hoosier. Traffic crashes are the leading cause of death from age three to 33 and the eighth leading cause of death across all ages. Looking beyond the personal tragedy of death and injury, healthcare costs and lost productivity due to traffic crashes contribute to a significant economic loss annually. The cost of Indiana traffic crashes is estimated to be in excess of \$2.5 billion.



Indiana had a total of 15% decrease in fatal crashes from 2008-2009. Since 2004, the number of fatal crashes has been decreasing despite increases in registered motor vehicles and increasing vehicle miles travel trends.

Roadway departures account for over half of all fatal crashes. Not all of these crashes involve speeders and drunk drivers. Some could have been easily prevented if a vertical pavement edge drop-off had not been present.

Drivers leave the paved road for many reasons. Some may need to avoid a drunk driver or a roadway obstruction. Others are drowsy or distracted by a phone call, a text message, a GPS device, or a passenger. It is particularly easy to leave the paved road when visibility is low.

Returning to the paved road can be challenging when vertical edge drop-offs are present. A driver who doesn't slow down before

attempting to steer back onto the pavement can easily lose control of the car. One State found that drop-off crashes are four times more likely to include a fatality than other types of crashes on similar roads.

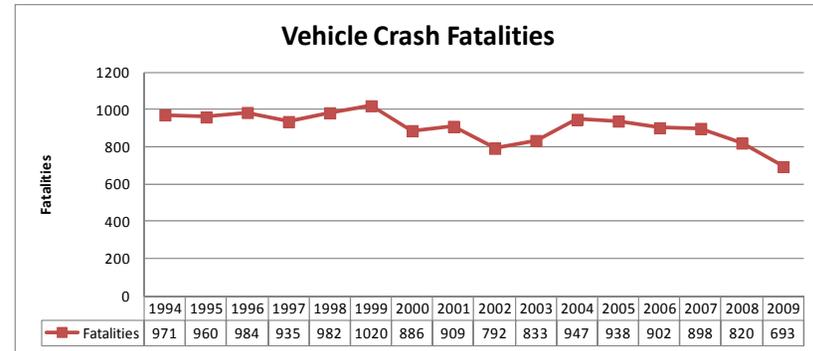


FIGURE 25- INDIANA VEHICLE CRASH FATALITY TRENDS CHART

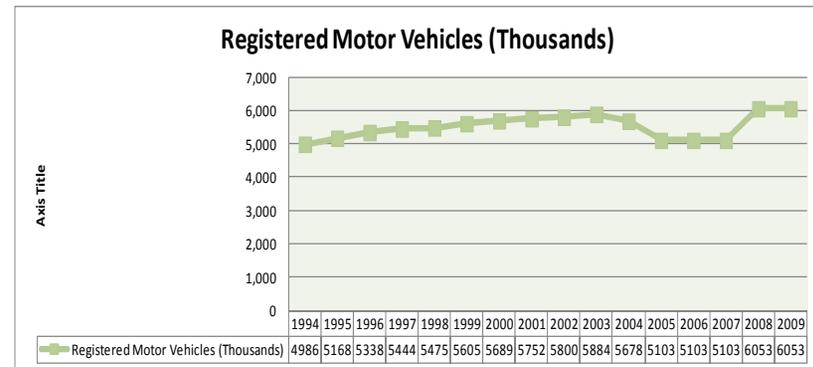


FIGURE 24 - INDIANA REGISTERED MOTOR VEHICLE TRENDS CHART

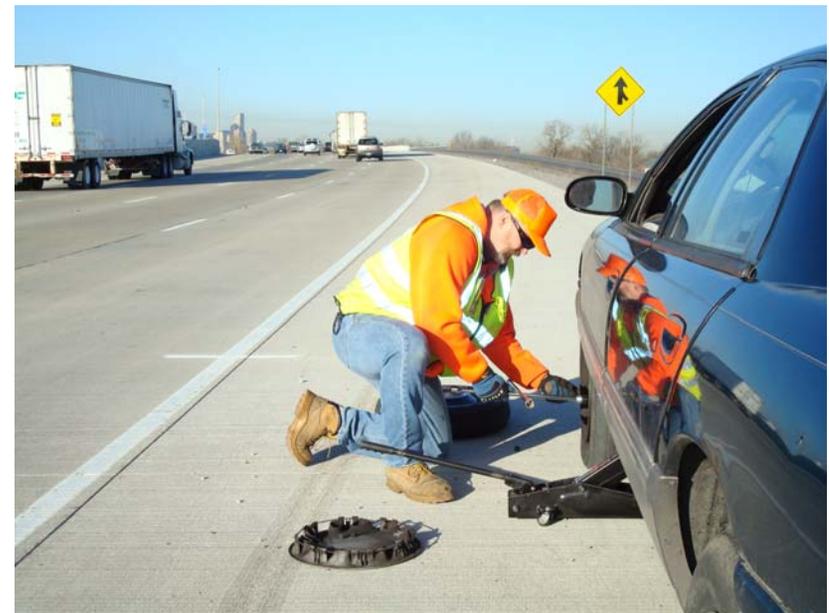
**Strategies:**

- **Safety Edge** - Beginning in 2011, INDOT began incorporating safety edge, a pavement design that includes an edge treatment for asphalt and concrete roads that improve roadway and traffic safety, into its construction specifications. Two-lane rural highways often have unpaved shoulders immediately adjacent to the paved roadway. If roadway maintenance does not keep material against the pavement edge, a pavement-shoulder drop-off may form. Drop-off heights can vary from less than an inch to six inches or more. When a vehicle leaves the paved roadway and encounters a pavement-shoulder drop-off, it may be difficult for the driver to steer the vehicle safely back onto the roadway. The side of the tire may scrub along the drop-off, resisting the driver's attempts to steer and make a smooth reentry to the roadway. This resistance often leads

to a driver's over-correcting, which may slingshot vehicles across the road, resulting in loss of control or serious traffic accidents. With safety edge, the pavement edge is formed at a sloped angle to lessen the resistance of a tire to remounting the drop-off. The lessened resistance allows vehicles a more controlled reentry onto the roadway. INDOT design specifications have been modified to incorporate safety edge in appropriate projects. INDOT is one of the first state departments of transportation to incorporate safety edge into its design specifications.

- **INDOT Strategic Highway Safety Plan (SHSP)**- The purpose of Indiana's SHSP is to serve as a tool to aid in the effort to comprehensively identify, analyze, and prioritize countermeasures for addressing the greatest threats to highway safety. It is a living document used by engineering, law enforcement, public education, and emergency medical responder leadership in allocating resources to prevent or reduce the frequency and severity of traffic crashes as well as to improve the medical outcomes of those injured. It encourages government agencies and safety advocates to work across jurisdictional boundaries to address crash problems regardless of where they occur. The SHSP is not a standard, policy, or legal document that makes or mandates traffic safety decisions. The SHSP informs decision-makers by providing data related to the safety of the highway system as measured by crash occurrence and outcome. The SHSP can be found at: <http://www.in.gov/indot/2357.htm>.

- **Hoosier Helpers Program** - Hoosier Helpers is a Good Samaritan program offered by INDOT to assist stranded motorists on Indiana interstates. The purpose of the program is to help keep Indiana interstates safe, provide traffic control and medical assistance at crash sites, and offer limited road side assistance if needed. Hoosier Helpers make driving safer by reducing the number of secondary crashes that often occur in traffic backups created by traffic incidents. Since the program began in 1991, Hoosier Helpers have come to the aid of more than 350,000 motorists.





**Safety Education** – INDOT has several websites to educate the public on safe driving in various conditions such as winter driving and rail road crossing safety. INDOT has also participated in “Safety-Day” programs at the state fair and have participated in various safety related training topics during the annual Purdue University Road School event in which important updates on pertinent transportation issues, as well as sessions on topics of general interest, are provided in the two-day conference. The event attracts over 2,000 Indiana local and state officials, consultants, and suppliers each year.

### *Indiana Work Zone Safety*

The Indiana Work Zone Safety Law was revised in July 2011 to set steeper penalties for driving infractions within highway work zones. Under this law, first time citations for speeding in a work zone result in a minimum fine of \$300. The fine increases to a minimum of \$500

for a second offense and \$1,000 for a third offense within three years. Motorists who drive recklessly or aggressively through a work zone face fines up to \$5,000. Drivers who injure or kill a highway worker may end up paying a \$10,000 fine or serving up to eight years behind bars. Fines generated from the work zone law are used to fund additional police patrols in and around work zones.

Work zone safety requires a worksite speed limit to be at least ten miles per hour below the maximum established speed limit for the location on the road or highway on which the worksite is located. Provided that a driver who, in a highway work zone, engages in certain acts that in combination otherwise constitute the offense of aggressive driving commits a Class B infraction. Provided that the Indiana Department of Transportation may use funds collected as judgments for these infractions to hire off-duty police officers to patrol highway work zones.



### Non-motorized Safety

Pedacyclist is defined as a road user traveling on a bicycle, defined as a non-motorized vehicle with at least two wheels and pedals or hand-cranks, designed to carry one or several persons and possibly also goods.

In 2008 there were a total of 18 pedacyclist related fatalities. Of the 18 fatalities, nearly 17% were resulting from failure to obey traffic rules, keep in proper lane, or running off road. 33% was a result of riding, playing, or working in the roadway. The remaining 50% were due to other or unreported factors. As of 2009, pedacyclist fatalities decreased to a total of 7. *Source: National Highway Safety Administration*

INDOT will continue to work with local and regional planners and special interest groups in addressing safety risk and mobility factors contributing to pedacyclist crashes and fatalities on state jurisdictional systems (US Highways and State Routes).

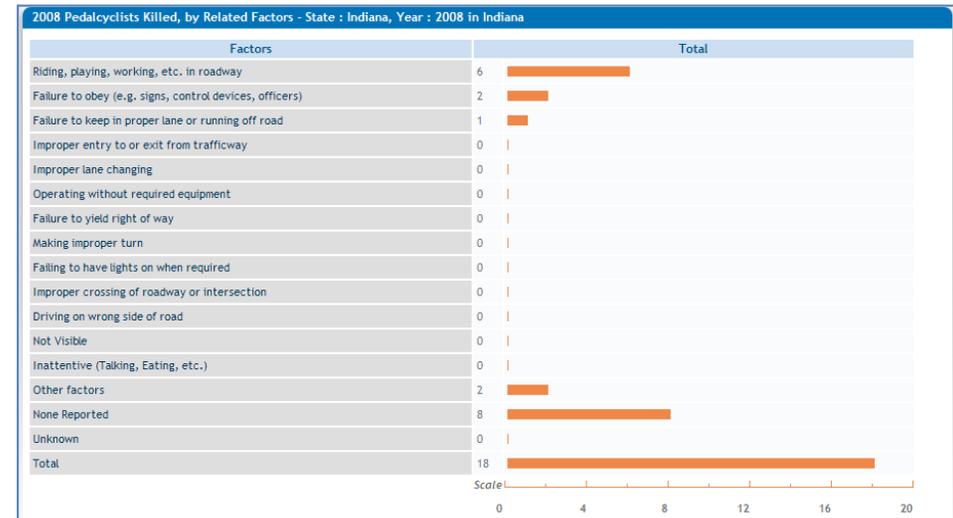


FIGURE 26 - INDIANA PEDALCYCLIST FATALITY FACTORS CHART

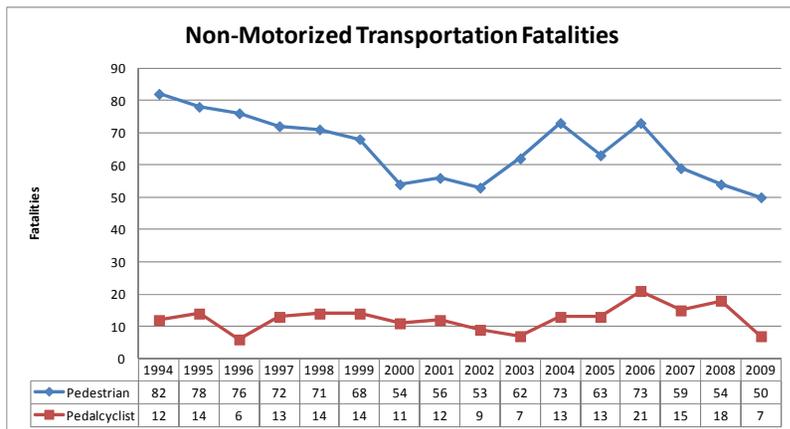


FIGURE 28 - INDIANA NON-MOTORIZED FATALITIES TRENDS CHART

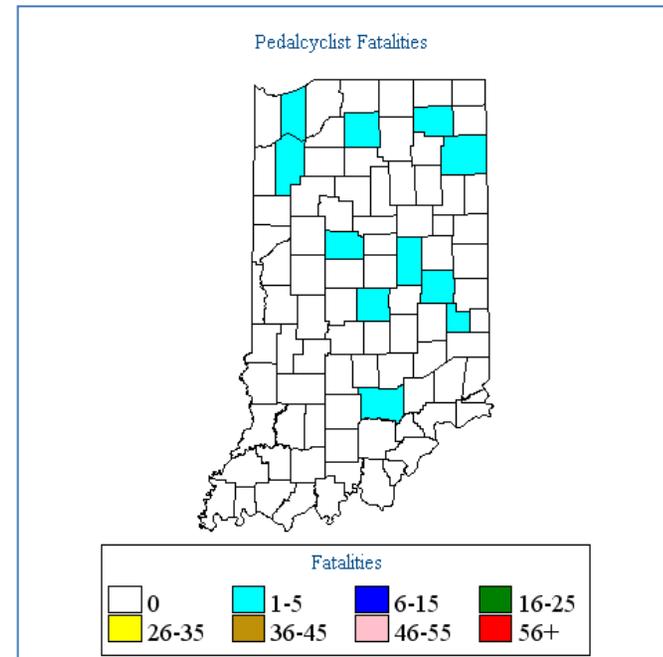


FIGURE 27 - PEDALCYCLIST FATALITIES MAP

## INDOT Planning Process

The responsibility for the production of INDOT’s Future Year Transportation Plan lies with the INDOT’s Asset Planning & Management Division within INDOT’s Engineering & Asset Management Business Unit. Planning staff within the business unit perform routine maintenance and update activities to ensure the plan remains current. This requires the staff to monitor current transportation conditions; update planning assumptions as new information becomes available; forecast future needs of the State; and continuous coordination with a wide range of expertise, various government agencies, planning partners, and stakeholders.

The core function of the Asset Planning & Management Division is to identify and strategically address Indiana’s long-term transportation needs beyond a 5-year window. The use of the District Open House and Consultation Meetings with communities, corridor studies, and technical planning tools are useful methods employed by staff to understand the needs and concerns of the public and the technical demands of the state's transportation network.

INDOT has established guidelines for its planning process both internally, and through its planning partnership with the MPOs, RPOs and FHWA. INDOT also follows the National Environmental Policy Act (NEPA) in the development of Indiana's transportation planning process.

NEPA provides the framework for how the government should work to incorporate information on the environmental impact of any federally funded action is available to public officials and citizens

before decisions are made and before actions are taken. Under NEPA, INDOT includes in its planning process environmental, social, as well as economic and technical considerations.

Development of INDOT’s Future Year Plan is a continuous process, never truly “completed.” The task of updating the Future Year Plan began at the time it was published. Periodically it becomes necessary to provide a formal record of progress and outline a refined future vision. This document is the latest update of the ever evolving state transportation plan documents. Other updates will certainly follow over ensuing years.

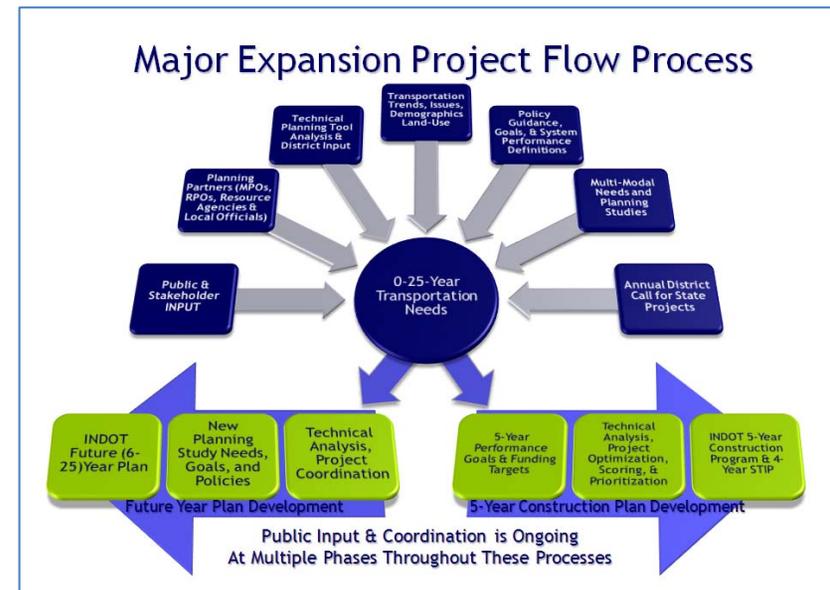


FIGURE 29 - INDOT PLANNING FLOW CHART

The planning process is constantly looking for and receiving comments and input from citizens, elected officials and transportation professionals for the next Plan Update. Planning Tools

The INDOT Asset Planning & Management Team uses many tools to assist them in system performance evaluations, alternative testing, and decision making. Some of these tools perform routine mathematical calculations based upon user inputs and system inventory information. Listed below are descriptions of some the tools used by the Team.

**Statewide Travel Demand Model (ISTDM)** - Models are simulations of the “real world” that can be used to show the impact of changes on the transportation network system (such as adding a new road or new interchange; added capacity improvements; increases in population or employment; land-use changes; and other variables). Travel models may be used to test the travel impacts of changes in

land use, economic development, and new highway capacity. Once some understanding has been established as to what the land use, population, and employment levels are in a study area, the four modeling steps are: Deficiency analysis (LOS and delay), alternative analysis, corridor performance statistics, and soon tolling analysis.

**Traffic Simulation Models** - Traffic simulation plays a vital role in allowing the Capital Program Management Team evaluates complex traffic simulation scenarios that cannot be analyzed with other means, including the statewide travel demand model. Simulation models allow the team to evaluate various operation alternatives in real time for base and future year conditions (intersection improvements, interchange modifications, traffic signal timing, roundabouts, HOT lanes, reversible lanes, tolling, traffic signal optimization, and others). Simulation model can also provide graphic animation displays that can be used for public and stakeholders and other non-engineering decision makers.

**Major Corridor Investment Benefit Analysis (MCIBAS)** –User impact benefits and business impacts (expansion, attraction, and business cost)

**Highway Economic Requirement Systems – State (HERS-ST)** –is an FHWA engineering/economic analysis (EEA) tool that uses engineering standards to identify highway deficiencies, and then applies economic criteria to select the most cost-effective mix of improvements for system-wide implementation. HERS-ST is designed to evaluate the implications of alternative programs and policies on the conditions, performance, and user cost levels associated with highway systems. The model will provide cost estimates for achieving economically optimal program structures, as

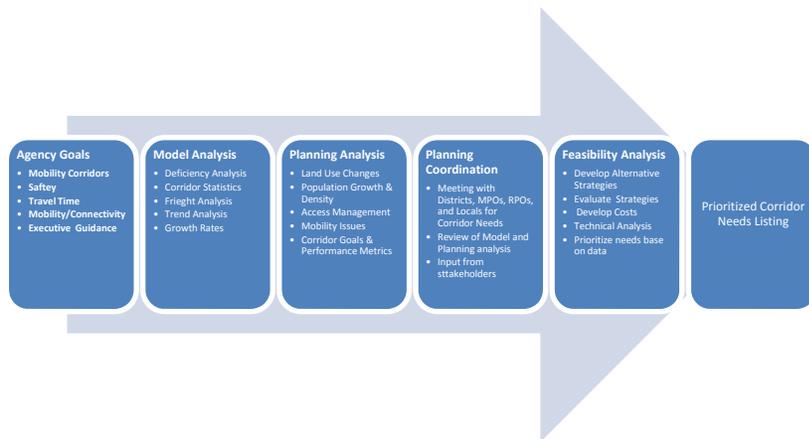


FIGURE 30 - PLANNING ACTIVITIES CHART

well as predict system condition and user cost levels resulting from a given level of investment. The model provides full, unconstrained roadway capacity needs analysis by funding constraints using engineering principles and ISTDM output

**Benefit Cost Analysis Spreadsheets** – Calculates benefit/cost analysis including air quality. Indiana, like many states, faced groups in economically lagging parts of the state that were requesting state investment in new highway infrastructure to help spur economic development - business growth and attraction. However, the INDOT realized that its traditional approaches to economic analysis of major highway proposals were based on comparisons of user benefits against project costs - an approach that did not account for potentially broader impacts on regional economies.

**Traffic Trend Analysis** – using the traffic forecasting tools to evaluate historical traffic trends and project future trends and growth rates.

**Population & Employment Density Analysis** – identify where people live and work currently and in the future to determine future corridor needs and demand.

**Cost Estimating Software** - will be utilized to develop cost figures for all recommended alternatives.

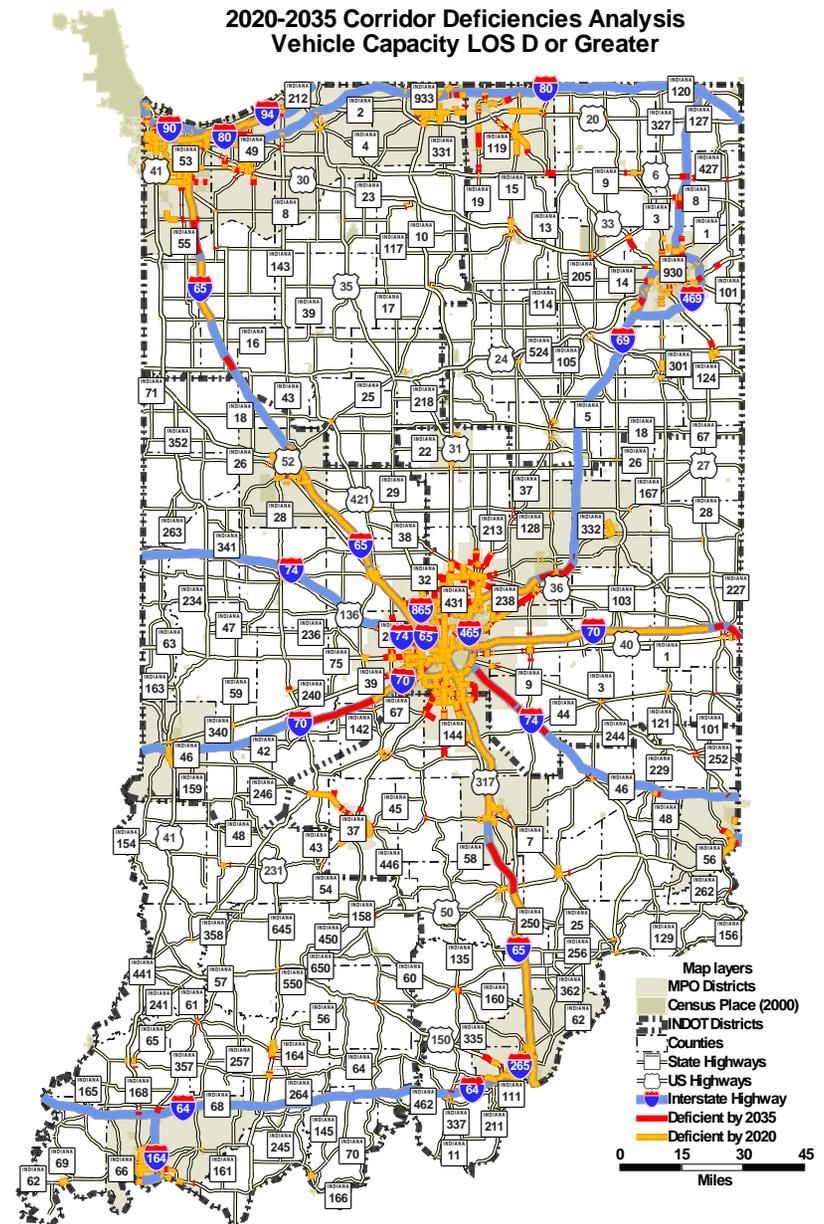


FIGURE 31 - 2020-2035 CORRIDOR DEFICIENCIES ANALYSIS



### **INDOT Primary Planning Partners**

#### ***Federal Highway Administration (FHWA)***

The Federal Highway Administration (FHWA) is a division of the United States Department of Transportation that specializes in highway transportation. The FHWA oversee federal funds used for constructing and maintaining primarily Interstate Highways, U.S. Routes and most State Routes. FHWA's role is to ensure projects using these funds meet federal requirements in terms of project eligibility, planning, environmental, contract administration, and construction standards. FHWA also performs research in the areas of automobile safety, congestion, highway materials and construction methods.

For additional information regarding FHWA, federal regulations, and contact information, please visit the Indiana Division of FHWA website: <http://www.fhwa.dot.gov/indiv/index.htm>

#### ***Federal Transit Administration (FTA)***

The Federal Transit Administration is an agency within the United States Department of Transportation (USDOT) that provides financial and technical assistance to local public transit systems. Public transit includes buses, subways, light rail, commuter rail, monorail, passenger ferry boats, trolleys, inclined railways, commuter vanpools and people movers.

The FTA is one of ten modal administrations within the USDOT that provides financial assistance to develop new transit systems and improve, maintain, and operate existing systems. The FTA oversees grants to state and local transit providers, primarily through its ten regional offices. These grantees are responsible for managing their programs in accordance with federal requirements, and the FTA is responsible for ensuring that grantees follow federal mandates along with statutory and administrative requirements. FTA has 10-regional offices. Indiana is part of Region 5, which also serves Illinois, Michigan, Minnesota, Ohio, and Wisconsin.

For additional information regarding FTA federal regulations, and contact information, please visit the FTA website: <http://www.fta.dot.gov/>

#### ***Metropolitan Planning Organizations (MPOs)***

Metropolitan Planning Organizations (MPOs) are federally required transportation planning bodies comprised of elected and appointed officials representing local, state and federal governments or agencies having interest or responsibility in transportation planning and programming.

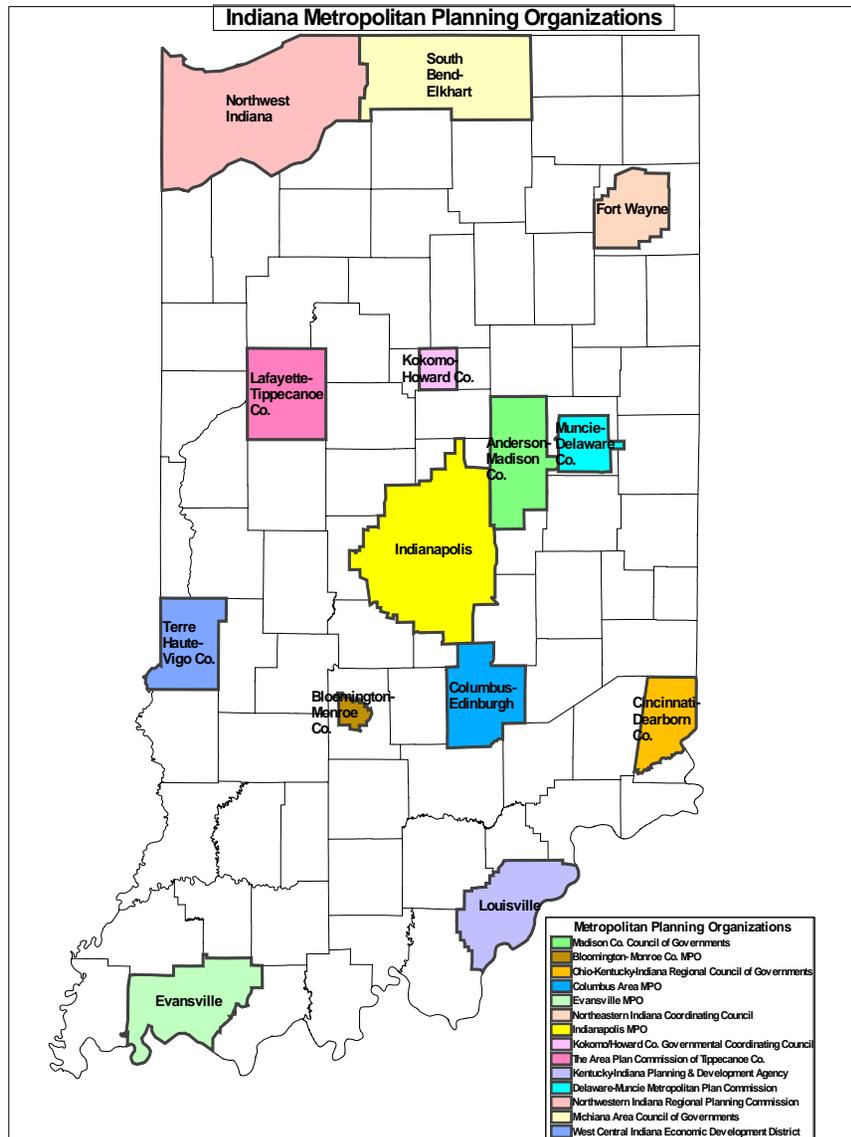


FIGURE 32 - MPO LOCATION MAP

Metropolitan Planning Organizations (MPOs) play a vital role in the planning and development of transportation projects and services throughout the urbanized areas of Indiana. Together with the INDOT District Offices, they serve as primary sources of local input and as fundamental cooperating partners in the multimodal planning and program implementation process. Indiana’s fourteen MPOs have jurisdictional responsibility for transportation planning in urbanized areas. Urbanized areas are defined by the U.S. Bureau of the Census as centers with populations equal to or greater than 50,000 people. By virtue of their function as major economic centers of the state, a great deal of Indiana’s transportation activity occurs in and around these urbanized areas.

MPOs are responsible for the development of the following documents for their metropolitan planning areas. The adoption of these documents is a prerequisite for the receipt of both federal transit and highway funding:

- **Transportation Plans** - a listing of all the transportation projects planned for the next 20-25 years.
- **Transportation Improvement Program (TIP)** - a listing of all transportation projects planned and funded for the next four to five years.
- **Unified Planning Work Program (UPWP)** - a list of what activities the MPO will complete over 1 to 2 years.

For more information on Indiana’s MPOs and contact information, please visit the Indiana MPO Council website:

<http://www.indianampo.com>

### Rural Planning Organizations (RPOs)



In 2001, the Indiana Department of Transportation initiated the Small Urban and Rural Transportation Planning Program to serve the transportation planning needs of small urban and rural areas of

the state. The program provided transportation planning funds in the form of a matching grant to regional planning organizations (RPOs) and those MPOs that have expanded their reach to represent small urban and rural areas of the state. Thirteen agencies, seven RPOs and six MPOs receive funds under this program.

In 2005, the program was re-engineered to improve accountability and effectiveness. Each agency has a uniform basic work program that provides a list of activities that the RPO will complete over the period of a year. This program consist of collecting HPMS sample data including traffic counts, implementing a regional traffic counting program on non-state jurisdictional roadways, maintaining a railroad crossing inventory, and providing planning support to INDOT Central and District Offices. Agencies are able to perform other eligible planning activities in order to provide planning support to local communities.

### Regional Planning Organizations

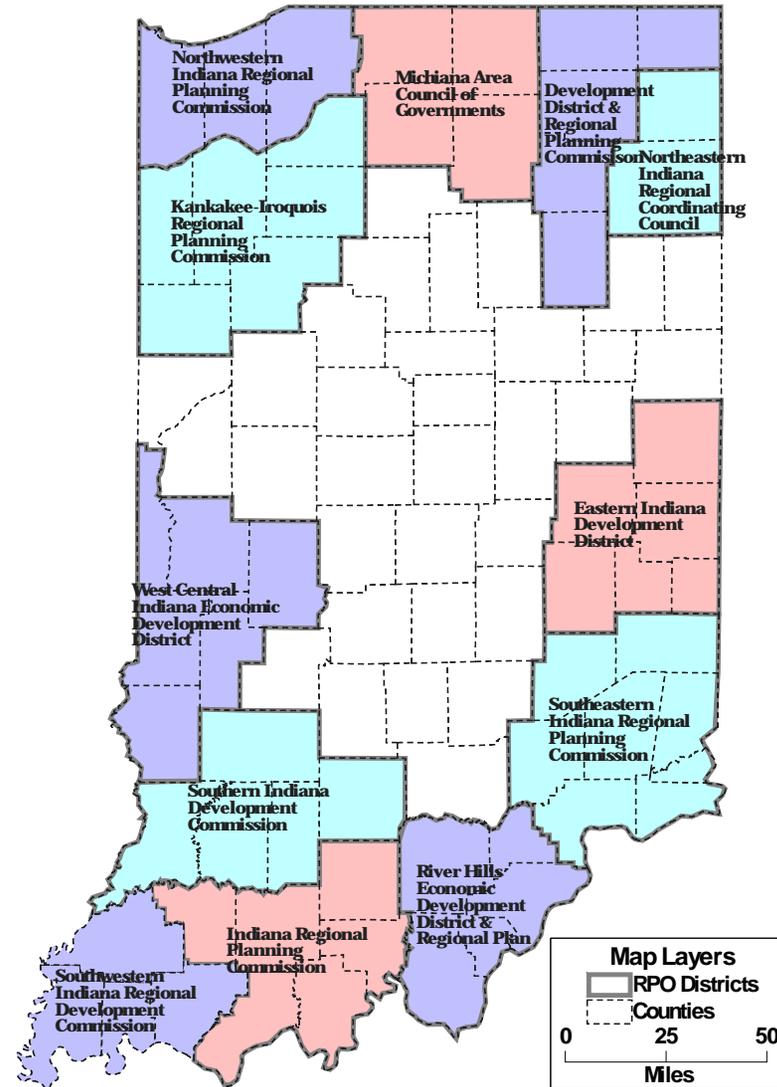


FIGURE 33 - RPO LOCATION MAP

## Public & Stakeholder Input

Public and stakeholder involvement is a fundamental component of effective transportation planning, project development, and implementation. Early and continuing public and stakeholder involvement allows transportation and resource organizations to be aware of potential issues, problems and impacts, in order to discuss them more comprehensively, and to determine how to address such concerns.

Public and stakeholder involvement occurs at all stages of the project development lifecycle. At the planning stage, public involvement is less about specific project development and more about setting strategic directions and long-range objectives.

While it can be more challenging to engage interested parties at the planning stage, there is tremendous value in emphasizing the benefits of public involvement and public participation at these early stages for more awareness of potential economic, environmental, quality of life, and land development impacts.

### Website

One of the most useful public involvement tools employed by INDOT has been the INDOT internet website. The site contains a wide-range of information about Indiana's transportation system. (see **Figure 34**).

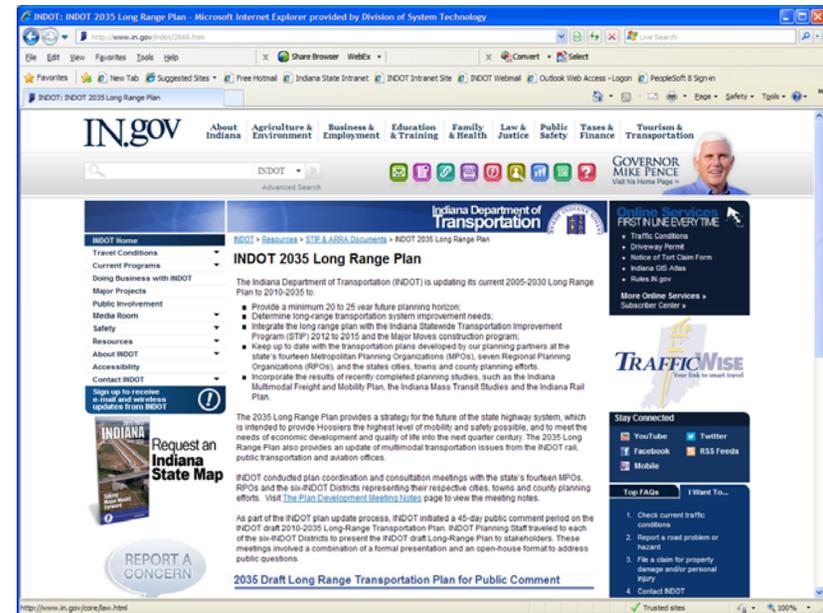


FIGURE 34 - INDOT LONG-RANGE PLAN WEBSITE

It has proven particularly useful in the distribution of up-to-date information regarding the status of the 2035 Long-Range Plan update. In addition, the site provides access to many pertinent planning tools and documents. Notes generated from early coordination meetings with the INDOT Districts, MPOs and RPOs are readily available on the INDOT website. Under the heading of “Tell Us What You Think,” there is a feedback link where the public can e-mail comments or questions about the planning process. The address is also listed for INDOT’s Long-Range Planning Section.



## INDOT Activities

Over the past few summers, INDOT has been present at the Indiana State Fair handing out highway maps, answering questions about the status of projects, and taking public comments about the planning process.

INDOT also participates in the annual Indiana Black Expo Summer Celebration as both a sponsor and as a presenter. For Black Expo 2011 and 2012, INDOT Representatives provided details regarding INDOT's planning process and project delivery activities. Comments were also solicited during the event for the draft Future Year Transportation Needs Report.

## Public Involvement Plan and Community Advisory Committees

INDOT projects that move from the planning and program development stage into the project development stage vary in terms of scope, cost, environmental issues and public interest. At the development stage, projects undergo an up-front assessment to consider the appropriate level of effort that INDOT should make to inform the public and elicit their input. A Public Involvement Plan (PIP) is prepared on every project at the beginning of the project development process. The purpose of the PIP is to ensure that an appropriate level of public involvement is conducted, commensurate with the nature of the project. The plan is intended to identify:

- a. The problems with the existing transportation system that are being evaluated for potential improvements, including its geographic location
- b. Potentially affected members of the public
- c. The methodologies or techniques that will be used to inform the public and elicit input.

The PIP may be short and simple for routine projects (such as road resurfacing) or may be detailed and extensive for complex or large scale projects (such as projects that involve significant potential social, economic, or environmental impacts or are known to be controversial).

Community Advisory Committees (CAC) are required for all projects that require a full environmental impact statement (EIS) and may be needed for some projects requiring only an environmental assessment (EA). A CAC is a group of representatives of various

community organizations (public and private) that are convened by INDOT, or its agents, at the outset of the NEPA process for periodic meetings intended to discuss issues and concerns related to the proposed transportation project. INDOT and FHWA meet routinely to discuss when a CAC is appropriate for any given EA. Members of the CAC serve as liaisons to their respective organizations and the community at large. The purpose of the CAC is to assist INDOT and its partners by providing input on issues related to the environmental evaluation. Following the completion of the environmental document, the CAC may continue to provide input during the design, construction and operations phases of the project. In particular, the CAC may assist INDOT in the development of Context Sensitive Solutions.

### District Meetings

The Indiana Department of Transportation conducts public meetings at each of its six districts in years when the Statewide Transportation Improvement Program (STIP) is updated. The primary purpose of the meetings is to present the draft Statewide Transportation Improvement Program (STIP) and the Future-Year Transportation Needs Report. The District Meetings are also used to develop and foster lines of communication between Indiana residents and INDOT. Prior to the 2009 District Meetings, notifications were mailed to transportation stakeholders consisting of members of the Indiana General Assembly, local elected and appointed officials, members of various organizations with interests related to transportation such as environmental and bicycling groups, and persons that have expressed an interest in transportation issues in Indiana. In addition, a press release announcing the date, location, times and description of the District

Meetings was distributed to media outlets throughout the State of Indiana.



The INDOT website also provided an invitation and notice regarding the date, time and locations for each of the six District Meetings. The 2011 District Meetings were conducted from March 29 thru April 13, 2011. Each district served as the host for a meeting conducted within its district. While the meeting format varied slightly from district to district, the meetings were conducted in an open house format where the public could view static displays and talk with INDOT representatives about specific issues and projects. A representative from the Asset Planning & Management Division was present to answer questions regarding the displays.

## Early Coordination Meetings

In the Future-Year Transportation Needs Report update process, the planning staff met with a total of 27 groups to discuss transportation needs and potential improvements. The 27 groups consisted of 6 INDOT Districts, 14 Metropolitan Planning Organizations and 7 Regional Planning Organizations. In March and April 2010, the list of "Major Moves" projects, last updated in November 2009, was distributed at the early coordination meetings for review and discussion with INDOT's planning partners. At the same meetings congestion maps from the statewide travel demand model were presented, and the planning partners were asked to review the maps and identify any anomalies in their areas. Consultation partners were also asked to identify the transportation related needs or concerns in their areas of the state. Notes from the early coordination meetings were recorded and then placed on the INDOT website for public viewing.

## INDOT Public and Stakeholder Comments

The Indiana Future Year Transportation Needs Report (Long-Range Plan at the time) was made available to the public for comments online and at various District Meetings. INDOT received over 276 public comments on the INDOT Long-Range (Future Year Needs) Plan. Comments ranged from the need to provide transportation options to the public; the need to clarify various statements or correct errors; and project specific support comments.

## Planning Annual Project Development Process (Generalized Workflow)

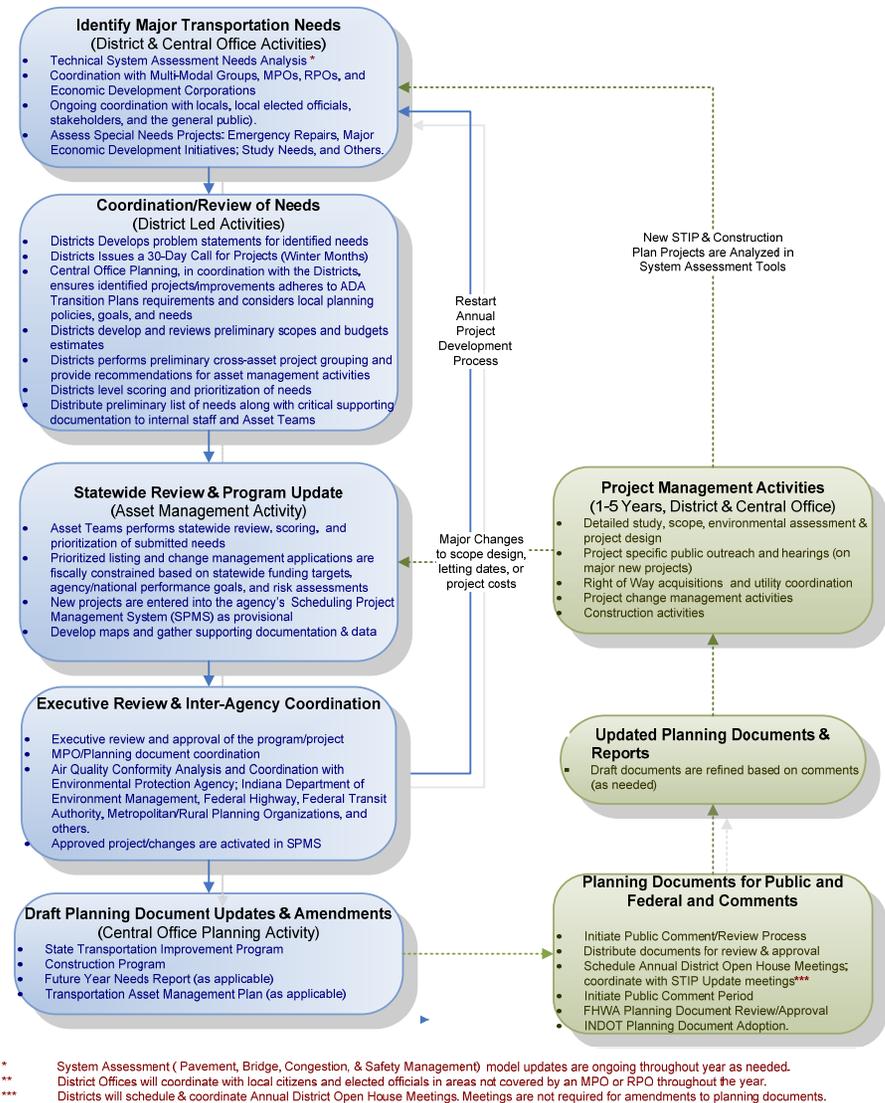


FIGURE 35 – PLANNING GENERALIZED WORKFLOW CHART (DRAFT)

Comments could be submitted to INDOT using one of four methods:

1. mailing a letter to INDOT
2. Clicking on the e-mail link on the website and submitting an e-mail response
3. Filling out an electronic comment form on the website
4. Attending one of the six INDOT open-house District meetings that took place between March 29 to April 13, 2011 where INDOT made brief presentations and the public could ask questions and submit a written comment

The most common method used to submit comments was the e-mail link on the INDOT webpage. The comments received by INDOT fell into one of following general categories:

1. Comments suggesting specific project improvements ranging from intersection improvements to new roadway linkages.
2. Comments expressing support for an increased INDOT commitment towards transit and multi-modal transportation.
3. Comments expressing support for the development of light rail, particularly in the Indianapolis metropolitan region (INDYconnect).
4. Comments expressing support for high-speed passenger rail.
5. Comments expressing support for a greater commitment towards the inclusion of bicycle and pedestrian amenities with highway projects and, support for increasing the number of greenways.
6. Comments expressing support for the concept of complete streets and context sensitive solutions.
7. Comments expressing concerns over INDOT public involvement efforts in updating the Indiana Future Transportation Needs Report (2035 Long-Range Transportation Plan at the time).
8. Comments regarding typographical errors or clarification of information within the draft document.

As a result of the comments received, INDOT has made the appropriate changes to the planning document to correct typographical errors, provide up-to-date planning information, explain INDOT's role and responsibilities in transportation planning, to clarify various statements, and to add additional detail on sustainability activities. The document was also reorganized to improve the overall flow of information and to list opportunities to address future transportation concerns and issues. Received comments and INDOT responses are summarized in **Appendix A**.

In addition to comments and concerns over INDOT's public involvement process, the INDOT Public Involvement Manual was also reviewed. This manual is designed to:

- Assist and provide guidance to those who are engaged in public involvement opportunities related to INDOT decisions and actions
- Inform the public about what they can expect in terms of INDOT public involvement policies and practices
- Provide the public with information about INDOT's commitment to public involvement and how and where the public can become involved in the planning and development process.

For more information on INDOT's public involvement process, or how to get involved, please visit our Public Involvement website at: <http://www.in.gov/indot/2366.htm>.



## Economic Analysis

The interface between transportation investment and economic development has broad ramifications that go beyond transportation's basic purpose of moving goods and people from one place to another. While there is no doubt that transportation is essential to the operation of a market economy, much still needs to be understood about ways in which an efficient transportation system can improve the productivity of the economy.

Transportation also has a broader role in shaping and development of the environment. Policy concerns in the next millennium will increasingly focus on the effects of transportation; where people live; where businesses locate; and the effects that these location decisions have on land use, congestion, natural resources, air quality, water quality, and the overall quality of life.

*(Source: Committee on Transportation and Economic Development <http://onlinepubs.trb.org/onlinepubs/millennium/00138.pdf>.)*

Low cost, efficient transportation helps businesses contain final costs to customers and makes them more competitive in the global market. INDOT will look at providing access to regional industrial, manufacturing, freight distribution, and multimodal facilities. The purpose will be to improve and help distribute heavy truck volumes on major routes; improve circulation of freight and goods; provide improved access to local agriculture, dairy, ranching operation, and freight activity centers located within the state and surrounding areas

## Economic Analysis Tools

Indiana, like many states, works with local and regional economic development groups to define transportation infrastructure issues and investment needs. INDOT must be able to assign costs and benefits to the various effects of transportation investment strategies so that informed decisions can be made.

The traditional approach to transportation benefit-cost analysis focuses on the benefits of the highway to its users in terms of changes in travel time, safety, or operating costs. These changes can be quantified in monetary terms, and compared to the proposed improvement costs to evaluate the cost-effectiveness of the project as a public sector investment.

INDOT uses a broader, non-traditional approach to performing economic analysis of major transportation investment strategies. This approach considers not only the direct user benefits of transportation improvements, but also the broader impacts on the regional economy such as: change in disposable (wage) income; business attraction and expansion; and tourism.

INDOT uses the Major Corridor Investment-Benefit Analysis System (MCIBAS) tool which assesses the relative costs and benefits of proposed major transportation corridor improvements. It consists of a traffic impact simulation model, a user benefit-cost analysis processor and an integrated economic impact analysis system.

The MCIBAS tool processes economic impact analysis in 5-basic steps:

1. Conduct transportation network comparison analysis. Two networks are compared; one assuming the improvements are implemented (build) and another assumes improvements are not implemented (no-build). Changes such as traffic volume, travel times, and congested hours of travel are calculated outputs.
2. Estimate user benefits. Network changes are used to calculate the costs associated with changes in travel time, safety, and vehicle operation in the corridor.
3. Calculate direct economic benefits. A system of linked economic models is applied to monetize the user and direct economic benefits for businesses. The portion of user benefits that accrue to businesses is estimated in terms of its impact on business costs and productivity. The changes in customer and labor market size are estimated based on the travel time changes, and applied in a business location model to identify the types of industries that may be attracted to the study area as a result of the highway improvements, and a



FIGURE 35- ECONOMIC ANALYSIS FLOW CHART (GENERALIZED)

projected number of additional jobs in each industry. Direct tourist impacts are estimated based on changes in travel time from major tourist origin markets.

4. Improvement secondary economic benefits. A regional economic simulation model developed by Regional Economic Models, Inc. is applied to forecast the indirect and induced impacts of the direct economic benefits. This model generates estimates of changes in regional employment, income, and output.

5. Conduct total benefit/cost analysis. These direct, indirect, and induced impacts are aggregated, discounted over time, and compared to the stream of capital and operating costs to determine an overall project benefit/cost ratio.

### Economic Impact Definition

In general, it is useful to define three types of impact measures:

1. **User benefits** refer to the change in travel time, operating and safety costs which are realized by travelers. Effects on non-travelers are not counted in the analysis of user benefits. This is the measure of benefit traditionally used by transportation agencies for project evaluation.

2. **Economic benefits** are defined as benefits to the economy --- i.e., the flow of dollars of income into the pockets of Indiana residents, including both travelers and non-travelers. These economic benefits can be compared to economic costs --i.e., the flow of

dollars out of the pockets of Indiana residents. This measure of project impact is produced by economic models. It is important to recognize that economic impacts encompass only money flows and do not necessarily capture all aspects of benefits that can affect the quality of life for people.

3. **Total Societal Benefits** are measured as the value of all benefits regardless of whether or not they affect flows of dollars. They encompass both income benefits to Indiana residents and the equivalent value of additional quality of life benefits that do not affect incomes. They can include both positive and negative factors. In theory, a public agency should seek to assess total benefits against total costs. In reality, this measure is seldom fully represented in benefit-cost analysis because of the lack of public agreement on the valuation of environmental and social factors.



## Categories of Economic Impacts

Highway projects can have different types of impacts in the short-run (e.g., during the construction period) and in the long-run (e.g., after the improved highway is fully operational and in use). The MCIBAS is built upon the concept of distinguishing four types of economic impacts:

- **Construction Effects** are mainly the short-term economic effects of purchasing materials and hiring workers for highway construction. (There may also be short-term impacts associated with traffic disruption and partial operation during construction, although those factors are not assumed for the basic analysis here.)
- **“Business Expansion”** is a term used here to refer to long-term economic effects of reducing travel-related costs for businesses and for individuals. Business cost savings can improve the relative cost competitiveness of area businesses and hence their ability to expand and grow. Any travel cost savings for individuals can also increase household purchasing power available for spending on other items.
- **“Business Attraction”** is a term used here to refer to long-term economic effects on industrial operations beyond those associated with travel costs savings. These effects on business may include more efficient inventory and logistics, implementation of just-in-time production processes, customer market expansion and associated scale economies, and access to a broader (and more competitively priced) set of suppliers.

- **Tourism Effects** are the long-term economic effects on tourism markets, beyond those associated with travel costs savings. These are primarily regional effects on tourism patterns due to expanded market access.

## Types of Economic Effects

The economic implications of highway improvements are tracked in MCIBAS at two levels:

- **Direct Impacts.** The immediately-realized benefits to travelers (i.e., user benefits) may be in terms of ease of access, comfort, safety, travel times and/or travel costs. They lead to various direct economic effects (i.e., income gains) to users and non-users in the form of cost savings to businesses and individuals, industry market effects and/or tourism effects (defined above).
- **Secondary Impacts.** Ultimately, the direct benefits to businesses and the residents of a region may also lead to broader impacts at the regional and statewide economies. The term “secondary impacts” is used here to refer to the sum of “indirect” and “induced” economic effects. Indirect effects refer to the growth of suppliers who gain additional orders to serve the growth of the directly-affected businesses. Induced effects refers to the further growth of businesses throughout the economy, which gain revenue as the additional workers –hired as a result of direct and indirect economic impacts – spend their income on food, clothing, shelter and other goods and services. Other induced effects may occur over time as there are

broader shifts in population and business location patterns, as well as prices. The Regional Economic Models, Inc. (REMI) simulation model is used with MCIBAS to estimate these effects over time.

Proposals were based on comparisons of highway user benefits against project costs - an approach that did not account for potentially broader impacts on regional economies.

These tools will be used to measure user benefits as well as benefits to employment and economic industries. The Capital Program Management Team will use the Major Corridor Investment Benefit Analysis System (MCIBAS) to provide very detailed economic analysis.

## Environmental Justice

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 is not only related to community impact assessment, but the transportation planning process as well. Environmental justice extends community impact assessment by examining communities based on characteristics such as race, ethnicity, income.

On May 2, 2012, The U. S. Department of Transportation issued an update to Departmental Order 5610.2(a) (Actions to Address Environmental Justice in Minority Populations and Low-Income Populations). This Order updated the Department's original

Environmental Justice Order, which was published April 15, 1997. The Order continues to be a key component of the U.S. DOT's strategy to promote the principles of environmental justice in all Departmental programs, policies, and activities. In June of 2012, The U. S. Federal Highway Administration (FHWA) followed up with its release of [FHWA Order 6640.23A](#), "FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,"

Since the passage of NEPA, the FHWA has built a framework of policies and procedures to help meet its social, economic and environmental responsibilities while accomplishing its transportation mission. Environmental Justice (EJ) is a component of FHWA's overall commitment to the protection and enhancement of our human and natural environment.

INDOT's Environmental Justice objectives include the following:

- Improve the environment and public health and safety in transportation of people and goods, and the development of transportation systems and services.
- Harmonize transportation policies and investments with environmental concerns, reflecting an appropriate consideration of economic and social interests.
- Consider the interest, issues and contributions of affected communities, disclose appropriate information, and give communities an opportunity to be involved in the decision-making.
- INDOT has made special efforts to evaluate and improve the planning and program process in order to ensure compliance with environmental justice regulations. These

*It is the policy of the United States Department of Transportation (DOT) to promote the principles of environmental justice (as embodied in Executive Order 12898) through the incorporation of those principles in all DOT programs, policies, and activities. This will be done by fully considering environmental justice principles throughout the planning and decision-making process in the development of programs, policies, and activities, using the principles of the National Environmental Policy Act of 1969 (NEPA), Title VI of the Civil Rights Act of 1964 (Title VI), the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, (URA), the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (Public Law 109-59; SAFETEA-LU) and other DOT statutes, regulations and guidance that address or affect infrastructure planning and decision-making; social, economic, or environmental matters; public health; and public involvement.*

efforts have led to the development of an updated Public Involvement Procedures Manual containing special outreach methods to increase minority and low-income population group participation. The second effort was the market research study. One aspect of the study was intended to assist in the identification of transportation needs and perceptions of how well transportation services were being delivered to minority and low-income groups.

INDOT addressed environmental justice issues as a component in its larger Market Research project. 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.
4. Development of potential actions that INDOT could take based on the cumulative results of the Market Research information gathering activities such as: establishment of a department-wide environmental justice policy and looking for context sensitive solutions to transportation needs.

Based on the findings from the environmental justice component of the Market Research project, INDOT is moving forward with potential actions that will improve the agency's ability to include minority and low-income groups in the transportation planning process and decision-making over future system improvements. The INDOT Market Research Environmental Justice Perspective web site can be found at:

[http://www.in.gov/indot/files/market\\_section3.pdf](http://www.in.gov/indot/files/market_section3.pdf)

The statewide planning process and statewide transportation improvement program are built upon a partnership based on planning and programming processes with the state's MPOs. INDOT recognizes the critical role that MPOs play in implementing the

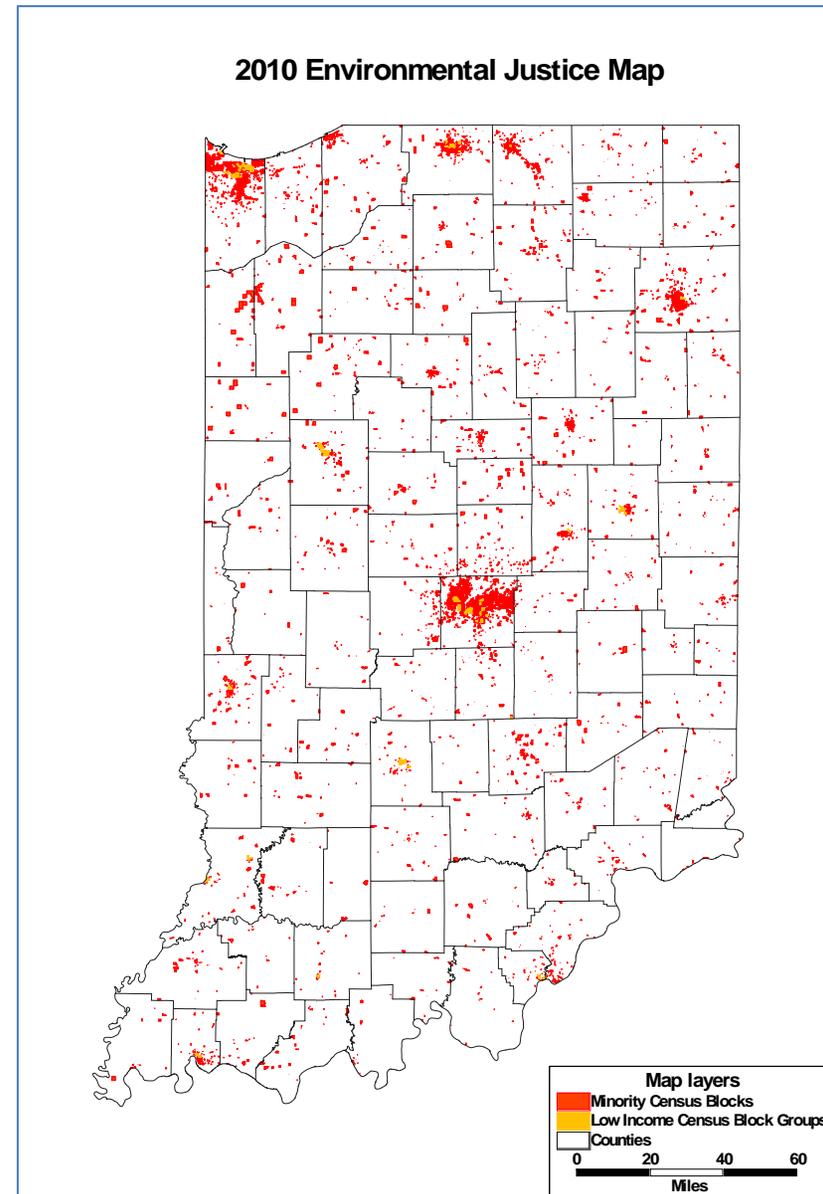


FIGURE 36 - ENVIRONMENTAL JUSTICE MAP

environmental justice regulations. As part of this cooperative process, INDOT and MPOs participated in the 2010 FHWA Environmental Justice Workshops held in the City of Gary on April 16<sup>th</sup> & 17<sup>th</sup>.

INDOT participates in the cooperative transportation planning process including activities to ensure environmental justice with each MPO jurisdiction. An effective statewide planning and programming process incorporates transportation planning activities under both local and state jurisdictions. Therefore, INDOT relies on the MPOs to establish and include activities that are designed to ensure compliance with environmental justice regulations as part of their transportation planning work program, long-range transportation plan development and transportation improvement program development activities.

The statewide map for INDOT Environmental Justice Analysis (**Figure 36**) is based upon two data sources: the 2010 Census Public Law P 94-171 block level populations, and racial characteristics and the low income data from the 2005-2009 American Community Survey. Each area is defined by a collection of census block or block group pieces.

For the identification of minority areas, more than 51 percent of the block level 2010 population must be reported as non-white, including Hispanic and Latino,



one of the 4 Environmental Justice Population Groups (Non-Hispanic Native Americans; Non-Hispanic Black and others; elderly; and disabled). For the low income area identification, more than 51 percent of the families must be below poverty threshold as determined by the Census Bureau for a census block group to be classified.

## Environmental & Greening Initiatives

Since the initial Greening the Government Executive Order was signed in 1999, INDOT facilities have focused on reducing the amount of discarded solid waste. Across the state, more than 100 INDOT facilities have developed comprehensive recycling programs that focus on the recycling of cardboard, paper, aluminum cans, plastic bottles, glass containers and steel food tins.

Through the efforts of INDOT employees statewide, the department has significantly reduced the amount of waste entering Indiana's landfills as well as the costs associated with disposal. This has reduced taxpayer costs and landfill needs, provided feedstock for industry throughout the state to produce new goods, and helped create jobs in the waste diversion and recycling industries.

Listed below are descriptions of various INDOT environmental initiatives. For a complete listing of initiatives and programs, please visit our website at: <http://www.in.gov/indot/2405.htm>.

## Hoosier Roadside Heritage Program

In the late nineties, INDOT began an innovative program aimed at beautifying Indiana's roadways, saving taxpayer dollars, lessening the



effects of erosion and improving safety. The Hoosier Roadside Heritage Program was developed in cooperation with the Federal Highway Administration, the Department of Natural Resources and the Department of Environmental Management.

The primary goal of the Roadside Heritage Program is promoting and incorporating native plants and wildflowers into Indiana's roadside landscape. This provides benefits such as:

- Enhancing the beauty of the environment
- Reducing erosion
- Minimizing costs associated with mowing
- Lessening storm runoff
- Controlling invasive plant species
- Improving soil quality

## *Native Plants Emphasized*

The definition of native plants and wildflowers varies, but native plants are generally considered plants present before settlers arrived in the Hoosier state. Plants settlers brought along with them are considered wildflowers. Both plant types are capable of surviving climate extremes in their growing areas. The list of native plants and wildflowers is long and varies from the northern to the southern sections of Indiana. Many books and publications are available to everyone interested in wildflowers and native plants. This information may be found in local libraries, book stores or on the Internet.

Some of the most popular plants used in the program include New England Aster, Butterfly Weed, Gayfeather, Perennial Lupine, Plains Coreopsis and Purple Coneflower. Prairie grasses are also part of the program, and include Little Bluestem, Big Bluestem, Blue Grama and Sideoats Grama.





### *Sowing Our Own Seed Source*

Farming isn't typically a challenge state transportation agencies take on – but it's exactly what the Indiana Department of Transportation (INDOT) is doing. To grow wildflowers and native plants along our roadways, we needed seeds. To solve the problem, INDOT established three seed farms located across the Hoosier State.

Creating the seed sites was a unique opportunity and challenge for INDOT employees. A small group of experienced staff members guide the projects. District and sub district employees plant, water and weed the seed sites in addition to their existing duties. Many INDOT employees even go above and beyond the call of duty by educating themselves on the plants in their off-duty time. Department of Correction crews also help maintain the seed farms – allowing inmates to gain skills they can use to pursue a horticulture career. With the effort and dedication of everyone involved with the program, the future of Indiana's Roadside Heritage Program looks bright!

## **Environmental Mitigation**

When developing projects, INDOT must consider impacts a project might have on the environment. Impacts could include things like: erosion and siltation of streams, realignment or relocation of a waterway, and filling or draining of wetlands. INDOT's Office of Environmental Services helps insure that a project avoids impacts to wetlands and water quality where possible, minimizes impacts that are unavoidable, and mitigates for impacts that exceed regulatory limits.

### **Erosion Control**

Erosion control methods are planned for construction projects to prevent soil from eroding from the site and polluting any nearby waterways. When channels are realigned or relocated due to an INDOT project, the new channel is reviewed to determine if it can be designed to mimic natural stream features and to reduce the potential for erosion within the channel.

### **Wetland Impacts**

Wetlands perform many functions that are beneficial and desirable to humans such as:

- Filtering sediment and pollutants from surface waters.
- Reducing or even preventing flooding in other areas of the landscape
- Providing specialized habitat for songbirds, waterfowl, small mammals, and several state endangered plants and animals
- Functions as a home to dozens of stunning and unique wildflowers

Wetlands are valued for the recreational opportunities they provide such as hunting, fishing, bird watching, etc. When a project impacts a wetland, INDOT mitigates those impacts by constructing new wetlands, restoring prior converted wetlands, or enhancing existing but degraded wetlands.

For areas of fully developed (forested) wetlands impacted by a corridor project, INDOT creates new wetlands. In the case of newly developing (emergent) wetlands, the replacement acreage varies from site to site. All wetlands mitigation sites are subject to the approval and oversight of the Indiana Department of Natural Resources, the U.S. Army Corps of Engineers, and other agencies. In cooperation with the environmental resource agencies INDOT developed a Wetland Mitigation Memorandum of Understanding to make all reasonable efforts to avoid and minimize impacts to wetlands and to define the level of mitigation required.

### **Forest Mitigation**

INDOT conducts a woody re-vegetation program where designers look for areas within the project's right of way where additional tree planting can occur.

### **Karst Geology Mitigation**

Southern Indiana has significant areas of karst geology where surface and subsurface irregularities are created in limestone formations due to the dissolution of calcite or dolomite. INDOT has entered into a Memorandum of Understanding with the Indiana Department of Natural Resources, Indiana Department of Environmental Management, and the U.S. Fish and Wildlife Service to minimize any deleterious effects of construction projects in the

karst areas. The agencies agree to determine the location of sinkholes, caves, underground streams, and other related karst features and their relationship prior to determining the potential impacts of the proposed rehabilitations or construction and formulate appropriate measures to offset unavoidable impacts to the karst features.

### **Conservation Measures for Threatened and Endangered Species**

As part of the required consultation process with the U.S. Fish and Wildlife Service, INDOT is committed to carry out an extensive set of conservation measures for federally endangered or protected species identified within a corridor project area. These may include such things as habitat restoration and avoiding tree clearing during certain times of the year.





### Noise Impacts

INDOT, under the direction of the Federal Highway Administration (FHWA) has developed criteria for measuring and predicting noise levels and setting noise standards. Under these standards, if any Federal project adds capacity or significantly realigns the road then traffic noise impacts must be evaluated.

After measuring the noise levels along the corridor, the levels are then entered into a computer model that utilizes this information to define noise mitigation opportunities which are the most beneficial to the greatest number of project corridor residents.

### Historic Resource

Under Section 106 of Historic Preservation Act, INDOT and FHWA are required to ensure that historic properties are avoided wherever possible in the development of transportation projects. This protection applies to both archaeological sites and above-ground historic resources such as historic bridges.



### Managed Lands and Sensitive Areas

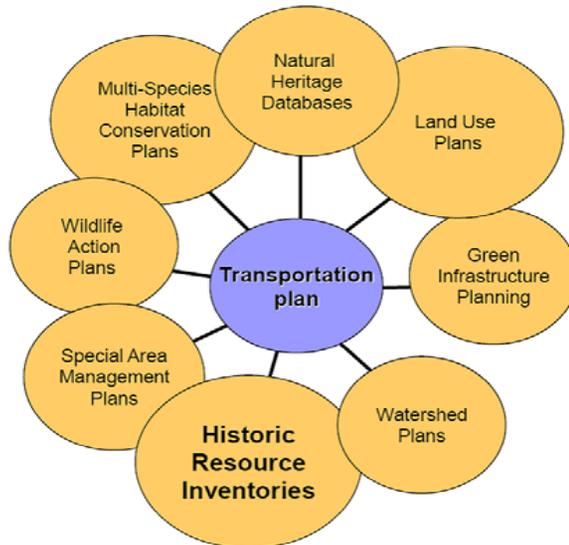
Managed lands and natural areas include federal, state, or private lands that are managed for timber production, wildlife habitat, recreation, education, or other purposes. Managed lands include all of the following: all outdoor recreational facilities, all publicly-owned and managed lands, and all private properties whose owners participate in federal, state, and local wetland, habitat, or other conservation and management programs. These areas may also be designated for a specific purpose (not necessarily actively managed) or high quality natural areas. There are federal and state interests in many of the privately-owned managed lands in the form of cost-sharing agreements, purchased easements, or property tax reductions.

Managed lands play an important role in preserving and protecting plant and animal species. INDOT takes great care to avoid, minimize, and mitigate impacts to managed lands, streams, wetlands, and wildlife habitats in transportation construction practices.

### The Indiana Land Resources Council

The Indiana Land Resources Council was created under state law (I.C. 15-7-9) to assist local and state decision-makers with land use tools and policies. The Indiana Land Resources Council is composed of representatives from county and municipal governments, home building and land development, business, environmental interests, soil and water conservation districts, and forestry, as well as a land use expert and a farmer. The Council’s mission is to evaluate all types of land use, not just agricultural land use. Their first agenda item has been developing model ordinances for agricultural zoning and other tools for counties and municipalities.

In cooperation with the Indiana State Department of Agriculture the Indiana Land Resources Council developed model agriculture zoning ordinances to help local decision makers to integrate agriculture operations into local economic development efforts. Thirteen counties have adopted elements of these model ordinances to better plan for agricultural activities.



### Recycling & Waste

Each year INDOT road projects reuse a great deal of waste materials produced during resurfacing and reconstruction activities. This is, by far, INDOT’s largest waste stream, averaging more than 1 million tons of reclaimed concrete and asphalt annually

As a part of its on-going charge to promote the environmental performance of all state operations, INDOT has implemented various construction initiatives/programs aimed at reducing waste, decreasing energy use, and making more efficient use of materials.

Recycling and Waste Diversion issues have come to the forefront in the U.S. and more specifically Indiana in the past few years. Waste diversion and recycling are terms that have become mainstream concerns with many companies with respect to the bottom line as well as it being the "right thing to do". INDOT is no exception, and for the past few years has been a leading government agency in Indiana and in the nation in efforts to minimize the amount of waste discarded from our State facilities and use of recycled materials for highway projects. This in turn has resulted in conservation of the state's landfill space, increased the amount of renewable resources recovered at the state level and significantly reduced the expenditures related to the cost of disposal.

INDOT has targeted specific waste streams as particularly important. These waste streams deal more with what are known as Special, Universal and Construction/Demolition Wastes. These categories include such materials as concrete/asphalt, light bulbs, oil, antifreeze, filters, tires, hazardous wastes, etc.



### Concrete and Asphalt Recycling

INDOT is a national leader in its use of recycled materials for highway projects. INDOT has practiced concrete and asphalt recycling for the past 15 to 20 years; this is one of the largest waste streams produced. Asphalt roof shingles, steel slag, reclaimed asphalt pavement and recycled concrete are among the items that can be reused to save resources and cut costs. When roads and highways are milled or removed before resurfacing or reconstruction, a certain percentage of the reclaimed material is recovered and reused in the production of the new road surface. For example, asphalt mixtures that incorporate more than 40 percent recycled materials, including shingles, saved Indiana taxpayers nearly \$9.5 million in FY 2010 — and kept those materials out of Indiana landfills. This practice is and has been utilized for the approximate 11,000 miles of state roads and highways under the jurisdiction of the INDOT. Each year INDOT reuses approximately

one million tons of reclaimed material for road construction projects in the State of Indiana.

INDOT also used shredded tires to fill in embankments on three projects, which saved more than \$3.2 million. INDOT follows guidelines issued by the American Society of Testing Materials (ASTM) and the American Association of State Highway and Transportation Officials (AASHTO), and INDOT also develops its own specifications and methods for ideas not covered by ASTM or AASHTO. These practices not only save taxpayer dollars, but mitigate environmental impacts for example, by not filling landfills.

### Tire Recycling and Reuse

Millions of tires are disposed of and possibly billions are stockpiled throughout the United States each year. Most of these tires are reused in various applications; however 14% of the millions of tire disposed annually still go to landfills or other land disposal options.



Recycled, scrap tire material has very useful engineering properties that make it an excellent choice for construction applications. Reusing scrap tires has a number of positive environmental benefits. Reusing scrap tires conserves valuable landfill space, and reducing stockpiles decreases the risk of tire fires and the related adverse environmental impact. Reused tire materials provide high

quality construction material that reduces the need for mining raw aggregate and the associated use of water, fuel and reduces carbon dioxide emissions.

INDOT uses shredded tire materials to replace other materials currently used in construction such as lightweight fill. Tire shreds as a lightweight fill material is significantly cheaper than alternatives. Tire shreds and sand mixture as lightweight fill has been used on a number of INDOT projects as backfill for mechanically stabilized earth wall (MSE) over organic and soft soils, drainage structure replacement, and highway embankments. The bulk of the work has been done between 2008 and 2010, saving about \$1.2 million in material costs, using 1.1 million passenger tires, and reduced construction time. Going forward, INDOT will continue to use shredded tires in its operations.

### Steel Slag Reuse

Steel slag is a waste byproduct from the conversion of iron to steel. It is produced during the separation of the molten steel from impurities in steel-making furnaces. Slag has a long history of environmentally



safe applications and positive environmental benefits. A human and ecological risk assessment for steel slag reinforces that steel slag conforms to the EPA's stringent requirements and does not pose a threat to human or plant life.

Steel slag has unique physical and chemical properties that make it particularly well suited to a variety of uses in transportation construction projects. Slag provides superior skid resistance, high stability properties, improved durability, hardness, and bonding characteristics. It is often used in asphalt and concrete mixtures, engineered fill, and embankments. Slag can be used as a substitute for natural aggregates, which results in environmental, engineering and economic benefits especially where natural fine aggregate sources are limited.

Slag is used more in the northwest part of Indiana because of the proximity of the steel mills. It is used less the further south from the steel mill source in Indiana due to the added cost to transport the material outweighs the saving benefits.

### Metal Recycling

Tons of steel and aluminum scrap recovered from guardrails, sign posts and signs from INDOT construction projects are sold to scrap metal dealers each year. The funds raised through the sale of scrap are invested back into department operations.

### Sustainable Maintenance Activities:

Through maintenance activities on vehicles and equipment, INDOT also creates additional special and universal wastes such as waste



oil, fuel filters, antifreeze, and vehicle light bulbs. INDOT in 2010 recycled more than 40,000 gallons of waste oil, which is re-refined by Safety Kleen of America to meet American Petroleum Institute (API) standards and sold back to state agencies for use in their vehicles and equipment. Indiana's practice of re-refining and re-using oil has occurred for well over a decade.

In 2010, INDOT recycled more than 240 drums of vehicle and equipment related waste and approximately 50 drums of universal waste, including light bulbs, household batteries and waste ballasts.

The department recycled more than 240 drums of vehicle and equipment related waste and approximately 50 drums of universal waste, including light bulbs, household batteries and material, including road signs and posts, guard railings and vehicle and miscellaneous steel and aluminum, are sold to vendors at market competitive prices.



### Adopt a Highway Program

After the snow melts, Indiana's roadsides reveal litter and debris that has accumulated over the winter season. To reduce trash before mowing begins, INDOT holds its annual Trash Bash each April.

Since 1997, INDOT crews and Adopt-A-Highway volunteers have joined forces to "spring clean" every mile of interstate during Trash Bash. More than a thousand groups make this program a success around Indiana. The Adopt-A-Highway program helps us all recover our natural heritage. Each year, nearly 340 tons of trash is collected, sprucing up the highways in time for nice weather. Please visit our Adopt a Highway Program for more information at: <http://www.in.gov/indot/2598.htm>.

## Use of Technology

Online documents and use of web conferencing equipment reduces the amount of paperwork, vehicle travel and fuel costs.

INDOT has adopted many technological innovations in order to operate in a sustainable manner. INDOT has implemented several initiatives designed to limit employee travel to trips that are critical for basic operations. By substituting video, web, and telephone conferencing for automobile and air travel, INDOT has lessened its environmental footprint through reduced emissions and fuel consumption. As of 2010, INDOT has reduced out of state employee travel by 60% and reduced the size of its vehicle fleet by 16%. INDOT is also requiring all new state vehicles to use flex and alternative fuel technologies.

INDOT has sought to reduce paper consumption through on-line document sharing and storage. Documents are stored on-line in shared directories. Employees can collaborate without having to meet or circulate draft documents. This reduces motor vehicle emissions and paper consumption.

INDOT is working with the Indiana Department of Administration to ensure that all of its facilities incorporate energy efficiency technologies. New facilities are designed and built to operate in a sustainable manner. Existing facilities are retrofitted whenever possible. All facilities will use best management practices to reduce energy consumption, limit harmful emissions, recycle waste, and ensure the proper use and disposal of chemical products.



## Sustainable Developments

INDOT actively pursues programs that enhance sustainability. Some examples are as follows:

### The Indiana Stellar Communities Program

The Stellar Communities Program is an innovative state program created to fund comprehensive community development projects in Indiana's smaller cities and towns. The program embodies collaborative government partnerships and successfully leverages state and federal funding from multiple agencies to undertake large-scale projects. Through this program, Indiana is doing more with current resources and making a bigger impact in communities, even with a slimmer budget.

This new program is a partnership between three state agencies: the Indiana Housing and Community Development Authority (IHCDA), Indiana Office of Community and Rural Affairs (OCRA), and the Indiana Department of Transportation (INDOT). Local units of government in Indiana that are considered non-entitlement areas as defined by the federal Housing and Urban Development guidelines

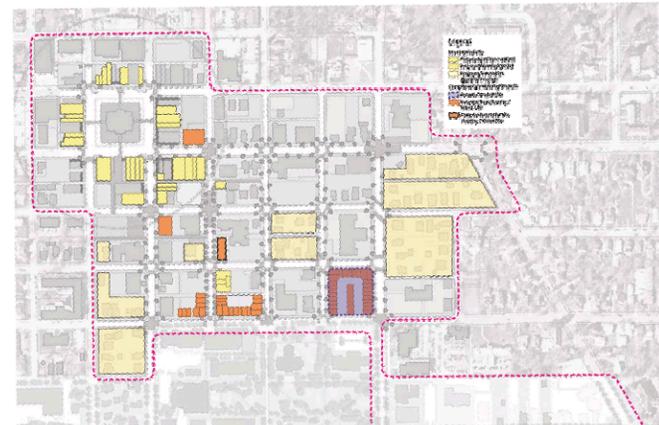
are encouraged to submit a letter of interest for the program. Selected communities will complete multiple community development projects funded by the three partner agencies' programs, which may address housing, infrastructure, roadwork, streetscape, lighting, community centers, revitalization projects, and other quality of life issues.

The following two Indiana communities have been selected for the initial program pilot:

### *Greencastle Community Stellar Project*

#### Key Project points:

- Revitalize courthouse square and central business district
  - Improve streetscapes and offer parking solutions
  - Improve facades while preserving historical integrity of buildings
  - Way-finding program to support community visitors
  - Resolve potential environmental concerns in commercial district
- Create a pedestrian friendly residential neighborhood
  - Enhance housing options – second story loft housing in commercial district and new construction in South Court neighborhood
- Improve local quality of life
  - Community health initiatives including new community health center and new trail linking community to recreational area
  - Partnership with Indianapolis Symphony Orchestra
  - Technology hub/Wi-Fi bubble in commercial district





**North Vernon Community Stellar Project**

**Key Project Points:**

- Arvin Redevelopment site – 3.5 Acre Brownfield site, clearing the way for private investment
- Carnegie Library Restoration
- Depot Events Center Renovation
  - Project will convert historic train depot into social center for community events
- Downtown Streetscapes
  - New sidewalks, curbs, landscaping, lighting, signage, and way-finding
- Irish Hill Revitalization
  - Historic Uptown Streetscape improvements near Irish Hill neighborhood
  - Creation of 17 properties to serve low- to moderate-income residents
- Short Street Plaza

- Close Short Street to construct pedestrian-friendly plaza space
- Main Street Development – mixed use for both commercial and residential

For more information on Stellar Communities and links to ongoing Stellar Projects, please visit the Indiana Office of Rural Affairs website: <http://www.in.gov/ocra/2513.htm>.



# Environmental Planning

## Air Quality Conformity

Established under the Clean Air Act (section 176), air quality conformity plays an important role in helping states improve air quality in areas that do not meet the national standards. The Clean Air Act (CAA), in combination with ISTEA (Intermodal Surface Transportation Efficiency Act) and all subsequent transportation acts, require areas that exceed certain air pollution standards to do “transportation conformity”.

The U.S. Environmental Protection Agency (EPA) has established the maximum outdoor concentration levels of criteria air pollutants that will not cause unacceptable impacts to human health and public welfare known as National Ambient Air Quality Standards (NAAQS).

NAAQS lists PM2.5 (particulate matter 2.5µm and smaller) and ozone (O3) as two pollutants that require transportation conformity for areas designated by EPA as “non-attainment”. Once an area meets the standard, it can be re-designated as a “maintenance area”, but transportation conformity must be done for another 20-years.

Under the separate general and transportation conformity rules, federal agencies must work with State and local governments in nonattainment and maintenance areas to ensure that federal actions, including highway and transit projects, conform to the initiatives established in the applicable state.

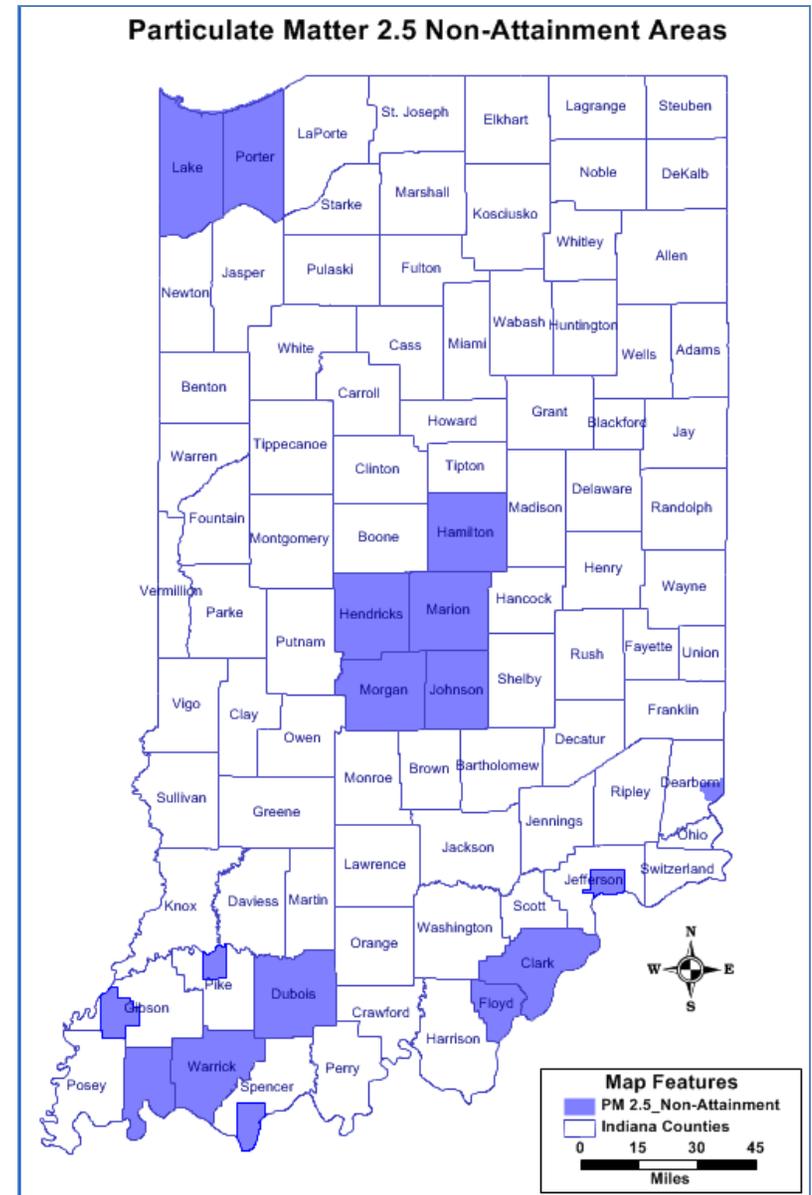


FIGURE 37-PM 2.5 NON-ATTAINMENT/MAINTENANCE AREAS

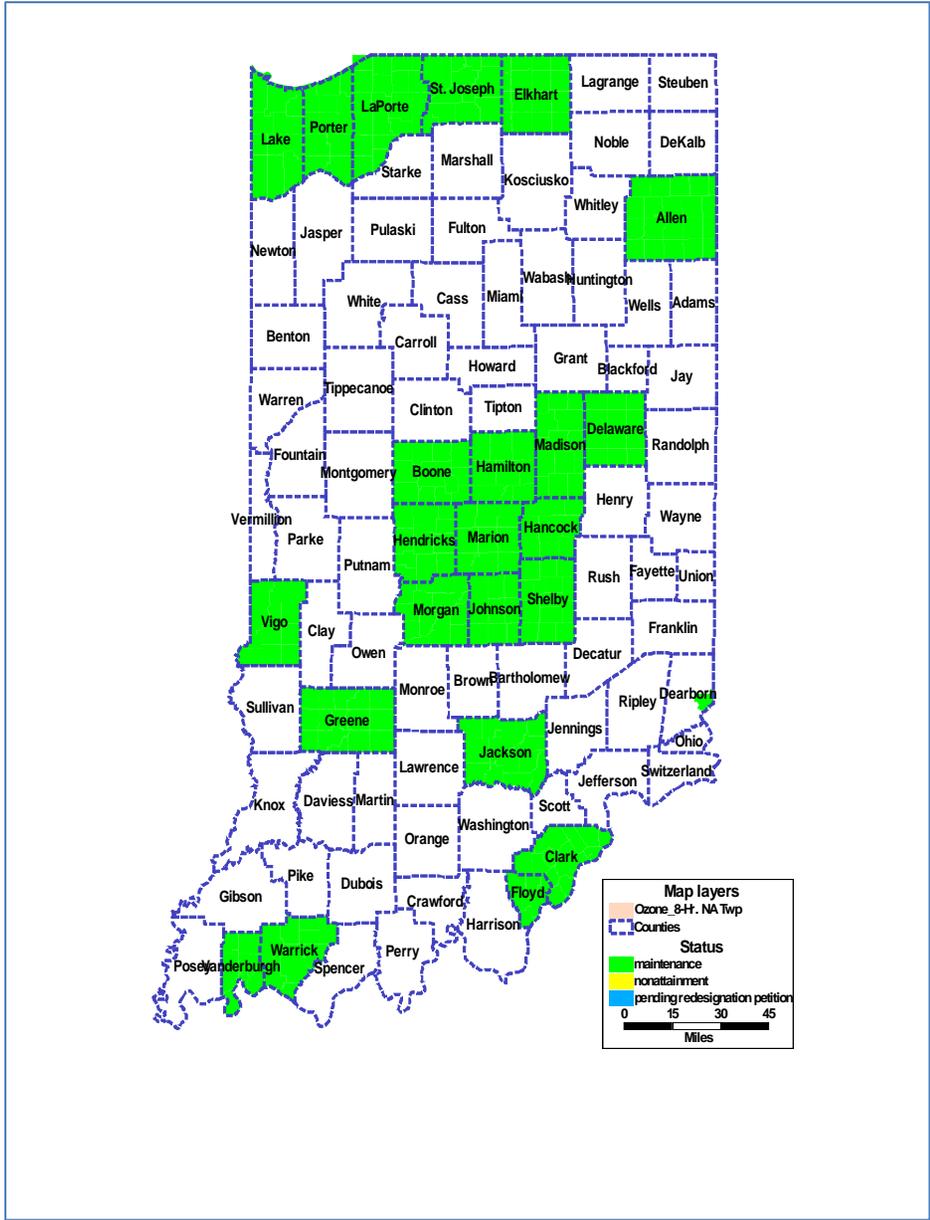


FIGURE 38: 2011 OZONE NON-ATTAINMENT/MAINTENANCE AREAS

Transportation conformity is the process established by USDOT and USEPA to ensure that transportation investments will contribute to improving air quality in areas where pollutants exceed National Ambient Air Quality Standards (NAAQS).

Currently, all ozone areas are maintenance areas; the original nonattainment areas have met the standard and EPA has approved their re-designation. All PM2.5 areas have also now met the standard, but are in different stages of the re-designation process.

Every 5 years EPA reevaluates the standards to determine if new studies on pollutant health effects should mandate a change in the standard. Any changes to the standard are expected to add to the areas of the state that will need to do transportation conformity.

### Transportation Conformity

Transportation conformity is a process to ensure that federal funding and approval are given to those transportation activities that are consistent with air quality goals. Mobile sources are a significant contributor to air pollution, so meeting the NAAQS requires transportation planning agencies to consider the impacts of future projects. The conformity regulation requires that all transportation Plans (Long-Range Plans) and Transportation Improvement Programs (TIPs) in non-attainment or maintenance areas conform to the State's SIP (State Implementation Plan).

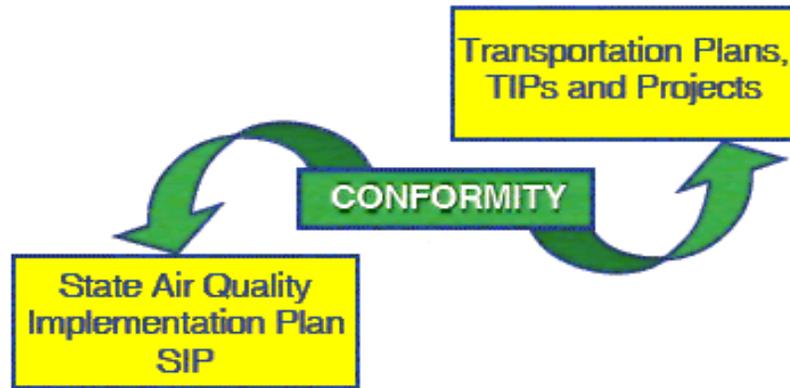


FIGURE 39-SIP &amp; PLAN DOCUMENT BALANCING ACT

A SIP is developed for each area by Indiana Department of Environmental Management (IDEM) to ensure the area meets the standard within the required time. Transportation-related emissions are limited by a Motor Vehicle Emission Budgets (MVEB) that future emissions cannot exceed. Transportation conformity entails calculating future transportation (mobile) emissions to ensure that transportation activities do not exceed the budget or interfere with the purpose of the SIP, and thus “conform” to the SIP. If budgets do not exist or have not yet been approved, EPA applies other limits.

In general, SIPs have historically focused the emission-reduction strategies on stationary sources like power plants and industrial facilities. Mobile emissions are commonly controlled by technological improvements in new cars. However, occasionally Transportation Control Measures (TCMs) must be included in SIPs to meet the standards. These might include inspection and

maintenance programs, special low-emitting fuel programs, and/or improved transit. If a SIP requires a TCM, it must be included in the TIP and Plan.

States and Metropolitan Planning Organizations (MPOs) must calculate mobile emissions at the project level to verify that their Plans and TIPs meet conformity requirements. Any changes to these documents that include adding, modifying or removing regionally significant projects may trigger the conformity process.

Transportation conformity includes the participation of numerous agencies which cooperate in determining, among other things, whether projects are exempt from air-quality concern, whether they are regionally significant, and whether the emissions analysis includes the latest planning information. These agencies include the Environmental Protection Agency (EPA), IDEM, Federal Highway Administration (FHWA), Federal Transit Administration (FTA), INDOT, and local road and transit planning agencies, among others.

#### FAILURE TO MEET TRANSPORTATION CONFORMITY



Failure to meet the conformity requirements can result in the expiration of the Transportation Plan and the Transportation Improvement Program (TIP) and hold up federal approvals and funding for many transportation projects.

## Streamlined National Environmental Policy Act (NEPA) Procedures

NEPA requires federal agencies to analyze environmental impacts and involve the public before proceeding with any major federal action significantly affecting the human and natural environment.

NEPA guidelines were established in May of 2000, and INDOT as well as all other state agencies are now required to follow the guidelines and report the progress of associated activities to the Indiana Department of Administration (IDOA) and the Indiana Department of Environmental Management (IDEM).

The purpose of "INDOT and FHWA Streamlined Environmental Impact Statement Procedures" is to establish a coordinated planning and project development process for major transportation projects in Indiana.

These procedures are intended to address projects for which the Federal Highway Administration (FHWA) is or may be required to prepare an Environmental Impact Statement (EIS) under the National Environmental Policy Act (NEPA). An EIS is a document required by NEPA for federal government agency actions "significantly affecting the quality of the human environment". An EIS describes the positive and negative environmental effects of proposed agency action - and cites alternative actions.

The Section 6002 requirements of MAP-21 have been incorporated into the environmental development process. In some instances, FHWA will proceed directly to preparation of an EIS, but in other instances, the NEPA process will begin with the preparation of an Environmental Assessment (EA)/Corridor Study, which may

transition to an EIS. These procedures supersede the Indiana NEPA/404 (Section 404 of the Clean Water Act) Agreement, dated May 1996.

This process is intended to achieve the timely and efficient identification, evaluation and resolution of environmental and regulatory issues. It establishes "one decision-making process" to identify and address both public and agency issues at three key milestones as part of the planning/NEPA process for major transportation projects. Through the early identification of agency issues this process is intended to ensure that basic issues concerning project Purpose and Need (P&N) and the Range of Alternatives can be resolved prior to approval of the Draft Environmental Impact Statement (DEIS). The DEIS can then focus on addressing outstanding public and agency concerns regarding avoidance, minimization, and mitigation.

Additional procedures that govern the FHWA/INDOT decision-making process for transportation projects in Indiana include: (1) Indiana Categorical Exclusions (CE) Manual; (2) INDOT Procedural Manual for Preparing Environmental Studies, INDOT's Cultural Resources Manual; (3) the Indiana Traffic Noise Policy; and (4) the INDOT Public Involvement Manual. All of these documents are available from INDOT. The current versions of this document and those mentioned above are on the INDOT website: <http://www.in.gov/indot/2349.htm>.



## Multi-Modal Planning

In addition to private automobile users, roadways are also the primary transportation system for bus transit, motor carriers, and bicycles. In addition, roadways are the primary provider of access to water ports, airports, and railroad transfer facilities and terminals. Other transportation modes meet specialized passenger and freight needs for heavy loads, time-sensitive transport, and long-distance national and international trips.

Highways are critical for ensuring continued access and mobility for travelers and for maintaining the state's economic vitality. However, the efficient and effective movement of people and goods requires a balanced transportation system offering a variety of transportation modes. For example, many commodities like grain and coal are most efficiently transported over long distances by rail

or water, or people who do not or cannot drive a car are dependent on transit options, and many commuters choose transit service to make their trips to work.

Modes are forms of transportation that move people and freight. Transport modes for people include automobiles/vans (single and multiple occupants), bus transit, passenger rail transit (light rail, commuter rail), air passenger service, and horse-drawn carts, bicycle, and walking. Freight modes include motor carriers, rail freight, water modes (ships and barges), air freight, and pipelines.

When more than one mode of transportation is available for moving people or freight between multiple trip origins and destinations, this is referred to as a multimodal transportation system. When the movement of people or freight involves more than one mode for a given trip, this is referred to as intermodal transportation. Intermodal transportation involves transfers between different modes.

Transportation planning and policy-making have in the past focused on single



transportation modes. In a multimodal transportation system, modes are provided and operated in a seamless system that is more efficient, flexible, and environmentally sustainable and meets the needs of travelers and shippers alike. A multimodal planning approach ensures that transportation alternatives are addressed concurrently and evaluated on the basis of overall needs and investment strategies. The multimodal approach also allows comparative environmental effects to be considered in the planning process.

A multimodal and intermodal approach offers the promise of lower overall transportation costs, increased economic productivity and efficiency, congestion reduction, improved mobility, reductions in energy consumption, and a more sustainable transportation system.

William R. Black, Professor Emeritus of Geography at Indiana University in his new book "Sustainable Transportation" defines sustainable transportation as a one that provides transport and mobility with renewable fuels while minimizing emissions detrimental to the local and global environment and preventing needless fatalities, injuries and congestion. He defines the components of non-sustainable transportation as the diminishing petroleum resources, global atmospheric impacts, local air quality impacts, crash fatalities and injuries, and congestion. (Source *Sustainable Transportation: Problems and Solutions 2010*)

An extensive system of highways, railways, waterways, and airports supports people and goods movement within the state as well as to and from other states and countries. As global competition increases, maintaining the quality and capacity of this system is crucial to the economy of Indiana. Improving the system to include transportation alternatives to passengers is equally important to

ensure the mobility and quality of life Indiana's citizens deserve and have come to expect.



### Inter-modal coordination

In 1995, INDOT began work on an Intermodal Management System which identified improvement strategies for the efficient transfer of goods and services between the more traditional single modes of transportation. The development of a management system was initiated by the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA) requirement for six statewide management systems. The intermodal management system was intended to provide a better understanding of the integration between modes of transportation and address the recent advances in market-based intermodal transportation services in reducing the cost of transportation services. In order to increase INDOT's understanding of the movement of passengers, goods and services, two advisory

committees were established to provide policy guidance to the intermodal study. The freight subcommittee represented a wide range of transportation providers including railroad, trucking, maritime ports, pipeline, and air freight representatives in addition to specific commodity interests such as Indiana Farm Bureau, the United States Postal Service, the Petroleum Council and the coal industry. The passenger transportation subcommittee had representatives of passenger railroads, including high-speed rail interests, commuter rail, transit representatives, the AAA Hoosier Motor Club, and airline service providers. The advisory committees assist with the establishment of performance measures, the identification of intermodal deficiencies, and the development of improvement strategies and actions.

The Intermodal Management System (IMS) developed improvement strategies to address the highest ranking intermodal deficiencies. A major focus of the IMS was to improve the connectivity between the major intermodal facilities (airports, inter-city bus and passenger rail stations, commuter rail terminals, rail/truck transfer yards, port facilities and container freight transfer terminals) and the officially designated National Highway System. Two categories of intermodal facilities were identified: the facilities of national significance for inclusion into the national transportation system; and facilities of statewide significance for statewide planning purposes. The placement of an intermodal facility into each category is based upon criteria including passenger volume, airplane passenger enplanements, truck traffic volumes, and freight volumes (tonnage or twenty foot equivalent units).



## Railroads

The following information is from the Indiana Rail Plan, completed for INDOT by Wilbur Smith Associates in 2011. Published documents can be found at: <http://www.in.gov/indot/2394.htm>.

### Overview

Indiana has 4,165 railroad route miles, of which 88 percent are operated by Class I railroads, principally CSX Transportation, Inc. (CSXT) and Norfolk Southern (NS) and Canadian National (CN). The remaining miles are operated by 40 Port Authority, regional, local, and switching & terminal railroads. CSXT operates 1,929 miles and Norfolk Southern operates 1,569 miles.

In 2008, approximately 285 million tons of freight was moved by rail in Indiana. Nearly two-thirds of this traffic consisted of farm products, coal and primary metal products. Other major commodity



groups include farm products, scrap metal, and chemicals. Approximately 65 percent of rail freight moving in Indiana is pass-thru traffic—that is, interstate freight traffic that neither originates nor terminates in the state.

Short line railroads in Indiana are a vital element of the state's rail network, serving 62 counties, 15 of which are served only by short lines. Indiana short lines handled nearly 375,000 carloads of various commodities; mostly in

conjunction with the large Class I freight railroads.

Rail passenger service in Indiana is conducted by two operating entities: Amtrak and the Northern Indiana Commuter Transportation District (NICTD), known as the South-Shore Line. Amtrak serves 11 stations in Indiana, with eight named trains on four routes.

### **Current Rail System in Indiana**

The current rail system in Indiana is structured primarily to handle east-west traffic flows across northern Indiana to and from Chicago, across central Indiana through Indianapolis, and across southern Indiana between Louisville and St. Louis. These routes are primarily double-track. The north-south routes through Evansville (CSXT) and Muncie (NS), while carrying substantial traffic, are primarily single-

track. The east-west routes carry nearly four times the traffic volume of the north/south routes.

CSXT owns the two secondary main lines with comparatively modest traffic levels. These are east-west lines, one in the north, and the other in the south.

### **STATE FUNDING PROGRAMS FOR RAIL**

#### **Industrial Rail Service Fund (IRSF)**

This is a grant and loan program to provide funding for rail infrastructure improvements focused on the growth of rail business and job creation or to assist in purchasing a line threatened with abandonment. The program provides assistance to short line railroads and port authorities (funds are not available for use by Class I railroads). The Fund can also be used for High Speed Passenger Rail Service development. The program is administered by the Rail Office of INDOT.

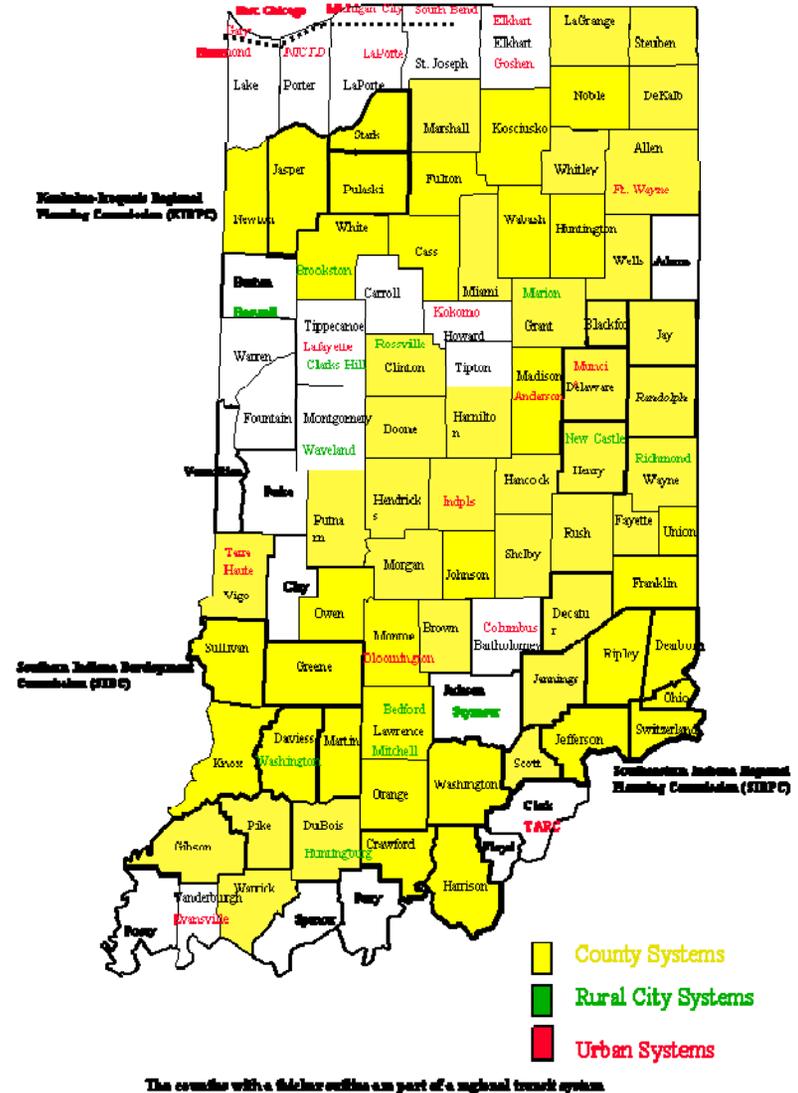
#### **Railroad Grade Crossing Fund**

The Railroad Grade Crossing Fund was instituted in 1997 with funds made available to local jurisdictions and railroads to fund safety improvements and crossing closures at highway/rail at-grade crossings.



01/09

Current Public Transit Systems



**Passenger Rail**

In terms of future intercity rail passenger service, Indiana would be served by the Federal Railroad Administration’s presently designated high-speed routes between the hub at Chicago and Detroit, Cleveland, Indianapolis, and Cincinnati. These routes are part of the Midwest Regional Rail Initiative, a cooperative, multi-state effort to develop an improved and expanded network. This proposed 3,000-mile network includes a fleet of trains operating up to 110 mph.

Indiana continues to take part in the planning efforts of the Midwest Regional Rail Initiative as well as the Midwest Interstate Passenger Rail Commission. The Midwest Interstate Passenger Rail Commission brings together the region’s leaders to advocate for

FIGURE 40 - PUBLIC TRANSIT SYSTEM MAP

expansion of and improvements to the Midwest's passenger rail system. The commission seeks to provide a unified voice for the region in calling for federal support of passenger rail development as a key component of a strong, multimodal transportation system for the future.

## PLANS GOING FORWARD

### Action Plan for Funding Improvements

- Continue to closely monitor the lowest-traffic-density short lines and their continued viability and to develop contingency plans where potentially necessary.
- Where the future need is apparent, preserve to the extent possible the 667-mile short line network by continuing to fund track structure rehabilitation, including upgrading of track structure and bridges to accommodate carloads up to 286,000 lbs.

### Safety

- Evaluate the attention focused on highway/rail at grade crossings, warning devices, and associated laws provided in drivers license examinations and driver education classes (possibly through a driver survey).

### Intermodal Freight and Passenger Facilities

- Examine the potential for a public/private partnership to design and construct a new passenger station at Michigan City. Potential participants include the state, Amtrak, private concessionaires, local government, etc.
- Continue regular coordination utilizing the Logistics Council as a mechanism to program with the Indiana Port

Commission and other Public port authorities to promote and facilitate intermodal interface with rail in support of Indiana industries.

- Continue regular coordination with state agencies that support industrial development matters that affect rail carriers, as well as to keep informed of changing industrial trends that will affect the Indiana rail network.
- Continue financial and technical support of state and regional rail planning activities.
- Continue regular formal meetings with railroads, including Amtrak, shippers, and other stakeholders including Departments of Transportation in adjacent states.

## PUBLIC TRANSIT

The physical transportation of persons continues to be an enabling factor in economic growth, and personal well being. Transportation in privately owned vehicles is not always possible, and not always the most efficient method of achieving this. The State of Indiana provides several different funding mechanisms, and administers several federal programs to its 67 public Transportation Providers.

The largest state fund is the Public Mass Transportation Fund (PMTF), described in I.C. 36.-1-2-10, which currently provides about 41.5 Million dollars per year to public transit. This fund is divided among five different categories of systems, based on operating expense performance measures such as ridership, locally derived income, and expenses. The categories are: Large Fixed Route Systems (provides over 1,000,000 vehicle miles per year); Small Fixed Route Systems (provides less than 1,000,000 vehicle miles per year); Urban Demand Response Systems; Rural Demand Response Systems that typically cover an entire county, and only run when needed; and The Northern Indiana Commuter Transportation

District, (NICTD), a large electric commuter rail system which connects several urban areas such as South Bend, East Chicago, and Gary with Chicago. All of these funds are used to help our public transit systems leverage a far greater amount of Federal grants, thus providing a reliable way to bring more money back into Indiana, while meeting the transportation needs of our citizens.

Commuter Rail Service Fund (CRSF) comprises 0.123% of Sales Tax and a Situs Tax on distributable property of railroad car companies. The CRSF is distributed to commuter transportation districts established under I.C. 8-5-15, and I.C. 6-1.1-8-35 to be used for maintenance, improvement, and operations of commuter rail service. INDOT allocated approximately 12.8 million to NICTD in 2008 from the CRSF.

In addition to the PMTF and CRSF, there is the Electric Rail Service Fund (ERSF). The ERSF is a special state fund generated from property tax on a railroad company's distributable property that provides service with a commuter transportation district under I.C. 8-5-15. ERSF is dedicated to systems that have most of their service performed by electrically powered railroads. Currently, the Northern Indiana Commuter Transportation District (NICTD) is the only eligible entity for these funds. This fund provided \$187,589 to NICTD in 2008.

The INDOT Office of Transit uses these various state grants, and local match to leverage several different Federal Transit Administration (FTA) programs. These programs provide capital assistance at an 80% rate, and operating assistance at 50%. Programs include:

- Section 5303 provides up to 80% of money needed for Metropolitan Planning Projects.
- Section 5310 Capital program is used to purchase vehicles used in public transit.

- Section 5311 Program provides capital and operating assistance to rural transit providers, and intercity transit providers.
- Section 5316 Program assists transit providers in providing access to jobs for low income residents.

Indiana's 67 public transit systems provide approximately 37 million passenger trips every year. Eighty two of Indiana's 92 Counties have some form of public transit available. These systems provide access to jobs, healthcare, and economic development opportunities. Public Transportation is just one more way that the Indiana Department of Transportation is taking care of its customers, fostering economic growth, and bringing federal tax dollars back into Indiana.

### Indiana Mass Transit Study

In 2007, the Indiana State Legislature created the Joint Study Committee on Mass Transit and Transportation Alternatives and required the Committee to report and make recommendations on the role of mass transit in Indiana. On May 10, 2007, the legislation was signed by Governor Daniels establishing Public Law (PL) 203-2007. INDOT commissioned USR Corporation to complete and submit a report to the Joint Study Committee on Mass Transit and Transportation Alternatives by January 1, 2009.

**The study found:**

1. Urban bus and rural transit systems in Indiana are undersized and not meeting potential demand nor in the case of urban areas designed to attract riders.
2. Major transit investments (fixed guide-way) may be warranted in certain corridors in urban areas of the state that have high population density.
3. The current mix of transportation funding does not generate sufficient revenue to accommodate the transit investments to meet demand.
4. The public opinion poll conducted as part of the study indicated that Hoosiers think that government should increase funding for mass transit but do not support new taxes to do it.
5. Hoosiers believe that the top priority of transportation agencies should be to maintain existing streets and highways.

The study objectives were to define the benefits of transit, estimate transit needs statewide and to define investments with enough detail to calculate an order of magnitude cost. The analysis was structured to meet the requirements of legislation through four primary activities:

1. Region by region transit assessment.
2. Research on the benefits of transit based on peer systems.
3. Assessment of service levels.
4. Order of magnitude of cost for service improvements.
5. Review of funding sources.

**1. Scope of Study:**

An evaluation of statewide mass transit issues was addressed by focusing on the particular issues associated with six regions of the state, which were generally defined in the legislation as:

1. Central Indiana
2. Northwest Indiana
3. Northeast Indiana
4. South Central Indiana
5. Southwest Indiana
6. Southeast Indiana

**2. Benefits of Transit Expansion:**

The impacts of transit go beyond the transportation related measures of mobility and accessibility, and in recent years there has been increasing recognition of transit’s impacts on society/demography, economy, environmental quality, and land use.

Commuter Rail Study can be found at: <http://www.in.gov/legislative/igareports/agency/reports/INDOT08.pdf>

**3. Transit Service Expansion:**

Based on the level of demand and a review of the existing services, there are four strategies that frame expansion of transit within the state:

1. **Northwest Indiana:** This region, in particular the area within the Chicago metropolitan area, includes some of the highest density, most congested and fastest growing parts of the state, yet has the lowest proportion of regular transit users.
2. **Undersized Fixed Route Systems:** Local bus systems are undersized in Indiana’s cities, and thus currently serve a primarily transit dependant population. Low frequency service is currently a barrier to higher utilization of the system, especially by choice riders.
3. **Rural Transportation Services:** Rural transportation is a crucial need across all regions of the state, and is especially important for trips serving transportation disadvantaged population.
4. **Targeted Rail Investments:** Fixed guide-way transit systems are conducive to high population density centers. A Commuter Rail Study was conducted that evaluated the need for fixed route systems between Muncie & Indianapolis and Bloomington & Indianapolis. Additional information on the

Service Type	Current Annual O&M Cost	Annual O&M Full Expansion	Annualized Capital Cost	Total Capital Cost	Estimated Total Outlay 2010-2040
Rural	\$18.5	\$55.5	\$48.7	\$974	\$1,973
Vanpool	n/a	\$6.3	0	0	\$113
Urban Bus	\$120.90	\$309.1	\$159.8	\$3,196	\$8,760
Fixed Guideway	\$35.8	\$95.1	\$166.9	\$3,944	\$5,656
<b>Total</b>	<b>\$175.3</b>	<b>\$466.0</b>	<b>\$385.4</b>	<b>\$8,114</b>	<b>\$16,500</b>

FIGURE 41- MODAL STATEWIDE COST ESTIMATES (2008)

**4. Cost Estimate**

It is estimated that by focusing transit investment on these expansion strategies, the state would require an investment of \$16.5 billion over 30 years to meet the utilization target (0.8% rural, 1.5% urban). See **Figure 41**.

Cost estimates for Statewide Transportation Investments  
In millions 2008 dollars

**5. Financial Considerations**

Transit systems in Indiana utilize funding from a variety of sources, including farebox recovery (fares generated through the farebox). The mix of sources varies greatly from system to system based on the type of service they provide, the size of the region they serve, and their level of fare-box recovery. None of the transit systems in Indiana operate without substantial subsidization from local, state, or federal funding. Currently, the funding programs for transit

statewide are fully leveraging federal formula funds and the state has good track record of utilizing federal discretionary funds over the years.

### Conclusion of Study

The State of Indiana currently supports transit primarily through a set of programs that are funded through State Sales Tax proceeds (Public Mass Transit Fund (PMTF), Commuter Rail Investment Fund, etc.). These funds are used to match local and federal funding of transit systems in Indiana's cities and metropolitan regions, and overall the State provides 22% of the cost of operating transit service in the state on an annual basis. An increase in state participation may serve as a catalyst for more local participation, especially if the state continues or intensifies its matching requirements from the local/regional level. If the state wishes to maintain its percentage of funding for the expanded program outlined in the report, the PMTF or state funding in general, would have to increase threefold. This assumes that the federal and local participation as well as a fare-box recovery were also maintained. This additional funding could be used to target three areas:

- Expanded rural transit program
- Expanded urban transit program
- Capital infrastructure fund

If Indiana chooses to reach the service levels outlined in the study, an increase in funding must also come from the local or regional level. Transit is most successful in areas with dedicated funding, where the benefits and more importantly, the usage are focused.

The complete Indiana Mass Transit Study may be found at the following location:  
<http://www.in.gov/legislative/igareports/agency/reports/INDOT10.pdf>

### Aviation

As is typical throughout the country, Indiana's airport system is owned by local governments and/or private sector interests, and the INDOT Office of



Aviation provides technical and financial assistance to public-owned public-use airports. Indiana has 107 public-use airports and more than 580 private-use airports. Of the public-use airports, 69 have been identified as being of statewide importance and are therefore included in the Indiana State Aviation System Plan (ISASP). The Indiana aviation system has been continuously developed over the years using federal, state and local funds and it provides statewide access for business, tourism and recreation.

Indiana's most recent ISASP was completed in 2003. The Office of Aviation is currently planning a comprehensive update of the 2003 ISASP which will focus on enhancing the 69 ISASP airports for projected system capacity needs.

At present, Indiana has five airports that have commercial service, seven that serve as reliever airports to those larger commercial airports and 57 general aviation airports. According to the Aviation Association of Indiana, the 2005 total economic impact of Indiana’s airports was more than \$4.5 billion. Additionally, more that 18,900 people are employed at Indiana airports.

**Aviation Needs**

It is estimated that Indiana airports would need approximately \$2.8 billion (based on funding request reported in the 2003 ISASP) to meet the anticipated development needs of the next 25 years. These costs are associated with the expected need for improvements in the areas of safety, security, preservation, capacity and maintaining State and Federal minimum operating standards. Expansion projects include lengthening and strengthening existing runways and taxiways, additional facilities for aircraft parking, and addition of new runways and/or taxiways. Preservation projects include obstruction removal, pavement rehabilitation, and other maintenance of existing equipment or facilities. Modernization projects include terminal area facilities, navigation aids, airport lighting/electrical improvements and other upgrades of existing equipment or facilities

**Observations**

Approximately 49% of estimated needs are for expansion (including land acquisition), 24% are for preservation projects and 27% for facilities modernization improvements and other projects.

The most significant issues facing Indiana airports are: (1) Security and the cost of implementing it and (2) Safety and the need to protect areas on and around airports from non-compatible land use.

25 Year General Aviation Needs (millions of constant 2003 dollars)

Expansion	Preservation	Modernization	Total
\$1,036	\$672	\$1,092	\$2,800

FIGURE 42 – 25 YEAR GENERAL AVIATION NEEDS (2003 DOLLARS)



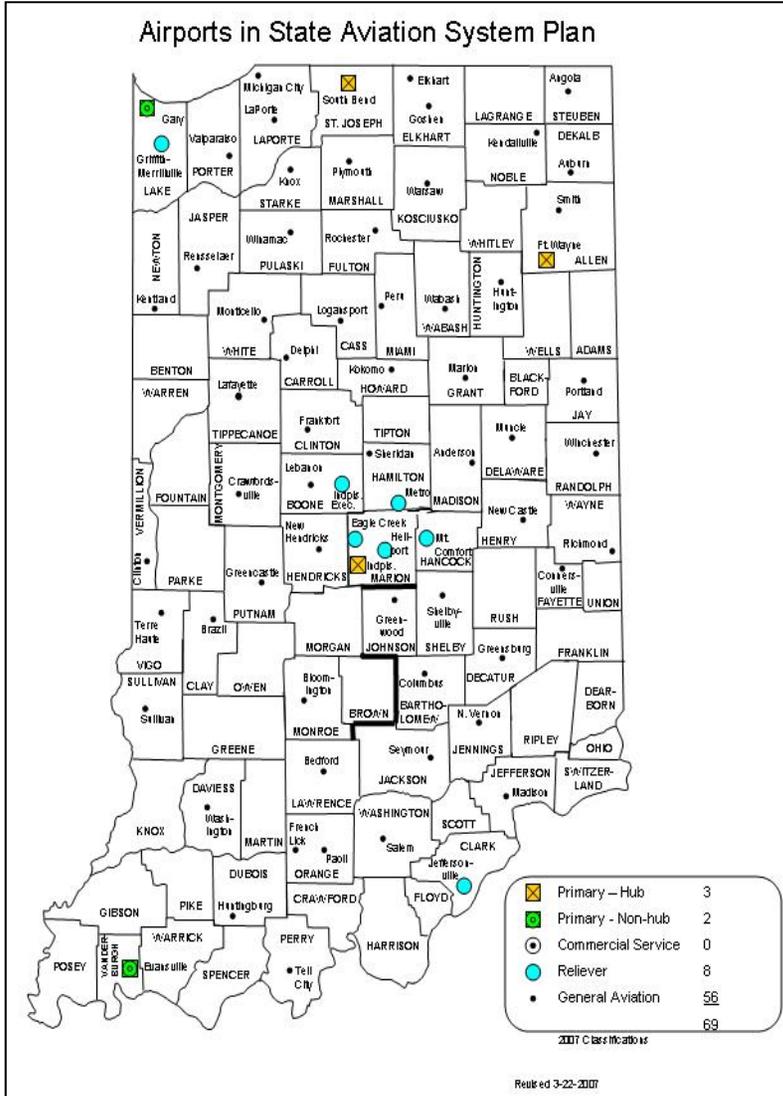


FIGURE 43 - AIRPORTS

### Freight

Freight movement is the economy in motion. In Indiana, the manufacturing sector accounts for 18% of the State’s employment, and over 28% of the Gross State Product, the largest percentages of any state in the nation. Further, Indiana ranks in the top ten states in agriculture and mining. Freight transportation connects these industries to their markets. Freight transportation infrastructure, which is reliable, efficient and safe, is critical to Indiana’s economy and way of life. All modes of freight transportation, roadway, rail, water, air and pipeline are necessary and play vital functions in moving a myriad of goods and commodities and supporting the service industries. *Source: Indiana Multi-Modal Freight & Mobility Plan*

Over the past four years, the Major Moves program has been the most robust roadway infrastructure construction program in the nation. As a “connector” state, Indiana must continue to collaborate with other adjacent States to establish multi-jurisdictional freight corridors. This concept provides the best means to allow our industries to move goods, commodities and services to regional, national and global markets. Our air freight infrastructure is efficient and adequate for the movement of time sensitive and high cost goods. Indiana is connected to two inland waterway systems, the Great Lakes / St. Lawrence Seaway and the Mississippi River-Ohio River System. Both are critical to the movement of heavy bulk commodities, such as grain, coal and steel, but the U.S. Inland Waterway System is characterized by aging and deteriorating infrastructure such as: locks, dams, and a lack of dredging. Finally, Indiana relies significantly on rail for the movement of heavy bulk commodities. The fastest growing segment of the rail industry is intermodal trailer-on-flatcar (TOFC)

and container-on-flatcar (COFC), provided by the Class I railroads in the Chicago metro rail hub. This growing segment adds cost and transit time for Indiana's industries. Road-Rail Intermodal facilities are needed to allow Indiana's manufacturing, assembly and distribution industries to remain competitive in the national and global supply chains.

Overall, Indiana, with its well-developed transportation infrastructure, is well positioned for the future. However, improvements are an on-going necessity to support our State's commerce, trade and economic development. In response, INDOT created an Office of Freight Mobility to oversee and coordinate freight planning and programs within the department and with freight industry stakeholders and leaders. Indiana is the Crossroads of America and freight transportation infrastructure is literally the "road to our future".

### Bicycle and Pedestrian Transportation

Bicycle and pedestrian facilities are part of the transportation network in Indiana. Valued for their potential health benefits and positive effects on air quality, walking and bicycling now represent the chief non-motorized forms of travel for both practical and recreational purposes. As alternate modes of travel, facilities for walking and/or bicycling are effective means of attaining social, environmental, land use and energy conservation goals.

Bicycle and pedestrian facilities provide a number of benefits:

- **Health:** Increased physical activity will reduce the chances of heart disease; cancer and obesity; and contribute to a healthy lifestyle. Indiana has made bicycle and pedestrian programs a priority in support of IN-Shape Indiana statewide health initiative <http://www.inshapeindiana.org>. IN-Shape Indiana motivates, educates, and connects Hoosiers to valuable resources for healthier life choices.
- **Environmental:** Reduces energy consumption, noise, air pollution, and greenhouse gases associated with travel.
- **Connectivity:** Connects neighborhoods to parks, natural areas, sports fields, and community resources providing Hoosiers opportunities to recreate.
- **Economic:** Studies have shown that trails attract tourism and businesses to communities such as: restaurants, bike shops, retail shops, grocery stores, snack bars, lodging facilities, and numerous other bicycle friendly businesses.





Historically, most bikeway and pedestrian-related planning has been conducted at the local level in Indiana. Under ISTEA and continuing under TEA-21, SAFETEA-LU, and MAP-21 a shift began to take place where INDOT, in coordination with non-motorized transportation stakeholders, began to focus more resources toward the planning and development of non-motorized transportation infrastructure.

INDOT’s policy towards bicycle and pedestrian transportation has grown from the coordinated efforts between the Indiana Department of Commerce, the Indiana Department of Natural Resources (DNR), Bicycle Indiana (formerly the Indiana Bicycle Coalition) and the Hoosier Rails-to-Trails Council. After careful deliberation, the following policy statement emerged from the coordination effort:

*“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.”*

Over the past four years, Indiana’s trails network has grown by more than 50 percent and 263 miles of new or rebuilt sidewalks have been installed along state highways.

INDOT continues to administer the Transportation Enhancement (TE) and Congestion Mitigation Air Quality (CMAQ) programs which contribute funds to many bicycle/pedestrian facility projects across the state. More recently, under MAP-21 legislation, the Safe Routes to School Program has been implemented by INDOT. In addition, INDOT works with The Department of Natural Resources (DNR) by providing funding for The Recreational Trails Program and The Greenways Foundation/Indiana Trails to coordinate connectivity for projects where appropriate.

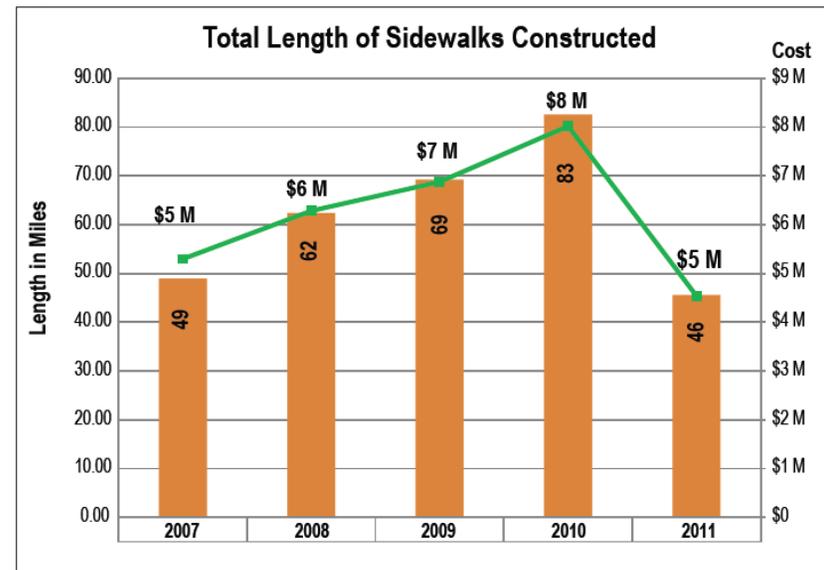


FIGURE 44 - INDOT 5-YEAR SIDEWALKS CONSTRUCTED CHART (COST IN MILLIONS)



### Safe Routes to School

The Indiana Safe Routes to School (SRTS) Program is based on the federal program designed to make walking and bicycling to school safe and routine. Walking and bicycling are viable transportation alternatives for travel to and from school with significant potential benefits, such as, reductions in motor vehicle traffic and the vehicle operating costs and associated fuel consumption for school trips and improved air quality.

When the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) was signed into law in 2005, the evidence was clear that disturbing weight gains among American children and a growing nationwide obesity epidemic threatened our health. Bicycling and walking to school helps establish a healthy, active lifestyle from an early age. Generally, increased physical activity among school-aged children contributes to their improved personal health. However, towns with established SRTS programs also report a stronger sense of community identity and increased social skills among school-aged children.

INDOT is responsible for administering the Indiana SRTS Program that makes federal funding available for eligible activities and improvements. INDOT uses an application process to evaluate candidate projects. An SRTS Advisory Committee will review applications and makes recommendations to fund infrastructure and non-infrastructure projects.

Now in its seventh year, Indiana's Safe Routes to School program promotes walking and biking among schoolchildren by investing federal transportation funds in approved engineering, education and enforcement programs. In 2010, SRTS applications represented

58 schools requesting a total of \$5.7 million; 39 applications were awarded for a total of \$3.4 million. For 2011, 46 applications were submitted seeking over \$8.1 million; 31 applications were awarded totaling almost \$5.1 million were selected for funding.

Safe Routes to School awards comes in addition to pedestrian and bicycle infrastructure built under the Major Moves initiative and Hoosiers on the Move statewide trails plan. For more information on INDOT's Safe Routes to School Program, please visit our website: <http://www.in.gov/indot/2355.htm>.

### Indiana Trails, Greenways, and Bicycle Paths

Indiana has many open and planned trail systems to provide "close to home" recreation and alternative transportation opportunities. Incorporated in this planning effort are major statewide and regional trails that work to incorporate local linkages into a statewide network. The coordination and strategic approach for creating a system of trails in Indiana is intended to motivate all levels of government, private trail groups and other vital organizations into action. The vision is to link public lands, natural and scenic areas, tourist destinations and communities with a multimodal trail system. To that end, the Hoosiers on the Move Plan signed in 2006, will serve as a guide for allocating resources from such programs as the Federal Recreational Trails Program (RTP), the Transportation Enhancement (TE) Fund and other financial assistance programs that can be used for trail acquisition and development.

A number of multiuse pathways are currently open or under construction in all regions of the State. In 2006, when Hoosiers on the Move was released, 83% of Indiana residents had a hiking,

biking, or equestrian trail available within 7.5 miles of their home. As of July 2011, Indiana now has a trail within 7.5 miles of 96.5% of all Hoosier residents. By 2012, we expect to surpass the 96.7% mark. These results indicate a 13.8% increase over the 82.7% of residents being within 7.5 miles of a trail in 2006. This analysis excludes boating/water trails and trails open for use by motorized vehicles.

As of July 2012, the Indiana Trails Inventory was showing 3,021 miles of trail open to the public. This reflects an increase of 1,479 miles of trail open to the public from 2006-2012. An additional 126 miles of trail are in the process of acquisition and/or development. It should also be noted that a new category of trail, potential trails, is now being tracked within the trails inventory.

Noteworthy State Visionary Trail projects that have been completed in the past two years include:

- **Cardinal Greenway:** Added 20 miles of trail to the existing 30 miles of the section between Muncie and Richmond making this the longest contiguous rail-trail in the state.
- **Nickel Plate Trail:** Extended by 20 miles from Peru to Rochester
- **Panhandle Pathway:** 20 miles of trail built from near Logansport to Winamac
- **Farm Heritage Trail:** Acquired land for 15 miles of trail and built 10 miles of trail in Boone County.
- **Erie Trail:** 9 miles of trail built from North Judson to U.S. Hwy 35 in Starke County.

A representative listing is shown below and a complete listing can be found at the <http://www.greenwaysfoundation.org/trails.html> web site. or at INDOT's Bicycle and Pedestrian Program website: <http://www.in.gov/indot/2828.htm>.

## **Bike & Pedestrian Trail Funding Sources**

***Moving Ahead for Progress in the 21st Century Act (MAP-21)*** Bicycle and pedestrian projects are broadly eligible for funding from almost all the major Federal-aid highway, transit, safety, and other programs. Bicycle projects must be "principally for transportation, rather than recreation purposes" and must be designed and located pursuant to the transportation plans required of States and Metropolitan Planning Organizations. Funding for The TE and CMAQ programs described below is available in a tiered distribution by a percent dollar allocation to the 14 Indiana Metropolitan Planning Organizations; percent of population distribution to the local communities via INDOT Districts; and a set aside dollar amount for State project use. All projects have to meet the program guidelines and be reviewed for eligibility by the FHWA.

### ***Transportation Enhancement (TE)***

The Transportation Enhancement program is a federally designated category of funding that allows for the development and construction of non-motorized facilities.

### ***Congestion Mitigation and Air Quality Improvement Program (CMAQ) Funds***

CMAQ funds are available to a wide range of government and non-profit organizations, as well as private entities contributing to public/private partnerships, but are controlled by the MPOs and INDOT. Often, these organizations plan or implement air quality

programs and projects as well as provide CMAQ funding to others to implement projects. Funds may be used for either the construction of bicycle transportation facilities and pedestrian walkways; non-construction projects (such as maps, brochures, and public service announcements) related to safe bicycle use; and many other projects.

### ***Recreational Trails Program (RTP)***

The Recreational Trails Program RTP is a matching assistance program that provides funding for the acquisition and/or development of multi-use recreational trail projects. Both motorized and non-motorized projects may qualify for assistance. The assistance program is sponsored by the U.S. Department of Transportation's Federal Highway Administration (FHWA). Federal transportation funds benefit recreation including hiking, bicycling, in-line skating, equestrian use, cross-country skiing, snowmobiling, off-road motorcycling, all-terrain vehicle riding, four-wheel driving, or using other off-road motorized vehicles.

The RTP funds come from the Federal Highway Trust Fund, and represent a portion of the motor fuel excise tax collected from non-highway recreational fuel use: fuel used for off-highway recreation by snowmobiles, all-terrain vehicles, off-highway motorcycles, and off-highway light trucks. The RTP funds are distributed to the States by legislative formula: half of the funds are distributed equally among all States, and half are distributed in proportion to the estimated amount of non-highway recreational fuel use in each State. The Governor of Indiana has designated the Indiana Department of Natural Resources through its Division of Outdoor Recreation to administer the program. For more information on eligibility requirements, guidance, a list of RTP funded projects, and

agency contact information, please visit the DNR website:  
<http://www.in.gov/dnr/outdoor/4101.htm>

### ***Federal Lands Highway Program (FLHP)***

The Federal Lands Highway Program (FLHP) was created by the 1982 Surface Transportation Assistance Act and signed by President Reagan on January 6, 1983. The primary purpose of the FLHP is to provide financial resources and technical assistance for a coordinated program of public roads that service the transportation needs of Federal and Indian lands. Technical assistance includes: traffic monitoring services, the road inventory programs, asset management, pavement management systems, bridge inspection services, surveys, and design work.

The program had provisions for pedestrian and bicycle facilities in conjunction with roads, highways, large bridge projects, and parkways. Priority for funding projects is determined by the appropriate Federal Land Agency or Tribal government.

### ***Other Funding Sources***

State funds and private funds for trails have also been secured and directed toward trails since 2006. Most recently, substantial amounts of American Recovery and Reinvestment Act (ARRA) special federal stimulus Transportation Enhancement funding has been made available for trails in Indiana. Below is a summary of several special funding initiatives.

- Acquisition of abandoned railroad land - \$1.5 million state funds
- Lilly Endowment grants - \$1.25 million private funds
- State Trail Grant Program - \$19.3 million state funds

- ARRA Transportation Enhancement Funding - \$34 million federal funds

### **Other Funding Opportunities:**

- Utility Infrastructure: working cooperatively with local utilities to lease subsurface rights for fiber-optic cables and other utilities.
- Compatible "joint uses" of a rail-trail corridor: include sewer, water and natural gas. Utility companies have also bought abandoned corridors and then donated the land to the state department of natural resources for trail use. Abandoned corridors can provide key links for utility use
- Sponsors can be used for multi-year maintenance support and funding contributions for sections of trails and facilities.



### National Scenic Byways Program

The Indiana Scenic Byway Program is designed to preserve, protect, enhance and recognize transportation corridors of unique character. These corridors are notable examples of our nation's beauty, history, culture and recreational experience. Featured highways have been designated nationally by the U.S. Secretary of Transportation from nominations presented by the states and federal land management agencies.

INDOT is responsible for submitting Indiana route nominations for national designation and for submitting projects for discretionary grant funding. Indiana currently has three nationally-designated byways, the Ohio River Scenic Byway, the Historic National Road and one state byway, the Indiana Historic Pathways, and two state byways (River Road in Tippecanoe County, and White Water Canal Scenic Byways).

The Scenic Byways Program Funds may be used for "construction along a scenic byway of a facility for pedestrians and bicyclists. For additional information on Indiana's Scenic Byways, please visit our website: <http://www.in.gov/indot/2827.htm>.



FIGURE 46 – INDIANA US 40 HISTORIC ROUTE CORRIDOR

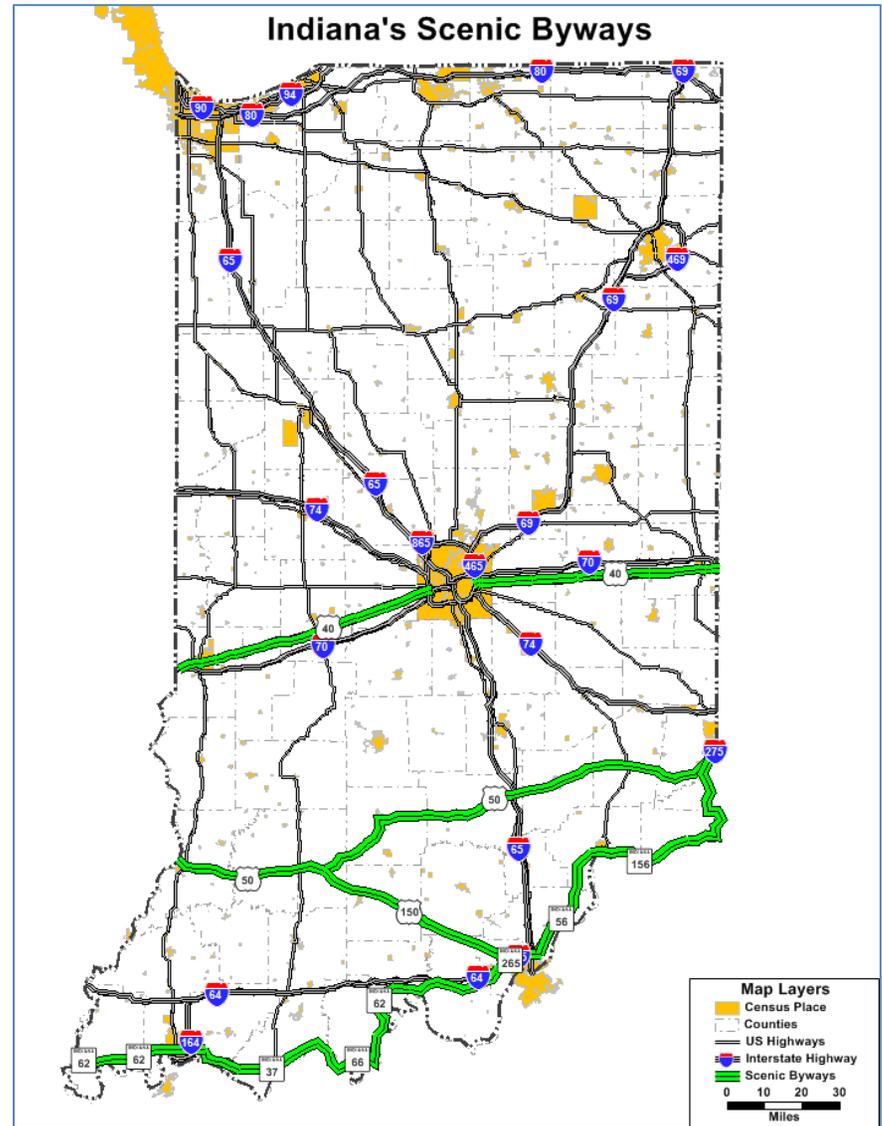


FIGURE 45 – INDIANA'S SCENIC BYWAYS



## Accessibility/ADA

The Americans with Disabilities Act (ADA) gives civil rights protections to individuals with disabilities. It guarantees equal opportunity for individuals with disabilities in employment, public accommodations, transportation, and State and local government services. ADA defines disability as: "a physical or mental impairment that substantially limits a major life activity."

Title II requires state & local governments to maintain the accessible features of facilities in operable working conditions. Maintenance examples: sidewalks that are in disrepair; overgrown landscaping, street furniture, snow accumulation; broken elevator; work zone accessibility (if construction activity affects pedestrian facilities – must provide alternate route). These guidelines cover but are not limited to pedestrian access to sidewalks and streets, crosswalks, curbs ramps, pedestrian signals, and parking.

Title II also requires state and local governments to remove architectural and programmatic barriers that exclude qualified individuals with a disability. Upon request, these governments are to make reasonable modifications to their policies and programs to ensure that qualified individuals with disabilities have an equal opportunity to enjoy its programs and activities.

Individuals with disabilities may have limited agility, speed, endurance, vision, hearing, or may have unique processing information and decision-making skills. Considering these limitation, individuals with disabilities would benefit from:

- Clearly defined pathways with adequate and clear width
- Good sight lines for assessing street crossing conditions
- Firm level surfaces
- Curb ramps with limited cross slopes
- Accessible pedestrian signals
- Information both in visual non-visual formats
- Audible/vibrotactile crossing information
- Tactile indication of boundary between pedestrians and roadway
- High color contrasts in pathway designs and signage
- Uncomplicated street crossings and easy to understand symbols

ADA requires state and local governments to make accessible, any changes to a facility in the public right-of-way that affects, or could affect, access or use of the facility, including changes to structure, grade, or use of the facility to the maximum extent feasible.

Examples: reconstruction, major rehabilitation, widening, functional and structural overlays, signal installation and upgrades.

INDOT is working closely with local, regional, and district entities in identifying and keeping inventory of facilities throughout the state that does not meet ADA requirements. INDOT has also training for critical staff that works with ADA compliancy. This include, but is not limited to various staff and contracted consultants responsible for transportation planning, engineering design, construction, maintenance, public hearings/involvement, and project management.

INDOT incorporates ADA requirements in the following activities:

- In the design and construction of all new transportation facilities and infrastructure projects
- During facility alterations such as: roadway surface projects to bring facilities identified as not meeting ADA requirements up to code
- Routine operational maintenance and construction zones

**Please note:** Alterations to facilities must meet minimum design standards, unless technically infeasible to do so. INDOT is not required to take any action that would fundamentally alter the nature of its programs or services, or impose an undue financial or administrative burden

INDOT has also formed an ADA Community Advisory Working Group, the duties of which include:

- Reviewing and providing specific input regarding INDOT's ADA Self-Evaluation and Transition Plan.

- Recommending means and methods for INDOT to increase the public involvement of persons with disabilities in transportation planning.
- Providing specific information, input and recommendations regarding community accessibility concerns as they relate to transportation projects and pedestrian facilities within INDOT's jurisdiction.
- Serving as a liaison between INDOT and the community.

For more information on ADA for transportation, please visit the INDOT ADA website at: <http://www.ai.org/indot/3036.htm> or visit the US Department of Transportation ADA Citizens Services website: [http://www.dot.gov/citizen\\_services/disability/disability.html](http://www.dot.gov/citizen_services/disability/disability.html).

## Context Sensitive Solutions Policy

Context Sensitive Solutions (CSS) is a collaborative, interdisciplinary approach to transportation decision-making and design. It involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic and environmental resources, while maintaining safety and mobility. CSS is an approach that considers the total context within which a transportation improvement project will exist. CSS principles include the employment of early, continuous and meaningful involvement of the public and all stakeholders throughout the project development process.



CSS is part of the process for the entire life cycle of a project

- Balancing transportation, environment, and community goals
- Early and continuous involvement by the interdisciplinary team, stakeholders and the public
- Being flexible in design; striking a balance between safety/mobility and cost

CSS is Not...

- Simply tacking on aesthetic enhancements
- More expensive
- More time-consuming
- Something new
- Compromising safety and increasing liability
- Giving the public everything they ask for

The intent of Context Sensitive Solutions (CSS) is to provide a transportation solution that is an asset to the area by balancing community and environmental goals with the transportation goals.

This is accomplished by:

- Being proactive in promoting collaboration with internal and external stakeholders early and often in the transportation process, keeping the communication open, frequent and continuous.
- Encouraging design flexibility to provide solutions that reflect community and environmental values while still satisfying the transportation need.

INDOT is incorporating this policy into projects whenever possible, Context Sensitive Solutions is a collaborative approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic, and environmental resources while maintaining safety and mobility.

**Some examples of INDOT projects where CSS has been applied are:**

***Accelerate 465:***

The *Accelerate 465* project reconstructed an eleven mile corridor on the west side of Indianapolis between the I-70 interchange to just south of the 56th Street interchange. The project resulted in an urban interstate, with added thru lanes, 4 in each direction, 12-foot lanes in a minimum 216-foot right-of-way, and a 30-foot paved median with a concrete barrier. Full control of access continued to be exercised. Interchanges were also reconfigured to improve both safety and capacity for travelers entering and exiting I-465, as well as those traveling across the I-465 corridor. The Interstate 465 “west-leg” corridor provides access and linkage to such major destinations as the Indianapolis Motor Speedway, Eagle Creek Park, Indianapolis Raceway Park, the Indianapolis International Airport and downtown Indianapolis.

Additionally, the project was intended to also provide safe and efficient bicycle/pedestrian facilities. These pedestrian facilities would be compliant with the Americans with Disabilities Act. They would improve the mobility, connectivity, and sense of community to the once severed neighborhoods that adjoin the Project Corridor.

A Context Sensitive Solution (CSS) approach was applied to the development of the Accelerate I-465 project. In this case, INDOT's approach to the design of the project broadly considered the social, economic and environmental issues related to the project.

**Accelerate 465 PUBLIC INVOLVEMENT/COMMUNITY ADVISORY GROUP (CAG)** An integral part of this project was the team's integration of public input and information exchange. Unprecedented in INDOT protocol, this team established in the project's design phase, a proactive public outreach effort. This effort was staffed and valued equal to the technical strengths of the project team.

A key component of the team's public outreach has been the establishment of a Community Advisory Group (CAG) to receive and channel information to and from project stakeholders. This group represented a cross-section of community stakeholders including neighborhood groups, school districts, chambers of commerce, transportation representatives and the *Accelerate 465* team members. The CAG also provided the project team the opportunity to disseminate important information and to gather citizen perspectives regarding various community issues ranging from design concepts to construction scheduling. The CAG also served as a conduit for understanding public concerns.

The CAG meetings in 2005 were held monthly to provide input to the design team. In 2006, meetings were held quarterly to keep this advisory group engaged and current regarding project status. In

2007 through construction, annual meetings are planned. The CAG provides that:

- Participants were an integral part of the *Accelerate 465* team and, as such, open discussion and comments are continually encouraged.
- A rotating group of presenters were utilized in the CAG meetings based on their professional discipline.
- Minutes summarizing each meeting were forwarded to participants for their review and/or potential input.
- After each meeting, participants were provided the opportunity to forward subject-specific comments for input to the *Accelerate 465* team.

In addition to direct contact with the project's Public Outreach office, the public was also encouraged to provide comments to and attend meetings of the groups and associations that were represented in the CAG.

A set of design guidelines for the Context Sensitive Solutions for the Accelerate 465 project was developed employing:

- The development of a theme and identity for the project;
- Site inventory and analysis;
- Coordination and facilitation of a Community Advisory Group (CAG);
- Conceptual designs that illustrated how all structural components should be addressed;
- Development of typical cross-sections and materials selected for context sensitive design concepts;
- Coordination with INDOT's Design Manual, the Federal Highway Administration and other bodies for approval of concepts, and

- Development of presentation materials and graphics.

The product of the CSS design process was the final Accelerate I-465 Design Guidelines Manual which summarized all of the CSS design elements and treatments that would be applied to the bridges, retaining walls, noise barriers, traffic barriers, lighting, grading, fencing, and landscaping and public art opportunities for the final project.

#### **US231 West Lafayette Bypass:**

This 5.5 mile project will build an all new terrain, limited access highway from South River Road to US 52. The design will be a 4-lane divided highway. The northern section contains multi-use paths on both sides. This project will divert US 231 away from the existing route through the Purdue University campus to a functional bypass.

CSS practices were applied early in the environmental reassessment stage of the projects development with the formation of a Community Advisory Committee (CAG). Throughout this process, context sensitive design opportunities were identified and evaluated. Some of the opportunities that were identified and later put into place for the preferred alternative were:

- Bicycle/pedestrian greenway extensions along both sides of the roadway
- Enhanced buffers on both sides of the roadway
- An access management plan for the new roadway
- Side path extension to neighboring schools and parks.

#### **Town of Plainfield – National Road US 40/Main Street Improvements:**

The Town of Plainfield partnered with INDOT to replace pavement and improve the streetscape along a two mile, downtown section of US 40, the National Road - Plainfield's Main Street. The work was accomplished with a series of grants which included three transportation enhancement grants, an American Recovery and Reinvestment Act (ARRA) grant and, a Community Focus Fund grant from the Indiana Office of Community and Rural Affairs (OCRA). The projects were guided by the implementation of the 2003 Plainfield Town Center Plan.

In 2005 and 2006 Plainfield Town staff met with representatives of the Indiana Department of Transportation concerning replacement of the U.S. 40 bridge over White Lick Creek. During scoping sessions with INDOT, Plainfield sought several enhancements to the bridge structure, including extension of sidewalks west to adjacent neighborhoods that would enable residents to safely connect to White Lick Creek pedestrian trail. In anticipation of a the future streetscape project, Plainfield representatives also asked INDOT to widen the bridge to five lanes, and install a rail and conduit for lighting fixtures on each end of the bridge.

Plainfield used the Indiana OCRA Community Focus Fund grant to undertake a town center facade-improvement program resulting in improvements to several of the buildings along the corridor. The US 40 National Road transportation streetscape improvement projects through the Town Center included adding new sidewalks, street lighting, rain gardens, street trees, and other features to increase pedestrian safety and make the area more desirable for both residents and businesses.

For more information about INDOT's CSS please visit:  
<http://www.in.gov/indot/div/projects/indianacss>.



## Complete Streets Concept

The complete streets concept, initiated by the Safe, Accountable, Flexible, Efficient Transportation Equity Act is an initiative to design and build roads that adequately accommodate all anticipated users of a corridor, including pedestrians, bicyclists, users of mass transportation, people with disabilities, the elderly, motorists, freight providers, emergency responders, and adjacent land users. This concept recommends that appropriate accommodation(s) be made where and when feasible so that all modes of transportation can function safely.

Complete streets have been proven to have a number of benefits to local community residents, business owners, developers, and comprehensive transportation planning. Listed below are a few benefits from complete streets initiatives:

- Reduce air and water pollution and noise impacts.
- Promote safe and convenient access and travel for all users of all abilities in a safe environment with motorized users.
- Reduce crash rates and severity of crashes
- Improve mobility and accessibility of all individuals including those with disabilities in accordance with the legal requirements of ADA.
- Encourage mode shift to non-motorized transportation.
- Increase transportation network connectivity and safely integrate Intermodal connections within the transportation network.
- Maximize the efficient use of existing facilities.

When it comes to Complete Streets policies, one size does not fit all; policies are often tailor made by each Community. MPOs and Cities in Indiana are beginning to adopt Complete Streets policies; they include: the Bloomington MPO, the Indianapolis MPO and the Northwest Indiana MPO.

INDOT supports the complete street concept. The development and implementation of a complete streets process should follow a phased sequential approach of establishing a need, developing policy, and reconciling differences in inter-agency planning and design policies. Key components would include:

- Commitment to partner with a broad coalition including local governments, government agencies, and interested public service groups.
- An INDOT Complete Streets policy, reconciling differences in planning and design policies, guidelines and manuals.
- Assisting multiple levels of local government in developing their own complete streets policies with support from INDOT in the various planning functions where appropriate
- Assisting agencies in the development of integrated transportation plans that addresses connectivity for all modes for all users of all ages and abilities.

For development of a complete and adequate policy, all stakeholders should be engaged to address the key issues listed above and within this report.



## INDOT Policies, Strategies, and Performance Measures

### Asset Management

The concept and the application of Asset Management principles is not a new practice, but is beginning to be used by many State Departments of Transportation. The process is intended to provide a solid foundation to optimize the performance and cost effectiveness of transportation facilities. This is true for INDOT which has recently taken steps to enhance its asset management by creating a new Asset Management/Capital Program Management process for project selection, ranking and capital program portfolio development.

In general, Asset Management implementation asks five key questions:

1. What is the accurate inventory and current conditions of the INDOT's assets?
2. What level of condition/performance will INDOT establish for these assets?
3. Which assets are critical to sustain acceptable levels of service conditions and performance?
4. What are the best investment strategies for the operation, maintenance, and capital improvements of INDOT's assets?
5. What is the best long-term funding strategy to meet the desired future levels of service/performance?

*[ASSET MANAGEMENT IS DEFINED BY THE AMERICAN ASSOCIATION OF STATE AND HIGHWAY OFFICIALS (AASHTO), AS A STRATEGIC AND SYSTEMATIC PROCESS OF OPERATING, MAINTAINING, UPGRADING AND EXPANDING PHYSICAL ASSETS EFFECTIVELY THROUGHOUT THEIR LIFE-CYCLE. IT FOCUSES ON BUSINESS AND ENGINEERING PRACTICES FOR RESOURCE ALLOCATION AND UTILIZATION, WITH THE OBJECTIVE OF BETTER DECISION MAKING BASED UPON QUALITY INFORMATION AND WELL DEFINED OBJECTIVES]*

- **Decisions Based on Quality Information**—the merits of different options with respect to an agency's policy goals are evaluated using credible and current data.

- **Monitoring Provides Clear Accountability and Feedback**—Performance results are monitored and reported for both impacts and effectiveness.

*\*Adapted from NCHRP Report 551, Performance Measures and Targets for Transportation Asset Management, Vol. I, Research Report, 2006, p. ii*

The five core principles of Asset Management are:\*

- **Policy-driven**—Resource allocation decisions are based on a well-defined set of policy goals and objectives.
- **Performance-based**—Policy objectives are translated into system performance measures that are used for both day-to-day and strategic management.
- **Analysis of Options and Tradeoffs**—Decisions on how to allocate funds within and across different types of investments (e.g., preventive maintenance versus rehabilitation, pavements versus bridges) are based on an analysis of how different allocations will impact achievement of relevant policy objectives.

The INDOT Asset Management/Capital Program Management process is intended to deliver with reliability and sustainability, a program with maximum value for its customers/citizens. INDOT's first five capital asset management teams have been established and are fully operational. The teams consist of Mobility, Roadway, Bridge, Safety and Statewide Programs. INDOT's plan is to eventually expand the total number of fully functional asset management teams to a total of nine. The nine teams as currently envisioned are the five listed plus:

- Local Program Asset Management Team
- Multi-Modal Asset Management Team
- Maintenance Asset Management Team
- Building Asset and Fleet Management Team

The Asset Management Teams defines concise and appropriate set of performance measures to support this new management process. The team's purpose is to aid and support INDOT's capacity to make rational, well informed decisions regarding the transportation system's future performance.

The overall vision for the Asset Management Capital Program Management Process is that all state "capital" type projects: Roadway, Bridge, Traffic Safety, Mobility, and Statewide, would be under one process at the same time. The other Asset Management areas: Local Programs, Multi-Modal, Maintenance, Buildings and Fleet Management, will have their own independent selection process based on what best fits their development and budget cycles.

The project scores for the five Capital Asset Management Teams are to be forwarded to the Capital Program Management Team, an oversight committee for review. The Capital Program Management Team will perform statistical analysis intended to align all of the asset group's project scores into one common scale. Once asset performance goals are determined, each asset manager will provide a recommendation of an expenditure target per fiscal year based on the asset short and long-term performance. Targets will be fiscally constrained and once established, Asset Management Teams will make their sets of recommendations to the Capital Program Management Team as to which projects provide the highest value within the portfolio of projects. The Capital Program Management Team in turn reviews those recommendations and then ultimately, makes the project recommendations to the Executive Funds Team.

The heart of the asset management process is the performance goals and measures. The performance goals state the desired functional level and/or condition of the asset. The performance measures track progress towards achieving those goals. Performance goals guide the asset teams in developing strategies for achieving the desired end state. The performance measures assist the asset team in developing selection criteria that will identify the best projects for implementing the strategy.

The starting point for INDOT's performance measures are the six Strategic Enterprise Measures. These six are the executive level measures that INDOT uses to establish a five-year Capital Projects Plan, promote a culture of accountability and ownership, meet and exceed financial targets, promote and maintain a safe work environment, engage employees, and maintain effective management of Transportation Infrastructure funding.

An overview of the Strategic Enterprise Measures along with their goals and measures follows:

#### **Finance**

This metric will track the total dollars obligated and actual revenue received monthly as compared to the official budget for the fiscal year. The performance goals are that actual obligations will be less than 105% of forecasted budget, and actual year-to-date revenue will be within 5% of the year-to-date budget. The measures required are multi-modal, project design, right of way, construction, operating, and total obligations; and state and total revenue.

### Program Delivery

This measure the ability to award construction contracts on schedule by comparing the annual plan to contracts actually delivered. It will also measure contract completion in terms of being on-time and on-budget. The goal is to have 75% or greater of contracts to be let on time, and 95% or greater to be within 105% of estimated cost. Also, 90% or greater will be completed within 30 days of their completion date goal, and 95% or greater will be with the 105% of the awarded amount. Contract letting performance will be measured by the percent of contracts let on time, and the percent of let at estimated cost. Contract completion will be measured by percent substantially complete with 30 days of adjusted completion date, and by percent completed within 105% of award amount.

### Road and Bridge Conditions

This metric reports current road and bridge conditions on the state transportation network. For roads, the goal is to have 85% or greater of our roads in fair, good, or excellent condition. For bridges, the goal is to have 85% or greater in fair, good, or excellent condition. Also, 15% or less of bridges would be functionally obsolete and 5% or less would be structurally deficient. Roads would be measured by ride quality. Bridges would be measured by condition of their deck, superstructure, and substructure, and whether they are functionally obsolete and/or structurally deficient.

### Mobility/Mass Transit

This is a measure of congestion on selected metropolitan traffic corridors during AM and PM peak travel time. It will be assessed by

*“Budgeting is a balancing act of keeping income and expenses in check. Ongoing budget forecasting helps to ensure that INDOT remains a fiscally responsible agency. “*

*INDOT Deputy Commissioner and Chief Financial Officer, Dan Brassard.*

calculating the congested periods as a percentage of peak-hour periods per month. The goal is to have at least 18 or more days where 90% of the periods experience speeds greater than 45 mph. Performance will be measured by using detectors embedded in urban interstates to measure and store speed data in 15 minute intervals during AM peak hours (6:00 to 9:00 AM) and PM peak hours (3:30 to 6:30 PM).

### Safety

This metric refers to crashes and injuries on public roads within the state. One goal is to decrease fatalities and severe crashes from the previous 5-year average, and decrease the fatality rate by 2% from the previous year. Another goal is to keep the injury frequency and severity rates at less than 3.5%. This will require counting crashes, fatalities, and severe crashes, as well as calculating injury frequency, injury severity, and fatality rates.

### Title VI Civil Rights Act of 1964/Americans with Disabilities Act

INDOT has developed an assessment tool: Public Outreach Matrix to monitor its core program areas and report compliance efforts for Title VI/ADA. This was initiated as one of the INDOT 2012 Annual Work Plan goals. Another important 2012 goal involves the

initiation of the Pre-Award Certification and Assurance process for reviewing Local Planning Agencies (LPAs) and Metropolitan Planning Organizations (MPOs).

**Customer Service**

This is a measure of INDOT’s responsiveness to inquiries from its internal and external customers. Performance goals are under development. Measures will include days to close, satisfaction rating, and top issues.

**INDOT Funding**

Unlike most other state agencies, INDOT utilizes dedicated funds and does not receive distributions/funds from the state’s general fund to run the agency. Dedicated funds are funds to be used by a specific agency and do not revert to the state general fund at the end of a fiscal year. The two primary sources of dedicated funding which INDOT relies on are the Federal Highway Trust Fund and the State Highway Fund. The Federal Highway Trust Fund is administered by the Federal Highway Administration under the U. S. Department of Transportation. In the case of both funds, the primary revenue source is generated from taxes on fuel collected at the fuel pump.



Other transportation funding

sources that INDOT uses are the Indiana Public Mass Transportation Fund, the Industrial Rail Service Fund and the Commuter Rail Service Fund. The Airport Development Fund is funded this biennium from the Build Indiana Fund, respectively. Federal funding was further boosted by \$658 million through the American Recovery and Reinvestment Act.



Our upcoming annual budget is anticipated to be approximately \$2 billion and has averaged that same amount for the last few years due to proceeds from the lease of the Indiana Toll Road.

The American Recovery and Reinvestment Act of 2009 (ARRA) supplemented our budget in fiscal year (FY) 2010. Because of this additional ARRA funding, as of June 7, 2010 the agency had obligated approximately \$440 million.

One of INDOT’s largest sources of revenue comes from the “State Highway Fund” and this fund is best described by the illustration below.

STATE HIGHWAY FUND				
Fuel Taxes	Permits	Federal Reimbursement	Motor Vehicle Highway Fund*	Local Road and Street Fund**
Gasoline	Oversize/overweight freight loads, vehicle trip permits, street curb and billboard	Of payroll, materials and test, vehicle depreciation	A portion of gasoline and diesel fuel taxes plus a portion of vehicle license fees, title fees, driver's license fees	A portion of gasoline and diesel fuel taxes plus permits, portion of vehicle license fees, title fees and driver license fees

\* After other disbursements are made from this fund, including to the Indiana State Police and Bureau of Motor Vehicles, INDOT receives 53% of the remaining funds and local governments receive 47% of the remaining funds.  
 \*\* INDOT receives 55% of the remaining funds and local governments receive 45% of the remaining funds.

FIGURE 47 - STATE HIGHWAY FUND

A further breakdown of INDOT's 2011 transportation revenues and budget are illustrated in the following figures:

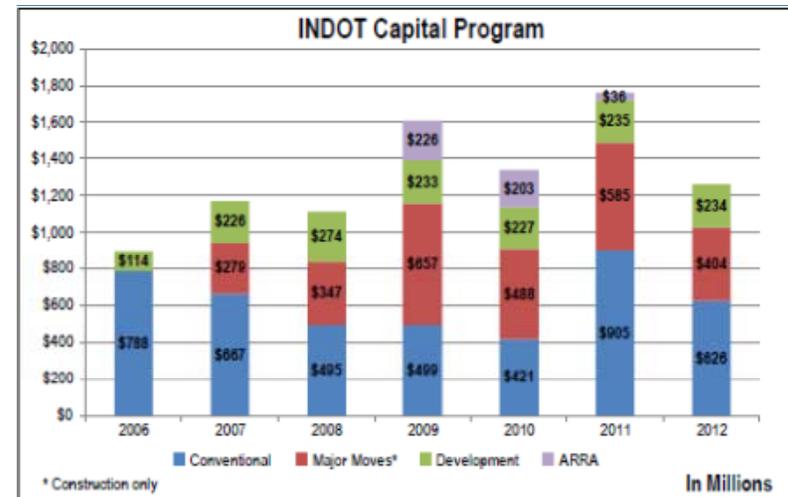


FIGURE 49 – 2012 STATE AND LOCAL TRANSPORTATION REVENUE –B

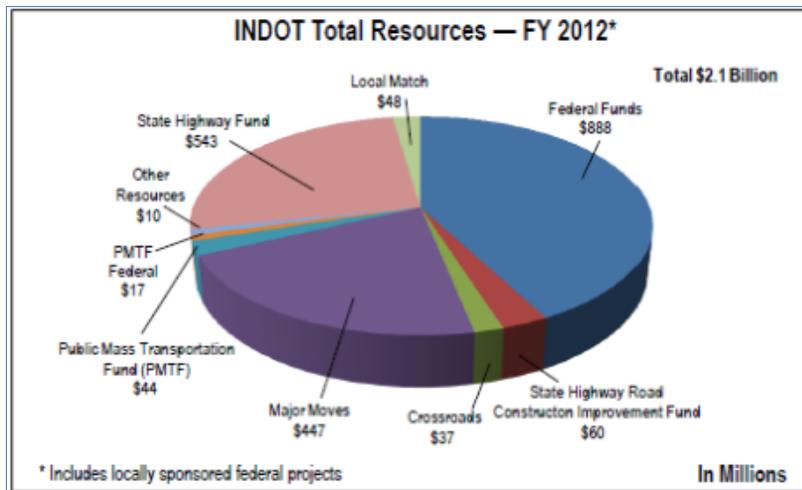


FIGURE 48 – 2012 STATE AND LOCAL TRANSPORTATION REVENUE -A

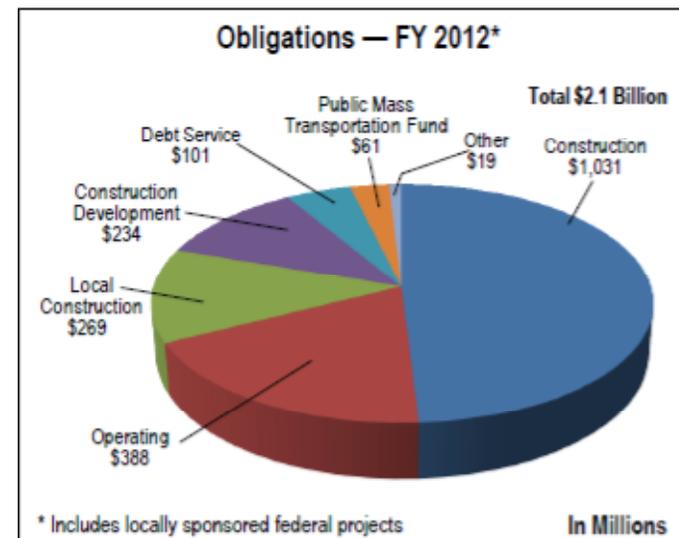


FIGURE 50 – INDOT 2012 FISCAL-YEAR OPERATING BUDGET - A

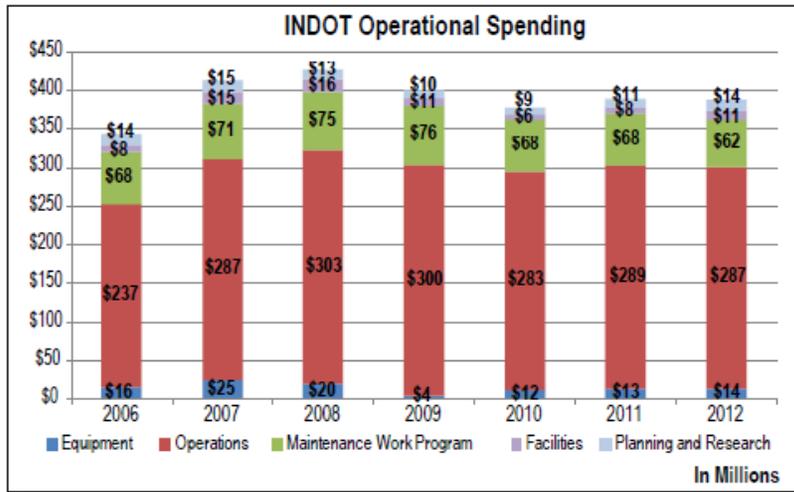


FIGURE 51 – INDOT 2012 FISCAL-YEAR OPERATING BUDGET – A

**Funding Challenges:** Gasoline and diesel fuel taxes have served the transportation community well in the past but it is anticipated that that will not be the case in the future. Rising energy costs, changes in driving habits, more fuel efficient vehicles, the potential growth of alternative fuel sources and the increased cost for construction and maintenance have placed increased pressure on the traditional fuel tax model for transportation funding. In order to meet future needs for the preservation and expansion of transportation facilities, new and innovative forms of finance will need to be explored. Simply increasing fuel taxes to support the transportation infrastructure does not appear to be the answer.

**Innovative Financing Public/Private Partnership - P<sub>3</sub> Funding:** In an unprecedented move in 2006, Indiana partnered with the Indiana Toll Road Concession Company to lease the toll road for a period of 75 years in exchange for an immediate \$3.85 billion. The proceeds

from this collaborative help to fund the Major Moves highway improvement program (and saves INDOT approximately \$35 million a year it was spending to maintain the toll road). INDOT committed \$448.1 million of the toll road lease proceeds in FY 2010. This partnership has become a model for other states.



Building on the success of the toll road lease, the State of Indiana has prepared the ground work for future P<sub>3</sub> collaborative efforts. One of the products from the 2011 Indiana legislation year was **Senate Bill 473** which will have a major impact on Indiana’s ability to fund future road projects. The bill gives the governor and INDOT the ability to determine the best funding route – either allowing for state dollars to be utilized or negotiating a private-public partnership (P3) for tolling – in new road construction. The bill also provides for legislative authorization to convert an existing road into a toll road. Additionally, as long as existing lanes were still in place, the bill allows the governor to add toll lanes, which may include

truck only or high-occupancy vehicle toll lanes. As fuel taxes decline with high fuel costs and vehicles becoming increasingly efficient, it’s very important that we have this tool in the toolkit as an alternative to borrowing money and tax increases.

### Innovative/Cost Effective Solutions

Within the “High Priority Corridors” section of the report, several innovative financing techniques were discussed. The section is made up of new approaches to developing funding for major infrastructure projects. It involves non-traditional funding sources such as toll financing (for roadways other than I-69 Indianapolis to Evansville), public private partnership arrangements, application of new technologies to capture new user benefit revenues and innovative financial mechanisms. In the “High Priority Corridors” section, several projects are listed which have toll financing as an option (such as the Illiana Expressway and the Henderson/Evansville Bridge) and the I-69 corridor improvements, in which toll financing was deemed not an option.



The need to develop innovative funding programs to supplement traditional infrastructure revenues is a recognized national need.

INDOT is working with FHWA and several coalitions of mid-western states to investigate new approaches.

In FY 2012, INDOT moved to take advantage of a new state law that allows new nontraditional highway funding sources by expanding the use of public-private partnership (P3s) projects for transportation improvements. The law authorized INDOT to pursue public-private partnerships without project-specific legislative approval. Public-private partnerships provide an additional source of funding without increasing existing capital budget. Strategic private investments offer INDOT the opportunity to design, build and complete roads and other infrastructure in a shorter timeframe at vastly reduced cost.

Several concepts are being investigated at the national level to provide for the value pricing of benefits, such as: dedicated truck lanes which could generate revenues from providing trucking and freight companies an increase in their productivity; and peak hour

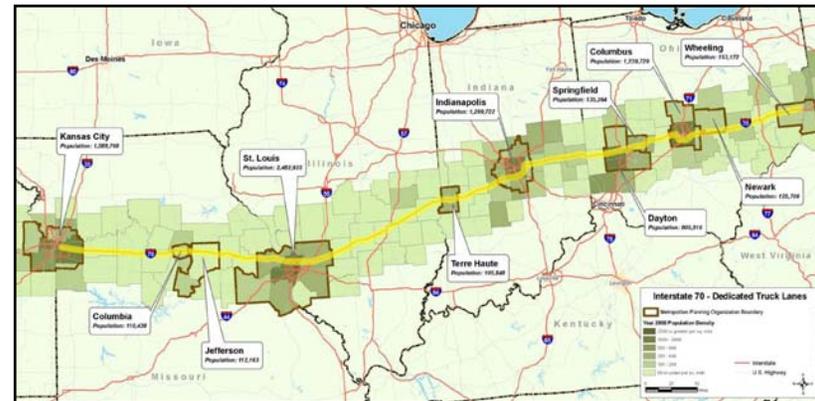


FIGURE 52 - I-70 DEDICATED TRUCK LANES CORRIDOR

pricing; and the provision of High Occupancy Toll (HOT) lanes to speed commuter travel.

Innovative financial mechanisms can also provide additional revenues for major infrastructure projects. Programs using Grant Anticipation Revenue procedures (such as the GARVEE bonds), procedures using Transportation Infrastructure Finance and Innovation Act (TIFIA) provisions and Multi-State Infrastructure Banks can access future funding streams and leverage both existing and future funding programs.

## Addressing the Federal Planning Factors

Under MAP-21 INDOT is required to address the eight statewide planning factors as part of our planning process. Listed below are descriptions and examples of how INDOT addresses each of the eight planning factors.

1. ***“Support the economic vitality of the United States, the States, and metropolitan areas, especially by enabling global competitiveness, productivity, and efficiency.”***

The INDOT statewide transportation planning process supports the expansion and development of the state’s economy. In the development and continuing refinement of the Major Moves Program, economic development is a significant factor in project identification and prioritization. The statewide transportation planning process has developed the Major Corridor Investment Benefit Analysis System (MCIBAS) tool to incorporate economic



development impacts into the corridor planning process for major projects. The MCIBAS process uses the statewide or a regional travel demand model to measure the direct impacts of a major highway system improvement on existing and future traffic volumes, speeds, and distances. In addition, the MCIBAS process considers the economic benefits from the expansion of existing businesses in the corridor study area resulting from the improved transportation system (increased accessibility for a larger market area and increased speeds, lowering the cost of delivering goods and services) and the attraction of new businesses into the study area due to the higher transportation accessibility and lower business costs derived from an improved transportation system. The MCIBAS process uses the Regional Economic Forecasting and Model Inc. (REMI) to analyze and forecast economic benefits.

System perseveration provides a number of economic benefits from improved safety to travelers, smoother ride (less wear in tear on vehicles), fewer construction delays, better appearance, greater value, and lower taxpayer cost. Through proactive, formalized asset management processes, INDOT maintains existing state owned

roadways and bridge structures reducing and deferring costly, time consuming future rehabilitation and reconstruction projects.

INDOT will continue to invest in Indiana's infrastructure to improve transportation mobility, safety, employment and economic growth throughout Indiana. This investment in our infrastructure will continue to pay dividends in terms of increased economic impact and opportunity and enhanced quality of life for decades to come.

## ***2. "Increase the safety of the transportation system for motorized and non-motorized users."***

INDOT vigilantly seeks to protect the traveling public and has undertaken a major effort related to asset management, including establishment of a Traffic Safety Asset Team. This group is charged with monitoring roadway safety data; evaluating all current safety related projects; and prioritizing a list of safety projects for construction in current and future years.

Indiana also developed the Strategic Highway Safety Plan (SHSP), a comprehensive approach to reducing traffic crash injuries and deaths through coordinated engineering, education, enforcement, and emergency response. Partners in developing the plan included other state agencies, federal transportation agencies, and traffic safety advocacy groups.

Shared duty and partnerships are important elements in reducing human suffering and economic loss from traffic crashes in Indiana. Better communication, coordination, and cooperation between state, regional and local agencies as well as with safety advocates

and organizations, are vital to successful implementation and deployment of highway safety improvement strategies. Highway infrastructure projects are identified in Indiana's Highway Safety Improvement Program (HSIP) document that can be found at: [http://www.in.gov/indot/files/shsp\(1\).pdf](http://www.in.gov/indot/files/shsp(1).pdf).

INDOT also initiated a work zone safety project to collect work zone data on interstate projects that will help improve the predictions of the potential impacts from lane closures. We will use this information during the design process for planning how to mitigate these impacts.



Our focus on safety has resulted in an overall decline in work zone crash fatalities. On state highways, interstates and U.S. routes, the number of fatalities in work zone crashes has declined to an average of 11 per year statewide in the most recent four-year period (2008-2011) – a decline of 30.2 percent from the prior four-year period

(2004-2007) average of 14 fatalities per year. This decline occurred despite continued high INDOT construction activity, fueled by Major Moves.

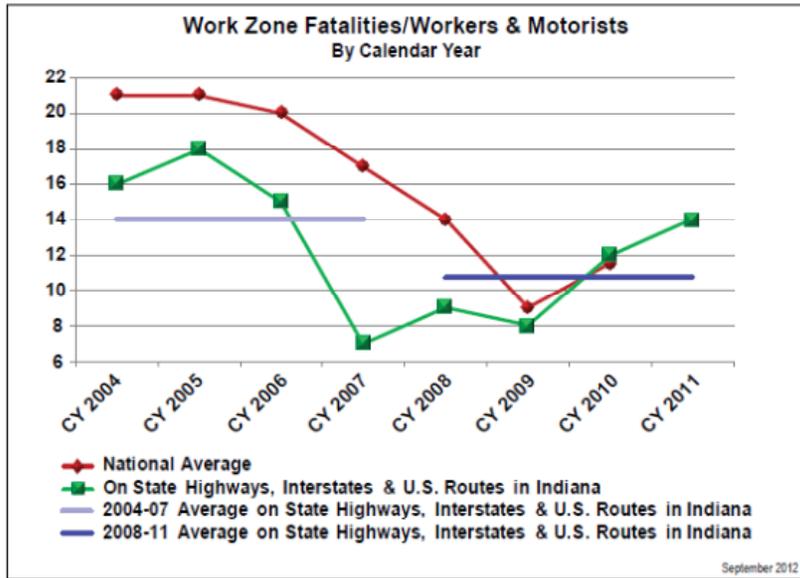


FIGURE 53 - WORK ZONE FATALITIES CHART

**3. “Increase the security of the transportation system for motorized and non-motorized users.”**

In 2005, the Indiana Department of Homeland Security (IDHS) was created by consolidating the state’s emergency management and homeland security efforts into one department. In early 2006, IDHS released the Indiana Strategy for Homeland Security. The strategy identifies areas which present significant concern to Indiana from a security and/or emergency preparedness perspective. It provides guidance to decision-makers responsible for homeland security issues. The strategy is updated every two years to ensure that it

addresses current issues, trends, and threats. In 2009, IDHS completed an interim review of the strategy. It found that 44% of the strategy’s 146 objectives have been completed with another 16% being very near completion. The assessment will be used to update the document. Emphasis areas, goals, and objectives will be identified for the next two year period. The Indiana Department of Transportation is a stakeholder and partner in this effort, and will continue to work with IDHS in the update of the strategy. Security is also addressed in the discussion of the transportation modes. The update is discussed in IDHS’s 2009 Annual Report. This report can be found at:

[http://www.in.gov/dhs/files/2009\\_Annual\\_Report\\_revised\\_6-30-10.pdf](http://www.in.gov/dhs/files/2009_Annual_Report_revised_6-30-10.pdf).

**4. “Increase accessibility and mobility options.”**

The statewide planning process considers future-year needs of the state transportation system in terms of increasing the accessibility and mobility options available to people and for freight. The policy planning elements making up the Future Year Transportation Needs Report identify the development of modal and intermodal strategies to increase mobility options for people and freight movements. Studies such as the 2009 Indiana Multimodal Freight and Mobility Plan and the earlier Intermodal Management System provides for the development of a multimodal transportation system. INDOT worked with the Conexus Indiana Logistics Executive Committee in the development of the 2009 Indiana Multimodal Freight and Mobility Plan as well as the 2010 Conexus Indiana Future Logistics Report that can be found at: <http://www.conexusindiana.com/phase-i>. This committee is a

forum of logistics stakeholders throughout Indiana representing advanced manufacturing, warehousing, distribution, rail, trucking, freight, waterborne, and third-party providers. Following the completion of strategies and implementation tactics and now is working on Phase 2 follow-up. The efficient movement of commercial vehicles is an underlying consideration in the normal selection and development process for highway transportation improvements. Project design data in the form of the amount and composition of truck traffic is considered in the project development process. In addition to procedures that enhance commercial vehicle movement, INDOT has conducted research studies on the identification of commodity flows typically carried by commercial vehicles. The Commodity Flow Model Study conducted by the Indiana University Transportation Research Study has assigned the volume of specific commodity movements to a statewide network of highway facilities. These commodity flows are used in the Indiana statewide travel demand model to estimate truck trips.

***5. "Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns."***

The overall social, economic and environmental effects of transportation investment decisions are considered by the Indiana Department of Transportation in accordance with the National Environmental Policy Act (NEPA) guidelines. INDOT in cooperation with FHWA has developed an Environmental Streamlining Procedure which provides for planning studies at the corridor level

to be conducted as environmental assessments under the NEPA process. It is anticipated that the environmental streamlining process will reduce a project's development time by avoiding potential duplication of planning studies being redone under NEPA procedures. INDOT will also continue to work closely with the Indiana Department of Environmental Management, the Indiana Department of Natural Resources and other environmental resource agencies in the development of future year transportation planning reports and projects.

***6. "Enhance the integration and connectivity of the transportation system, across and between modes throughout the State."***

The statewide transportation planning process explicitly considers the connectivity between metropolitan planning areas both within the state and in adjacent states. The connectivity between metropolitan planning areas is a central element of the highway classification effort for the Statewide Mobility Corridor System which incorporates the National Highway System (and associated NHS Intermodal connectors) and the functional classification system. Multimodal planning connectivity between metropolitan planning areas and the identification of intermodal facilities has been addressed in the 2009 Indiana Multimodal Freight and Mobility Plan.

INDOT supports Indiana's "Hoosiers on the Move" program that promotes trails and bike/pedestrian facilities across Indiana with a state goal of giving every Hoosier access to a trail within 7.5 miles or 15 minutes of home. INDOT's Transportation Enhancement (TE) program has been used for bike and pedestrian facilities; trails;

streetscape projects; and historic preservation. Since 2006, 209 miles of multi-use trails have been added to the State's trail system in support of the "Hoosier on the Move" Program.

**7. "Promote efficient system management and operation."**



INDOT is continuing the development of system management programs intended to maximize the efficient use of the existing transportation system. Earlier management effort for pavement, bridges,

congestion, roadway, and safety have been restructured into a new INDOT Asset Management Capital Program consisting of Mobility, Pavement/Roadway, Bridge, and Safety. The Asset Management Teams have been charged with defining a clear and appropriate set of performance measures to support this new management process. The process will provide for the identification and prioritization of projects to be programmed for implementation in the Indiana Statewide Transportation Improvement Program.

**8. "Emphasize the preservation of the existing transportation system."**

INDOT places a high priority on the preservation of its existing transportation system. System



preservation strategies will be developed, implemented, and evaluated through the Asset Management Capital Program process.

INDOT owns 28,410 roadway lane miles (totaling 11,141 roadway centerline miles), including interstates, U.S. routes and state roads – including 157 miles on the Indiana Toll Road. INDOT also manages and maintains more than 5,300 bridges in Indiana.

Through a proactive, formalized asset management approaches, INDOT maintains existing pavements and bridge structures while reducing and deferring costly, time consuming future rehabilitation and reconstruction projects. We continue to improve our comprehensive guidelines for infrastructure preservation to enhance project specifications and increase efficiency. INDOT will continue to expand our system preservation efforts into the future.

INDOT is also implementing an access management strategy for the State of Indiana. Access management is the process that manages access to land development while simultaneously preserving the flow of traffic on the surrounding public road system in terms of safety, capacity, and speed. Access management provides a systematic means of balancing access needs and movement and mobility requirements of streets and roads.

The access management process supports refinement of the INDOT Future Year Needs Report in terms of implementing the Statewide Mobility Corridor Concept and guiding the overall development of the state highway jurisdictional system. An Access Management Guide which can be used by state and local officials in implementing access management in the State of Indiana is available on our website: <http://www.in.gov/indot/2512.htm>.

## Conclusion

INDOT understands that transportation plays a critical role in everyday life. Transportation is crucial to Indiana's economic vitality and quality of life, which is why INDOT encourages community and stakeholder participation in its transportation investment decisions. Money spent on our state's transportation system affects each and every one of us directly, because it affects how people, goods, and services move about in Indiana.

Transportation planning recognizes the critical links between transportation and other societal goals. Transportation planning is all about making choices and understanding the potential consequences of those choices to transportation conditions, safety, mobility, access, the economy, quality of life, environmental resource consumption, social equity, land use, urban growth, economic development, safety, and security.

INDOT's Future Needs Transportation Report provides a strategy for the future of the state transportation system, which is intended to provide Hoosiers the highest level of mobility and safety possible, and to meet the needs of economic development and quality of life into the next quarter century. The report also provides an update of multimodal transportation issues from the INDOT rail, public transportation, freight, and aviation offices.



## Tell us what you think!

INDOT engages the public for input in transportation planning and capital improvement programming, through which INDOT and its planning partners identify improvement strategies and develop projects to enhance the multi-mode transportation system throughout the state.

INDOT is constantly looking for and receiving comments and input from citizens, elected officials, and transportation professionals to support our transportation planning process.

Please visit INDOT's website: <http://www.in.gov/indot/> to access links to specific transportation planning documents, studies, programs, capital investment information, annual reports, and public information and involvement opportunities.

# Appendix A: Public Comments

## General Public and Stakeholder Comments and Responses

The plan update process involved two rounds of meetings to provide opportunity for public and stakeholder input.

In 2010 the long-range planning section has met with a total of 27 groups to discuss transportation needs and potential improvements. The 27 groups consisted of 6-INDOT District Planning Offices, 14-Metropolitan Planning Organizations and 7-Regional Planning Organizations. This was followed by the posting of the draft Indiana Future Needs Report on its website for a public comment period which came to a close on May 4, 2011. INDOT continued to accept comments received up until after July 20, 2011. Comments could be submitted to INDOT using one of four methods:

1. Mailing a written letter to INDOT
2. Clicking on the e-mail link on the website and submitting an e-mail response
3. Filling out an electronic comment form that was made available on the website
4. Attending one of the six INDOT open-house District meetings that took place between March 29 to April 13, 2011 where INDOT made brief presentations and the public could ask questions and fill out and submit comment forms.

The public comment process generated a total of 276 comments. The most common method used to submit comments was the e-mail link on the INDOT webpage. The comments received by INDOT fell into one of these general categories:

- Comments suggesting specific project improvements ranging from intersection improvements to new roadway linkages.
- Comments expressing support for an increased INDOT commitment towards transit and multi-modal transportation.
- Comments expressing support for the development of light rail, particularly in the Indianapolis metropolitan region (INDYconnect).
- Comments expressing support for high-speed passenger rail.
- Comments expressing support for a greater commitment towards the inclusion of bicycle and pedestrian amenities with highway projects and, support for increasing the number of greenways.
- Comments expressing support for the concept of complete streets and context sensitive solutions.
- Comments expressing concerns over INDOT public involvement efforts in updating the Indiana Future Needs Report.
- Comments identifying typographical errors, required clarification, or supporting detail
- Project Specific Comments

### ***Comments Regarding Specific Project Improvements:***

Several comments were received on the Hoosier Heartland Corridor regarding new roadway linkages on US24 and SR25. In addition comments were received on potential spot locations such as intersection improvements.

#### ***INDOT's Response:***

Comments that were project specific were relayed to the project's overall INDOT Project Manager for consideration. Comments suggesting new roadway linkages on the Hoosier Heartland Corridor were reviewed by the Executive Staff. Other recommendations will be evaluated by the planning staff for further future needs evaluation and potential addition to the five year capital program.

### ***Comments Regarding Transit and Light Rail Development:***

Several comments were received recommending INDOT to invest funding and initiate mass transit improvements in urban areas across the state.

#### ***INDOT's Response:***

*Regarding comments expressing support for multimodal/mass transit and urban light rail, INDOT continues to support all modes of transportation and has a small, but dedicated staff that administers federal and state grant funding to Indiana's cities, towns and regional public transit systems. Public transit in Indiana is however provided through its cities, towns and regions on the local level. INDOT provides guidance, funding and oversight to those communities which choose to provide public transportation. INDOT conducted an Indiana Mass Transit Study completed December 2008 which identified needed mass transit improvements and funding requirements. Needs identified in the study was submitted to the Indiana State Legislature Joint Study Committee on Mass Transit and Transportation Alternatives.*

### ***Comments Regarding High-Speed Rail Improvements:***

Several comments were received noting the need for INDOT to initiate and fund high-speed rail improvements for intercity passenger transportation.

#### ***INDOT's Response:***

*INDOT supports the development of High-Speed Rail. Several of the high-speed rail comments included a note concerning an INDOT error in the document regarding the definition or explanation of high-speed rail. The final document includes corrections to the high-speed rail references.*

*Regarding supporting initiatives taken by INDOT for high-speed passenger rail, the following is an excerpt from page 2-17 of the Indiana Rail Plan that was published in November 2011. 2.8 Indiana's Involvement in Multi-State Planning, Indiana Legislature has passed enabling legislation that allows the state to participate in multistate compacts and other partnerships to study and establish passenger rail services. These compacts and partnerships include:*

- *The Midwest Interstate Passenger Rail Commission – This commission was formed by compact agreement in 2000 to promote, develop, and implement improvements to intercity rail passenger service in the Midwest. Current state members are Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, and Wisconsin.*

- *Midwest Regional Rail Initiative – INDOT participates in this ongoing effort to develop and expand access to an improved passenger rail system in the Midwest. Participating states are Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, Nebraska, and Wisconsin.*
- *States for Passenger Rail Coalition – This coalition is an alliance of state departments of transportation that support intercity passenger rail initiatives and advocate for federal funding. Its mission is to promote the development, implementation, and expansion of intercity passenger rail services with involvement and support from state governments. Currently 32 states are members of the coalition.*
- *The American Association of State Highway Transportation Officials – Standing Committee on Rail Transportation – This committee is composed of rail officials from state departments of transportation. The Committee conducts conferences, prepares technical studies and reports, and advocates and promotes various federal issues and projects for both freight and intercity passenger rail improvements.*

A copy of Indiana’s State Rail Plan may be accessed at:

[http://www.in.gov/indot/files/Rail\\_JanFinal\\_Report\\_011712.pdf](http://www.in.gov/indot/files/Rail_JanFinal_Report_011712.pdf).

### ***Comments Regarding Bicycle and Pedestrian Improvements:***

Several comments were received regarding the need for additional bicycle and pedestrian facilities to be included in highway projects and recommending increasing the number of greenways.

#### ***INDOT’s Response:***

When it comes to the comments submitted in support of greater bicycle and pedestrian amenities, INDOT supports 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 works to remove unnecessary barriers to pedestrian and bicycle travel.

Bicycle and pedestrian facilities are gradually becoming a meaningful part of the transportation network in Indiana. Valued for their potential health benefits and positive effects on air quality, walking and bicycling now represent the chief non-motorized forms of transportation available for both utilitarian and recreation purposes. As alternate modes of travel, facilities for walking and/or bicycling are effective means of attaining social, environmental, land use and energy conservation goals.

The Hoosiers on the Move greenways plan unites current trail systems and builds new trails, putting every Hoosier within 15 minutes (7.5 miles) of a trail opportunity. When the plan is complete, more than 2,000 miles of interconnected trails and bikeways on 27 corridors will have been built.

Traditionally, trail development in Indiana has been paid for through a combination of federal and state funds, with local matching dollars coming from public and private sources. Efforts are also underway to develop partnerships with utility suppliers that would pay to install lines under the surface of the trails being developed in certain areas of the state, and to identify other philanthropies interested in investing in trail development. Under Hoosiers on the Move, the amount of money available to help fund local trail projects has doubled in recent years.

Planning for bicycle and pedestrian facilities continues throughout Indiana on the local level as well. Bicycle and pedestrian plans were approved in many communities, such as Fort Wayne, Northwestern Indiana, the South Bend-Elkhart area, Muncie, Indianapolis/Marion County, Hamilton County, Bloomington, Lafayette, Anderson,

Goshen, the urban portions of Clark and Floyd Counties, Terre Haute, Madison, Zionsville and Kokomo. Many of these communities are refining their earlier plans.

***Comments Regarding Complete Streets:***

Several comments were received noting that INDOT needed to adopt a Complete Streets policy and initiate requirements for transit, bicycle and pedestrian improvements in the planning and design process.

***INDOT's Response:***

INDOT supports the Complete Street concept and is implementing a Context Sensitive Solutions (CSS) approach to achieve the objective. CSS is a collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic and environmental resources, while maintaining safety and mobility. CSS is an approach that considers the total context within which a transportation improvement project will exist. CSS principles include the employment of early, continuous and meaningful involvement of the public and all stakeholders throughout the project development process.

CSS is a way of doing business, a philosophy that will be inherent to all projects considering the total context in which that transportation project will exist. CSS provides an economical balance of multimodal transportation needs, cultural and natural resources, community needs, safety and a complete streets philosophy; it requires flexibility in design standards, incorporating aesthetics into basic design principles. More information regarding INDOT's Context Sensitive Solutions efforts may be found at:

<http://www.in.gov/indot/div/projects/indianacss/definition.html>.

***Comments expressing concerns over INDOT public involvement efforts in updating the Indiana Future Needs Report.***

Several comments were received expressing concern that the efforts to obtain public and stakeholder input did not follow federal planning requirements and were not effective in receiving adequate feedback.

***INDOT's Response:***

The public and stakeholder involvement process was carried out following all applicable federal and state requirements for conducting public input programs. To insure that all requirements were met, INDOT conducted two phases of the public and stakeholder process in 2010 and 2011. INDOT continues to work towards developing more effective public and stakeholder involvement programs. INDOT, with input from the Federal Highway Administration (FHWA) Indiana Division Office, have updated and revised the INDOT Public Involvement Procedures Manual. The updated document can be found at: <http://www.in.gov/indot/2366.htm>.