2011

Indiana's 2010-2035 Draft Long-Range Transportation Plan

Indiana Department of Transportation
Capital Program Management Business Unit
Draft Version 3/29/2011

Table of Contents

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. 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 Indiana Department of Transportation (INDOT) 2035 Long-Range Plan provides a vision for future developments and investments on the INDOT state transportation system. This Plan 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.

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.

The Purpose of the Long-Range Plan

The production of a long-range plan is a continuous, cooperative, and comprehensive activity. It establishes a long-range vision for future transportation investments examining critical trends, issues, and needs. The long-range plan draws from and provides direction to the many modal, specialty plans, and studies developed by INDOT and its partners: Federal Highway Administration (FHWA), Metropolitan Planning Organizations (MPOs), Rural Planning Organization (RPOs) and other numerous planning partners.

Federal Legislation

An important part of the plan development process is guided by state and federal regulations and statutes. The most recent federal transportation authorization bill; the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) as signed into law on August 10, 2005. [23 USC 135(c)]) requires states to develop and periodically update statewide transportation plans with a minimum 20-year planning horizon. SAFETEA-LU prescribes a series of factors that each state planning process should consider as well as the identification of basic plan components.

The New Plan Format

Previous INDOT Long-Range Transportation Plans 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.

Planning Factors

"All state and local transportation planning is subject to FHWA planning regulations. The most recent set of regulations is derived from the 2005 Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), Public Law 109-69. The INDOT long-range planning process is consistent with SAFETEA-LU. The values and goals embedded in Section 135(c) of the Federal planning regulations are expressed through the identification of Statewide Planning Factors:

- *Support economic vitality of the United States, the States and metropolitan areas, and non-metropolitan areas, especially by enabling global competitiveness, productivity and efficiency*
- *Increase the safety of the transportation system for motorized and non-motorized users*
- *Increase the security of the transportation system for motorized and non-motorized users*
- *Increase accessibility and mobility options available to people and for freight*
- *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"*
- *Enhance the integration and connectivity of the transportation system, across and between modes throughout the State, for people and freight*
- *Promote efficient system management and operation*
- *Emphasize the preservation of the existing Transportation system.*

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."

For the new plan, INDOT has adopted a "Needs-Based" type plan. Needs-based plans describe overarching strategies to accomplish future results (e.g., improved mobility, safety, economic development, etc.). Needs-based plans include official public policies for solving problems or meeting projected demands, typically based on legislation and implemented through governmental programs. It also identifies the means to accomplish these policies, through strategies, or programs.

Innovative, context-appropriate, cost-effective, and creative solutions are critical. The new plan will maintain a flexible and opportunistic approach to addressing transportation issues for the next 20-25 years.

The INDOT Long-Range Plan is an evolving document that is amended and updated frequently. All needs, policies, and strategies set forth 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.

A number of web links are provided throughout this document to allow the reader access to more detailed information.

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.

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.

What Happened to the Projects?

Given the new format, the 2010-2035 Long-Range Transportation Plan will not list specific projects. The new plan will link to INDOT's 5-year construction program currently under development. The 5-year program will coordinate and synchronize multiple projects, thereby minimizing disruptions to the traveling public. The construction program will be updated annually 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 5-year construction program, the long-range plan 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 new plan will not display specific projects, a "High Priority Corridor" section of the long-range plan was developed to show our commitment to fund specific corridor improvements. These improvements are discussed in more detail in subsequent sections.

Additional INDOT Vision Statements

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.

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 which will guide the selection of investments that offer the best value while providing support for Indiana's continued economic growth.

Natural Environment and Energy

INDOT will establish and maintain a transportation system in a manner that is consistent with the state's commitment to protect the environment. INDOT will contribute to energy conservation efforts by promoting efficiency in all modes of travel and by encouraging the most efficient use of transportation systems.

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.

Since the Major Moves Program inception in 2006, approximately $2.9 billion has been obligated on new and expansion highway projects within 39 corridors that have been completed. It is anticipated that $3.85 billion will be spent on an additional 65 corridors by the completion of the program in 2015.

Major Moves Highway Program

The Major Moves Program is an innovative 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.

INDOT reviewed and prioritized projects based on a solid set of criteria including safety, mobility and economic development. 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. Also, during the summer, INDOT and the Office of Management of Budget began reviewing innovative financing solutions.

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. 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.

Since the program's inception, approximately $2.9 billion has been spent on new and expansion highway projects with 39 corridors that have been completed. It is anticipated that $3.85 billion will be spent on an additional 65 corridors by the completion of the program.

In May 2006, INDOT introduced the 10-year funded Major Moves highway plan. The INDOT Major Moves Program can be accessed at the following weblink: http://www.in.gov/indot/7039.htm. Please note: The Major Moves Program is constantly being monitored and revised according to need.

2010 Major Moves Program Update

In 2010 INDOT conducted a comprehensive review of the Major Moves program due to decreases in vehicle miles traveled and economic activity. The review involved a data driven re-evaluation of the priority assigned to projects along with the insight of the program managers who had extensive experience in the development of the Major Moves projects. Based upon this extensive review process projects were accelerated or delayed relative to their implementation schedule. In several cases the project's scope of work was modified to better meet projected needs and fiscal requirements. The re-evaluation process also provided information on the development of projects in the upcoming 5-Year Construction Program.

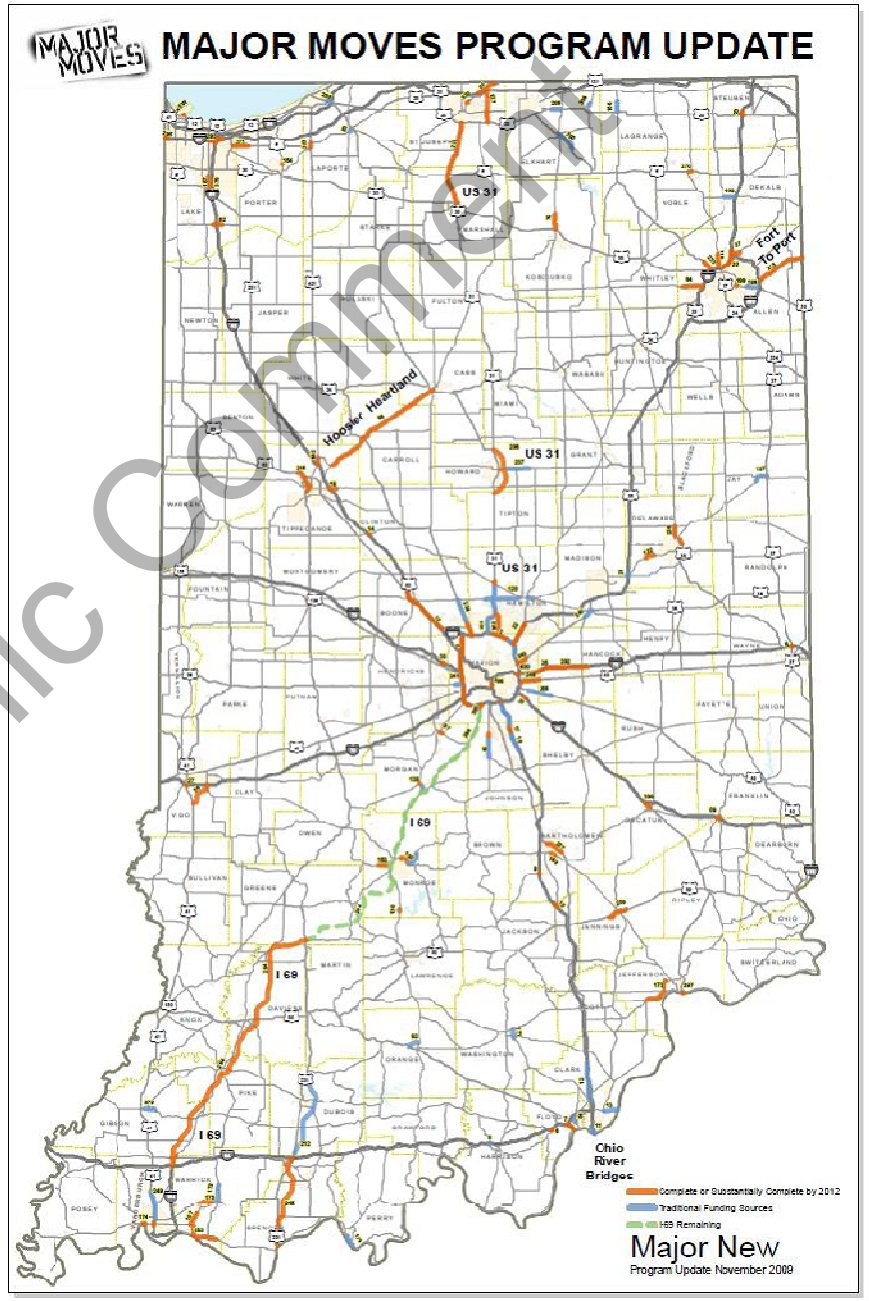


FIGURE 1 – 2009 MAJOR MOVES, MAJOR EXPANSION MAP

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 Agency (NEPA) approval. The identified high priority corridors are:

- Ohio River Bridges
- Illiana Expressway
- I-69 Evansville to Henderson, Kentucky
- I-69 Sections 5 and 6 Bloomington to Indianapolis

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 "High Priority Corridors" as appropriate.

Ohio River Bridges Project:

The purpose of this Project is to improve cross-river mobility between Jefferson County, Kentucky and Clark County, Indiana. 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 Kennedy Interchange to the South which includes relocating the interchange immediately to the south of its current location. A Record of Decision was approved by the Federal Highway Administration in 2003.

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 begun its work and is currently evaluating the merits of various funding alternatives, including tolling options for the project.

What is Innovative Finance?

"Innovative Finance" for transportation is a broadly defined term that encompasses a combination of specially designed techniques which supplement traditional highway financing methods. While many of these techniques may not be new to other sectors, their application to transportation is innovative. Historically, through the Federal-aid program, FHWA has financed highways primarily through grants 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*

Illiana Expressway:

The proposed Illiana Expressway Project provides a connection between I-65 in Indiana with I-55 and I-57 in Illinois in the northern parts of both states. In late 2006, the states of Indiana and Illinois, through their respective DOTs, entered into a Bi-State Agreement that provided a framework for study of the corridor.

In May 2007 the passage of SB 105 by the Indiana Legislature directed the Indiana Department of Transportation (INDOT) to perform a feasibility study to determine the needs of the corridor, financing options, alternative routes, environmental and economic impacts. This study was completed in 2009 and is located at: http://www.in.gov/indot/files/FR_INDOT_IllianaExprsswy_06-30-2009.pdf

The study outlined a series of potential corridor alignments south of the US 30 corridor in Lake County. The next phase of the Expressway project is to complete a more detailed environmental NEPA 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 Pennyrile 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.

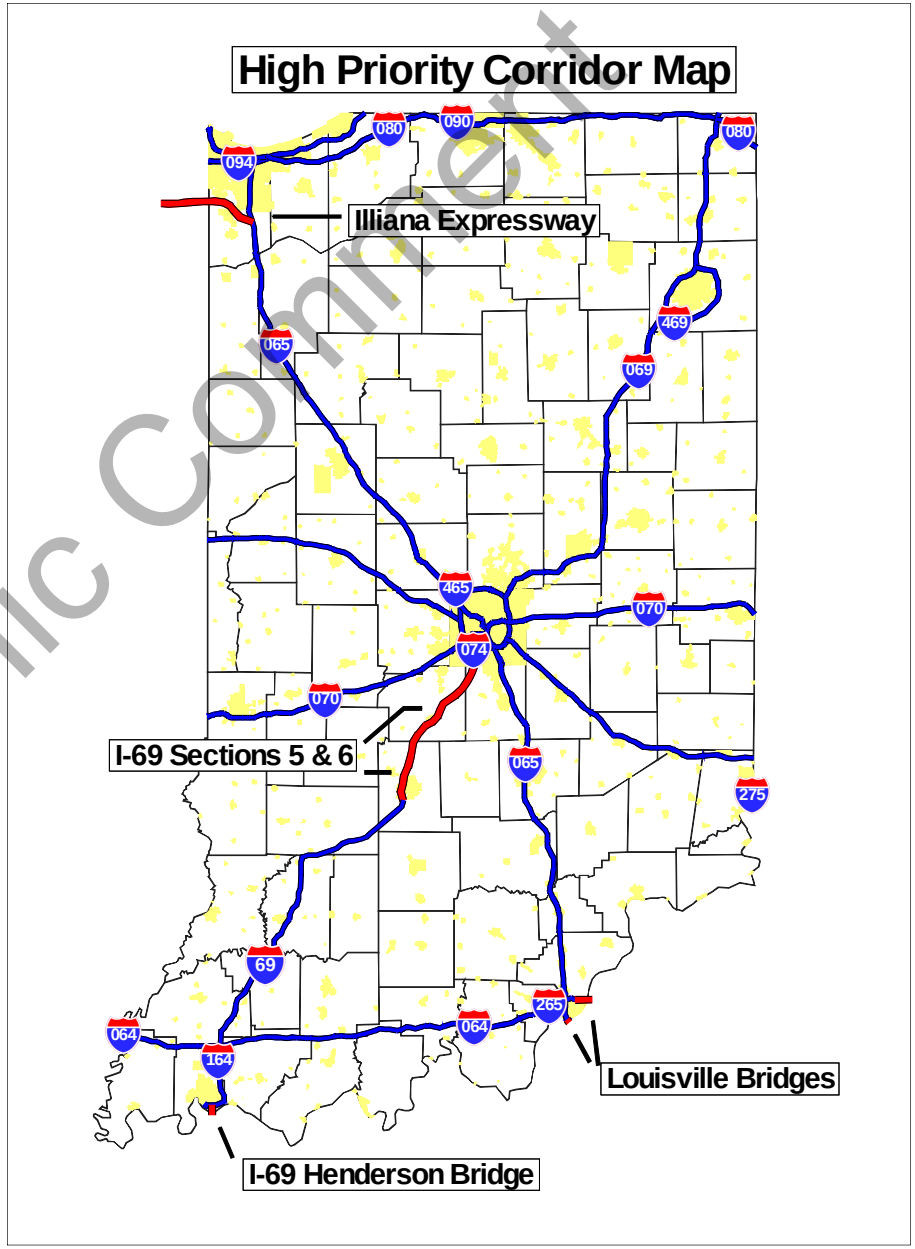


FIGURE 2 – HIGH PRIORITY CORRIDOR MAP

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 project.

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 3**)

Tier 2 RODs have been approved for Sections 1, 2, and 3 from I-64 north of Evansville to US 231 in southern Greene County. Section 4 from US 231 to SR 37 near Bloomington has also been accelerated. A Draft Environmental Impact Statement (DEIS) for section 4 was released in July, 2010.

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.

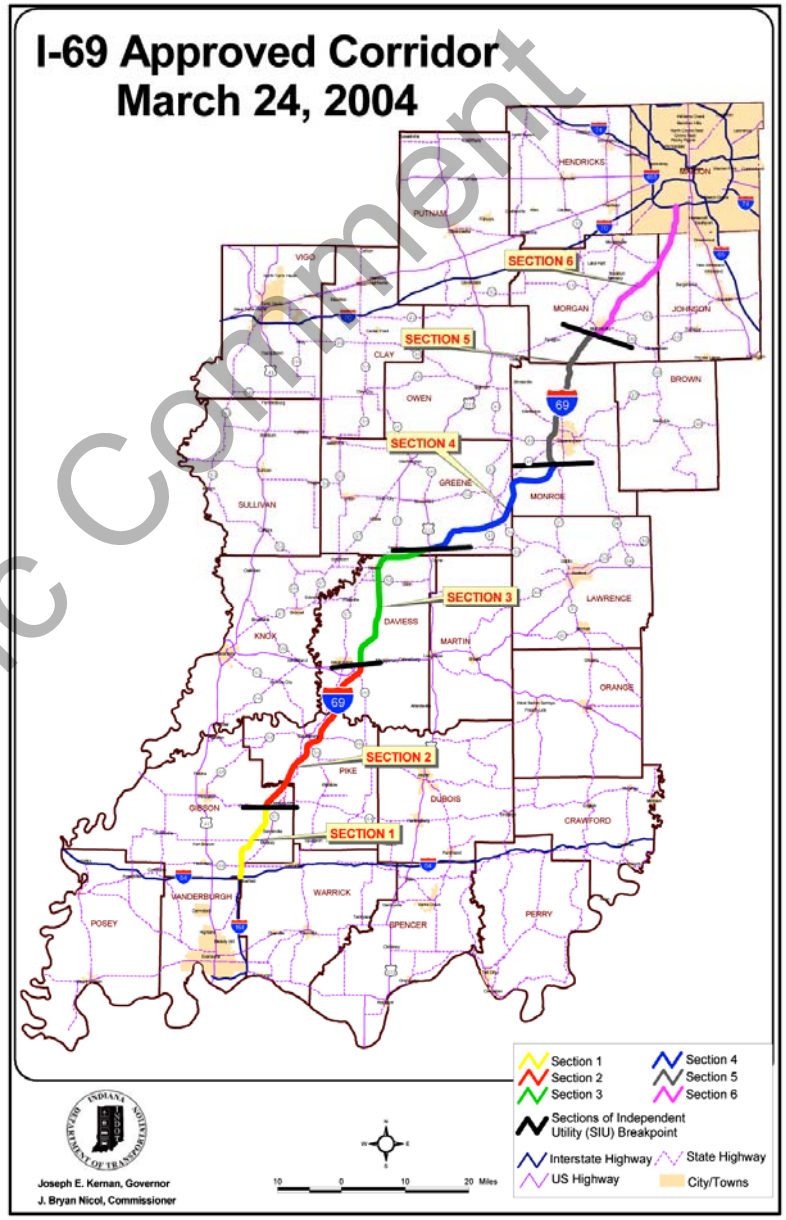


FIGURE 3 – I-69 CORRIDOR SECTIONS MAP

For more information on the progress of the I-69 Corridor Studies visit the I-69 Tier 2 Study website at: www.i69indyevn.org.

Other Project Concepts Being Studied:

In addition to the "High Priority Corridors" identified above 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 fright companies by increasing their productivity. The opportunities to implement these types of programs are facilitated by the development of new technology as being implemented in INDOT's Intelligence Transportation System (ITS).

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.

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 indentify 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.

Trends & Challenges

Population and Demographic Trends

Indiana's population in 2006 was 6.3 million and is projected to increase 20% by 2035. As shown in **Figure 4** 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. 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.

INDOT will use the new 2005 to 2040 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.

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

The sources for the 2010 to 2035 Indiana Population and Employment Growth forecasts are based upon the Regional Economic Models, Inc. (REMI) and Woods & Poole Economics, Inc. forecasts.

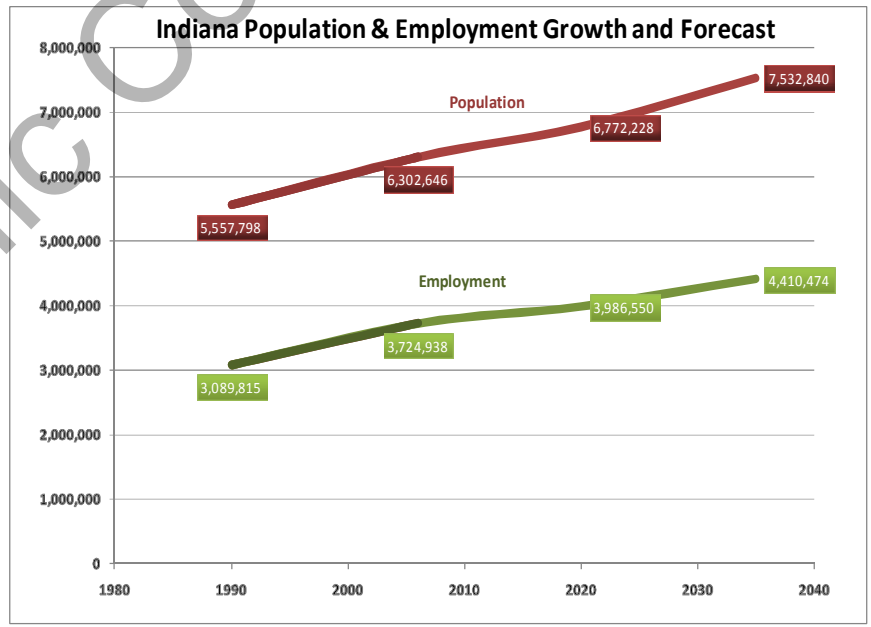


FIGURE 4 – POPULATION AND EMPLOYMENT GROWTH

Land Use Trends

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 5)** 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.

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

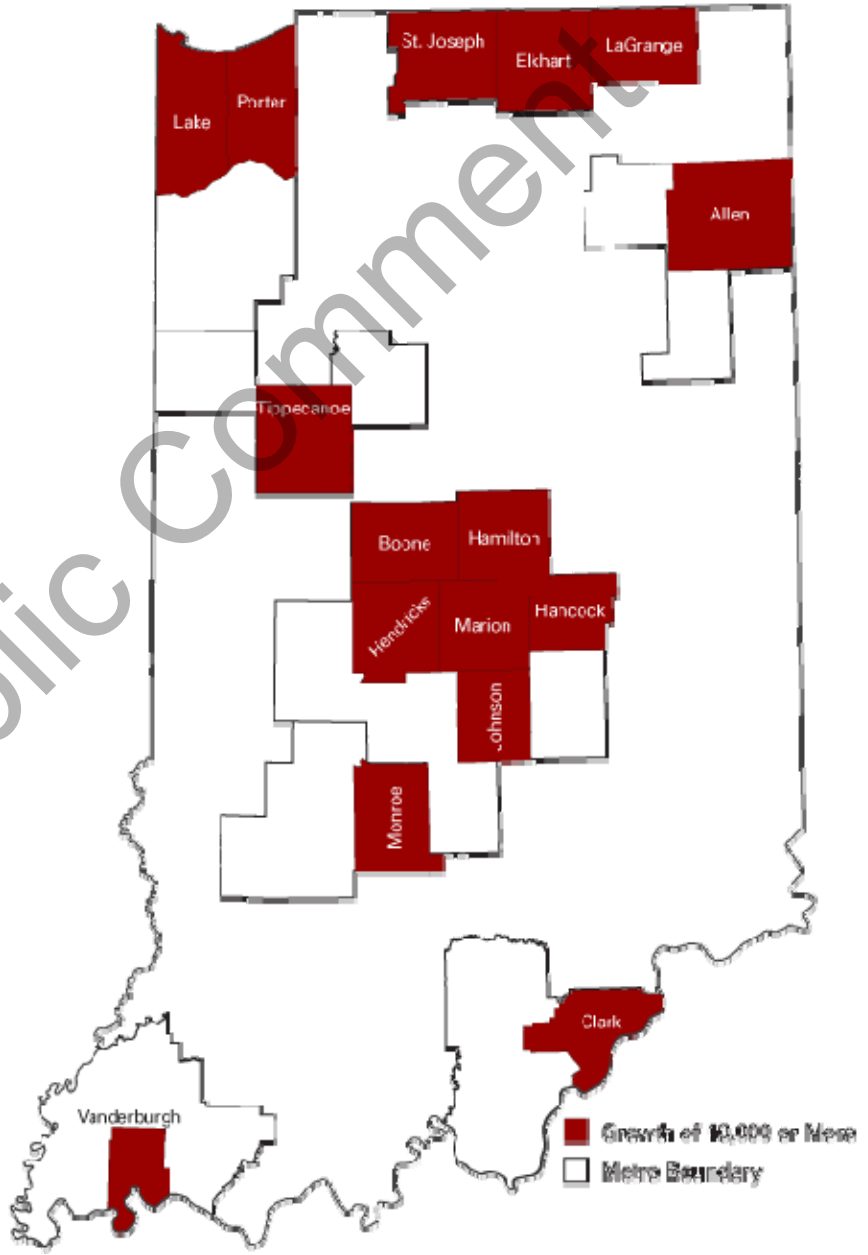


FIGURE 5 – COUNTIES WITH POPULATION GROWTH > 5,000 PERSONS. SOURCE: HTTP://WWW.IBRC.INDIANA.EDU/IBR/2008/SUMMER/IMPLICATIONS.HTML

Note: *INDOT has little control over local land-use development and practices. INDOT does not create public infrastructure needs; but rather anticipates, responds to, and accommodate growth and transportation demand that drives 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.

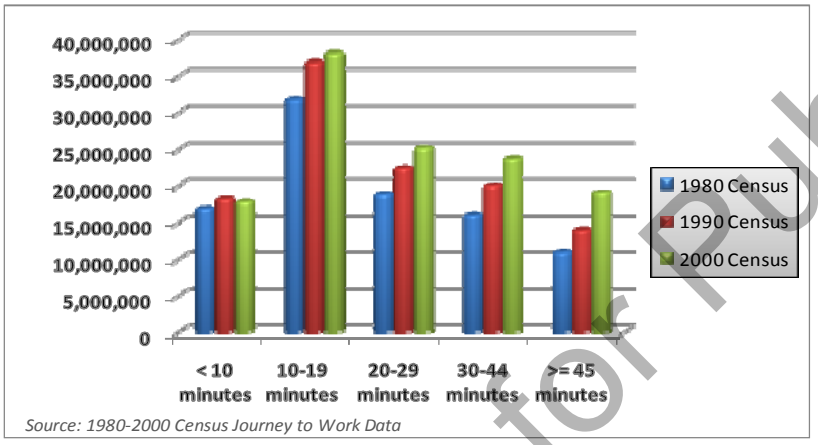


FIGURE 6 – NATIONAL TRAVEL TIME TO WORK CHART

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.

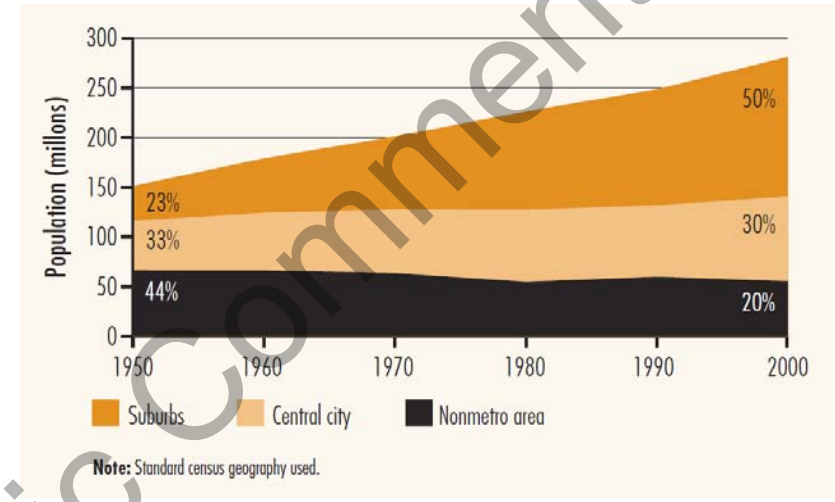


FIGURE 7 – LONG TERM POPULATION TRENDS CHART
SOURCE: NCHRP 550/TCRP 110 COMMUTING IN AMERICA III

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; 9-years in 2000 compared to 5.6-years in 1975. *(Source: FHWA Office of Highway Policy Information)* 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.

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 reconciled 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, lack of consolidated transportation authorities makes 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

VMT increase or decrease per Capita trends

A basic measure of travel demand is vehicle miles of travel (number of vehicles times distance traveled) or VMT. Nearly 71 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.

"VMT has leveled off in recent years as unemployment has increased and economic growth has slowed. The increased cost of gasoline is also a contributing factor to the slowed growth of VMT. This trend is likely to continue for the next several years until the economy fully recovers. As the recovery begins, the rate of VMT increase will reflect the increases in employment but perhaps not as dramatically as people become accustomed to minimizing their travel."

Stephen C. Smith, AICP; Indiana Department of Transportation
Source: Indiana Business Review
http://www.ibrc.indiana.edu/ibr/2008/summer/implications.html

Freight Trends

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 vehicles remain a problem in most U.S. states. Each year, millions of dollars of uncompensated damage associated with the life span, design, and maintenance of state highways and structures are attributed to vehicles that exceed state weight limits.

One legal 80,000 pound GVW tractor-trailer truck does as much damage to road pavement as 9,600 cars. *(Source: Highway Research Board, NAS, 1962)*. Adding weight to the same truck will sharply escalate pavement damage: at 100,000 pounds with five axels, the truck will do as much damage as 27,000 cars. *(Source: AASHTO Pavement Design Guide)*

Pavement fatigue is proportional to repetitive loadings. These loadings, attributed to traffic growth, generate pavement damage at earlier, faster, and costlier rates. The volume of truck traffic increases rapidly as the Interstate Highway System becomes available and popular. The overloaded truck, whether legal or illegal, contributes to premature pavement fatigue. These challenges lead to the need to develop new methods of pavement damage estimation and fatigue reduction techniques.

Environmental Concerns

Indiana continues to make strides in improving its care for the environment. Implementation of various storm runoff solutions results in fewer roadway pollutants reaching natural waterways. Traffic congestion relief improvements impact the environment by reducing crash rates, air pollution, and increasing fuel efficiency. Also, the implementation of Context Sensitive Solutions elevates protection of sensitive areas in the design decisions of INDOT projects.

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.

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 in 2009. The travel reduction coupled with increased vehicle fuel efficiency has led to reductions in federal and state motor fuel tax revenues.

General economic conditions since 2001 have also spurred a decline in automobile sales, resulting in lower than expected revenues from the motor vehicle sales tax and license fees. 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.

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 good condition of Indiana's highways and bridges allows flexibility in responding to future transportation needs rather than having to allocate large amounts of funds to maintain the existing system. 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.

Technological Advances/Trends

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.

Opponets 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.

Intelligent Transportation Systems

Intelligent Transportation Systems (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.

High Speed Rail

High speed rail, also known as commuter light-rail transportation, is a system that generally travels in access between 90 miles per hour, which makes 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.

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 8**.

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 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.

MIDWEST REGIONAL PASSENGER RAIL SYSTEM

FIGURE 8 – MIDWEST REGIONAL PASSENGER RAIL MAP

Alternative Fuels

Alternative fuels are non-traditional fuels that yield energy security and environmental benefits. There are two categories of alternative fuels, cleaner burning gasoline (oxygenated fuels), and fuels used in alternative fuel vehicles. Fuels available for use in alternative fuels include Methanol (M85), Compressed Natural Gas (CNG), Ethanol (E85), Liquid Petroleum Gas (LPG), and Liquefied Natural Gas (LNG). In addition, electric vehicles provide an alternative to petroleum burning vehicles. Currently, Indiana houses 84 alternative fuel filling stations. That number is expected to rise dramatically in the next 25 years.

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.

The INDOT Planning Process

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 Long-Range Plan is a continuous process, never truly "completed." The task of updating the Long-Range Plan began at the time it was published. Periodically it becomes necessary to provide a formal record of progress and outline a refined long-range vision. This document is the latest update of the ever evolving state transportation plan. Other updates will certainly follow over ensuing years.

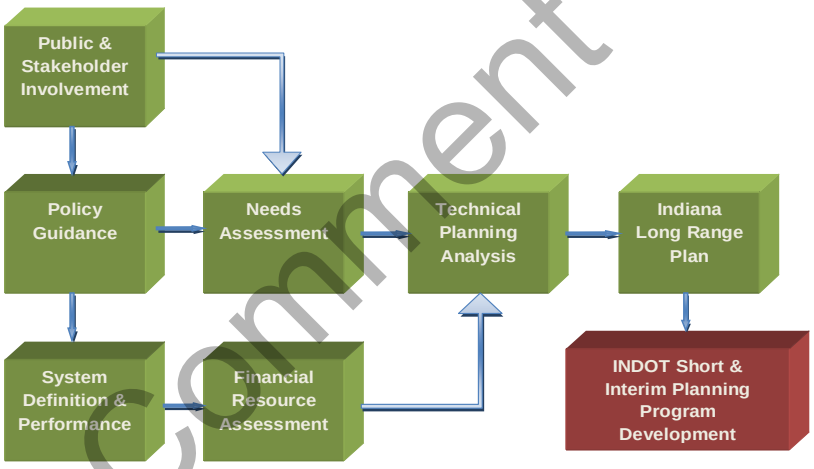


FIGURE 9 – INDOT PLANNING PROCESS

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

The responsibility for the production of INDOT's long-range plan lies with the Long-Range Planning and Modeling Division within INDOT's Planning 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 Long-Range Planning and Modeling Division is to identify and strategically address Indiana's long-term transportation needs. 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 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

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.

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

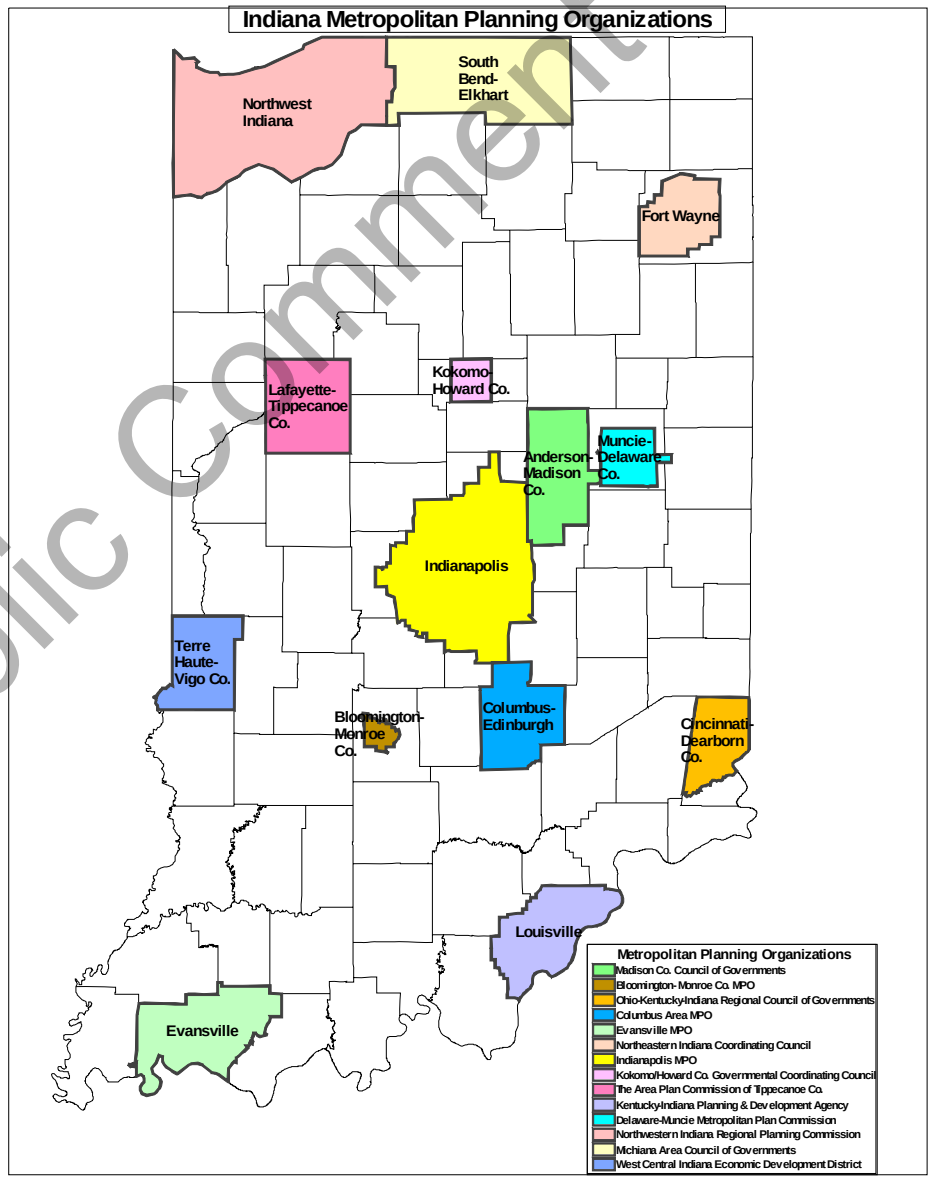


FIGURE 10 - INDIANA MPO MAPS

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 federal 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 the period 1-2 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

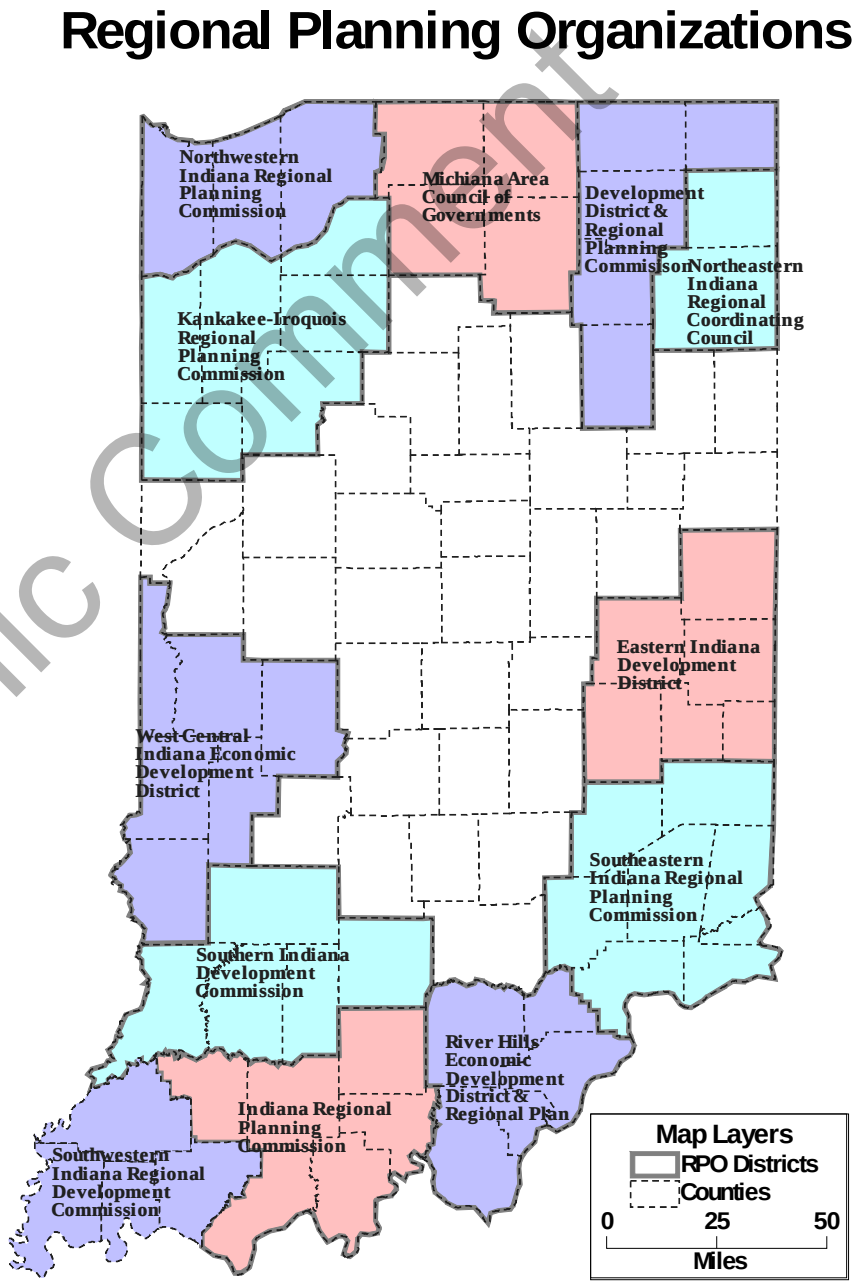


FIGURE 11 - RPO DISTRICT MAP

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 MPOs that also 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 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, creating 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.

Public Input

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.

The address for the INDOT 2035 Long-Range Plan website is: *http://www.in.gov/indot/div/2035LongRangePlan.htm* (see **Figure 12**). 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.

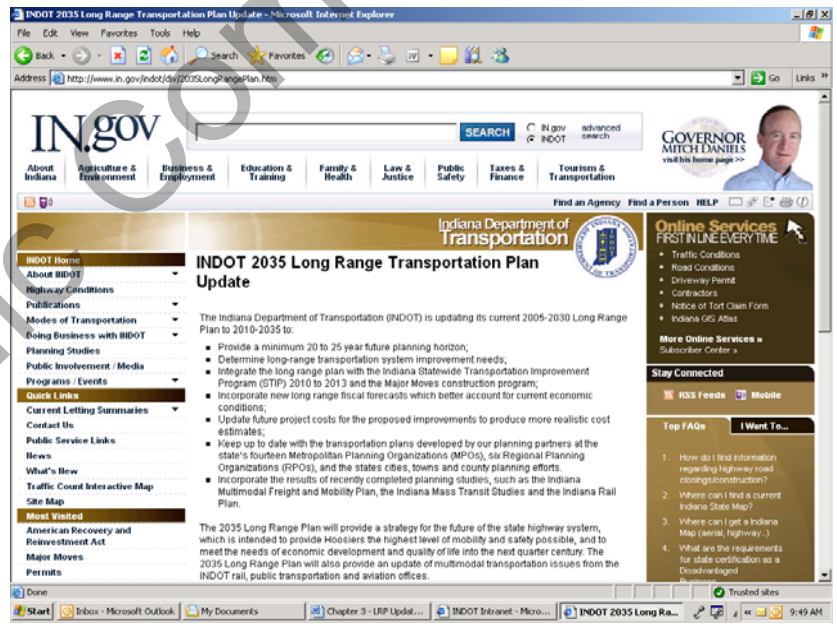


FIGURE 12 - INDOT LONG-RANGE PLAN WEBSITE

District Meetings

Each year, the Indiana Department of Transportation conducts public meetings at each of its six districts throughout the state. The primary purpose of the meetings is to present the draft Statewide Transportation Improvement Program (STIP) and the long-range transportation plan. The District Meetings are also used to develop

and foster lines of communication between Indiana residents and the Indiana Department of Transportation. 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 were 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 2009 District Meetings were held in November. 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 Long-Range Planning Section was present to answer questions regarding the displays.

Early Coordination Meetings

In the 2035 Long-Range Plan 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

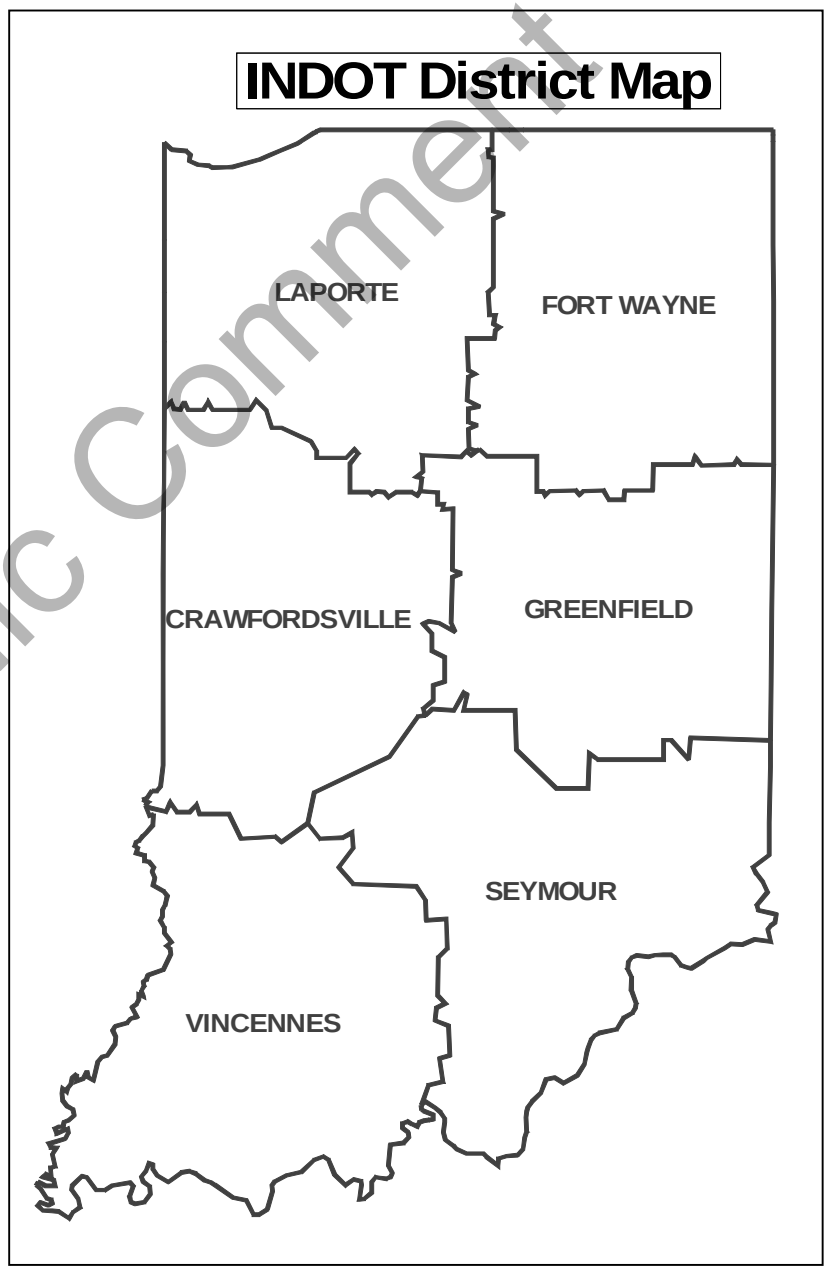
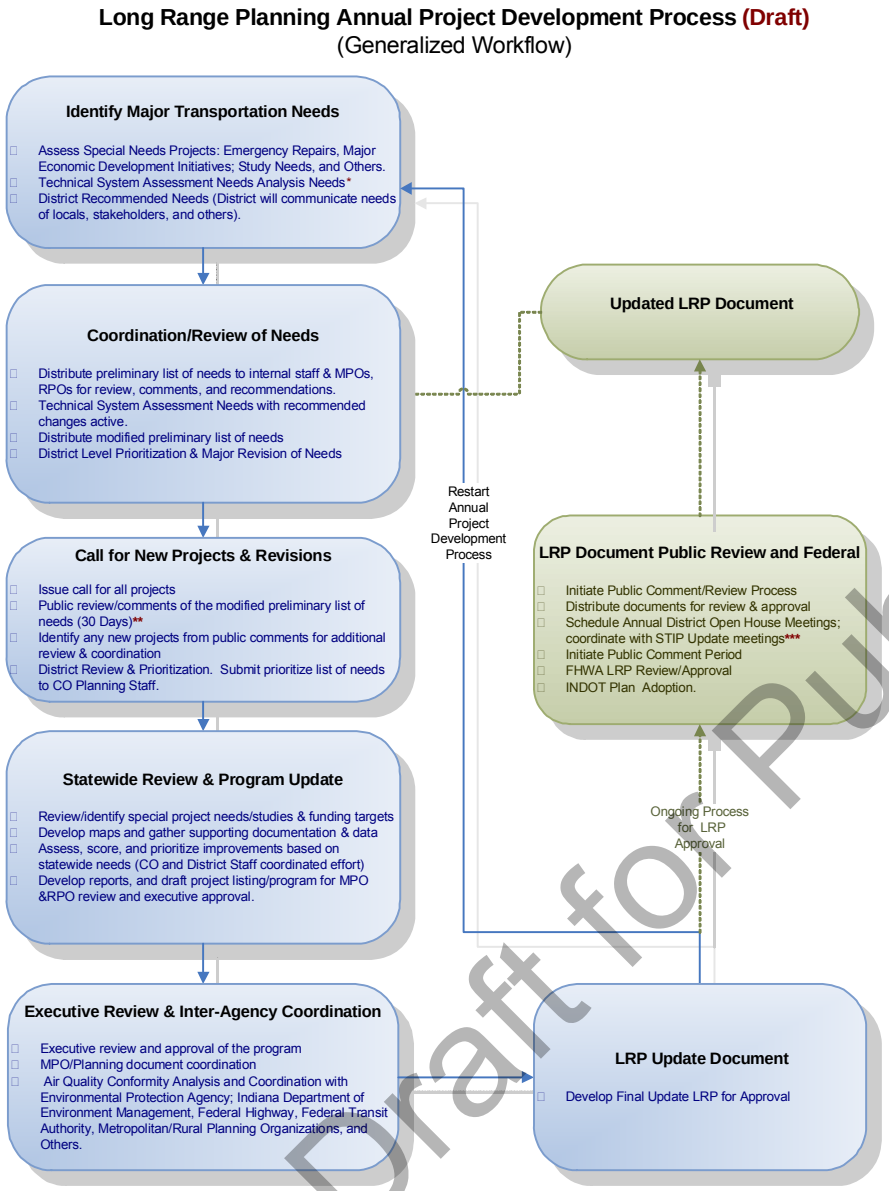


FIGURE 13 - INDOT DISTRICTS MAP

FIGURE 14-ANNUAL PROJECT DEVELOPMENT PLAN



* System Assessment (Pavement, Bridge, Congestion, & Safety Management) model updates are ongoing throughout year as needed.
** District Office will coordinate with local citizens and elected officials in areas not covered by an MPO or RPO throughout the year.
*** Districts will be responsible for scheduling/coordinating Annual District Open House Meetings with locals.

identify needs or concerns in their area of the state. Notes from the early coordination meetings were recorded and have been placed on the INDOT 2035 Long-Range Plan website for public viewing.

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 extends community impact assessment by examining communities based on characteristics such as race, ethnicity, income, age and even disability. The U.S. Department of Transportation's (DOT's) Final Order to address Environmental Justice in Minority Populations and Low-Income populations was published by the U.S. DOT to comply with Executive Order 12989, "Federal Actions to Address Environmental Justice Minority Populations and Low-Income Populations," dated February 11, 1994.

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 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.

The Environmental Justice (EJ) Orders require the U.S. Department of Transportation and its operation administrators to integrate the goals of these orders into their operations through a process developed within the framework of existing requirements, primarily the National Environmental Policy Act (NEPA) and Title VI of the Civil Rights Act of 1964; the Uniform Relocation Assistance Act and Real Property Acquisitions Act of 1970 (URA); TEA-21; and other applicable DOT statutes, regulations and guidance that concern planning, social, economic, or environmental matters; public health or welfare; and public involvement.

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

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 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 environmental justice regulations. As part of this cooperative

process, INDOT and the MPOs participated in the 2010 FHWA Environmental Justice Workshops.

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. INDOT utilizes the MPO public involvement process and environmental justice procedures as a major resource in the development of transportation improvement projects.

Minority and Low and Moderate Income Areas: Identification for Environmental Justice Analysis The statewide map for INDOT Environmental Justice Analysis **(Figure 15)** is based upon two data sources: the 2000 Census Public Law P 94-171 block level population, and racial characteristics and the low and moderate income data from 1990 block group Census figures. 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 2000 population was reported as non-white. For the low and moderate income area identification, more than 51 percent of the residents must be of low or moderate income for a census block group piece to be classified in general.

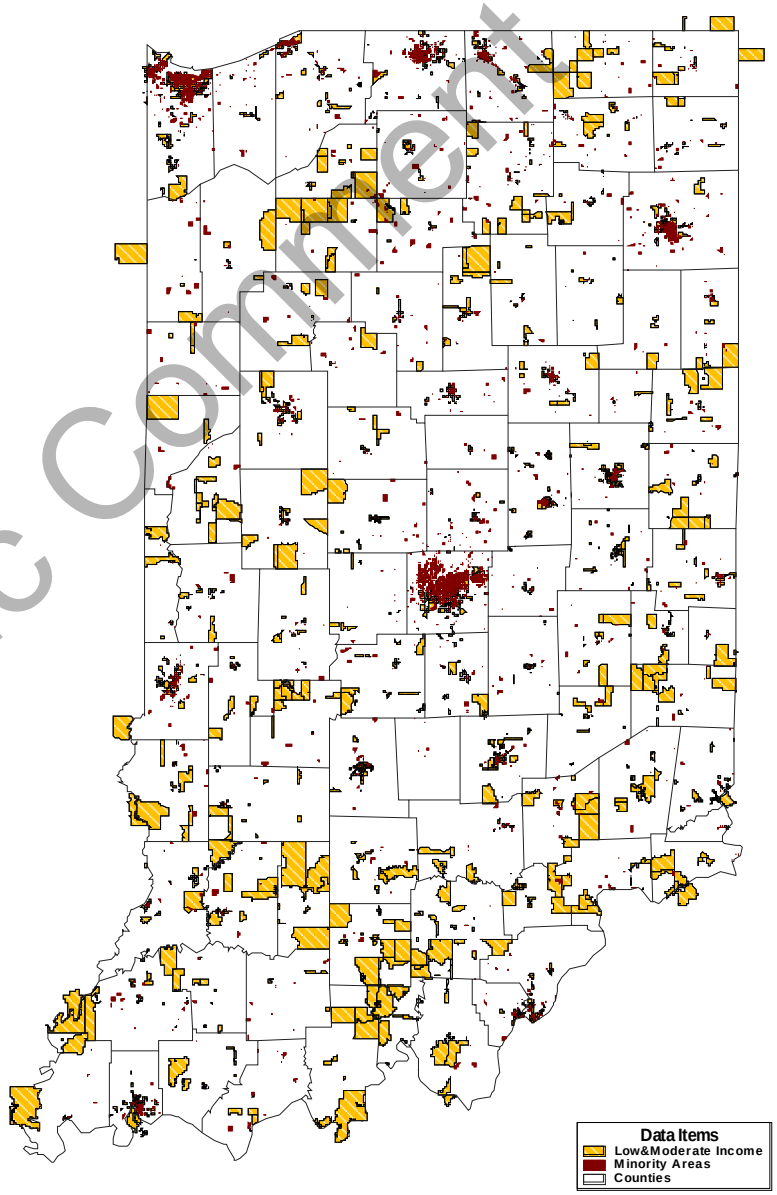


FIGURE 15 – ENVIRONMENTAL JUSTICE MAP

Environmental Initiatives

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 by reducing the frequency of roadside mowing. 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 including the use of herbicides
- Lessening storm runoff
- Controlling invasive plant species
- Improving soil quality

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.

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 are already making 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: http://www.in.gov/indot/3213.htm

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, minimize impacts that are unavoidable, and mitigate 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 receiving 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 for 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 defines 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 planning can occur.

Karst Geology Mitigation

Southern Indiana has significant areas of Karst geology where surface and subsurface irregularities are created on 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, they are 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.

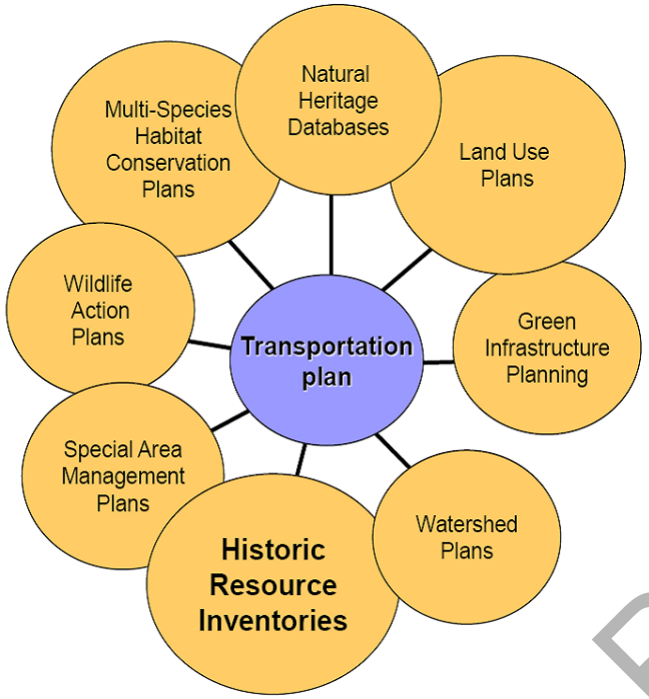
Historic Resource

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 improvement 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 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.

Recycling & Waste

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". The Indiana Department of Transportation (INDOT) is no exception, and for the past few years has been a leading government agency in Indiana in efforts to minimize the amount of waste discarded from our State facilities. This in turn has resulted in conservation of the state's landfill space and the nation's resources 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

Concrete and asphalt recycling, which has been a practice of INDOT for the past 15 to 20 years, is the largest waste stream produced. When the 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. This practice is and has been utilized for the approximate 20 thousand 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.

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 the steel scrap are invested back into the General Fund to aid in department operations.

The Indiana Department of Transportation continues to research innovative practices. This includes the utilization of fly ash, foundry sand and coal combustion waste as possible fill materials in construction projects and the use waste tires and crushed glass in the construction of roads.

For more information on INDOT's Environmental Initiatives, please visit our website: http://www.in.gov/indot/2360.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".

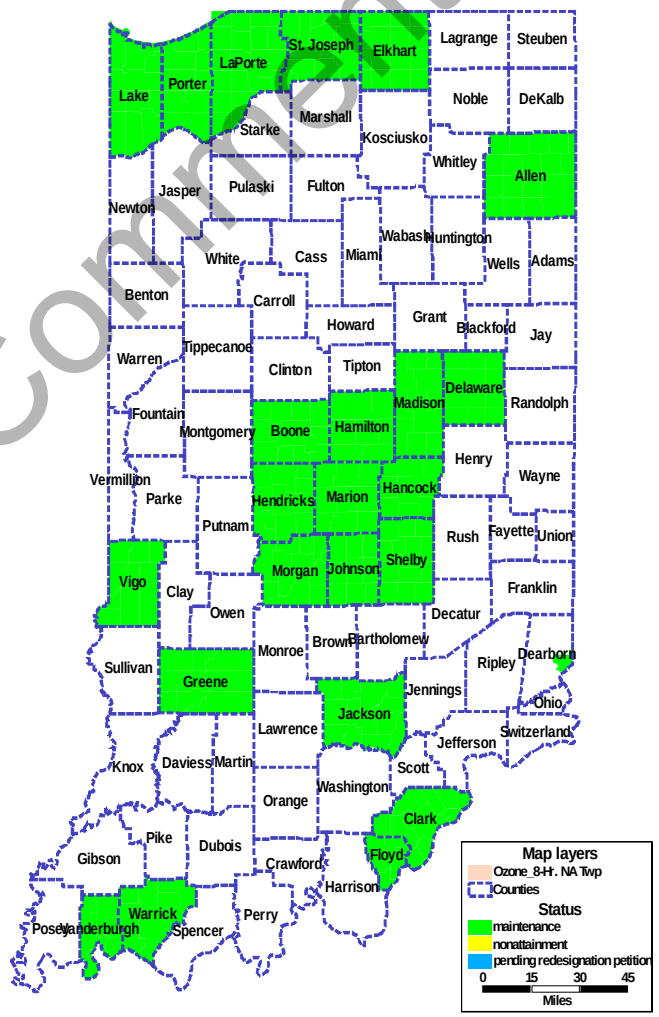


FIGURE 16: OZONE MAINTENANCE AREAS

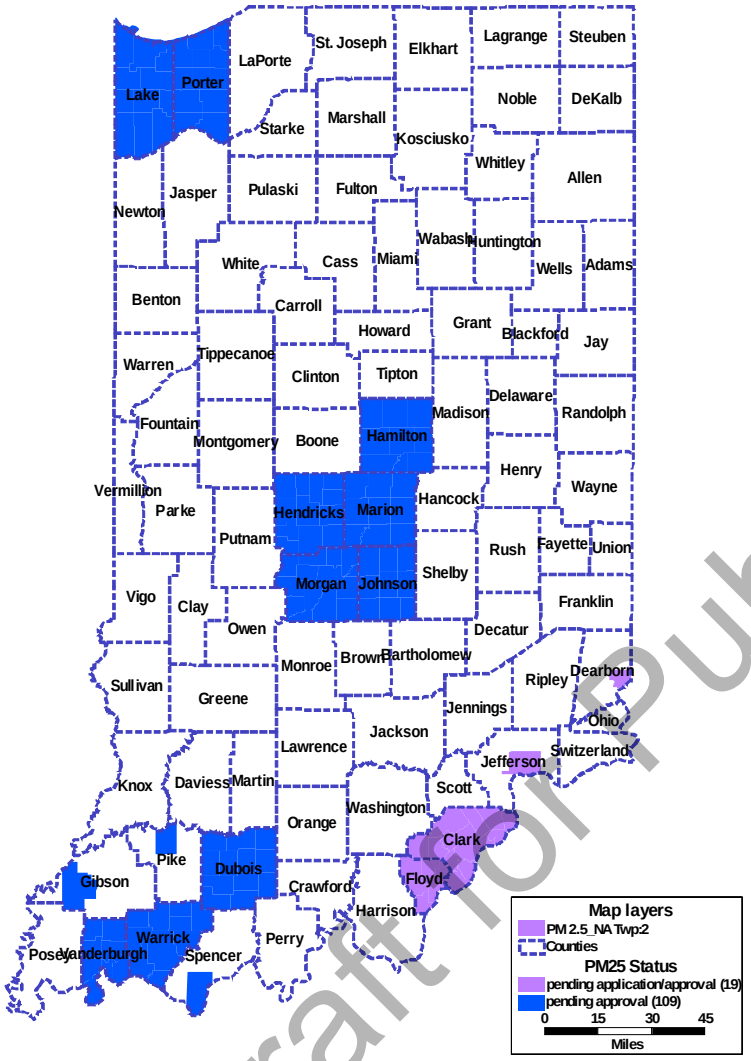


FIGURE 17-PM 2.5 NON-ATTAINMENT AREAS

The U.S. Environmental Protection Act (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.

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. The blue areas have submitted re-designation petitions and are pending EPA approval. The lavender areas are preparing petitions for submittal to EPA to be considered for re-designation.

Every 5 years EPA reevaluates the standards to determine if new studies on pollutant health effects should mandate a change in the standard. Ozone standards are expected to tighten in the next year. This is 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).

A SIP is developed for each area by Indiana Department of Environmental Management (IDEM) with pollution control plans 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" with the SIP. If budgets do not exist or have not yet been approved, EPA applies other limits.

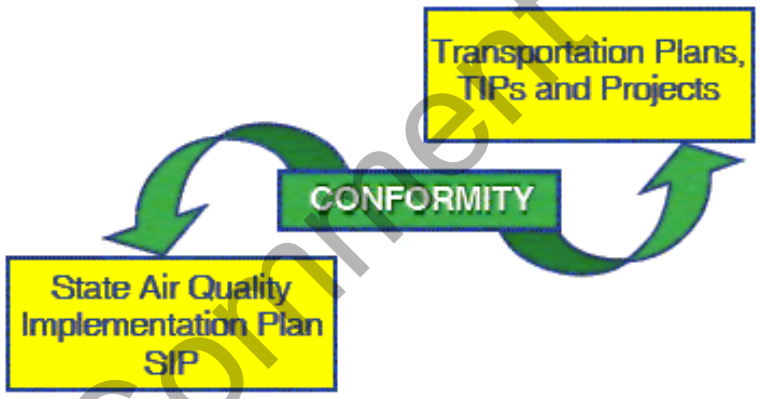


FIGURE 18-SIP & PLAN DOCUMENT BALANCING ACT

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 Environment 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 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 primarily 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 SAFETEA-LU 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. They establish "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. By 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/dot/pubs/.

Addressing the Federal Planning Factors

As noted in previous sections of this document, INDOT is required to address the eight statewide planning factors as in the SAFETEA-LU. Listed below are descriptions and examples of how INDOT addresses these 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) approach 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 approach uses the Regional Economic Forecasting and Model Inc. (REMI) to analyze and forecast economic benefits.

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

In 2006 Indiana 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. The SHSP is being revised and the 2010 update will be available later this year. The entire 2006 document can be found at: http://www.in.gov/indot/files/shsp.pdf. The 2010 update will have a new link established when the document is complete.

Highway infrastructure projects are identified in Indiana's Highway Safety Improvement Program (HSIP). Population of the safety

program of infrastructure projects by the INDOT's Office of Traffic Safety (OTS) began with screening of existing projects using safety criteria of INDOT's schedule of state system projects. This analysis established INDOT's first HSIP, providing an initial schedule of highway safety improvement projects for hazard correction or prevention for funding under 23 U.S.C. 148. The OTS is now working to analyze safety needs statewide and program new projects for future years. In 2010 INDOT has undertaken a major effort related to asset management, including establishment of a Traffic Safety Asset Team. This group was charged with evaluating all current safety related projects and prioritizing a list of safety projects for construction in FY 2011 and future years. A call for new projects will be held in late summer or early fall of 2010 to identify new projects to be considered and prioritized in conjunction with existing projects for years beyond FY 2011. Traffic safety projects are assumed to take no more than five years to develop once they are selected for inclusion in INDOT's construction program.

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 in 2010. Emphasis areas, goals, and objectives will be identified for the next two year period. The Indiana Department of Transportation is a stakeholder and planning partner in this effort, and will continue to work with IDHS in the 2010 update of the strategy. The update effort is discussed in IDHS's 2009 Annual Report. This report can be found at http://www.in.gov/dhs/files/2009_Annual_Report.pdf. Security is also addressed in the discussion of the transportation modes.

4. *"Increase accessibility and mobility options."*

The statewide planning process considers the long-range 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 Statewide Plan 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. 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 these typical 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 long-range transportation plans 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.

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

INDOT is continuing the development of 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/Capacity, Pavement /Roadway Mobility, 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 described above.

2035 Multi-Modal Overview

While the highway system described in preceding sections serves 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, 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.

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.

Railroads

The following information is from the Indiana Rail Plan, completed for the INDOT by Cambridge Systematic consulting firm in July 2009. The entire document as published on INDOTs website can be found at: http://www.in.gov/indot/2371.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 were 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. At two of these stations, Indianapolis and Connersville, all service occurs between 7 p.m. to 1 a.m. and 3 a.m. to 9 a.m.

Current Rail System in Indiana

The current rail system in Indiana is structured to primarily 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, 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.

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 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

1. Continue to closely monitor the lowest-traffic-density short lines and their continued viability and to develop contingency plans where potentially necessary.
2. 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

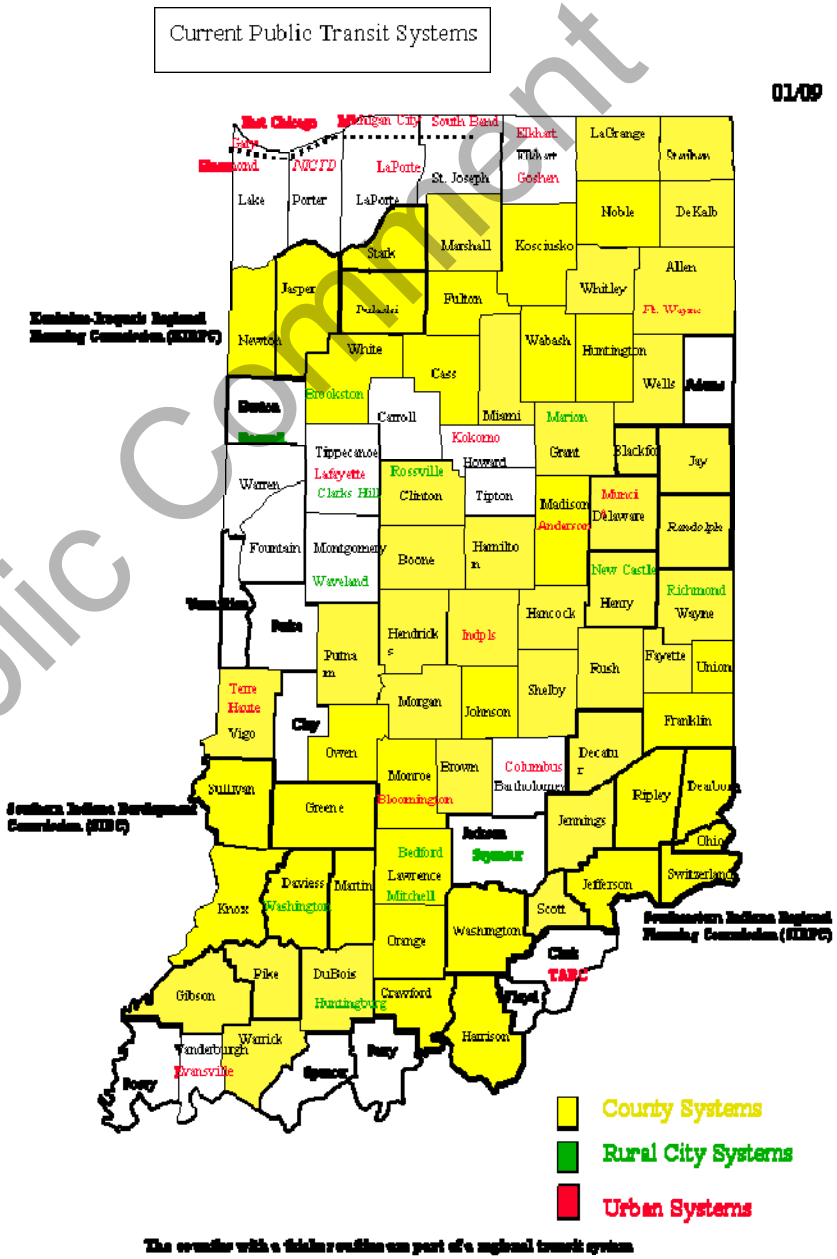


FIGURE 19-INDIANA TRANSIT MAP

track structure and bridges to accommodate carloads up to 286,000 lbs.

3. Freight and Passenger Project Investments

   Examine potential of diverting some truck traffic from the Indiana highway network by commencing a study of feasibility of short haul intermodal trailer/container service.

Safety

4. 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

6. 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.
7. 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.
8. 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.
9. Continue financial and technical support of state and regional passenger rail planning activities.
10. 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.
- Section 5317 New Freedom program provides funding for transportation services to persons with disabilities above and beyond that which is required by the ADA.

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 in association with HNTB and Engaging Solutions 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.

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

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 20**.

Cost estimate for Statewide Transportation Investments
In million 2008 dollars

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
Total	$175.3	$466.0	$385.4	$8,114	$16,500

FIGURE 20- MODAL STATEWIDE COST ESTIMATES (2008)

5. Financial Considerations

Transit systems in Indiana utilize funding from a variety of sources, including the fares that their services generate. 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 transit 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 authorities 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 issues associated with non-compatible use.

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

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

FIGURE 21 – 25 YEAR GENERAL AVIATION NEEDS (2003 DOLLARS)

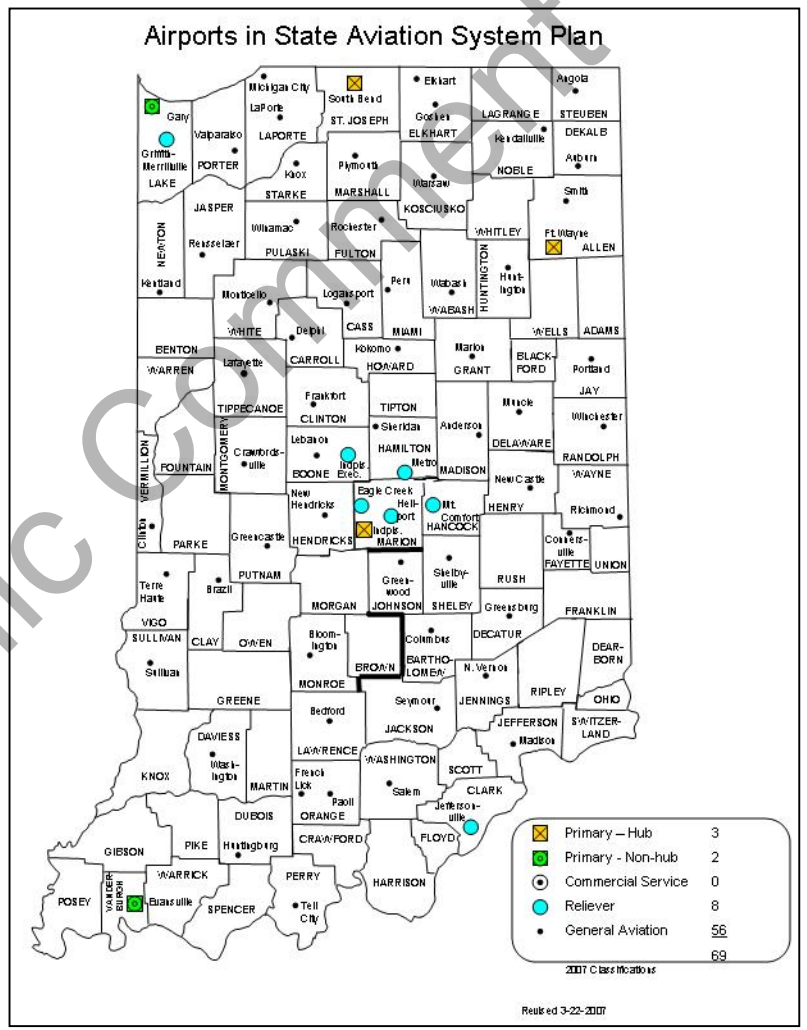


FIGURE 22 - AIRPORTS

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, both the largest percentages of any state in the nation. Further Indiana ranks in the top ten states in Agriculture and Mining. As such, freight transportation is the catalyst which 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 and services 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 positioned well 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 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 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.

Historically, most bikeway and pedestrian-related planning has been conducted at the local level in Indiana. Under ISTEA and continuing under TEA21and SAFTEA-LU 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 IINDOT's policy towards bicycle and pedestrian transportation grows out of 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."

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 SAFETEA-LU 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.

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, among them reductions in motor vehicle traffic, associated fuel consumption for school trips and improved air quality.

When SAFETE-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 will use an application process to evaluate candidate projects. An SRTS Advisory Committee will review applications and make recommendations to fund infrastructure and non-infrastructure projects.

For more information on INDOT's Safe Routes to School Program, please visit our website: http://www.in.gov/indot/2956.htm.

Accessibility/ADA

Federally funded transportation facilities for pedestrians must meet the requirements of the American with Disabilities Act (ADA). These guidelines cover but are not limited to pedestrian access to sidewalks and streets, crosswalks, curbs ramps, pedestrian signals, and parking. INDOT incorporates these requirements in new projects. For more information on ADA for transportation, please visit the USDOT Citizen Services website: 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.

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 and independently.

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.

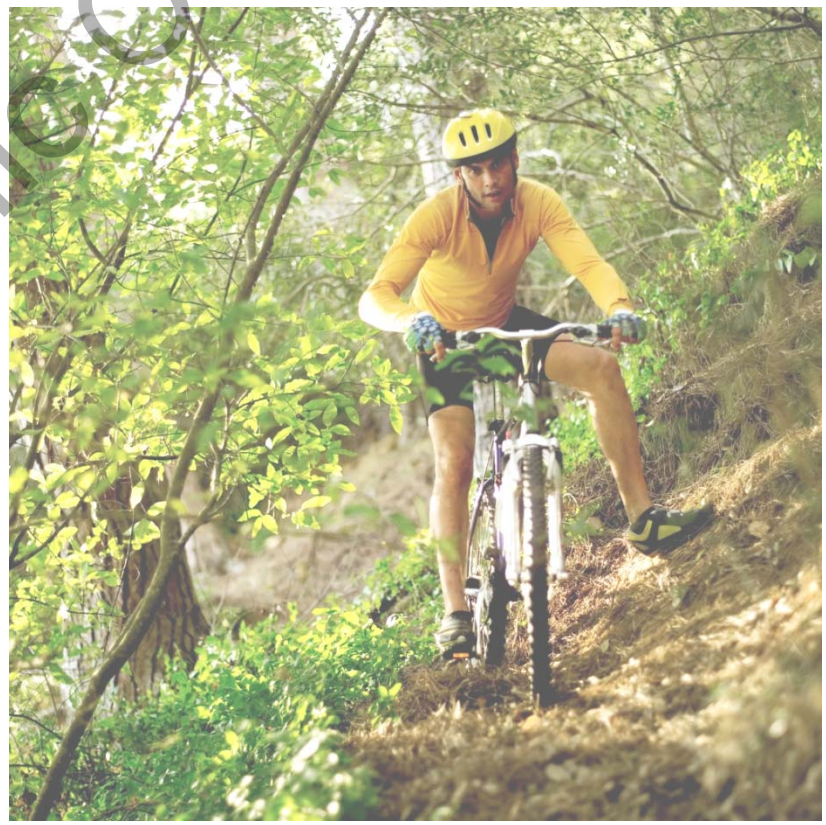
INDOT supports the complete street concept. The development and implementation of a complete streets process should follow a phased sequential approach of establishing a need, developing policy, and reconciling differences in inter-agency planning and design policies. Key components would include:

- 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.

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 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 multimode 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 multi use pathways are currently open or under construction in all regions of the State. A representative listing is shown below and a complete listing can be found at the www.indianatrails.org web site or at INDOT's Bicycle and Pedestrian Program website: http://www.in.gov/indot/2957.htm.

Northwest: Oak- Savannah / Prairie Duneland /Calumet Trails
Northwest: Erie Lackawanna Trail
North Central: Pumpkin vine Trail
Northeast: Fort Wayne / New Haven River Greenway
East/Central: Cardinal Greenway
Central: B & O Trail
Central: Monon Indy Trail
Central-west (Terre Haute): National Road Historic Trail
Southwest; Pigeon Creek Greenway
South-central: Ohio River Greenway
Southeast: Dearborn Trails

Available Funding Sources

Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for users (SAFETEA-LU)

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, among other eligible expenditures.

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 eligible projects (intersection improvements and congestion mitigation).

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 include: traffic monitoring services, the road inventory program, asset management, pavement management systems, bridge inspection services, surveys, and design work.

The program provides provisions for pedestrian and bicycle facilities and programs eligible under various categories 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.

National Scenic Byways Program

The Indiana 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/2958.htm

Innovative/Cost Effective Solutions

Within the "High Priority Corridors" section of the plan, 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. At this point in time 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 in 2009. The INDOT innovative finance program is not expected to come on line until 2016.

Several concepts are being investigated at the national level 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 pricing; and the provision of High Occupancy Toll (HOT) lanes to speed commuter travel. The opportunities to implement these types of programs are facilitated by the development of new technology such as Intelligence Transportation System (ITS).

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.

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 service 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]

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.
- **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 new 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 core 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.

> *"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.*

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.

INDOT Funding

Unlike most other state agencies, INDOT utilizes dedicated funds and does not receive 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.

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

Our biggest source of revenue comes from what is called 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 23 - STATE HIGHWAY FUND

Long-Range Fiscal Forecasting for Program Phasing

The 2035 Transportation Plan update is divided into five implementation periods. The first period from 2010 to 2015 is where the majority of the remaining Major Moves projects have been slated. Emphasis has been placed on having all but a few of the Major Moves Corridors finished by 2014. This is primarily due to the recent slowdown in the economy which has resulted in a favorable construction climate. INDOT has observed that in the short-term construction bids have been coming in at between 25 and 35 percent less than the original engineer's estimates.

In order to capitalize to the extent possible on this favorable construction climate, INDOT has been aggressively advancing the delivery of many of the Major Moves projects. The implementation period from 2016 to 2020 has however been reserved as a contingency for the completion of any of the longer, more complex Major Moves Corridors that might still remain unfinished. The later three implementation periods will be used to slate future added capacity needs that will be identified and programmed through INDOT's new Capital Asset Management program.

2010 – 2015	Major Moves
2016 – 2020	Major Moves Balance
2021 – 2025	Future Added Capacity Needs
2026 – 2030	Future Added Capacity Needs
2031 – 2035	Future Added Capacity Needs

Historical INDOT Construction Spending

The INDOT historical spending on construction contracts is shown below in **Figure 24** for the period from 1987 to 2009. During this analysis period a number of funding initiatives were developed including a bonding program and a successful effort for Indiana to have more federal gas tax collections returned to the state and reduce its role as a "donor" state in the federal reauthorization legislation. The years from 2006 to 2009 begin to reflect increased construction spending resulting from the Major Moves Program. INDOT experienced record construction years for 2007, 2008 and 2009. A dramatic spike in construction spending shows up in 2009. This is the result of record construction spending resulting from the Major Moves Program and temporary, additional injections of federal stimulus funds from the American Recovery and Reinvestment Act (ARRA). This trend will continue in 2010 as the last of the ARRA contracts are let and as the

Major Moves Program is advanced to take advantage of the favorable construction climate.

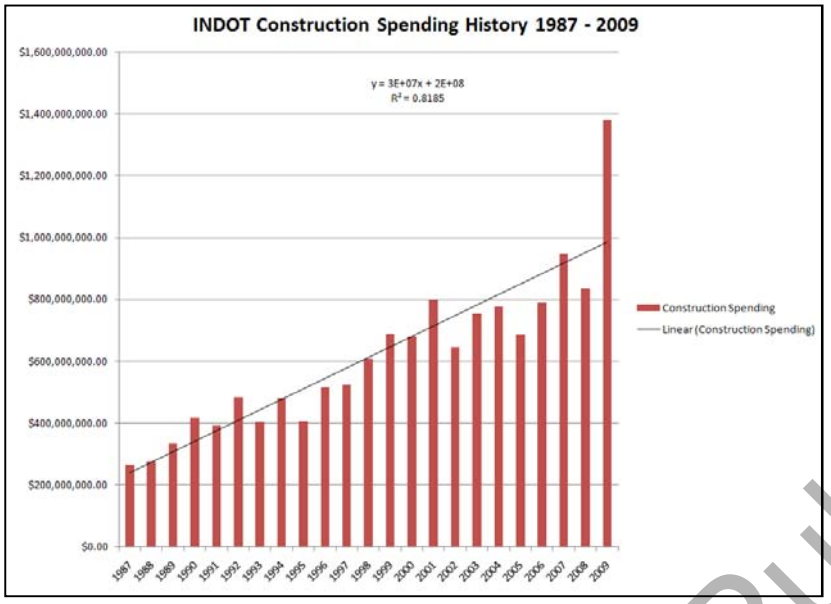


FIGURE 25 - HISTORICAL CONSTRUCTION SPENDING CHART

Fiscal Forecast 2021 to 2035

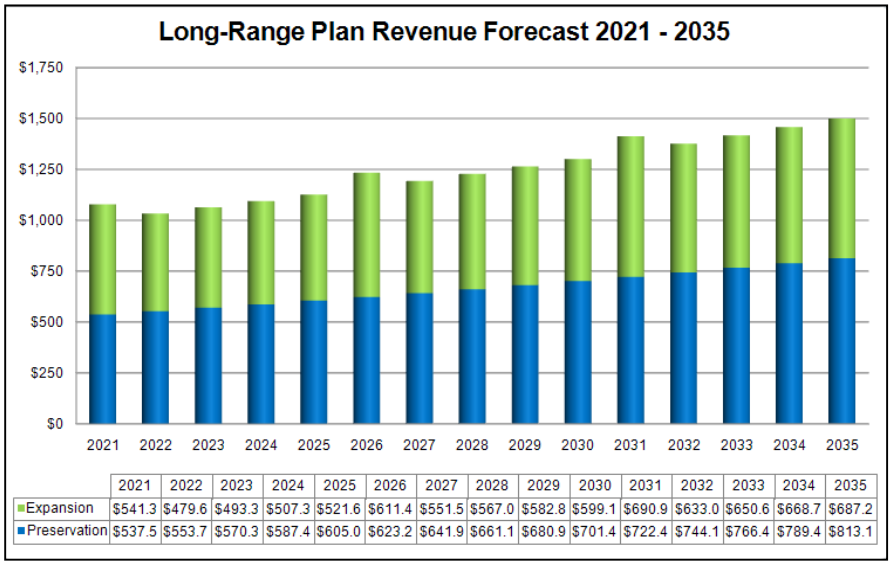
To forecast revenues for the 2021 to 2035 time period the INDOT Office of Finance developed a fiscal forecast. Key assumptions were that state revenues including the state highway fund would increase at a 1.5% growth rate, federal revenues at a 3% annual increase. Figure 11-2 shows the long-range revenue forecast for the period from 2021 to 2035. The graph also includes the breakdown of funds that will be distributed to the preservation and the expansion components of the construction program.

Long-Range Plan Fiscal Forecast 2021 - 2035 (in millions of Dollars)			
Implementation Period	Expansion	Preservation	Total
2021 - 2025	$ 2,543.1	$ 2,853.9	$ 5,397.0
2026 - 2030	$ 2,911.8	$ 3,308.4	$ 6,220.2
2031 - 2035	$ 3,330.4	$ 3,835.4	$ 7,165.8

FIGURE 24: 2021-2035 FISCAL FORECAST TABLE

The resulting 2021 to 2035 fiscal forecast was developed in + dollars aggregated into the five year implementation periods as shown below in **Figure 26.** The forecast predicts overall construction dollars of $8.8 billion for the fifteen year period.

It should also be noted that a significant portion of the expansion projects include highway preservation activities in the form of pavement replacement on existing highway segments where added travel lanes are being implemented. For example, for a recommended interstate added travel lane improvement to widen the roadway from four to six lanes, the cost of replacing the existing four lanes of pavement is counted as an added capacity cost in addition to the two "new" lanes which provide for the added capacity. This practice results in the actual investment in preservation activities being under estimated and expansion activities being overestimated.



	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Expansion	$541.3	$479.6	$493.3	$507.3	$521.6	$611.4	$551.5	$567.0	$582.8	$599.1	$690.9	$633.0	$650.6	$668.7	$687.2
Preservation	$537.5	$553.7	$570.3	$587.4	$605.0	$623.2	$641.9	$661.1	$680.9	$701.4	$722.4	$744.1	$766.4	$789.4	$813.1

FIGURE 26: 2021-2035 FISCAL FORECAST CHART

Performance Measures

Traveler Safety

The Highway Safety Improvement Program (HSIP) is a "core" funding program under the federal transportation funding legislation SAFETEA-LU. The HSIP is designed to fund projects that reduce the number and severity of highway-related crashes and to decrease the potential for crashes on all highways. Under federal law, INDOT is charged with creating and maintaining the SHSP in consultation with safety partners and stakeholders.

In 2006 Indiana developed the Strategic Highway Safety Plan (SHSP), a comprehensive approach to reducing traffic crash injuries and deaths through coordinated engineering, education, law enforcement, and emergency response. Partners in developing the plan included eight state agencies, federal transportation agencies, and traffic safety advocacy groups. Success indicators/emphasis areas include:

- Development of Safer Young Driver Programs
- Use occupant protection (e.g. seatbelts &child seats)
- Reducing impaired drivers and related crashes
- Improving motorcycle safety and reduction in related fatalities
- Reducing large truck crashes
- Reducing bicycle and pedestrian crashes
- Reducing "High Risk" rural road crashes
- Minimizing the possibility and consequences of leaving the roadway
- Improved safety at intersections (intersection signal, visibility, and design improvements)
- Reduce crashes at highway railroad crossings
- Enhance emergency services response to traffic crashes
- Expedite crash clearance to reduce secondary crashes and congestion
- Improve the quality of the data used to make safety improvement decisions

Highway infrastructure projects are identified in Indiana's HSIP, providing an initial schedule of highway safety improvement

projects for hazard correction or prevention for funding under 23 U.S.C. § 148. The schedule of projects is updated annually, with every new candidate project receiving screening, evaluation, and analysis before inclusion in the schedule. For candidate projects proposed after the approval of the SHSP, the ninth criteria will be changed to "Strategic priority, based upon if a project specifically addresses or contributes to a SHSP emphasis area strategy." The entire SHSP document can be viewed at INDOT website: http://www.in.gov/dot/div/communications/safetyplan/shsp.pdf.

Infrastructure Preservation

INDOT recognizes the importance of preserving its existing transportation system as demonstrated by the investment of resources in preservation activities. Priority has been placed on the coordination of preservation improvements with expansion improvements to minimize the delay to the traveling public. INDOT is continuing the development of management programs intended to maximize the efficient use of the existing transportation system. The major elements in these four systems analysis and planning work are:

a. Pavement Management System
b. Bridge Management System
c. Congestion Management System
d. Safety Management System.

The four management systems supported by INDOT's Asset Management Division identifies projects and programs to increase the efficient use of existing transportation facilities. Highway projects, transit projects and associated programs are programmed for implementation in the Indiana Statewide Transportation Improvement Program.

INDOT, as a fiscally responsible agency, is constantly evaluating new ways to be more cost-effective; ensuring that we make the best use of every dollar. One way we are being fiscally responsible is through our Pavement Preservation Initiative (PPI). For every dollar invested in pavement preservation, the agency receives $10 in net benefits through extending the typical life of a roadway. With such a great investment in our roadways, it's certain that PPI will be celebrating many more anniversaries.

In addition to state highway projects, the counties where the Indiana Toll Road is located received one-time payments for local transportation projects. In 2006 and 2007, Indiana counties contiguous to the toll road also received additional funds for their local transportation projects. The amount varies by county and is based on the Motor Vehicle Highway formula.

Major Moves was a set of transportation initiatives enacted by Gov. Daniels in 2005. They included:

- Creating a 10-year Construction Plan that used a weighted, data-driven scoring formula to prioritize projects into this plan is sub-divided into Major New Construction, Major Pavement Preservation, and Resurfacing programs.
- 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, and leasing the Indiana Toll Road.

Access Management

Access management is the process of balancing the competing needs of traffic movement and land access. Over the last several decades, numerous transportation studies and research efforts have demonstrated a fundamental relationship between the level of direct property access permitted along a roadway and the roadway's corresponding operational and safety performance.

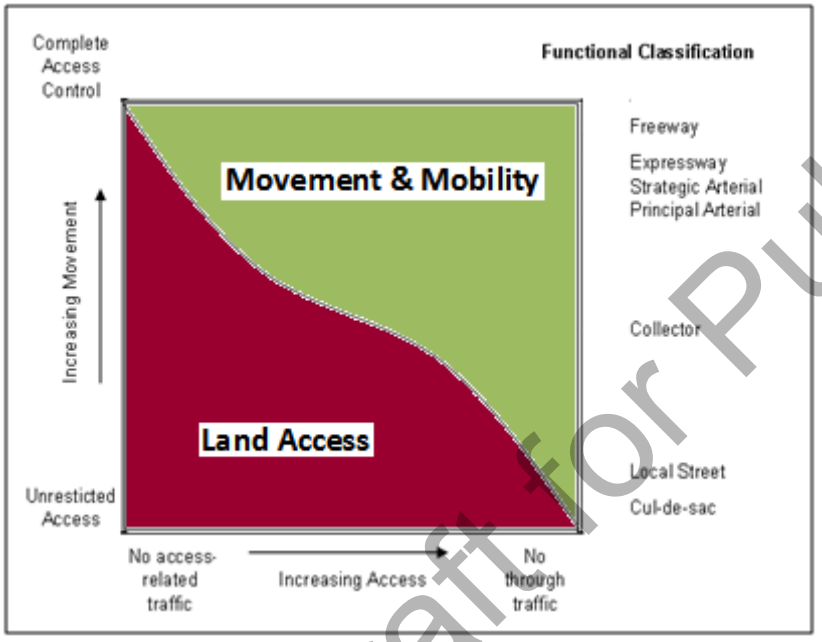


FIGURE 27 - FUNCTIONAL CLASSIFICATION

Figure 27 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 in order to:

- Reduce traffic congestion
- Preserve the flow of traffic
- Improve traffic safety and reduce the frequency of crashes
- Preserve existing road capacity
- Support economic growth
- Improve access to businesses and homes
- Maintain or improve property values
- Preserve the public investment in the transportation infrastructure

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. Additional information regarding Access Management can be found in **Appendix G** in this document.

Legal Authority in Indiana

Indiana State law requires the public to obtain permission from the governmental unit having jurisdiction over a street or highway to construct inside of the right-of-way (ROW) line. INDOT has jurisdiction over the State highway system and has established a driveway permit process to be followed by all applicants. The administrative requirements associated with the driveway access permit application process for all State highways are governed by the promulgated rules of Title 105, Article 7 of the Indiana Administrative Code (IAC): Permits for Highways (Reference 6).

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.

Inter-Governmental 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 with respect to access management.

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.

The INDOT Access Management Guide which can be found in its entirety at http://www.in.gov/indot/3273.htm.

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 provided for 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).

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.

FIGURE 28: I-70 FOUR STATE COALITION

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 nationally significant transportation corridors.

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.

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

For information on Freight Mobility, please visit our website: http://www.in.gov/indot/2719.htm

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 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.

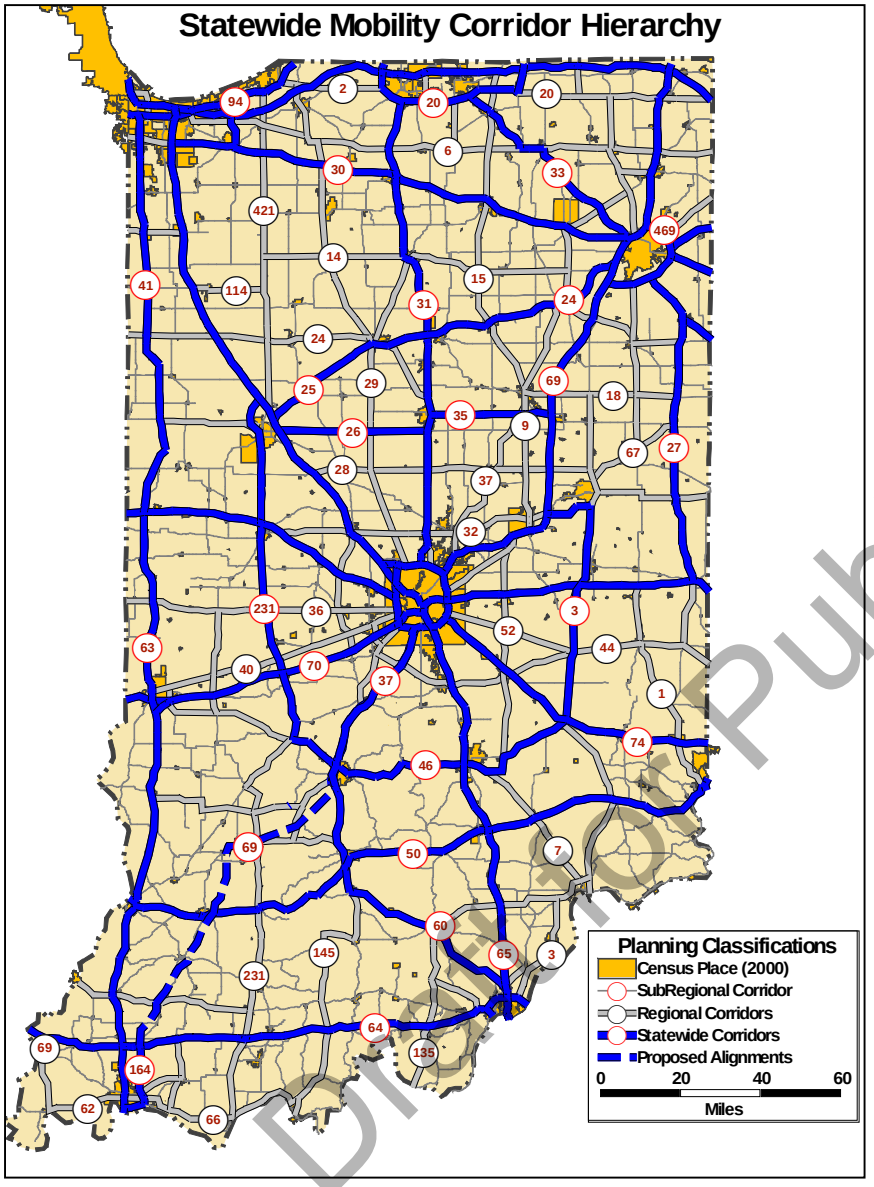


FIGURE 29 - HIGHWAY MOBILITY CORRIDORS

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.

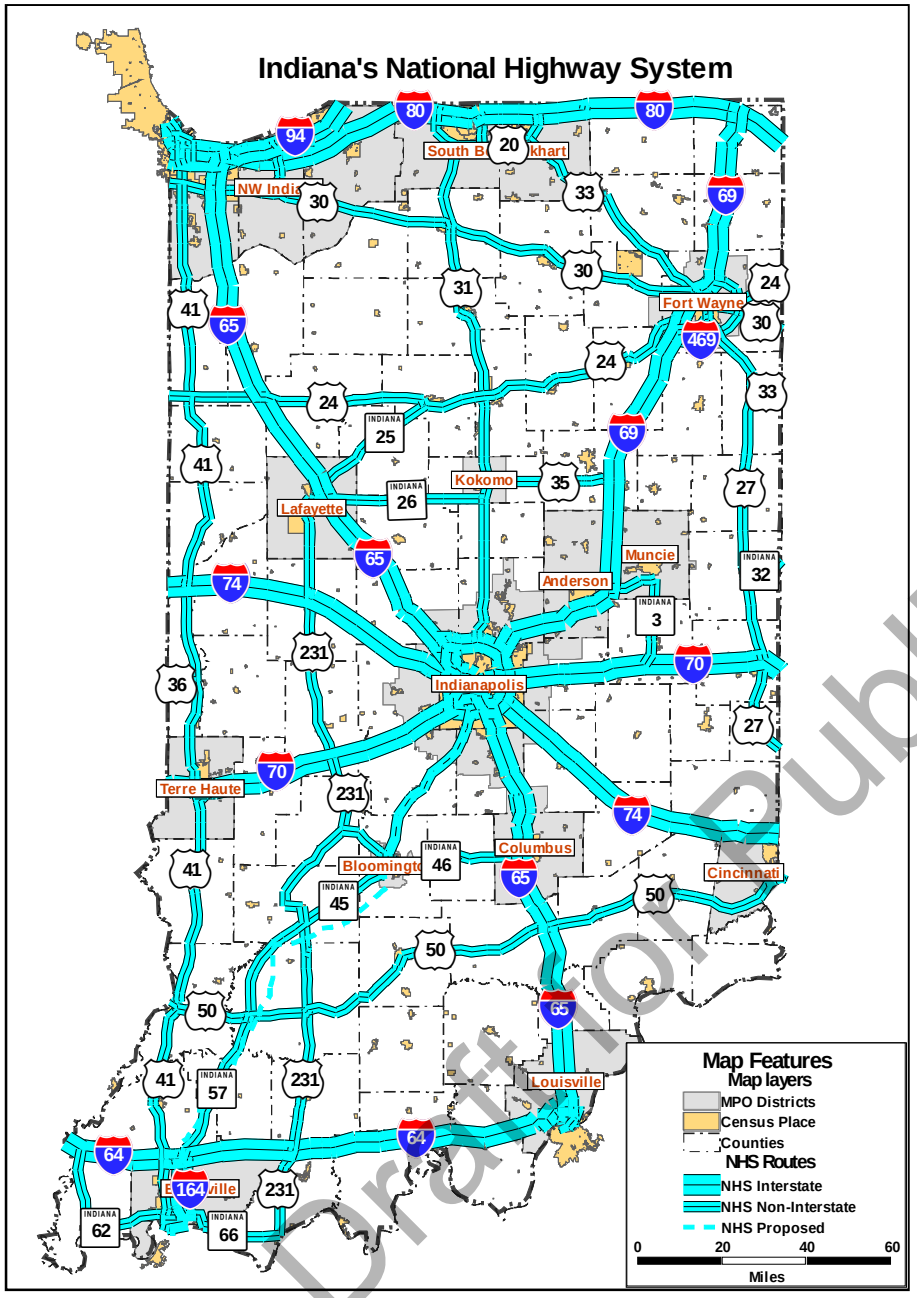


FIGURE 30 - NATIONAL HIGHWAY SYSTEM MAP