



5 multimodal needs & plan integration

Indiana's multimodal transportation network facilitates the efficient, reliable, and safe movement of persons and goods. It is the foundation of the State's economic success—supporting jobs and businesses. However, the demands on and cost to maintain and improve the system will continue to increase. This chapter provides an overview of transportation issues and needs for each mode.

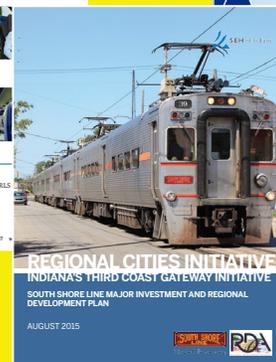
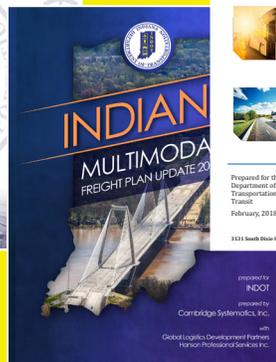
WHICH STAKEHOLDERS WERE INVOLVED?

The State's transportation planning agencies—the metropolitan planning organizations (MPOs)—partnered with INDOT and played a critical role in identifying and assessing statewide multimodal needs. It is anticipated that this updated LRTP will be useful in their local planning efforts and decision-making process. In addition, INDOT collaborated with a variety of modal interest groups, including Conexus of Indiana, the Indiana Economic Development Corporation, and the Ports of Indiana.

WHICH MODAL PLANS WERE CONSIDERED?

A variety of plans, reports, and studies were referenced throughout the development of this analysis, including:

- Indiana State Rail Plan
- Indiana Multimodal Freight and Mobility Plan
- Indiana State Aviation System Plan
- Indiana Intercity Bus Needs Assessment and Service Evaluation
- Indiana Economic Development Corporation's Regional Development Plans
- Indiana Strategic Highway Safety Plan
- Hoosiers on the Move, the Indiana State Trails, Greenways and Bikeways Plan
- Indiana Regional Cities Initiative Program
- Conexus Indiana Logistics Council's statewide and regional strategic plans
- Strategy for the Great Lakes-St. Lawrence River Maritime Transportation System
- Adopted long-range transportation plans from each of the 14 MPOs



WHAT ARE THE CRITICAL ISSUES FACING THE STATE'S TRANSPORTATION SYSTEM?



Freight Rail State of Good Repair

Railroad maintenance requires large investments in materials and construction labor on a regular basis. It is often deferred when revenues are marginal and rail traffic is down; as a result, maintenance needs accumulate. Several Indiana short line railroads have excessively worn rails and ties, damaged switches, and poor line and surface conditions. This may hinder the reliability and competitiveness of rail services offered, causing regional shippers to change transportation modes. Deteriorating rail conditions can place railroads in jeopardy of ceasing operations if left unresolved as they could be shut down involuntarily by the Federal Railroad Administration (FRA) due to unsafe operating conditions.

Weight Capacity

A total of 346 track miles in Indiana are unable to handle industry-standard 286,000-pound railcars. Shippers must either use smaller railcars or short-load their railcars. Class I railroads sometimes avoid interchanging traffic with short lines that are not 286,000-pound compatible. In other cases, rail traffic heading toward non-286,000-pound

compliant rail lines must be diverted onto alternate routes that can accommodate heavier railcars. These restrictions limit the railroads' efficiency and competitiveness. In general, the railroad industry is shifting to heavier, more expensive railcars.

Grade Separation

The increase in freight traffic may result in high volumes of trains blocking at-grade rail crossings on local roads. Railroad grade separation and crossing closures, where prudent, would help to enhance mobility and safety, and decrease road congestion caused by rail and truck traffic. INDOT recently announced availability of at least \$125 million for high-priority rail projects on local roads statewide through the new Local Trax rail overpass program. Local match details are described in Chapter 7, Revenue and Finance.

Corridor Preservation

Since 1950, nearly 3,500 miles of rail lines have been abandoned and are no longer in service. There are approximately 54 miles of rail lines with minimal traffic and about 61 miles of inactive rail lines but not abandoned. These rail lines could be at risk of abandonment, which



could subsequently result in the permanent loss of a corridor and prospective opportunities and benefits. When railroads continue to own rail lines that they do not use, these lines represent financial losses. Any applicable taxes and insurance must still be paid even though these lines generate no revenue. In many cases, ownership of portions of the corridor revert to adjacent landowners and the right-of-way is no longer continuous. It is more expensive and difficult to assemble and build a new right-of-way than it is to restore or rehabilitate an existing rail corridor.

Inadequate Intermodal Capabilities

Indiana is fortunate to have multimodal connectivity to national and global markets via the Class I rail system, supported by a network of short line rail providers. However, there is still a lack of efficient mode-to-mode connectivity, per the Conexus Indiana Logistics Council. Also, due to lack of intermodal service bypassing Chicago, Indiana relies on Chicago for intermodal service to West Coast

ports. Better rail interchange options would improve efficiency and help to avoid being routed through Chicago.



Passenger Rail Additional Capacity

Commuter rail service is not reaching its full potential. For instance, the South Shore Line may experience delays due to conflicts with freight rail operations. Also, it is single-tracked between Gary and Michigan City. Double tracking would improve operational flexibility and reliability. Other needed improvements include the West Lake Corridor extension, realignments, replacement of old railcars, terminal enhancements, station consolidations, and train schedule adjustments.





Inland Waterways

The inland waterway infrastructure provides the means for Indiana to grow maritime trade; however, system inefficiency and disruption may impact

its competitiveness with other modes of transportation. For instance, aging locks that exceed their design life are in desperate need of repair and/or replacement. Maintenance dredging is also a consistent issue, especially at Burns Harbor. Additionally, deepening the Ohio River is needed to allow barges to carry increased weight thereby saving shipper costs.

Uninterrupted service due to operating hours or other factors on the locks is a critical issue that if resolved could support the opportunity for economic growth along the Ohio River. Lock and dam closures—planned or unscheduled—can have a major impact on the inland waterway transportation system, resulting in costly delays and system reliability concerns. Similar to how a major closure of an interstate highway can disrupt the delivery and cost of transporting goods, a failed or closed lock and dam can have the same impact on the inland waterways. For example, according to a 2015 Department of Homeland Security study, if the Soo Locks in northern Michigan were shut down for six months, Indiana's

unemployment rate would jump to 22 percent due to the supply chain disruption. Nationally, it would result in the loss of 10.9 million jobs and \$1.1 trillion in gross domestic product. In this catastrophic scenario, Indiana's iron ore and other cargo would have to be shipped entirely by railroad or commercial trucks. However, these transportation modes do not have the handling-capacity. Even if it did, the amount of trains and trucks would add to an already heavily congested rail and highway system, further erode infrastructure conditions, impact safety, and produce more emissions.

In general, the sentiment is that inland waterways are taken for granted. Investments are not made on waterways as compared to roadway infrastructure. This poses a serious risk to the inland waterways of Indiana and the Midwest region. Thus, support for adequate federal funding for waterway infrastructure improvements is a high priority. For instance, the Federal Harbor Maintenance Tax collected from users of the maritime transportation system does not get fully allocated to fund the Army Corps of Engineer's operation and maintenance activities. Funding opportunities should be considered to cover the gap, including public-private partnerships and federal grants.





Ports and Harbors

For the Ports of Indiana—a self-funded port authority—indirect, poor landside access to/from port facilities is a major issue. It disrupts goods movement and results in freight trucks traveling through retail centers, school zones, and residential areas—creating bottlenecks on two-lane roadways. Therefore, optimized maritime connectors to/from the highway and rail network is a critical need, such as at Burns Harbor. Optimization should also consider adequate signage, bridge clearances, weight limit restrictions/permitting (i.e. heavy-duty truck routes), planning and coordination with construction projects, limiting landside impediments (e.g., roundabouts), construction of a siding to accommodate unit train delivery, and reconfiguration of the waterfront railroad infrastructure to increase operational efficiency.

The Ports of Indiana is considering establishing a fourth marine port at the former Tanners Creek Generating Station in Lawrenceburg. It aims to capitalize on existing industries, to provide additional capacity, and to accommodate future shipping requirements. A new port would likely require optimizing access to port tenants by developing a bypass connection to the major interstate highway and a short line connection to a Class I railroad. Other facilities may include an intermodal rail-truck terminal, warehousing with rail

and truck docks, communications infrastructure for modern freight management systems, and an industrial park for industries that need waterway access. Capital improvement grant programs and public-private partnerships can assist with facility construction, infrastructure support, and intermodal transportation project development.



Aviation

Approximately 59 percent of Indiana's airport pavements are at a condition level where they will benefit from preventive maintenance actions, such as crack sealing, joint sealing, patching, and surface treatment applications or nominal resurfacing projects. Approximately 30 percent of the pavement infrastructure at 65 airports needs more extensive rehabilitation such as overlays, while almost seven percent has deteriorated to the point where reconstruction may be the only viable option to restore the pavement, as described in the Indiana Airport Pavement Management System Update (2018). Extending pavement service life could reduce funding needed each year for rehabilitation or reconstruction. Additionally, runway upgrades can help to attract and accommodate larger aircraft, and as a result, improve efficiency in air cargo service.





Public Transportation

Indiana must address the increased demand for moving people, including the elderly and disabled persons. In urban areas of Central Indiana, for example, many people are dissatisfied with their current transit options because there are no transit systems in place to assist workers, especially those earning lower wages, in getting to work. In rural areas of Indiana, choices for public transit are limited due to poor connectivity to employment centers or markets. As a result, only one

percent of workers (aged 16 years and over) in Indiana use public transportation to get to work, according to the U.S. Census Bureau. In general, local tax revenues have not kept pace with the cost and demand to provide reliable transit choices. Local matching grants provide funding assistance to transit operators. However, lack of sufficient funds prevents them fully participating in these programs. A lower match requirement or an increase in state sources, such as the Public Mass Transportation Fund, would help transit operators.

Public Transportation Needs

SERVICES	ROUTES	VEHICLES & FACILITIES	CONNECTIVITY
<ul style="list-style-type: none"> • Increase frequency and local coverage • Decrease hour-long headways • Offer limited Sunday service • Expand weekend and overnight service hours • Improve capacity for demand response paratransit 	<ul style="list-style-type: none"> • Add dedicated lanes for rapid transit service • Offer express commute, crosstown routes • Offer neighborhood and employment shuttles • Consider route restructuring 	<ul style="list-style-type: none"> • Add benches and canopies at bus stops • Increase bus parking to accommodate larger buses • Make vehicles safe, clean, and comfortable • Enhance transit experience through technology • Replace buses with hybrid or alternatively fueled vehicles to reduce operating costs • Add centrally-located hubs • Install bus-mounted bike racks 	<ul style="list-style-type: none"> • Increase connectivity from residential areas to regional employment, shopping, health, and entertainment centers • Ensure accessibility

Source: MPO LRTPs



Bicycle and Pedestrian

Advocacy for bicycle and pedestrian safety continues to be a focus for Indiana legislators. According to the National Highway Traffic Safety Administration,

there were 96 pedestrian and 12 bicyclist fatalities reported statewide in 2015. To reduce the rate of fatalities, the Strategic Highway Safety Plan outlines strategies, such as infrastructure improvements, roadway and intersection design, and traffic control devices. The Safe Transportation for Every Pedestrian guide also offers countermeasures to enhance pedestrian safety and accessibility. Treatments

include road diets to accommodate pedestrians at unsignalized crossings; pedestrian hybrid and rectangular rapid-flashing beacons to alert motorists of pedestrian and school crossings; raised crosswalks to reduce speeding; pedestrian refuge islands; and crosswalk

visibility enhancements (e.g., curb extensions, advanced signs and markings, and improved design). Building sidewalks along major arterial and collector roadways is also critical to making Indiana communities more bicycle and pedestrian friendly.



Indiana can capture the health, economic, and active transportation benefits associated with bicycling and walking by installing bike parking, repairing and maintaining paved surfaces, and expanding multi-use trails. Indiana can also facilitate bicycle tourism by supporting connection improvements along various trail corridors, such as the American Discovery Trail, Cardinal Greenway, and Indianapolis Cultural Trail.

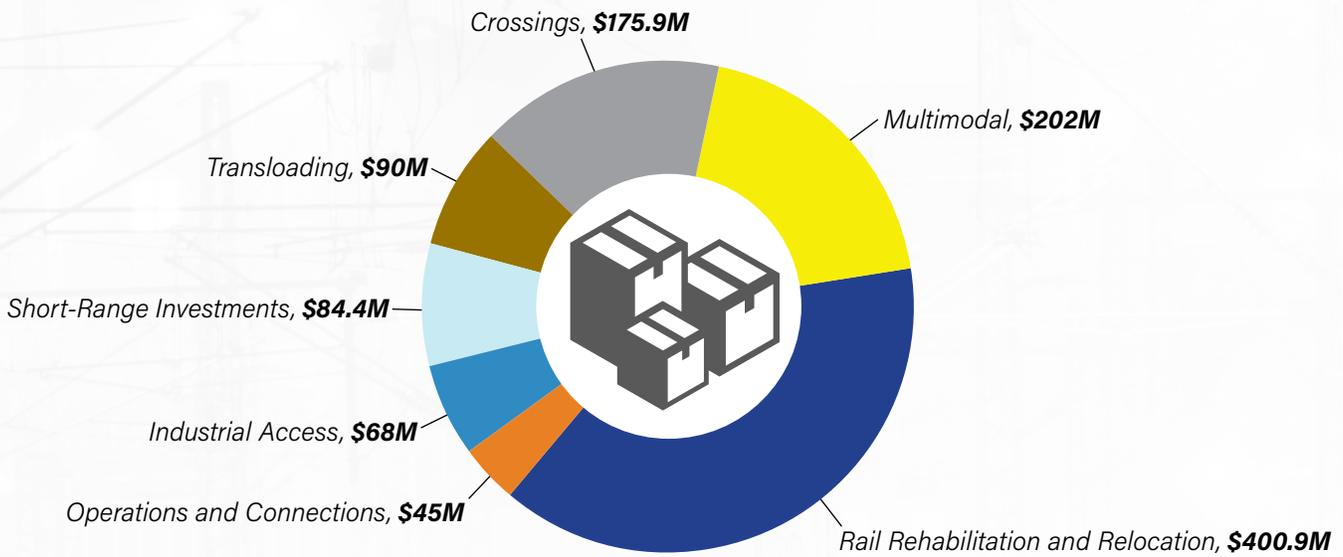


HOW MUCH IS NEEDED TO COVER THE COSTS?

Delay or failure to invest in Indiana's multimodal transportation system could impact economic development, diminish quality of life, and increase unmet infrastructure needs. It is important to pursue programs and policies that aim to integrate all modes of transportation, maintain and expand the network, and improve its performance. The following discusses the costs of infrastructure needs by mode.

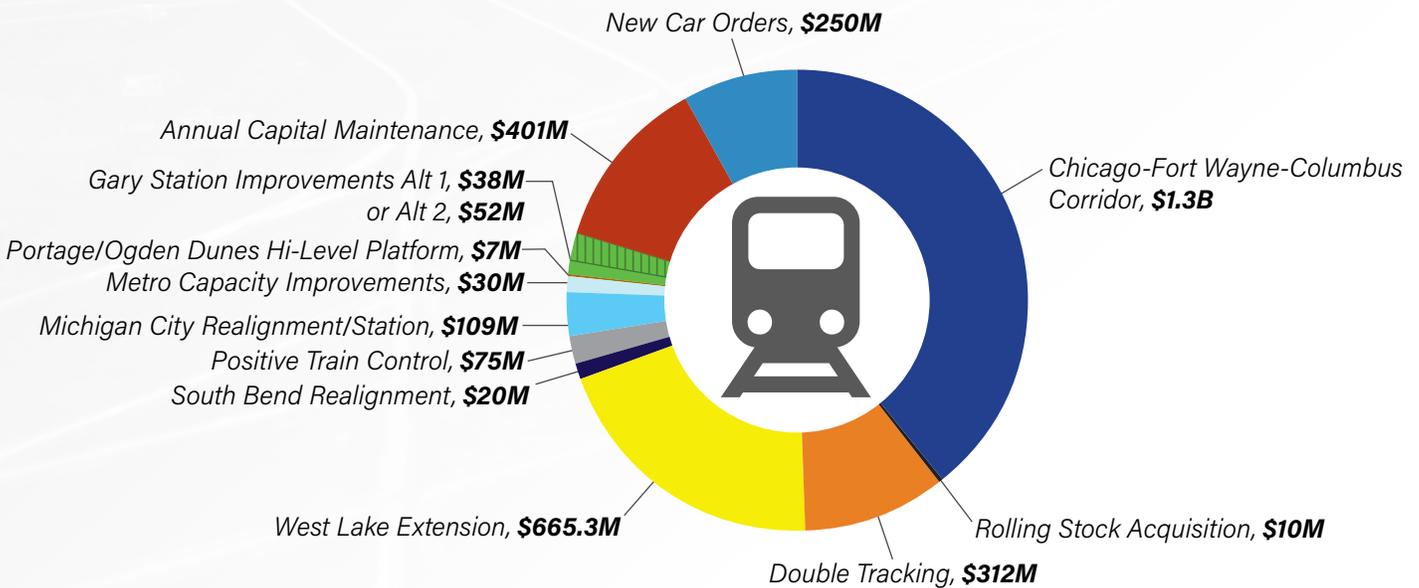


Freight Rail Needs



Freight rail needs are estimated at approximately \$84.4 million through year 2021. Thereafter, an additional \$981.8 million is estimated through the planning horizon of this LRTP, according to the Indiana State Rail Plan (2017).

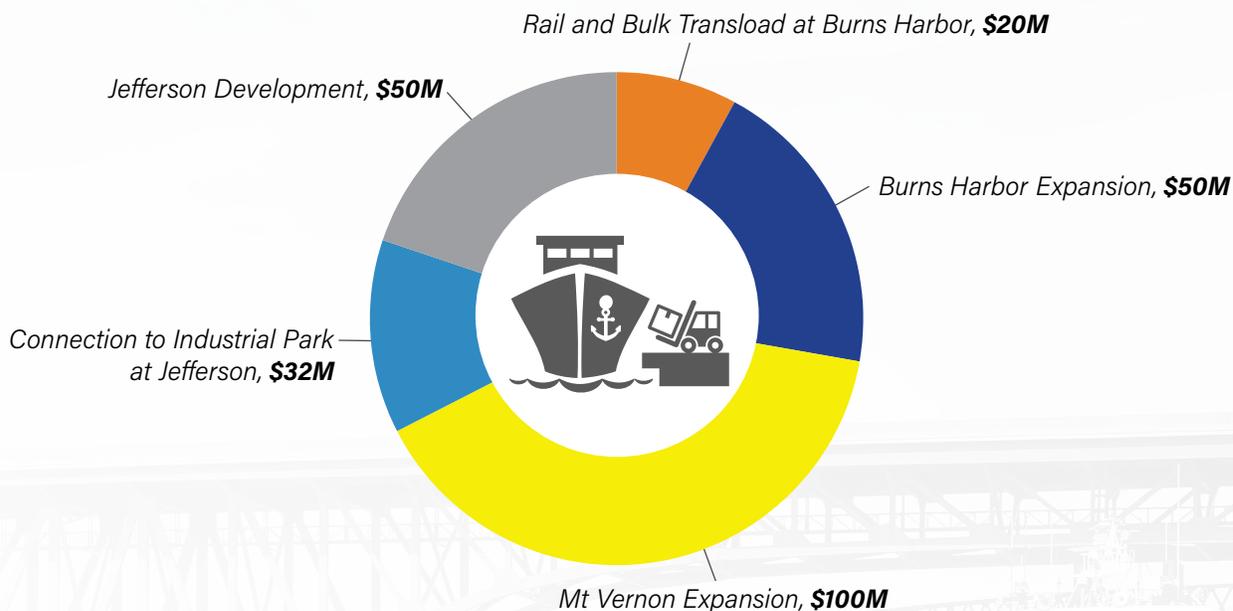
Passenger Rail Needs



Passenger rail needs are estimated at approximately \$1.9 billion through year 2033. Thereafter, an additional \$900 million is estimated through the planning horizon of this LRTP.

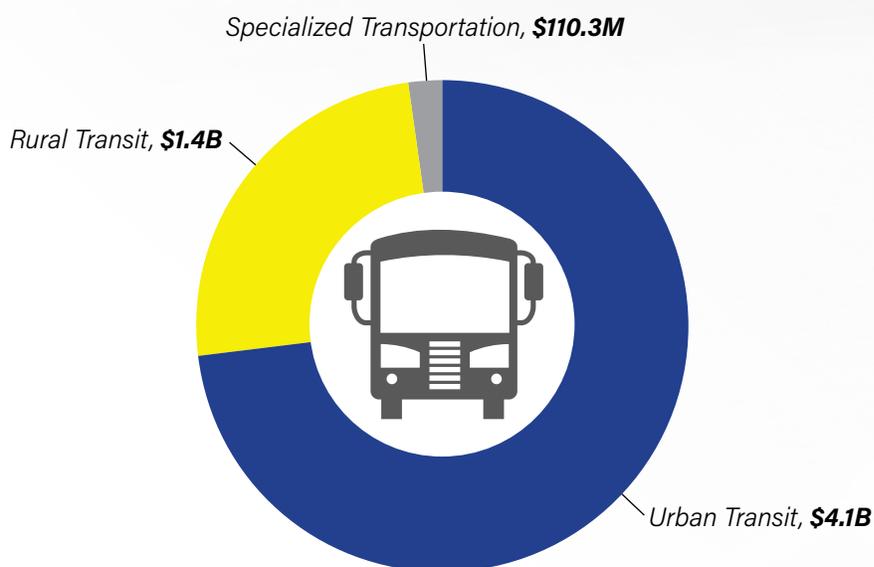
Note: Extrapolation of passenger rail needs is based on the Indiana State Rail Plan (2017) and NICTD 20-year Strategic Business Plan.

Port and Harbor Needs



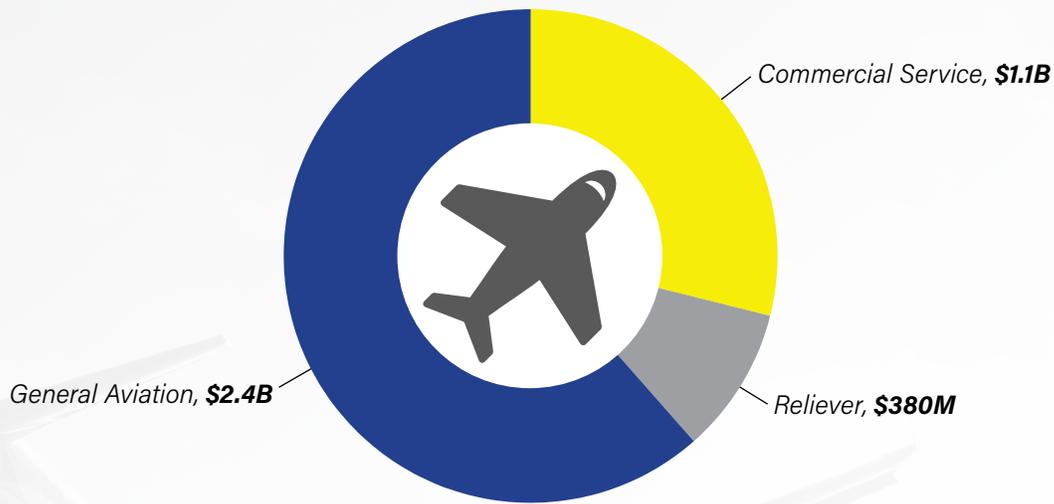
Port and harbor needs are estimated at approximately \$252 million, according to the Ports of Indiana. This amount does not include the future development of Indiana’s fourth port at the Tanners Creek Generating Station along the Ohio River in Lawrenceburg. According to the Governor’s office, the total cost to purchase the 725-acre property would be approximately \$8 million. Development costs of this potentially new port is pending further study. Inland waterway needs are estimated at approximately \$3.8 billion, according to the Conference of Great Lakes and St. Lawrence Governors and Premiers. This amount is for the Great Lakes-St. Lawrence River maritime system, which includes the Ohio River and Lake Michigan in Indiana.

Public Transportation Needs



Public transportation needs are estimated at approximately \$5.6 billion, based on forecasts in the State Transportation Improvement Program (STIP). The needed funds would serve to support administration and planning services, improve efficiency of management and operation, and accomplish capital improvements, vehicle replacements, and new facilities and technology.

Aviation Needs



Aviation needs are estimated at approximately \$3.9 billion based on forecasts in the Airport Capital Improvement Plan (CIP). Investments are centered on reducing impacts to Indiana airports, such as lack of access and signage; primary runway length; weather reporting systems; obsolete terminal facilities and hangars; technological advancements in the form of avionics and navigation; and overall underutilization.

Bicycle and pedestrian needs are estimated at approximately \$1.2 billion, according to the IEDC and Indiana MPOs. This amount does not include the Next Level Connections' \$90 million investment in the state's trail network. This funding will establish a grant program for local and regional governments to plan and develop hiking, biking, and horseback riding trails. At the state level, Indiana's legislative task force will be charged with examining priority bike trail corridors for ongoing development.

Bridge and pavement needs are estimated at approximately \$1 billion per year—with the goal of improving safety and mobility, strengthening economic competitiveness, easing traffic congestion, and reducing the cost of freight and passenger transportation.

MAJOR CORRIDOR IMPROVEMENT ANALYSIS

A variety of infrastructure improvements were identified for 21 major corridors of the Indiana highway network. The development and prioritization of these corridors considers the mobility corridor hierarchy system—Statewide Mobility Corridors, Regional Corridors, and Sub-Regional Corridors. Statewide Mobility Corridors serve high-speed connections for long-distance trips between the metropolitan areas of Indiana and those of the surrounding states. Regional Corridors serve high-speed connections for medium-distance trips between smaller cities and towns. Sub-Regional Corridors serve lower speed, short-distance trips between local land uses and the rest of the state network. This highway classification system incorporates the National Highway System, a system of roadways determined to have the greatest national importance to transportation, commerce, and defense in the United States.



MAJOR
CORRIDORS

The corridors, listed below, are critical to mobility and economic activity throughout all regions of Indiana. The following table lists major corridor improvement projects, but do not resemble a priority or ranking of importance.

Major Corridors

NO.	NAME	DESCRIPTION
HIGHWAY EXPANSIONS & MODERNIZATIONS		
1	I-69, Section 6	New 26-mile north-south interstate from south side of Martinsville to I-465 south junction in Indianapolis
2	I-69 Ohio River Crossing	New bridge crossing in Evansville
3	I-70	From 4-lane sections to 6 lanes across the state
4	I-65	From 4-lane sections to 6 lanes across the state
5	I-465	From West 86th Street to US 31 north junction northwest Indianapolis
6	I-465	From White River bridge north junction to Fall Creek northeast Indianapolis
7	I-465	From I-70 east junction to I-70 west junction Indianapolis south
8	I-94	Transportation Systems Management (TSM) treatments from Illinois state line to I-65
9	I-69 expansion	From SR 9/SR 109 Anderson north 15 miles to SR 332 Muncie
10	Items 10-14: I-65 and I-70	I-70 segment from 3 miles west of I-65 south junction to I-65 south junction
11	reconstruction inside the I-465	Eliminate weaving areas on the west leg of I-65/I-70 inner belt from South Split interchange to North Split interchange
12	beltway in Indianapolis	I-70 segment from the I-65 north junction east 7 miles to I-465 east junction
13	(north/south split as well as adjacent	I-65 segment from I-70 north junction north 6 miles to West 38th Street
14	spokes)	I-65 segment from I-465 south junction north 4 miles to I-70 south junction
15	US 31	From SR 38 in Hamilton County to south of Kokomo, the goal is freeway improvements; from Kokomo north to US 30, improvements to improve traffic flow and safety
16	US 30	Upgrade 100-mile stretch (from Fort Wayne to Valparaiso) to improve traffic flow and safety
17	US 36	From SR 267 east 7 miles to I-465 west junction, Indianapolis and Avon
18	US 20	Northern Indiana bridge and pavement preservation
19	I-64 and I-265	From Sherman-Minton bridge to SR 64, and from I-64 to I-65

Major Corridors continued

NO.	NAME	DESCRIPTION
FREIGHT/LOGISTICS		
20	Heavy-Haul Corridor, Mount Vernon Port	New road Improvements to SR-69 from to I-64 in Posey County to provide truck access to Mount Vernon Port
21	Heavy-Haul Corridor, Segment A	New road to connect the Ports of Indiana-Jeffersonville with SR 265

There are ongoing statewide efforts to consider long-term improvement needs, including investments along corridor systems and interchange areas. The Statewide Corridor Planning Study aims to develop corridor visions for state jurisdictional roadway facilities. The Statewide Interchange Planning Study aims to identify interchange enhancements and evaluate potential new interchange locations. These studies will serve as an input into the statewide and MPO planning process and help to support mobility asset management activities.

States are encouraged to take action to deploy alternative fuels and vehicles. To improve the mobility of alternative fuel vehicles, FHWA has helped build momentum

towards greater alternative fuel corridor planning and coordination among states. In Indiana, no corridors have been designated for alternative fuel vehicles. However, the Greater Indiana Clean Cities Coalition has recommended several corridors for nomination where there is demonstrated eligibility for designation. The I-465 loop and portions of I-70 could be designated corridor-ready for electric vehicle charging. The I-465 loop as well as portions of I-65, I-94, and I-70 could be designated as corridor-ready or corridor-pending for compressed natural gas. The I-465 loop as well as portions of I-65, I-69, and I-70 could be designated as corridor-ready or corridor-pending for liquefied petroleum gas.



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