Long Range Transportation Plan

Gibson County, Indiana

EVANSVILLE MPO

Prepared by the Evansville Metropolitan Planning Organization

Long Range Transportation Plan

Gibson County, Indiana

ACKNOWLEDGEMENTS

Gibson County Board of Commissioners

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Alan Douglas, Member

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RESOLUTION 2011- 5
Gibson County Board of Commissioners

A RESOLUTION APPROVING THE GIBSON COUNTY, INDIANA LONG RANGE TRANSPORTATION PLAN

WHEREAS, the Gibson County Board of Commissioners was presented the Gibson County, Indiana Long Range Transportation Plan by the Evansville Metropolitan Planning Organization on November 15, 2011, and

WHEREAS, a draft of the Gibson County, Indiana Long Range Transportation Plan was presented to the Commissioners and the public on October 18, 2011, and

WHEREAS, a public comment period for the draft plan was provided from October 17th 2011 to November 7th 2011; and

WHEREAS, after consideration of said plan, the Commissioners determined that it is in the best interests of Gibson County, Indiana to adopt said plan; and

NOW, THEREFORE, BE IT RESOLVED, by the Gibson County Board of Commissioners that the County hereby accepts and approves the Gibson County Long Range Transportation Plan as submitted:

ADOPTED this 15th day of November, 2011.

Bob Townsend

Bob Townsend, President

Gerald L. Bledsoe

Gerald Bledsoe, VP

Alan Douglas

Alan Douglas, Commissioner

Attest: C. J. Montgomery

C.T. Montgomery, Gibson County Auditor

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INTRODUCTION

A. STUDY BACKGROUND

Gibson County, in southwestern Indiana, is one of six counties in the Evansville Metropolitan Statistical Area (MSA). It borders the Wabash River and Illinois on the west; Posey, Vanderburgh and Warrick Counties on the south; Warrick and Pike Counties on the east; and the White River and Knox County on the north. Gibson County has a population of 33,503 persons, according to U.S. Census Bureau 2010 Census. Gibson County includes ten incorporated communities: Fort Branch, Francisco, Haubstadt, Hazleton, Mackey, Oakland City, Owensville, Patoka, Princeton and Somerville. Figure 1.1 shows the location of Gibson County.

B. GIBSON COUNTY TRANSPORTATION PLANNING AREA

The Gibson County Transportation Plan applies to surface transportation facilities within the boundaries of the county, including the incorporated communities, with regard to federal-aid transportation projects and programs. Other elements of the Transportation Plan may or may not apply to the various local public agencies within the county.

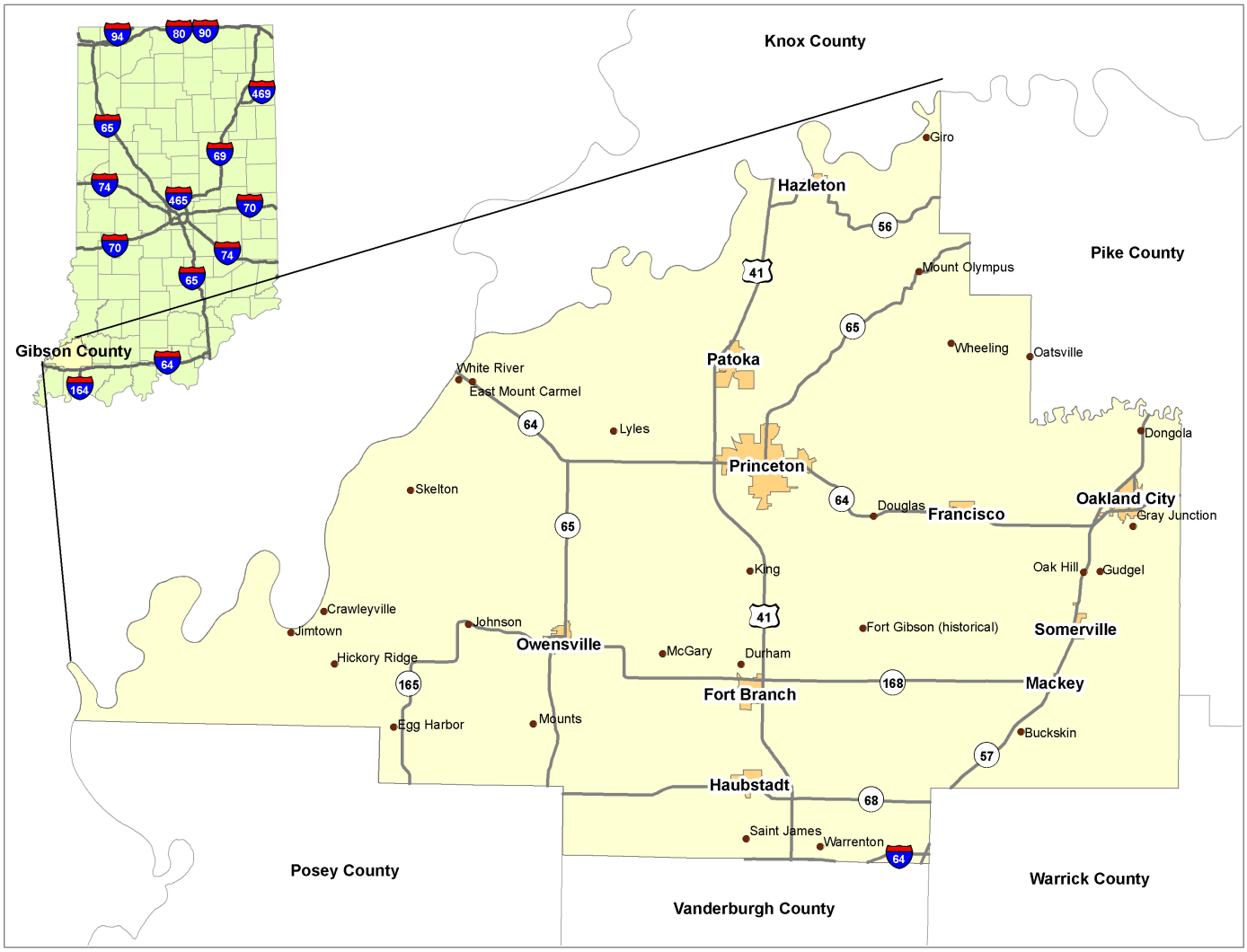
C. PLAN PURPOSE

Gibson County operates and maintains a roadway system, which in conjunction with local, regional, and state roadway, water, and air transportation systems, helps to serve the transportation needs of its residents and businesses. As a result, the County contributes to or makes decisions, which affect all other transportation modes and systems. Within this context, the Gibson County Transportation Plan provides the framework for development of the Gibson County surface transportation system through the year 2035. The Plan describes system principles and standards, evaluates the existing County surface transportation system, identifies future system needs, develops a transportation system plan, and outlines strategies to implement the Plan.

D. EXISTING TRANSPORTATION SYSTEM OVERVIEW

The surface transportation system links the community to the land use activities within and beyond the communities of Gibson County. Ground

Figure 1.1: Gibson County Location Map



transportation in Gibson County includes Interstates 64 and 69, US Route 41, eight state highways, and 1098 miles of local public agency maintained roadways (County or City/Town facilities). The County also maintains 250 bridges, and all culverts and drainage ditches on non-state roads. Ride Solution, an on-demand transportation provider partnership based in Washington, Indiana provides public transportation services to the entire county. The nearest intercity bus service is found in Evansville, which is served by Greyhound and Trailways buses. Amtrak rail passenger service boards in Carbondale and Centralia Illinois.

There are three railroad operators in Gibson County. CSX Corporation (CSX), Norfolk Southern Corporation (NS) are Class I railroads and Indiana Southern Railroad (ISRR) is a Class III operator.

The CSX line crosses the county east to west, passing through Princeton and connecting Chicago to the entire southeastern portion of the United States. CSX Corporation, based in Jacksonville, Florida, is one of the nation's leading transportation companies, providing rail-based transportation services to every major population center east of the Mississippi River, including the New York, Philadelphia and Boston markets in the northeast and mid-Atlantic; the southeast markets of Atlanta, Miami and New Orleans; and the Midwestern cities of St. Louis, Memphis and Chicago. CSX has 21,000 miles of track, access to 70 ports and the largest intermodal network in the United States, serving 23 states, the District of Columbia, and the Canadian provinces of Ontario and Quebec. In Indiana, CSX has approximately 2,800 miles of track and handles approximately 460,000 carloads of freight annually. Products shipped include consumer goods, coal, iron, steel, automotive goods, and feed grain. CSX has major intermodal rail yards in Indianapolis and Evansville, and TRANSFLO terminals in East Chicago, Hammond, Indianapolis, and Evansville.

The NS rail line bisects the county north to south. Also passing through Princeton, it connects Kansas City and St. Louis to Louisville and the entire eastern seaboard of the United States from New York to Florida. Norfolk Southern Corporation is a Norfolk, Virginia-based company that controls a major freight railroad, Norfolk Southern Railway Company. The railway operates approximately 21,000 route miles in 22 eastern states and the District of Columbia, serves all major eastern ports, and connects with rail partners in the west and Canada, linking customers to markets around the world. NS provides comprehensive logistics services and offers the most extensive intermodal network in the east. The CSX and NS lines converge on the northwest side of Princeton and run southeasterly through the central part of the city, to a point on the south side of the city where the NS line turns to the east and CSX line continues to the south. An overpass over the CSX and NS lines exists on Brumfield Avenue. This overpass is the only east-west connection over the CSX and NS lines in the city limits and is located near the central business district. The highest volume east-west principal arterial in Princeton is SR 64/SR 65 and there is an at-grade crossing with the CSX and NS lines at this location. INDOT has plans to reconstruct SR 64/SR 65 from the west side of Princeton to South Main Street, including this crossing with the CSX and NS rail lines in 2009, but there will not be an overpass constructed as part of the project, nor does INDOT have any long range plan for constructing an overpass at this location. There are approximately 60-80 trains per day crossing at SR 64/SR 65 and the traffic congestion and delays are significant at this time. The Indiana Southern Railroad, a Class III railroad with offices in Petersburg, Indiana, operates over a distance of 196 miles between Indianapolis and Evansville. Crossing the eastern portion of the county, ISRR serves coal fields and agricultural areas. ISRR interchanges traffic with INRD, CSXT, and NS. In addition to coal, ISRR predominately transports agricultural commodities. In addition to these operating lines, the rail line from Cynthiana in Posey County to Owensville is currently inactive.

Also impacting transportation in Gibson County is the Ohio River, which has historically been the main impetus to growth in the region. Today, several industries located along the Ohio River utilize barge transportation for freight movement and there are three river ports that have a major impact on the flow of commodities throughout the entire tri-state region: The Port of Evansville, the Henderson County Riverport, and the Port of Indiana – Mt. Vernon in Posey County.

E. LOCAL PLANNING DOCUMENTS

Comprehensive Plan documents have been developed for Gibson County (accepted in 2009), the cities of Princeton (updated in 2009) and Oakland City (adopted in 2009), and the towns of Haubstadt (adopted 2006), Fort Branch (adopted 2007) and Owensville (adopted 2008). Each of the documents was reviewed during the development of this plan to integrate indentified community input regarding the transportation system. Zoning ordinances apply to both Princeton and Haubstadt, with an applicable extraterritorial jurisdiction in the county.

F. TRANSPORTATION PLANNING GUIDING LEGISLATION

Transportation planning for states is directed by two types of federal legislation. One type of legislation is federal surface transportation law. The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), signed into law in 2004, is the current federal legislation for surface transportation. However, SAFETEA-LU was set to expire in 2009, and has been funded by extensions as a new bill is being prepared for congressional approval. The Indiana Department of Transportation abides by regulations promulgated under SAFETEA-LU and the United States Department of Transportation.

The second piece of significant federal legislation for state planning activities is the Clean Air Act Amendments of 1990 (CAAA). While SAFETEA-LU provides the funding and flexibility to make transportation improvements, the CAAA ties transportation improvements to air quality. The U.S. Environmental Protection Agency (US EPA) has established National Ambient Air Quality Standards (NAAQS) for six criteria of air pollutants: carbon monoxide (CO), nitrogen oxides (NOX), ozone (O3), sulfur dioxide (SO2), particulate matter (PM), and lead (Pb). Areas that exceed any of the NAAQS are designated as "non-attainment" areas, classified according to the severity of air quality problems. The CAAA require that all federally funded transportation plans, programs or projects conform to the State Implementation Plan (SIP), which is the state's adopted strategy for monitoring, controlling, maintaining, and enforcing compliance with the NAAQS. The SIP sets goals for the reduction of each type of emission and attaches enforceable measures for attainment. To ensure that the transportation system contributes to planned system-wide emissions reductions, federal transportation funds can be withheld until conformance to the SIP is achieved.

G. PUBLIC INVOLVEMENT AND COMMENTS

An official public comment period for the Draft Transportation Plan was publicized from October 17th, 2011 through November 7th, 2011. Copies of the Draft Transportation Plan, and comment forms, were made available at several public locations throughout the county. The Draft Plan was also available online through the County Commissioners' office site, as well as the Evansville Metropolitan Planning Organization site. No public comments were received.

The Plan was presented as a draft at the County Board of Commissioners' October 18th, 2011 meeting. Final adoption was approved at the Commissioners' November 15th, 2011 meeting.

chapter 2

SYSTEM PRINCIPLES AND STANDARDS

The transportation system principles and standards included in this Plan create the foundation for developing the transportation system, evaluating its effectiveness, determining future system needs, and implementing strategies to fulfill the goals and objectives identified.

A. FUNCTIONAL CLASSIFICATION

Recognizing that individual roads and streets do not serve independently in any major way, most travel involves movement through a network of roadways. Functional classification defines the nature of this channelization process by defining the part that any particular road or street should play in serving the flow of motorized trips through a roadway network. Functional classification is the process by which streets and highways are grouped into classes, or systems, according to the character of service they are intended to provide. Functional classification involves determining what functions each roadway should perform prior to determining its design features, such as street widths, design speed, and intersection control. However, functional classification does not take non-motorized travel (walking and biking) into account, but those travel modes should be considered as appropriate.

There are two sets of functional classification definitions for the Gibson County Transportation Plan, Urban and Rural. The urban roadway system includes Principal Arterials, Minor Arterials, Collectors, and Local Roadways. The rural roadway system includes Principal Arterials, Minor Arterials, Major and Minor Collectors, and Local Roadways. Both classifications have fundamentally different characteristics relative to density and types of land use and travel patterns. Table 2.1 shows the length and percentage of roads maintained by Gibson County, by functional class. The lengths of roadways, by functional classifications, in incorporated areas of Gibson County are illustrated in Table 2.2.

Gibson County's current roadway functional classifications are illustrated in Figure 2.1 (page 9). The functional classes of Princeton's roads are shown in Figure 2.2 (page 10).

Arterial facilities in Gibson County include I-64, I-69 (currently under construction), US 41, SR 57 and SR 64. Interstate 64 is located along the southern edge of the county, connecting Gibson County with the St. Louis and Louisville metropolitan areas. Interstate 69 is currently complete to SR 68 and under construction through the county. Construction through Gibson County and extending to US 231 in Greene County is scheduled for completion by December 2012. US 41, classified as a Principal Arterial through Gibson County, runs north-south through the center of the county as it traverses from Miami, Florida to the Upper Peninsula of Michigan. SR 57, a rural principal arterial in the eastern portion of the county, parallels the I-69 corridor. I-69's completion will impact SR 57's role in the roadway network. SR 64, primarily a Minor Arterial, crosses the count centrally east to west; providing access to Mt. Carmel, Illinois across the Wabash River in the west and Pike County in the east.

Major Collector facilities include SR 56, SR 65, SR 68, SR 165, SR 168 and SR 357. Major Collectors not located on State Roads include County Roads 150 South, 350 South, 450 South (Claybank Road), 350 East, 550 East. There are also several Minor Collectors located throughout the county and a network of Urban Collector facilities in the Princeton Urban Area.

It is recognized that the roadway network in Gibson County is part of a greater regional roadway system. In particular, the function of Principal and Minor Arterial roadways extend beyond the Gibson County borders. The following are descriptions of the rural and urban roadway system, by functional classification. The urban functional classification definitions apply to all incorporated areas of Gibson County, although the incorporated areas are not included in the areas maintained by Gibson County. Federal aid eligibility is generally limited to roads categorized as rural major collectors and urban collectors or higher (not local roads or rural minor collectors).

Table 2.1: Gibson County Road Responsibility by Functional Class

Functional Class	Route Length (miles)	Portion Maintained
Rural Minor Arterial	0	0.00%
Rural Major Collector	32.2	3.32%
Rural Minor Collector	192.87	19.86%
Rural Local Roads	737.35	75.91%
Urban Minor Arterial	1.68	0.17%
Urban Collector	1.54	0.16%
Urban Local Roads	5.67	0.58%
Total	711.93	100.00%

Table 2.2: Gibson County Incorporated Areas

Incorporated Area	Francisco	Haubstadt	Hazelton	Mackey	Patoka
Functional Class					
Rural Minor Arterial	0	0	0	0	0
Rural Major Collector	0	0.75 mi./6.96%	0.04 mi./0.86%	0	0
Rural Minor Collector	0	0.35 mi./3.25%	0	0.64 mi./71.11%	1.28 mi./14.90 %
Rural Local Roads	4.97 mi./100%	9.68 mi./89.80%	4.63 mi./99.14%	0.26 mi./28.89%	7.31 mi./85.10%
Urban Minor Arterial	0	0	0	0	0
Urban Collector	0	0	0	0	0
Urban Local Roads	0	0	0	0	0
Total	4.97	10.78	4.67	0.9	8.59

Incorporated Area	Somerville	Fort Branch	Owensville	Oakland City	Princeton
Functional Class					
Rural Minor Arterial	0	0	0	0	0
Rural Major Collector	0	1.07 mi./6.36%	0	0	0
Rural Minor Collector	0.51 mi./12.41%	0	0.12 mi./1.60%	0.18 mi./1.04%	0
Rural Local Roads	3.60 mi./87.59%	15.76 mi./93.64%	7.37 mi./98.40%	17.09 mi./98.96%	0
Urban Other Principal Arterial	0	0	0	0	1.51 mi./2.96%
Urban Minor Arterial	0	0	0	0	6.12 mi./12.00%
Urban Collector	0	0	0	0	3.74 mi./7.33%
Urban Local Roads	0	0	0	0	39.63 mi./77.71%
Total	4.11	16.83	7.49	17.27	51

Rural Principal Arterials

(also termed “Other Principal Arterials” under the federal functional classification system)

- Primary Purpose: Connect Gibson County with larger urban areas and major cities
- Character of Service:
  - Accommodate the longest trips on the network, typically greater than 8 miles
  - Emphasis is focused on mobility rather than access.
  - Travel speeds of 55 mph or more.
  - Freeway/Expressway Design.
- System Role: 0 miles maintained

Rural Minor Arterials

- Primary Purpose: Link urban areas and rural principal arterials to larger towns and regional business concentrations. Facilitate inter-county travel and connectivity.
- Character of Service:
  - Accommodating trips greater than 5 miles.
  - Emphasis is more on mobility than access.
  - Travel speeds of 55 mph.
  - 2-lane and multi-lane rural highways.
- System Role: 0 miles maintained

Rural Major Collectors

- Primary Purpose: Provide secondary connectivity between cities and towns, county seat, regional parks, business concentrations, and regional educational facilities.
- Character of Service:
  - Accommodating trips less than 5 miles.
  - Emphasis is balanced between mobility and access.
  - Travel speeds of 30-55 mph.
  - 2-lane streets, parkways, multi-lane urban roadways.
- System Role: 3.32% (32.20 mi.)

Rural Minor Collectors

- Primary Purpose: Facilitate the collection of traffic and convey it to Major Collectors and Minor Arterials. Provide connectivity between rural residential areas.
- Character of Service:
  - Accommodates trips less than 5 miles.
  - Emphasis is on access rather than mobility.
  - Travel speeds of 30-55 mph.
  - 2-lane rural roadways, local streets.
- System Role: 19.86% (192.87 mi.)

Rural Local Roadways

- Primary Purpose: Land Access.
- Character of Service:
  - Accommodates trips less than 2 miles.
  - Emphasis is on access.
  - Travel speeds of 30 mph or less.
  - 2-lane local roadways.
- System Role: 75.91% (737.35 mi.)

Urban Principal Arterials

(also termed “Other Principal Arterials” under the federal functional classification system)

- Primary Purpose: Connect Gibson County with larger urban areas
- Character of Service:
  - Accommodate the longest trips on the network, typically greater than 8 miles.
  - Emphasis is focused on mobility rather than access.
  - Travel speeds of 55 mph or greater.
  - Freeway/Expressway Design.
- System Role: 0 miles maintained

Urban Minor Arterials

- Primary Purpose: Link larger urban areas, principal arterials, and regional business concentrations
- Character of Service:
  - Accommodating trips greater than 2 miles.
  - Emphasis is more on mobility than access.
  - Travel speeds of 30-55 mph.
  - Urban highways.
- System Role: 0.17% (1.68 mi.)

Urban Collectors

- Primary Purpose: Establish local connectivity within cities by interconnecting neighborhoods, business concentrations, and arterial roadways. Provide secondary connectivity between smaller towns.
- Character of Service:
  - Accommodating trips less than 5 miles.
  - Emphasis is balanced between mobility and access.
  - Travel speeds of 30-45 mph.
  - 2-lane streets, parkways, multi-lane urban roadways.
- System Role: 0.16% (1.54 mi.)

Figure 2.1: Gibson County Current Functional Classification

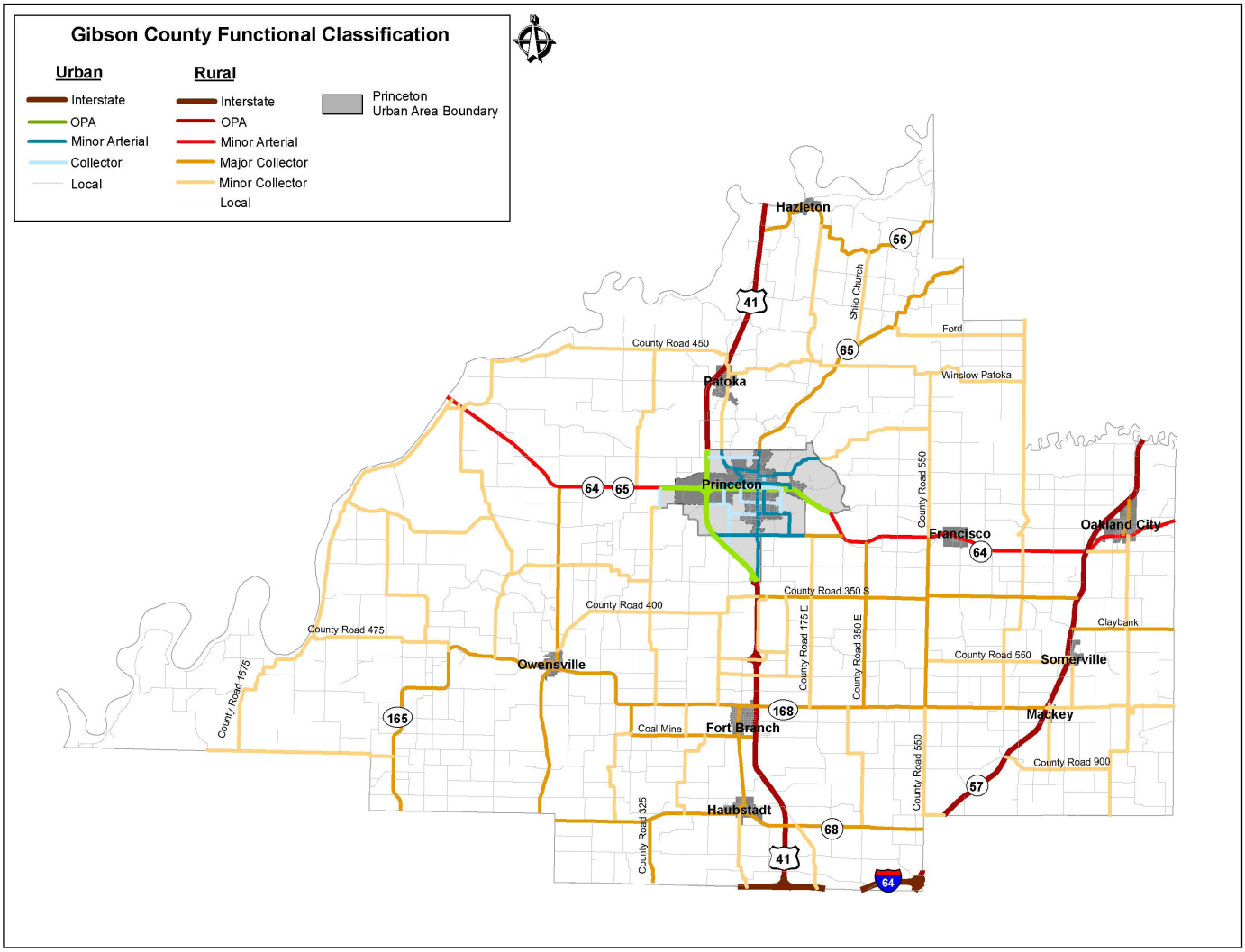
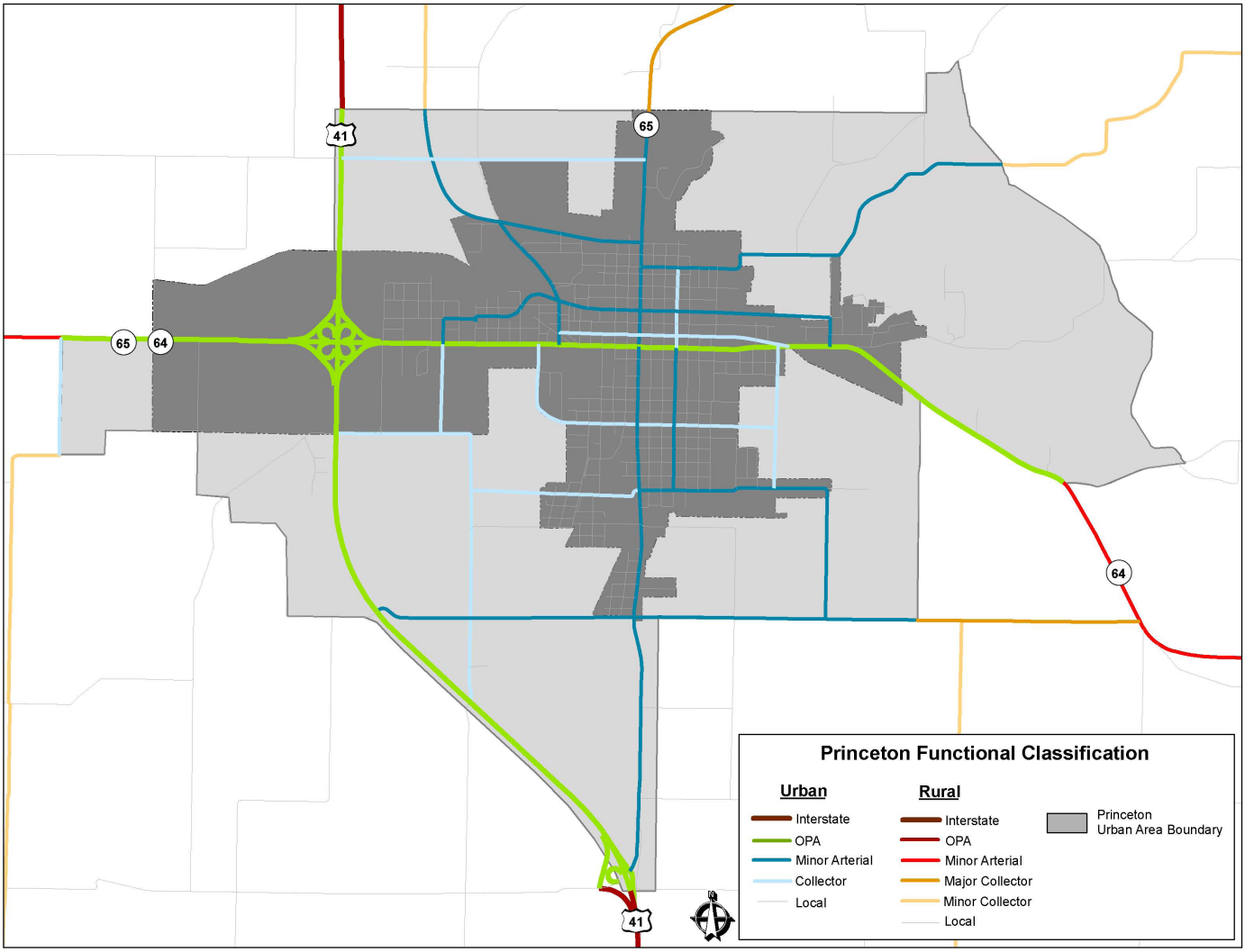


Figure 2.2: Princeton Area Current Functional Classification



Urban Local Streets

- Primary Purpose: Facilitate the collection of local traffic and convey it to Collectors and Minor Arterials.
- Character of Service:
  - Accommodating trips less than 2 miles.
  - Emphasis is on access rather than mobility.
  - Travel speeds of 30 mph or less.
  - 2-lane local streets.
- System Role: 0.58% (5.67 mi.)

B. ROADWAY CAPACITY AND LEVEL OF SERVICE

Capacities of roadways vary greatly and are directly related to many roadway characteristics including access spacing, traffic control, adjacent land uses as well as traffic flow characteristics such as percentage of trucks and number of turning vehicles. Roadway capacity per lane for divided arterials is 700 to 1000 motor vehicles per hour and 600 to 900 vehicles per hour for undivided arterials. These values tend to be 10% of the daily physical roadway capacity. Based on these figures, a two-lane arterial roadway may achieve a daily capacity of up to 12,000 to 18,000 motor vehicles per day, a four-lane arterial roadway may achieve a daily capacity of up to 28,000 to 40,000 vehicles per day, and a four-lane freeway may achieve a daily capacity of up to 70,000 motor vehicles per day. Table 2.3 shows roadway design capacities.

Some roadways have physical capacities that are much greater than the acceptable level of traffic on a particular street. The acceptable level of traffic volumes on collectors and local streets varies based on housing densities and setbacks, locations of parks and schools, and overall resident perceptions. Typically, acceptable traffic levels on local streets in residential areas are approximately 1000 to 1500 motor vehicles per day.

Table 2.3: Roadway Design Capacity

Designation	Daily Capacity (vpd)
Gravel	500
Rural 2-lane 55 mph	12,000
Rural 2-lane Limited	7,500
Urban 2-lane Arterial	9,000
Urban 3-lane Arterial	17,500
Urban 2-lane Local	7,500
Urban 4-lane, Undivided	20,000
Urban 4-lane, Divided	40,000
4-lane Freeway	70,000

Source: Based on Highway Capacity Manual

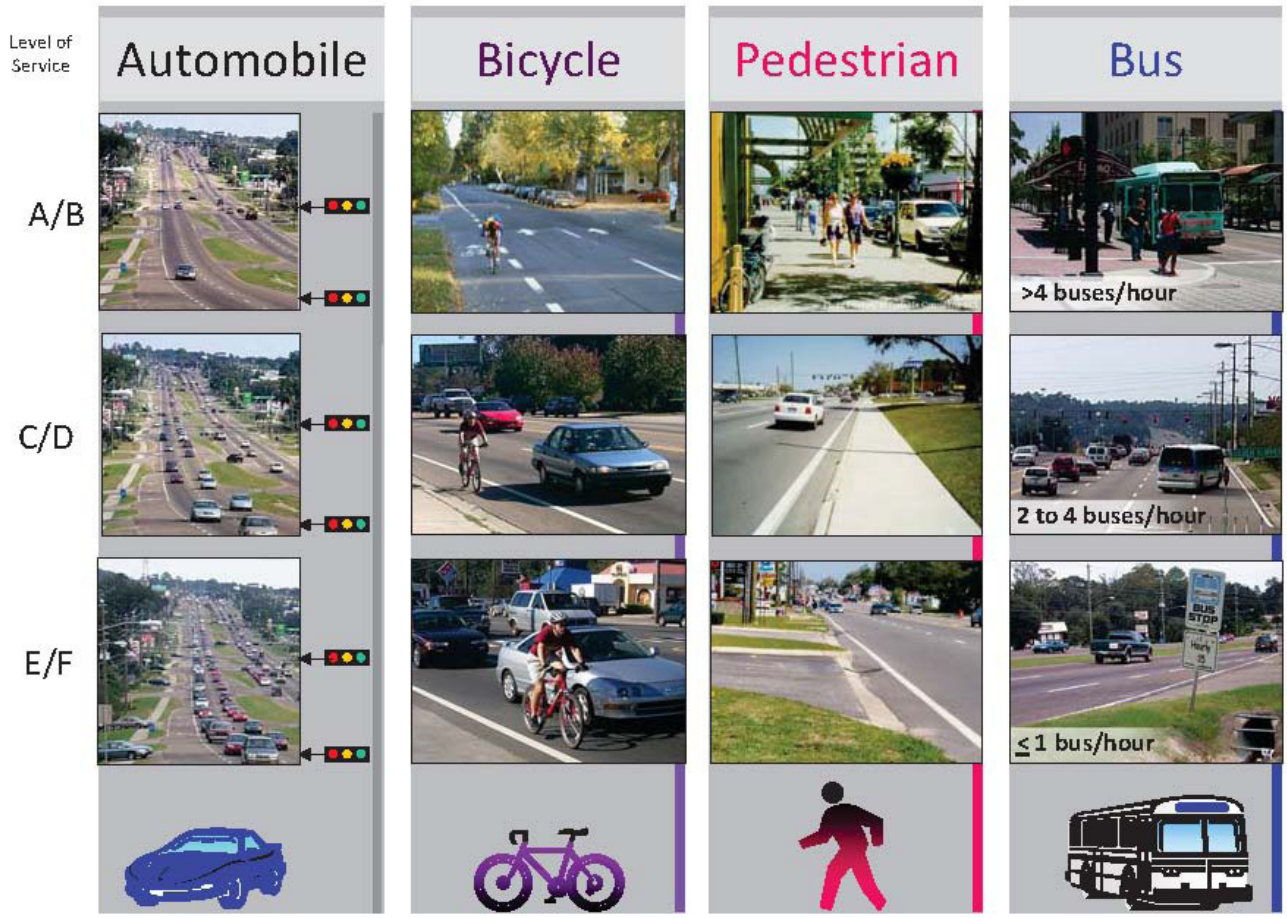
A capacity deficiency exists when traffic volumes exceed the capacity of the roadway. Roadway Level of Service (LOS) is used to assign a value to the level of traffic congestion and efficiency of the roadway. The LOS is determined by the ratio of the actual traffic volume to the established roadway capacity. In general, the higher the traffic volume, the lower the LOS. There are six LOS categories, A through F, with A being the best (free flow) and F being the worst (gridlock).

In addition to car and truck transport, LOS concepts have been applied to walking, biking, and transit modes as well. Generalized LOS levels for each mode, from the user perspective, are illustrated in figure 2.3 (page 12). Capacity improvements should be prioritized based on an existing or anticipated LOS D or worse.

C. ACCESS MANAGEMENT

Access management is a process that provides or manages access to land while simultaneously preserving the flow of traffic on the surrounding road system. The harmonization of access and mobility is the key to effective access management. Mobility is the ability of people to move via a transportation system component, from one place to another. The degree of mobility depends on a number of

Figure 2.3: Example of LOS by Mode for Urban Roadways



Source: 2009 FDOT Quality/Level of Service Handbook

factors, including the ability of the roadway system to perform its functional role, the capacity of the roadway, and the operational level of service on the roadway system.

Access is the relationship between adjacent land use and the transportation system. There is an inverse relationship between the amount of access provided and the ability to move through-traffic on a roadway such that as higher levels of access are provided, the ability to move traffic is reduced. Figure 2.4 illustrates the access/mobility relationship.

The goal of access management is to achieve a safe and efficient flow of traffic along a roadway while preserving reasonable access to abutting properties. Achieving this goal requires a careful balancing act in the application of access design standards and regulations. Each access location (i.e. driveways, intersections) creates a potential point of conflict between through vehicles entering and exiting the roadway; either through the slowing effects of merging and weaving that takes place as vehicles accelerate from a stop turning onto the roadway, or decelerate to make a turn to leave the roadway.

Figure 2.4: Relationship between Access and Mobility

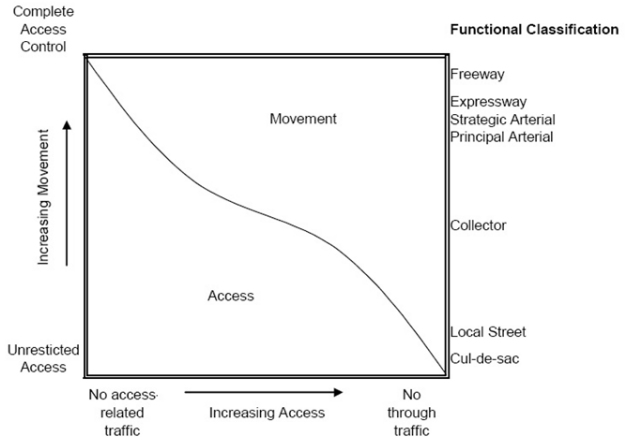
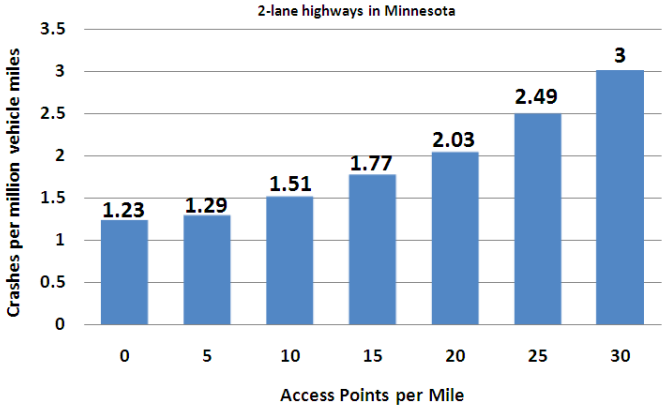


Figure 2.5: Relationship of Crash Rate to Access Density



At signalized intersections, the potential for conflicts between vehicles is increased, as through-vehicles are required to stop at the signals. If the amount of through traffic on the roadway is high and/or the speed of traffic on the roadway is high, the number and nature of vehicle conflicts are also increased.

Accordingly, the safe speed of a road, the ability to move traffic on that road, and safe access to cross street and adjacent to the road all diminish as the number of access points increase along a specific segment of road.

Because of these effects, there must be a balance between the level of access provided and the desired function of the roadway. Various studies have demonstrated a direct relationship between the number of full access points and crash rates, including FHWA's Access Research Report No. FHWA-RD-91-044. Figure 2.5 illustrates the relationship of access points to crashes (per million vehicle miles) on two-lane highways. The safety benefits of access management are clear in consideration of this relationship.
Figure 2.5

Benefits of Access Management

Increasing traffic congestion, traffic safety issues, and the high costs of road improvements are three major reasons for access management. Good access management benefits motorists, pedestrians and cyclists, transit patrons, developers, business owners, freight shippers, government, communities, and can:

1) Reduce crashes and crash potential,
2) Preserve roadway capacity and the useful life of roads,
3) Decrease travel time and congestion,
4) Improve access to properties,
5) Coordinate land use and transportation decisions,
6) Improve air quality, and
7) Maintain travel efficiency and related economic prosperity.

The need for better access management is most obvious in strip commercial areas where driveways are often found in close proximity to one another. Unfortunately, once an access problem becomes obvious, it may be too late to correct. By managing access to the roadway system during project planning stages, safe access can be provided while preserving traffic flow and future roadway capacity. The key to effective access management is linking appropriate access design features to roadway function. Successful access management practices protect and enhance property values while

preserving the public investment in our roads.

The principal design techniques used in access management focus on the control and regulation of the spacing and design of driveways and streets, medians and median openings, traffic signals, and freeway interchanges.

The Basic Principles of Access Management
Six basic principles are used to achieve the benefits of access management:

1) Limit the number of conflict points.
2) Separate conflict points.
3) Separate turning volumes from through movements.
4) Locate traffic signals to facilitate traffic movement.
5) Maintain a hierarchy of roadways by function.
6) Limit direct access on higher function roads.

Access Management Resources

The Indiana Department of Transportation (INDOT) Access Management Guide is a good resource for these and all access management considerations, including specific design criteria and access management techniques. This document is available online, and can be found at: http://www.in.gov/indot/files/guide_total.pdf

Good access management is frequently achieved when state and local units of government cooperate in land use and transportation management decisions. Local Public Agencies (LPAs) may wish to develop their own access management policies, or adopt the policies of relevant state or regional transportation agencies. The Evansville MPO has developed the Access Management Manual for the consideration of LPAs in the EMPO planning area. The EMPO Access Management Manual is also available online, at www.evansvillempo.com.

INDOT also operates the Driveway Permit Program, which requires property owners to apply for and obtain a permit from INDOT prior to beginning any construction of an access driveway onto a State highway. A permit is also required for any proposed relocation or alteration of an existing access driveway or cross-over and is governed by the same regulations and standards. Details can be found in the INDOT Driveway Permit Manual.

The appropriate INDOT application form is used for all such requests and can be obtained from the appropriate INDOT district office, or online via the INDOT website (http://www.in.gov/dot/div/permits/forms/1945.pdf).

D. RIGHT-OF-WAY AND GEOMETRIC DESIGN STANDARDS

All new roads in unincorporated Gibson County should conform to the recommended standards in the Gibson County Comprehensive Plan accepted by the County Board of Commissioners in 2009. Chapter Six of the Comprehensive Plan contains a thoroughfare plan and recommended typical cross section by facility type, which are reproduced in Figures 2.6 (pages 16-17). The City of Princeton and the Town of Haubstadt comprehensive plans contain guidance for future development and transportation needs, though no design standards for facilities. INDOT-maintained roadways may require more or less right-of-way based on their adopted policies, procedures, and practices. Right-of-way constraints for new alignments versus widening may vary widely.

Geometric design standards for roads (i.e. right-of-way, lane configurations and widths, medians, curb and gutter) are directly related to the amount of traffic that the roadway is designed to carry, design speed, anticipated vehicular maneuvers, the modes of traffic the road is being designed to accommodate. The appropriate cross-section for initial design of

thoroughfare improvements should also consider the continuity of urban design, particularly as it relates to the need for bicycle and pedestrian facilities and the appropriateness of an urban (curb and gutter) versus rural (swales) design. The accommodation of utilities is also a key consideration.

Figure 2.7 (page 18) shows the INDOT design standard typical cross sections for rural interstates, arterials, and collectors.

Intersection Design Standards

In addition to the typical cross sections illustrated in the following figures, additional design requirements are necessary to achieve and maintain safe and efficient operations at roadway intersections. Roadway intersections result in critical locations for roadway performance. The overall safety and efficiency of a roadway network can often be determined by the quality of intersection design and operation. Design details for intersections on County-maintained roadways shall be consistent with Chapter 46 of the INDOT Design Manual.

Driveway Design Standards

Similar to roadway intersections, driveways create conflict points along county roadways. Improperly designed driveways may result in operational and safety deficiencies for both the roadway and driveway users. Driveways on State roadways shall be consistent with the standards put forth in the INDOT Driveway Permit Manual.

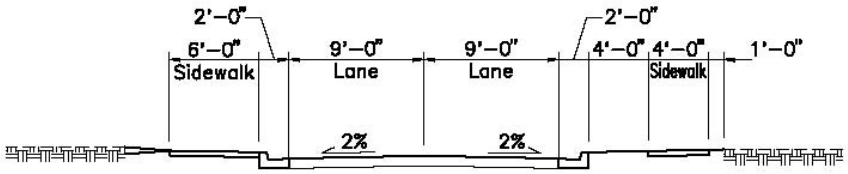
Additional Right-of-Way for Sidewalks and Bikeways

Sidewalks and bikeways are encouraged along Collector and Minor Arterial roadways in Urban/ Urbanizing areas. These roadways are expected to carry a significant amount of vehicular traffic and the addition of walking and biking space can be highly beneficial in maintaining the livability of areas that they serve. Sidewalks and multi-use paths accommodate pedestrian, bicycle, and other non-motorized travel in a safe and comfortable manner through separation of travel modes. Sidewalks along Collector and Minor Arterial roadways shall meet the Americans with Disability Act (ADA) requirements. Separated paths are also encouraged along rural Major Collector and Minor Arterial roadways to link communities and rural recreational areas.

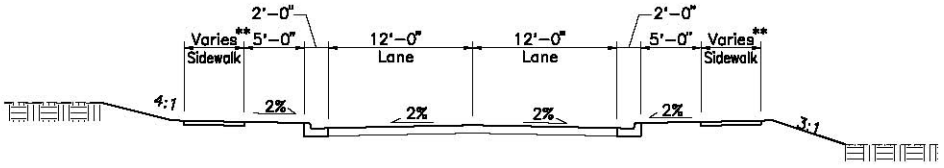
Concrete sidewalks should be 4'–8' wide (depending on context) and may require an additional 10-15 feet of right-of-way width. Bituminous walks/paths should be 8'–12' wide and may require an additional 15-20 feet of right-of-way. The American Association of State Highway and Transportation Officials (AASHTO) has produced guides for the development of pedestrian and bicycle facilities (two separate guides), and these are considered by INDOT to be standard guidance for the planning, design, and operation of pedestrian and bicycle facilities in Indiana.

Figure 2.6: Gibson County Urban Roadway Design Standards*

**All Roadway Design Standards Source: Gibson County Comprehensive Plan, image courtesy of BLA, Inc.*



TYPICAL CROSS SECTION
URBAN PLACE
(40' MINIMUM RIGHT–OF–WAY WIDTH)

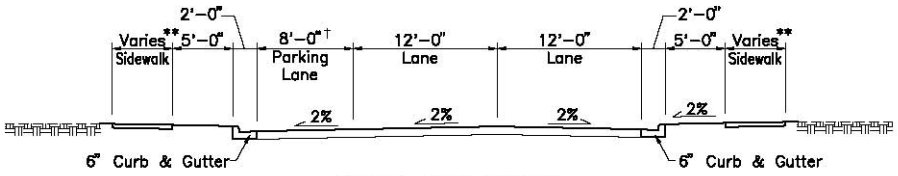


CUT

TYPICAL CROSS SECTION
URBAN LOCAL STREET
(50' MINIMUM RIGHT–OF–WAY WIDTH)

FILL

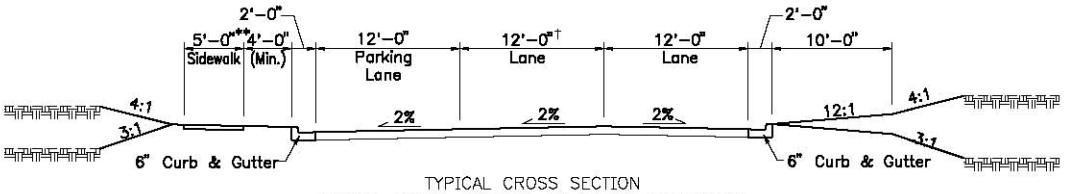
**4'–0" in Residential Area
5'–0" in Commercial Area
6'–0" When Sidewalk adjacent to curb



TYPICAL CROSS SECTION
URBAN MINOR COLLECTOR
(60' MINIMUM RIGHT–OF–WAY WIDTH)

†12'–0" in Commercial and Industrial Areas

**4'–0" in Residential Area
5'–0" in Commercial Area
6'–0" When Sidewalk adjacent to curb

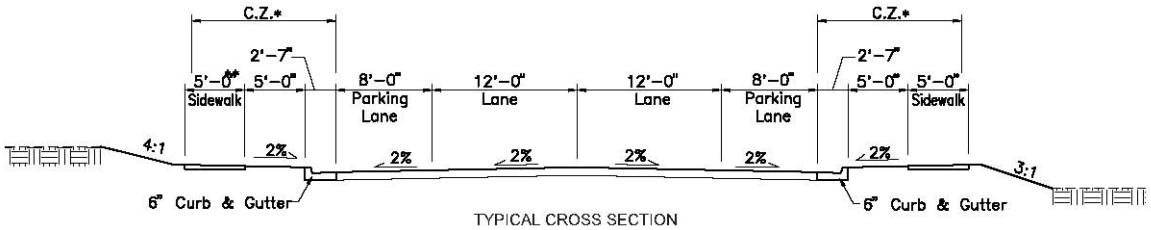


TYPICAL CROSS SECTION
URBAN, MINOR ARTERIAL OR MAJOR COLLECTOR
ONE PARKING LANE OR CENTER LEFT–TURN LANE
(60' MINIMUM RIGHT–OF–WAY WIDTH)

†Width Varies, 12'–0" (Min) to 14'–0"

**6'–0" When Sidewalk adjacent to curb

Figure 2.6: Gibson County Urban Roadway Design Standards (Cont.)

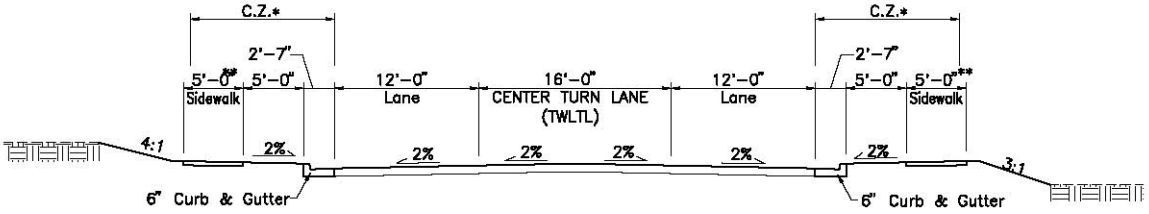


TYPICAL CROSS SECTION
URBAN, MINOR ARTERIAL OR MAJOR COLLECTOR
TWO PARKING LANES
(70' MINIMUM RIGHT-OF-WAY WIDTH)

CUT FILL

†Width Varies, 10'–0" (Min) to 12'–6"

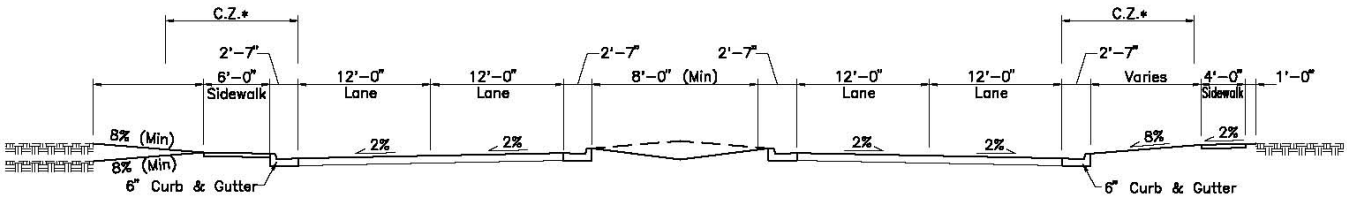
**6'–0" When Sidewalk adjacent to curb



TYPICAL CROSS SECTION
UNDIVIDED, URBAN PRINCIPAL ARTERIAL (PRIMARY STREET OR MAJOR ARTERIAL)
TWO THROUGH LANES
(65' MINIMUM RIGHT-OF-WAY WIDTH)

CUT FILL

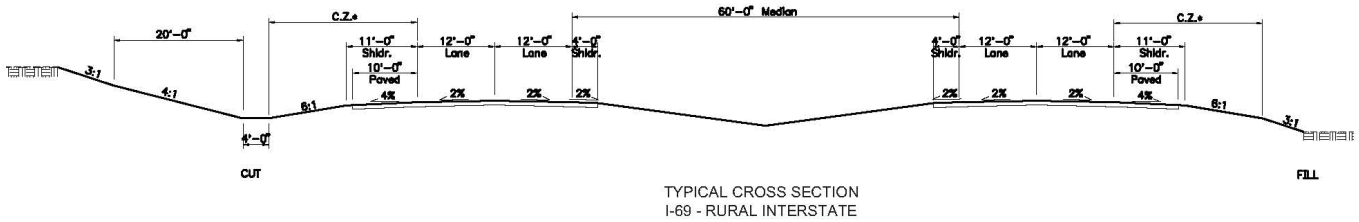
**6'–0" When Sidewalk adjacent to curb



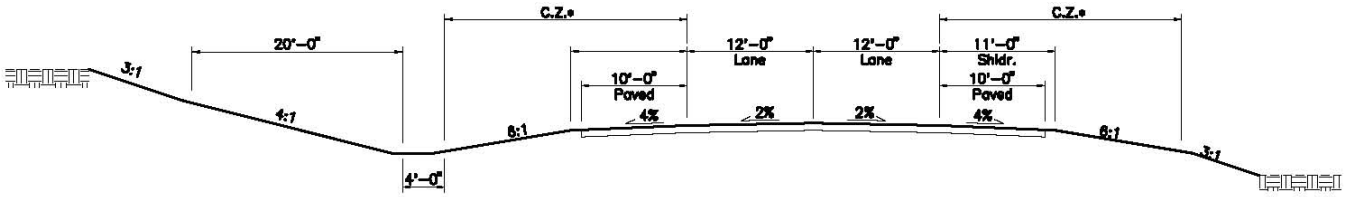
TYPICAL CROSS SECTION
DIVIDED, URBAN PRINCIPAL ARTERIAL (PRIMARY STREET OR MAJOR ARTERIAL)
FOUR THROUGH LANES
(100' MINIMUM RIGHT-OF-WAY WIDTH)

FILL

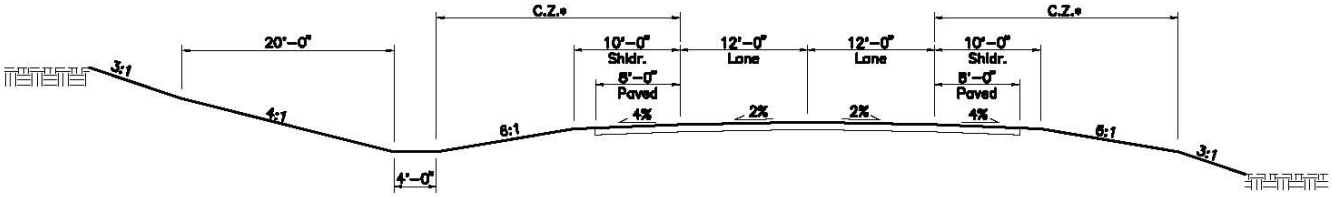
Figure 2.7: Gibson County Rural Roadway Design Standards



TYPICAL CROSS SECTION
I-69 - RURAL INTERSTATE



TYPICAL CROSS SECTION
RURAL MINOR ARTERIAL



TYPICAL CROSS SECTION
RURAL MAJOR COLLECTOR

chapter 3

EXISTING SYSTEM EVALUATION

An evaluation of the existing transportation system in Gibson County was completed and included evaluating roadways for congestion, crash records for accident trends, roadway continuity deficiencies, and existing multimodal transportation uses.

A. VOLUME AND LEVEL OF SERVICE ANALYSIS

Average Annual Daily Traffic (AADT) volume data for state trunk highways, county state aid highways, and county roads was collected by the Evansville MPO as part of INDOT's Rural Transportation Planning Program. Traffic volume data on these roadways are collected using traffic counting devices placed in each travel lane, and level of service (LOS) analysis is conducted, once every three years. The latest AADT available for individual segments are illustrated in Figure 3.1 (page 21).

A level of service analysis for the roadways in Gibson County was conducted using the 2009 Quality/Level of Service Handbook published by the Florida Department of Transportation (FDOT). The handbook provides three different analysis tables: 1) for roadways in urbanized areas; 2) roadways in rural areas transitioning into urbanized areas; and 3) roads in rural undeveloped areas. These tables provide level of service for roadways based on the AADT volumes and roadway classifications. The FDOT Handbook categorizes the roadway

segments by different classes based on the physical characteristics of the location and the number of signalized intersections per mile. The level of service analysis tables from the handbook can be found in Appendix B.

After carefully reviewing the physical characteristics of all the traffic volume locations each street was categorized in to an FDOT class. Wherever an FDOT class was not applicable the location was considered to be on a Class I street. Latest AADT volumes at each location were compared to the assigned volumes in the tables to arrive at the LOS for each street. Existing AADT volumes and level of service at each location is shown in Table 3.1 (pages 22-25) and in Figure 3.1 (page 25). Roadway segments operating at level of service D are considered nearing congestion and segments operating at level of service E and F are considered congested (as illustrated in Figure 2.3 on page 12).

Table 3.1 shows that all the street locations analyzed are currently operating at desirable levels or in some cases acceptable levels below the desired state. It should be noted that the procedure followed to evaluate the LOS is a planning level analysis only. Although Table 3.1 does not show any street networks nearing congestion, congestion probably occurs on some streets around the County during morning and evening peak hours. These occurrences require more detailed peak hour analysis to determine if signal timing adjustments or capacity improvements are required.

Figure 3.1: Annualized Average Daily Traffic Volumes for Gibson County and Princeton

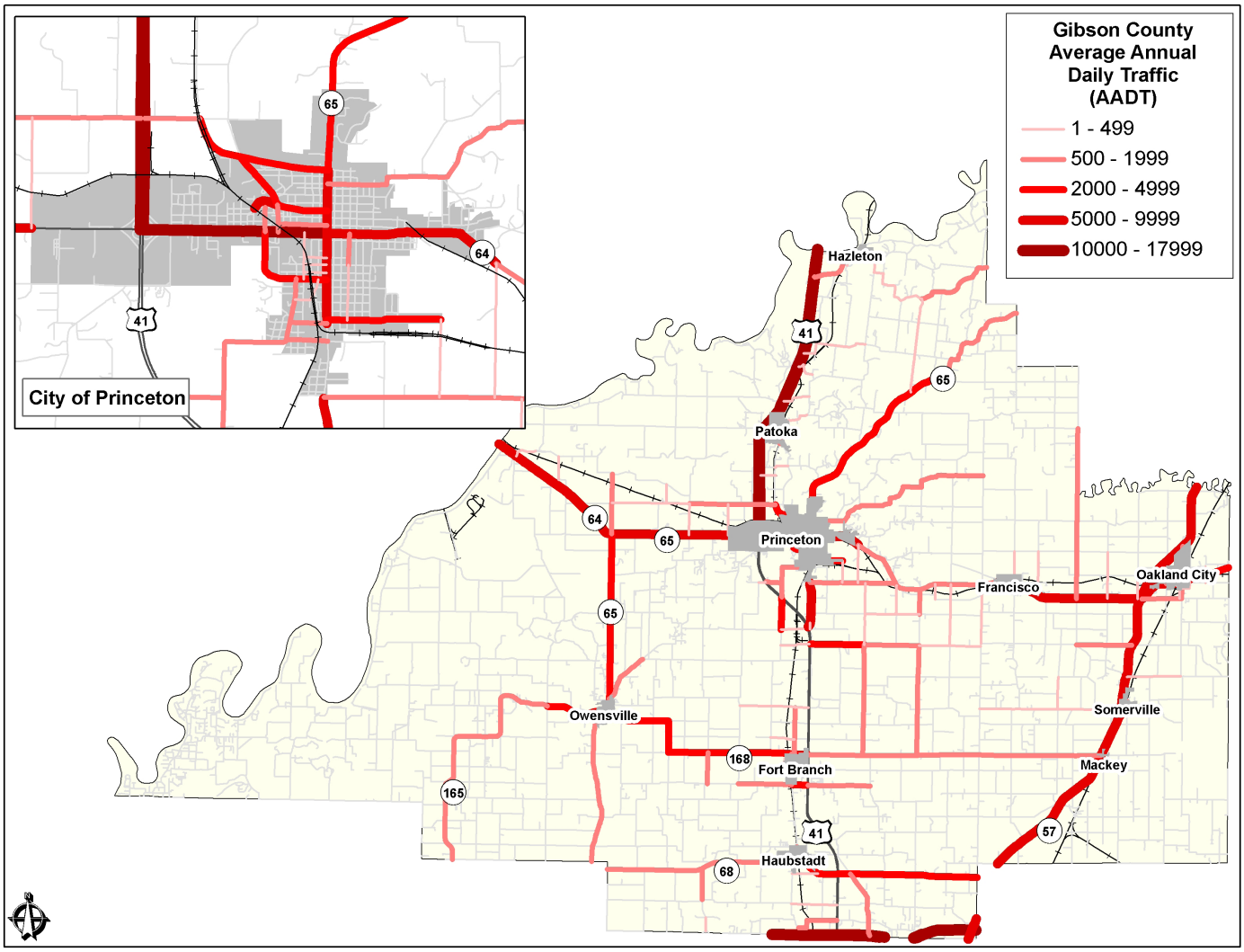


Table 3.1: Existing Traffic Volumes and Level of Service

#	Street	Location	Locale	Functional Class	FDOT Class	AADT	AADT Year	Current LOS
1	Broadway	At Washington St	Oakland City	R_Local Road	Interrupted flow Arterials	163	2010	**B**
2	Clark St	West of S West st @ RR	Princeton	U_Local Road	Non-State Roadways	98	2010	A
3	Coal Mine Rd	West of S Railroad St	Fort Branch	R_Major Collector	Interrupted flow Arterials	1804	2011	B
4	Columbia St	West of Main St	Oakland City	R_Local Road	Interrupted flow Arterials	450	2011	B
5	CR 100 N	East of Railroad		R_Local Road	Interrupted flow Arterials	448	2010	A
6	CR 100 N	West of US 41		R_Local Road	Interrupted flow Arterials	692	2010	A
7	CR 1100 S	CR 50 W - SR 68		R_Local Road	Interrupted flow Arterials	359	2010	**B**
8	CR 1150 E	CR 200 S - CR 250 S		R_Local Road	Interrupted flow Arterials	118	2010	**B**
9	CR 1200 S	CR 50 W - US 41		R_Local Road	Interrupted flow Arterials	316	2010	**B**
10	CR 1225 E	North of Railroad	Oakland City	R_Local Road	Interrupted flow Arterials	286	2011	B
11	CR 1250 S	CR 1275 S - US 41		R_Local Road	Non-State Signalized Roadways	805	2010	**B**
12	CR 1275 E	North of SR 64		R_Local Road	Interrupted flow Arterials	232	2011	B
13	CR 1275 E	South of SR 64		R_Local Road	Interrupted flow Arterials	171	2011	B
14	CR 150 E	CR 150 S - SR 64		U_Local Road	Non-State Roadways	79	2010	**B**
15	CR 150 S	East of S Main St	Princeton	U_Minor Arterial	Interrupted flow Arterials	781	2010	A
16	CR 150 S	East of US 41	Princeton	U_Minor Arterial	Interrupted flow Arterials	1,048	2010	A
17	CR 150 S	S Main St - SR 64		R_Major Collector	Interrupted flow Arterials	640	2010	**B**
18	CR 175 E	CR 350 S - CR 150 S		R_Minor Collector	Interrupted flow Arterials	482	2010	**B**

Table 3.1: Existing Traffic Volumes and Level of Service (Cont.)

19	CR 200 S	CR 1150 E - CR 1200 E	Oakland City	R_Minor Collector	Interrupted flow Arterials		2010	
20	CR 225 N	West of S Main St		R_Local Road	Interrupted flow Arterials	283	2010	A
21	CR 275 E	CR 350 S - SR 64		R_Local Road	Interrupted flow Arterials	32	2010	**B**
22	CR 300 S	CR 100 W - US 41		R_Local Road	Interrupted flow Arterials	276	2010	**B**
23	CR 350 E	CR 350 S - SR 64		R_Major Collector	Interrupted flow Arterials	1,425	2010	**B**
24	CR 350 S	SR 57 - CR 1200 E		R_Local Road	Interrupted flow Arterials	509	2010	**B**
25	CR 350 S	CR 100 W - US 41	Haubstadt	R_Minor Collector	Interrupted flow Arterials	310	2010	B
26	CR 400 E	CR 200 S - SR 64		R_Local Road	Interrupted flow Arterials	16	2010	**B**
27	CR 450 E	CR 350 S - SR 64		R_Local Road	Interrupted flow Arterials	23	2010	**B**
28	CR 450 N	West of Railroad		R_Local Road	Interrupted flow Arterials	26	2010	A
29	CR 50 W	North of CR 600 S		R_Local Road	Interrupted flow Arterials	1,005	2010	A
30	CR 550 E	CR 350 S - SR 65	Francisco	R_Major Collector	Interrupted flow Arterials	471	2010	**B**
31	CR 550 N	North of railroad		R_Local Road	Interrupted flow Arterials	48	2010	A
32	CR 800S	East of US 41		R_Local Road	Interrupted flow Arterials	1,118	2010	A
33	CR 800S	West of US 41		R_Major Collector	Interrupted flow Arterials	2,011	2010	B
34	Cross St	West of Railroad	Patoka	R_Minor Collector	Interrupted flow Arterials	216	2010	A
35	Elm	S Main St - Morton	Oakland City	R_Local Road	Interrupted flow Arterials	100	2010	B
36	Embree St	North of Glass St @ RR	Princeton	U_Minor Arterial	Interrupted flow Arterials	1,079	2010	A
37	Garfield	East of Railroad	Princeton	U_Local Road	Non-State Roadways	1082	2010	A

Table 3.1: Existing Traffic Volumes and Level of Service (Cont.)

38	Gibson	S Race St - 1 St	Haubstadt	R_Major Collector	Interrupted flow Arterials	1,112	2010	B
39	Grave	US 41 - Main St	Patoka	R_Local Road	Non-State Signalized Roadways	543	2010	A
40	Grove St	North of Oak St	Oakland City	R_Local Road	Interrupted flow Arterials	31	2011	B
41	Hall St	North of Railroad	Princeton	U_Local Road	Non-State Roadways	463	2010	A
42	Harrison	S Main St - S Jackson	Oakland City	R_Local Road	Interrupted flow Arterials	544	2010	B
43	Hart	North of Railroad	Princeton	U_Local Road	Non-State Roadways	251	2010	A
44	Haub	S Race St - 1 St	Haubstadt	R_Local Road	Interrupted flow Arterials	302	2010	B
45	John St	East of Railroad	Fort Branch	R_Local Road	Interrupted flow Arterials	185	2010	A
46	Locust St.	East of Railroad	Fort Branch	R_Local Road	Interrupted flow Arterials	1,538	2010	A
47	Logan (SR 56)	Main St - Tripple Rd	Hazelton	R_Major Collector	Interrupted flow Arterials	698	2010	B
48	Madison St	South of W Columbia St	Oakland City	R_Local Road	Interrupted flow Arterials	286	2011	B
49	Main	Mulberry - E Mill St	Oakland City	R_Major Collector	Interrupted flow Arterials	1,819	2010	B
50	Main	River RD - US 41	Patoka	R_Minor Collector	Interrupted flow Arterials	1043	2010	B
51	Main	E 3rd St - E 1st St	Hazelton	R_Local Road	Interrupted flow Arterials	146	2010	B
52	Makemson	Virgl BLVD - S Main St	Princeton	U_Collector	Non-State Roadways	534	2010	A
53	Maple	N Race St - CR 25 W	Haubstadt	R_Local Road	Interrupted flow Arterials	1,059	2010	B
54	Mill	Cunningham - W 2nd St	Hazelton	R_Major Collector	Interrupted flow Arterials	75	2010	B
55	Monroe	East of Railroad	Princeton	U_Local Road	Non-State Roadways	166	2010	A
56	Mulberry	S 4th St - S Main St	Princeton	U_Collector	Non-State Roadways	2,623	2010	A
57	Mulberry St	North of Oak St	Oakland City	R_Local Road	Interrupted flow Arterials	21	2011	B

Table 3.1: Existing Traffic Volumes and Level of Service (Cont.)

58	Oak St	East of S Clay St	Oakland City	R_Local Road	Interrupted flow Arterials	226	2011	B
59	Pinkney	East of Railroad	Princeton	U_Local Road	Non-State Roadways	162	2010	A
60	S. Dongola Rd	South of SR 64		R_Local Road	Interrupted flow Arterials	189	2011	B
61	SR 168	East of Railroad	Fort Branch	R_Major Collector	Interrupted flow Arterials	3,032	2010	C
62	SR 64	S Main St - S Madison	Oakland City	R_Minor Arterial	Interrupted flow Arterials	6,062	2010	B
63	SR 64	N Spring St - Hart St	Princeton	U_ Other Principal Arterial	State Two-Way Arterial	10,970	2010	B
64	SR 65	Hawthorne - Old Petersburg Rd	Princeton	U_Minor Arterial	State Two-Way Arterial	2,914	2010	B
65	SR 68	S Race St - 1 St	Haubstadt	R_Major Collector	Interrupted flow Arterials	3,357	2010	B
66	Steelman Chapel	East of Railroad		R_Local Road	Interrupted flow Arterials	258	2010	A
67	Strain St	East of Railroad	Fort Branch	R_Local Road	Interrupted flow Arterials	1,119	2010	A
68	Trusler	S Franklin St - Walnut St	Oakland City	R_Local Road	Interrupted flow Arterials	182	2010	B
69	Vine St	West of Railroad	Patoka	R_Local Road	Interrupted flow Arterials	80	2010	A
70	Vine St	East of Railroad	Fort Branch	R_Local Road	Interrupted flow Arterials	746	2010	A
71	Washington	Main St - N East St	Oakland City	R_Local Road	Interrupted flow Arterials	412	2010	B

B. SAFETY AND CRASH ANALYSIS

Public safety is a high priority for agencies responsible for the planning, design, construction, operation, and maintaining of public transportation facilities. To identify potential safety deficiencies on the county highway system, a crash analysis was performed using 2008-2010 crash data obtained from the Indiana Automated Reporting Information Exchange System (ARIES). A summary of the total of reported crashes occurring on all public roads in the county was created to compare to state-wide averages and identify trends or abnormalities in Gibson County.

- During the 2008-2010 period, there were 2,955 crashes reported to ARIES
- 755 crashes (25.54 %) involved injuries and/or fatalities
- 735 people were injured in crashes; 20 people were killed in crashes
- 46 percent of crashes were on locally-maintained roads (20.92% county; 18.1% local/city and 7.1% unknown)
- 54 percent of crashes occurred on State-maintained roads
- 16.75 percent of crashes occurred on Federally-maintained roads
- 1861 crashes (63%) were in rural areas; 1,094 crashes (37%) were in urban areas
- 1974 crashes (66.8%) occurred in a road corridor away from an intersection/junction
- 981 crashes (33.1%) occurred at intersections or other junctions (including ramps)
- 1473 crashes (49.8%) involved only one vehicle; 1481 crashes (50.2 %) involved two or more vehicles

Figure 3.2 illustrates the percentage of crashes by crash type. The crash types indicate the nature of the incident and can be an indicator of potential deficiencies.

Figure 3.2: 2008-2010 Gibson County Crash Type Ratios

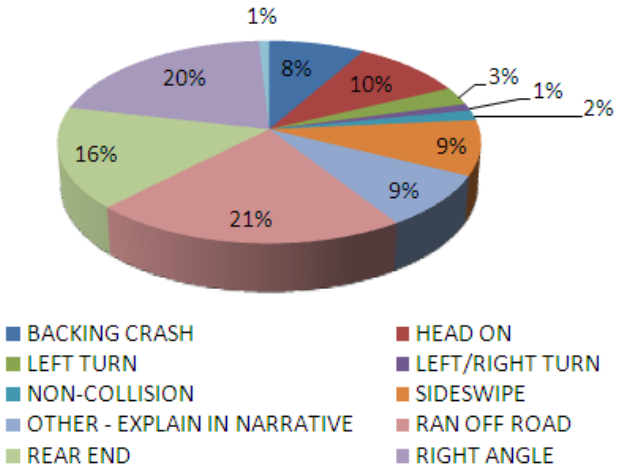


Figure 3.3 shows the number of crashes occurring in Gibson County by primary collision factor for the study period (2008-2010), for those collision categories with more than ten reported crashes. There were 31 distinct categories of "primary collision factor" for this period, but only 48 percent (1339) of the crashes occurred in the primary collision factors" categories shown in Figure 3.2.

The ratio of crashes occurring on locally-maintained roads in Gibson County – 38.9 percent – was substantially below the four year (2003-2006) statewide average of 59 percent (as reported in the 2009 Needs Assessment for Local Roads and Streets by the Indiana Local Technical Assistance Program (LTAP) at Purdue University. Also, the ratio of injury crashes (injuries and/or fatalities) on locally-maintained roads in Gibson County – 23.2 percent – was significantly below the statewide average of 63 percent for 2003-2006. However, the statewide average of fatalities occurring on local roads in Kentucky was reported by LTAP as 14 percent, so there is much variation in this outcome. The ratio of injury accidents on state-maintained roads (including Interstate Highways) in Gibson County – 28.5 percent – was well above the statewide average of 31 percent. It should be considered that data for

Gibson County contributed to the statewide averages tabulated by the Federal Highway Administration (FHWA; Indiana office) and reported by LTAP. Gibson County injury and fatality crash data (2007 through 2009) is presented below in Table 3.2.

As Table 3.2 shows, there were only four fatalities on locally maintained roads during the 2008-2010 study period. This may be an anomaly, as nearly half (46%) of fatal crashes in Indiana between 2003 and 2006 occurred on locally maintained roads (versus state and federally maintained roads). A longer study period would be needed to determine any trends. However, this data may point out that the Gibson County fatality crashes were at least partially due to higher speeds that prevail on state roads and US Routes.

Table 3.3 (page 28) displays the key factors for fatal crashes that occurred in Gibson County during the 2008-2010 timeframe. The locations of the fatality crashes are shown in Figure 3.4 (page 29). The locations of all injury and property damages are shown in Figure 3.5 (page 30).

Figure 3.3: 2008-2010 Gibson County Accidents by Primary Collision Factor (>10 crashes per category)

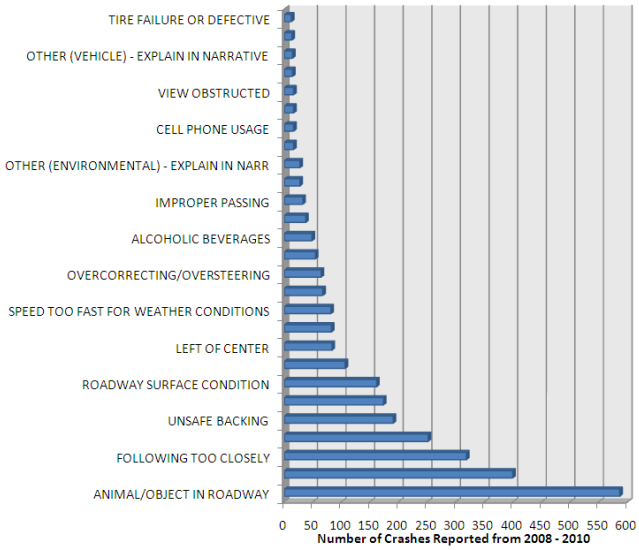


Table 3.2: 2008-2010 Gibson County Crash Injuries and Fatalities by Roadway Class

Gibson County Injury/Fatality Accidents by Roadway Class (2008-2010)					
Roadway Class	**Injury/Fatal Accidents**	**Total Crashes**	**Percent**	**Injuries**	**Deaths**
Local/CO Road	316	1362	23.20%	312	4
State Road/US Route	434	1525	28.50%	418	16
Interstate	5	68	7.40%	5	0
All Roads	755	2955	25.60%	735	20

Table 3.3: 2008-2010 Gibson County Fatality Crash Factors

Crash Year	Number Dead	Road Class	Locality	Primary Factor	Type of Collision	Type of Road Junction	Traffic Control	Light Condition	Road Character	Road Surface	Surface Condition
2008	1	US ROUTE	RURAL	RAN OFF ROAD RIGHT	SAME DIRECTION SIDESWIPE	NO JUNCTION INVOLVED	LANE CONTROL	DAYLIGHT	STRAIGHT/LEVEL	ASPHALT	DRY
2008	1	STATE ROAD	URBAN	IMPROPER PASSING	SAME DIRECTION SIDESWIPE	NO JUNCTION INVOLVED	NONE	DAYLIGHT	STRAIGHT/LEVEL	ASPHALT	DRY
2008	1	STATE ROAD	RURAL	RAN OFF ROAD RIGHT	HEAD ON	NO JUNCTION INVOLVED	NONE	DAYLIGHT	CURVE/GRADE	ASPHALT	DRY
2008	1	COUNTY ROAD	RURAL	ALCOHOLIC BEVERAGES	RAN OFF ROAD	NO JUNCTION INVOLVED	NONE	DARK (NOT LIGHTED)	STRAIGHT/HILLCREST	GRAVEL	WET
2008	1	US ROUTE	RURAL	OTHER (DRIVER) - EXPLAIN IN NARRATIVE	SAME DIRECTION SIDESWIPE	NO JUNCTION INVOLVED	NONE	DAYLIGHT	STRAIGHT/LEVEL	ASPHALT	DRY
2009	1	STATE ROAD	URBAN	RAN OFF ROAD RIGHT	RAN OFF ROAD	NO JUNCTION INVOLVED	NONE	DAYLIGHT	CURVE/LEVEL	ASPHALT	DRY
2009	1	STATE ROAD	RURAL	OTHER (ENVIRONMENTAL) - EXPLAIN IN NARR	OTHER - EXPLAIN IN NARRATIVE	NO JUNCTION INVOLVED	NONE	DAYLIGHT	STRAIGHT/LEVEL	ASPHALT	DRY
2009	1	STATE ROAD	RURAL	UNSAFE SPEED	REAR END	T-INTERSECTION	NONE	DAYLIGHT	STRAIGHT/LEVEL	ASPHALT	DRY
2009	1	COUNTY ROAD	RURAL	OTHER (DRIVER) - EXPLAIN IN NARRATIVE	OTHER - EXPLAIN IN NARRATIVE	NO JUNCTION INVOLVED	NONE	DAWN/DUSK	STRAIGHT/LEVEL	OTHER - EXPLAIN IN NARRATIVE	LOOSE MATERIAL ON ROAD
2009	1	STATE ROAD	RURAL	OVERCORRECTING/OVERSTEERING	RIGHT ANGLE	NO JUNCTION INVOLVED	NO PASSING ZONE	DARK (NOT LIGHTED)	STRAIGHT/LEVEL	CONCRETE	ICE
2009	1	COUNTY ROAD	RURAL	UNSAFE SPEED	RAN OFF ROAD	NO JUNCTION INVOLVED	NONE	DARK (NOT LIGHTED)	STRAIGHT/LEVEL	GRAVEL	DRY
2010	3	STATE ROAD	RURAL	LEFT OF CENTER	HEAD ON	NO JUNCTION INVOLVED	NONE	DAYLIGHT	CURVE/GRADE	ASPHALT	DRY
2010	1	US ROUTE	RURAL	RAN OFF ROAD RIGHT	RAN OFF ROAD	NO JUNCTION INVOLVED	LANE CONTROL	DAYLIGHT	STRAIGHT/GRADE	ASPHALT	ICE
2010	1	STATE ROAD	RURAL	LEFT OF CENTER	HEAD ON	NO JUNCTION INVOLVED	LANE CONTROL	DAYLIGHT	STRAIGHT/HILLCREST	ASPHALT	DRY
2010	1	STATE ROAD	RURAL	RAN OFF ROAD RIGHT	RAN OFF ROAD	NO JUNCTION INVOLVED	LANE CONTROL	DAWN/DUSK	CURVE/LEVEL	ASPHALT	DRY
2010	1	STATE ROAD	RURAL	LEFT OF CENTER	RIGHT ANGLE	T-INTERSECTION	STOP SIGN	DAYLIGHT	CURVE/GRADE	ASPHALT	DRY
2010	1	COUNTY ROAD	RURAL	FAILURE TO YIELD RIGHT OF WAY	RIGHT ANGLE	FOUR-WAY INTERSECTION	STOP SIGN	DAYLIGHT	STRAIGHT/LEVEL	ASPHALT	

Figure 3.4: 2008-2010 Gibson County Fatality Crash Locations

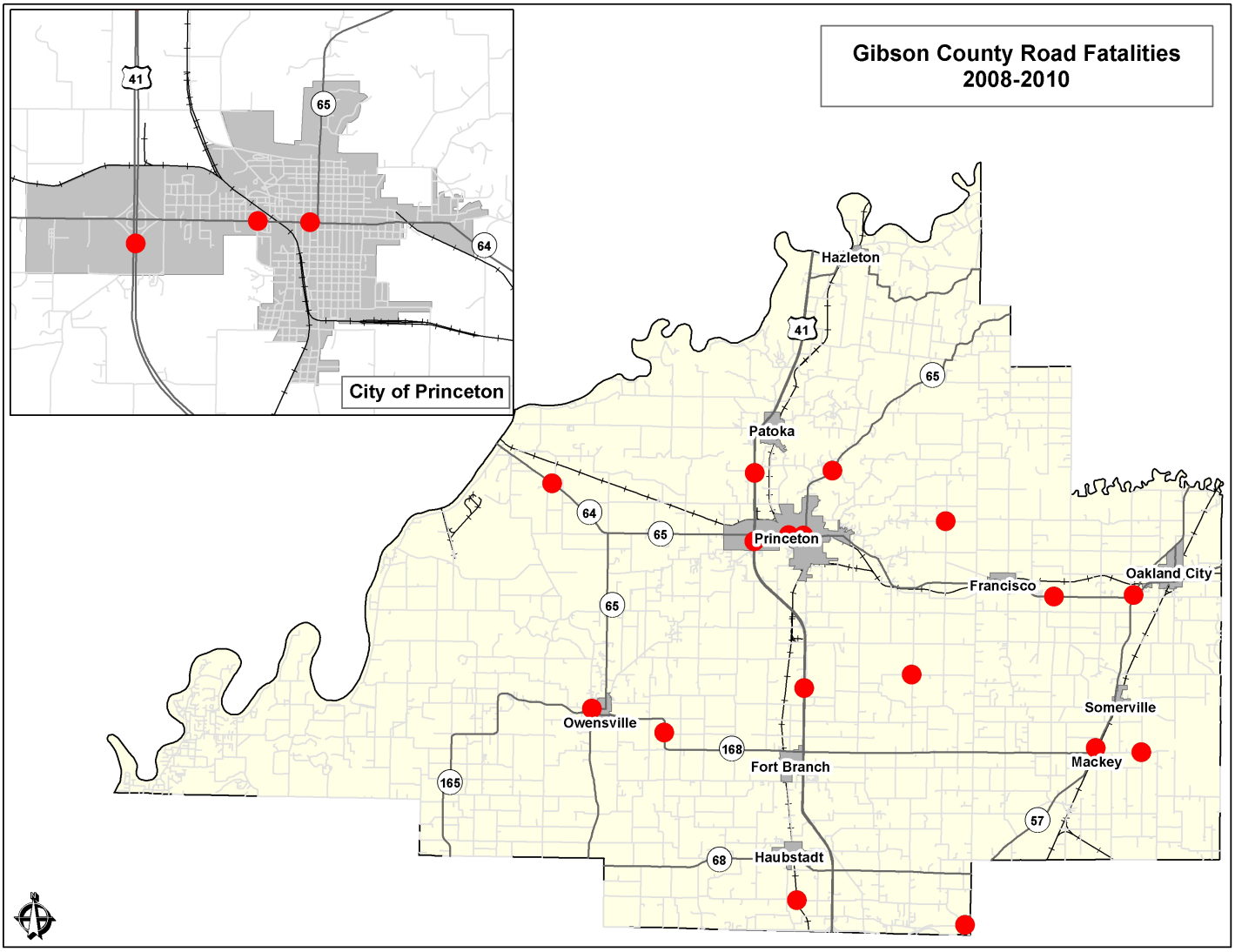
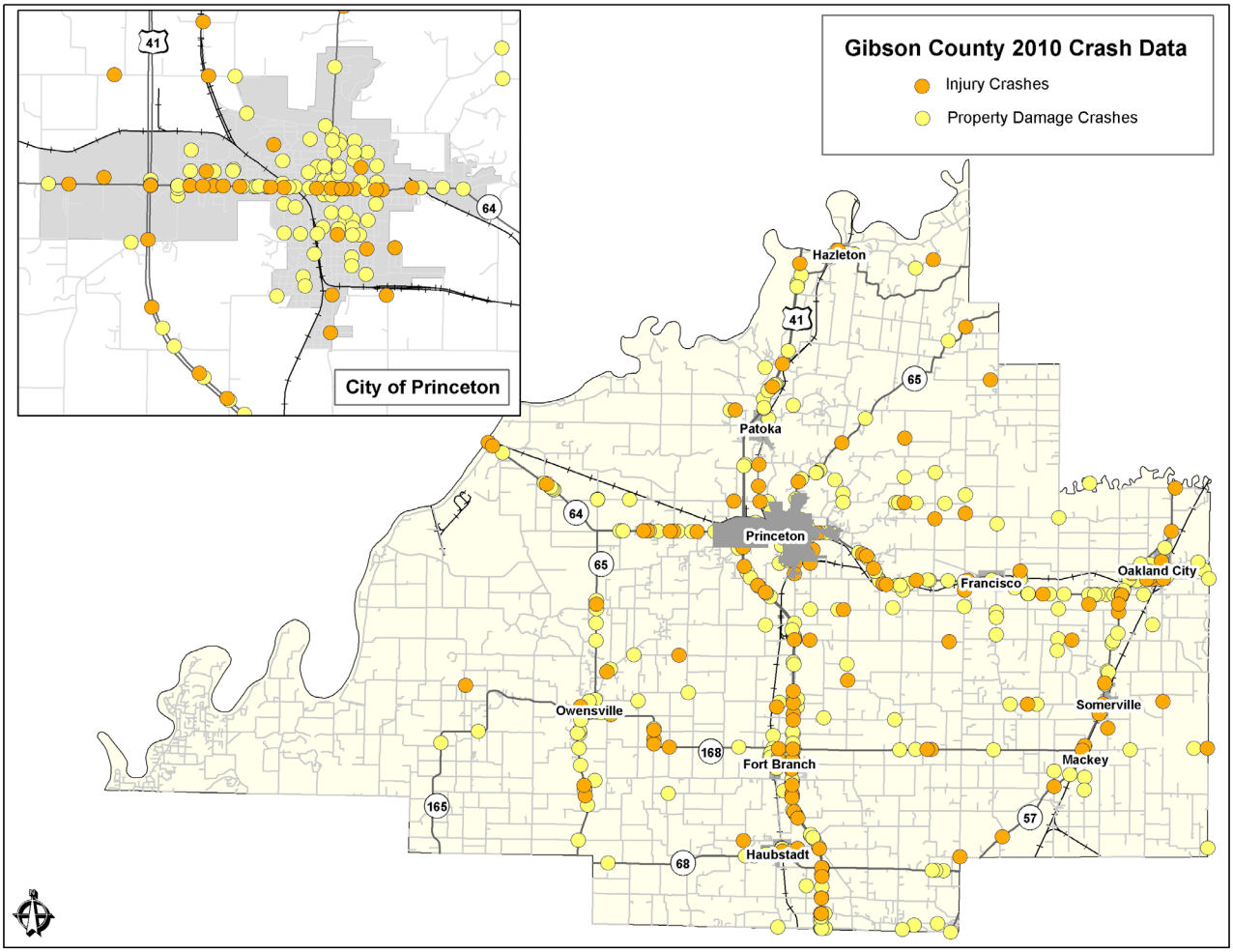


Figure 3.5: 2010 Gibson County Injury and Property-Damage-Only Crash Locations



C. FREIGHT TRANSPORTATION

Freight activity is a significant element of the regional and state economies, and has a major impact on the transportation system. The following is a review of the freight-related transportation networks for Gibson County and the Evansville metropolitan area and surrounding region.

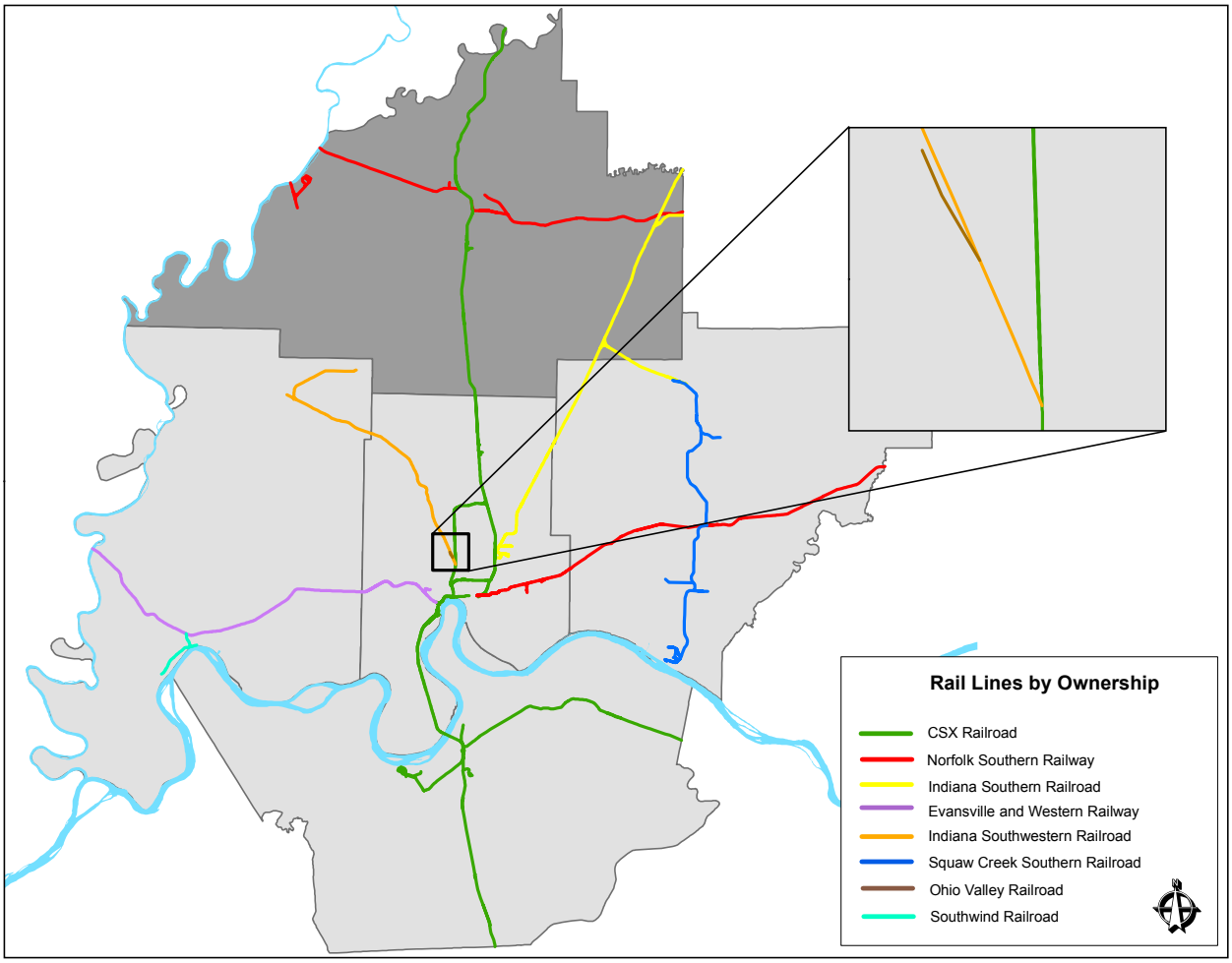
Freight Transportation Modes

The region centered on Evansville includes major lines, yards and facilities for numerous freight transport modes. As freight movements across all modes are expected to increase significantly over time, congestion, reliability, safety, and system preservation will continue to be of major concern for the foreseeable future, despite improvements in operational efficiencies currently planned.

Rail Freight

Railroads are an integral part of the transportation system for the region, and compete with water and truck-based services for the movement of bulk materials. Rail lines radiate from the City of Evansville in all directions providing needed connections to the regional and national networks. All rail lines serving this region carry freight only, as passenger service was discontinued in 1971. As illustrated in Figure 3.6, there are eight companies operating railroads

Figure 3.6: Regional Rail System Ownership



in the region surrounding Evansville, including three with tracks in Gibson County.

Water Freight

The Ohio River has historically been the main impetus to growth in the Evansville MPO Study Area. Today, several industries located along the Ohio River utilize barge transportation for freight movement and there are three river ports that have a major impact on the flow of commodities throughout the entire tri-state region: The Port of Evansville, the Henderson County Riverport, and the Port of Indiana–Mount Vernon located in Gibson County.

Port of Indiana–Mount Vernon, a state-owned port facility located on milepost 828 on the Ohio River in Posey County, handles transfers between barge, rail, and truck, and offers on-site storage space. The facility encompasses about 1000 acres, and has approximately two miles of riverfront access to the Ohio River. The Port provides year-round barge access to the Inland Waterway System and international destinations via the Port of New Orleans.

The Ports of Indiana website touts amenities including a 760-foot, 60-ton bridge overhead crane; container handling equipment; and a fine-ton, 50-inch electromagnet. The port's storage capabilities include a 4.75 million bushel capacity grain elevator, three 1 million gallon liquid storage tanks, as well as general purpose warehouse and open-air storage yards. The Port of Indiana–Mount Vernon is

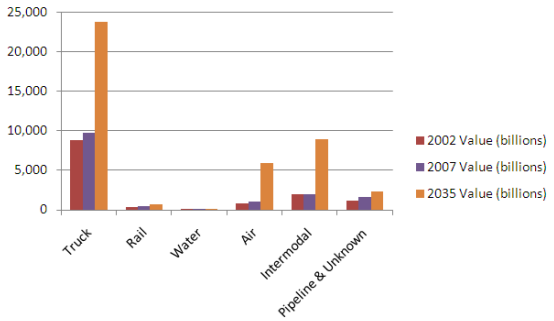
a designated foreign trade zone (FTZ), which offers additional economic benefits for those companies with products vying for distribution in the global market arena.

Highway Freight

Trucks are the most visible of all the freight modes in the region because they are required to share the same highway network as transit and passenger vehicles. According to the FHWA's Freight Analysis Framework (FAF), the value of trucked goods is expected to rise 168% from the year 2002 to 2035 (Figure 3-7), and truck volumes are expected to follow accordingly (Figure 3.8 and 3.9). Based on national statistics, trucks carry more freight in value and by weight than any other mode.

Figure 3.10 (page 34) represents the Regional Priority Truck Network for the study area. This network includes freight-related National Highway System (NHS) Intermodal Connectors, National Truck Network routes, the Kentucky Transportation Cabinet's (KYTC) Priority Road Network (if not already included in the NHS routes), and locally designated truck routes. All of these routes together, though designated by different entities, have been established to improve freight movement. Once deficiencies have been identified as within the functional area of a priority truck route, proposed improvements are to be studied and designed with an eye to improvements that enhance freight movements and correct deficiencies.

Figure 3.7: 2002, 2007 and 2035 National Value by Mode



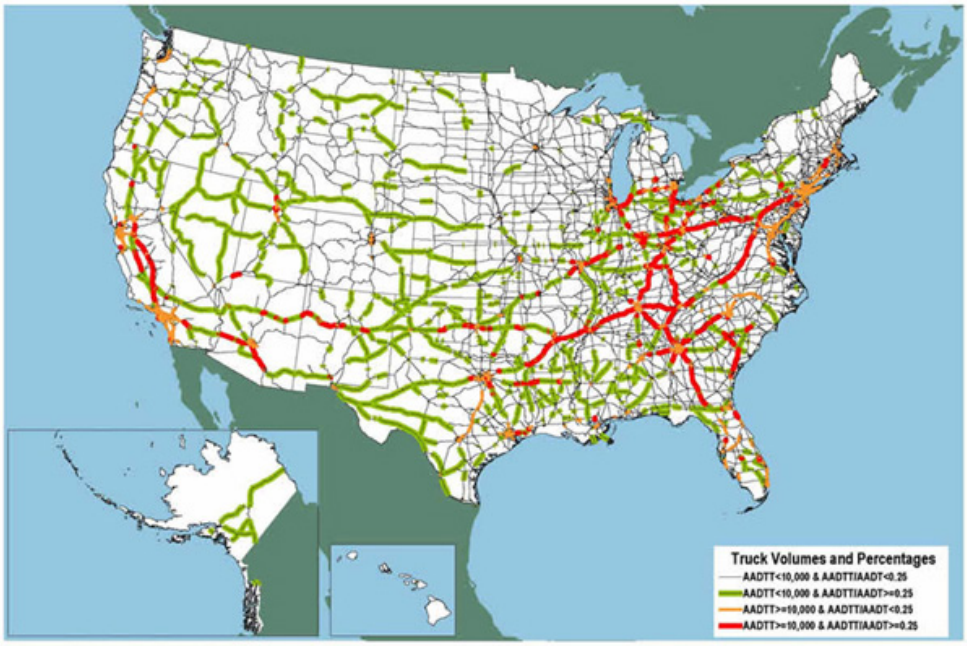
Pipeline and Freight

Pipelines are generally the lowest cost, highest volume and least flexible mode of goods transport. Natural gas and petroleum products are the primary commodities delivered by a local pipeline distribution network.

Intermodal Freight

Intermodal shipments move by a combination of two or more transportation modes. Unless a business is located along a dedicated rail siding, positioned within an airport, or has its own port, river dock, or pipeline connection, a transfer to another shipment mode will be necessary. Figure 3.11 (page 35) shows the Regional Intermodal Freight Terminals identified by their largest mode connections (either known or assumed). Of those identified, the three largest would be CSXI-Howell Yard, Evansville; Port of Indiana–Mount Vernon (described on previous page); and Henderson County Riverport, Henderson. The NHS Intermodal Connectors represented in Figure 3.11 (page 35) serve these largest terminals.

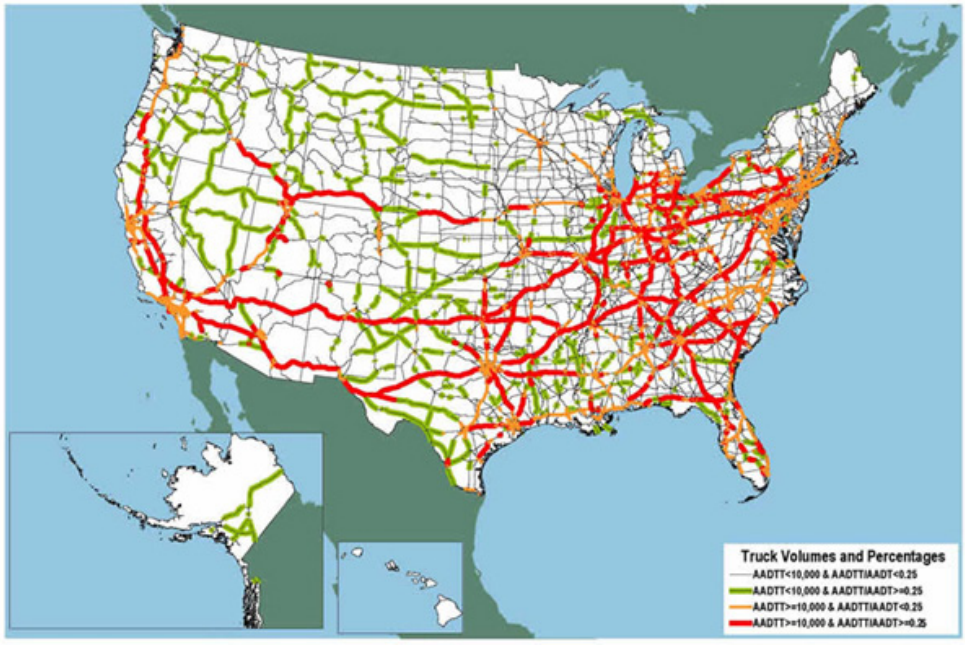
Figure 3.8: Truck Volumes on National Highway System, 2002



Notes: AADTT is average annual daily truck traffic and includes all freight-hauling and other trucks with six or more tires. AADT is average annual daily traffic and includes all motor vehicles.

Source: U.S. Department of Transportation, Federal Highway Administration, Office of Freight Management and Operations, Freight Analysis Framework, version 2.2, 2007

Figure 3.9: Truck Volumes on National Highway System, 2035



Notes: AADTT is average annual daily truck traffic and includes all freight-hauling and other trucks with six or more tires. AADT is average annual daily traffic and includes all motor vehicles.

Source: U.S. Department of Transportation, Federal Highway Administration, Office of Freight Management and Operations, Freight Analysis Framework, version 2.2, 2007

Figure 3.10: Regional Priority Truck Network

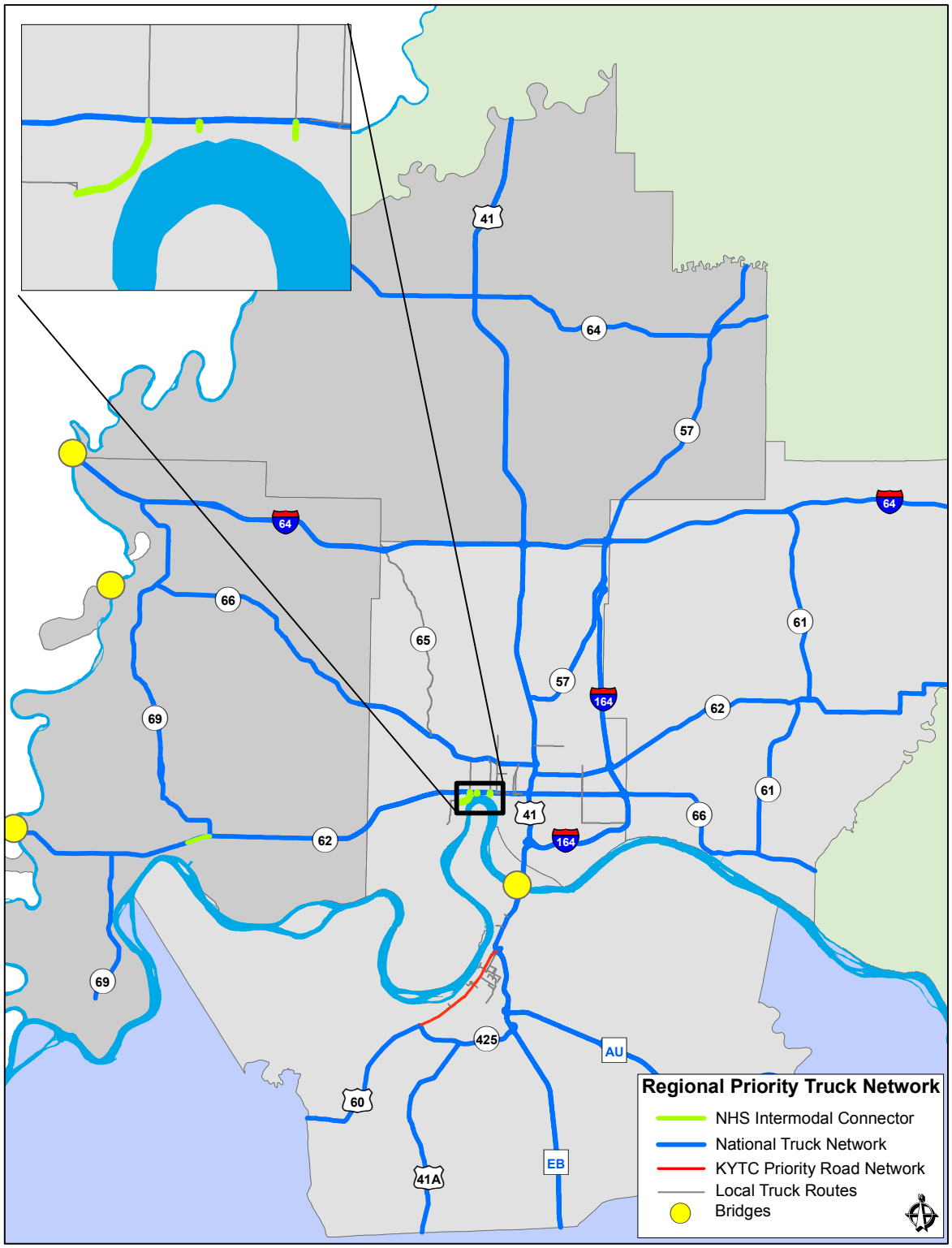
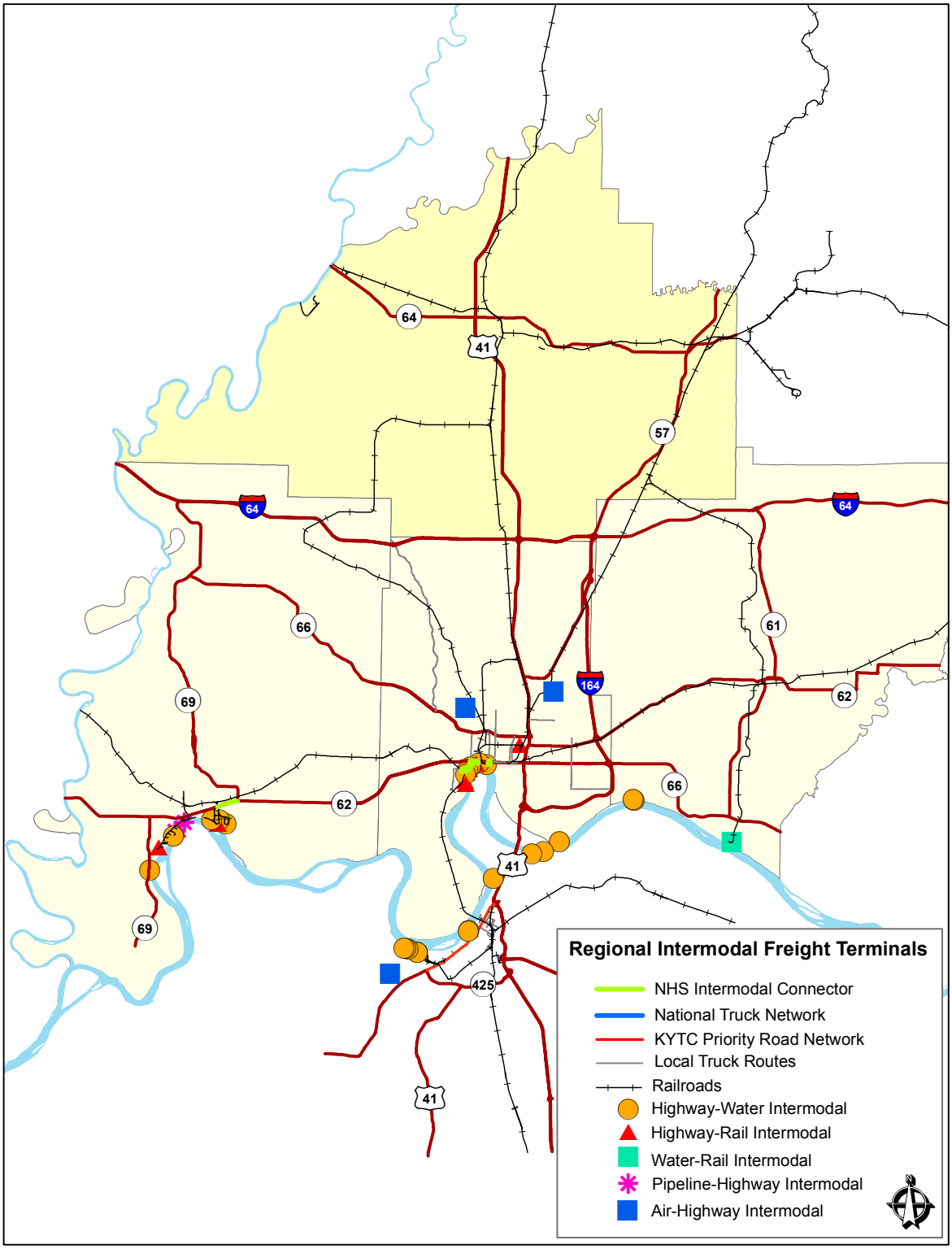


Figure 3.11: Regional Intermodal Facilities



D. COMMUTING

Gibson County has an impressive percentage of commuting traffic that flow to and from the county. According to the 2009 Stats Indiana Annual Commuting Trend, profile about 10,445 commuters travel to and from Gibson County. Forty two percent of those commuters live in Gibson County but work outside the County and fifty-eight percent of the commuters work in Gibson County but live in other counties. Figures 3.12 shows the top four Indiana counties, as well an Illinois total figure, for workers commuting to Gibson County. Figure 3.13 shows the top five counties receiving workers commuting from Gibson County.

According to an analysis done by Bernardin, Lochmueller, and Associates (BLA, Inc.), the average travel time to commute for workers living in Gibson County is 24 minutes. Figures 3.14 through 3.16 show the number of commuters by travel time and an approximate distance of travel speed on travel time for the three largest incorporated communities in Gibson County.

Figure 3.12: Commuters to Gibson County

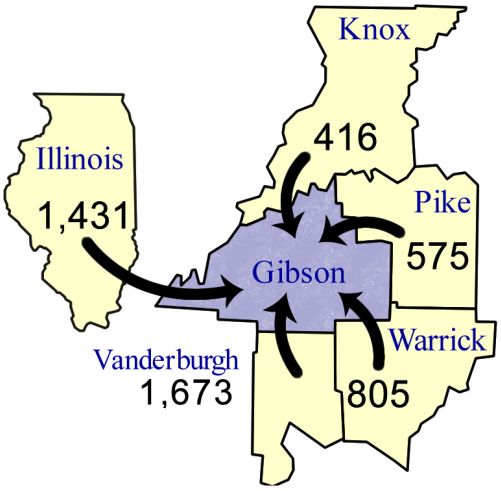


Figure 3.13: Commuters from Gibson County

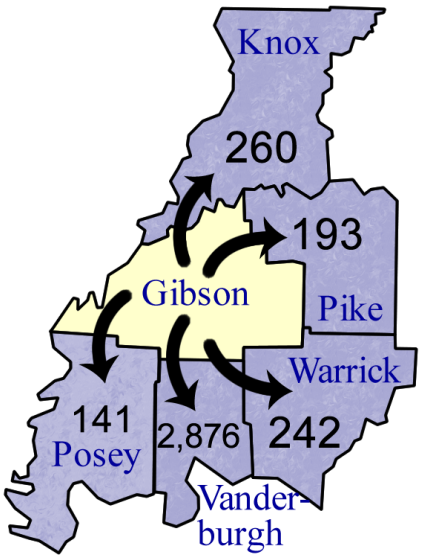
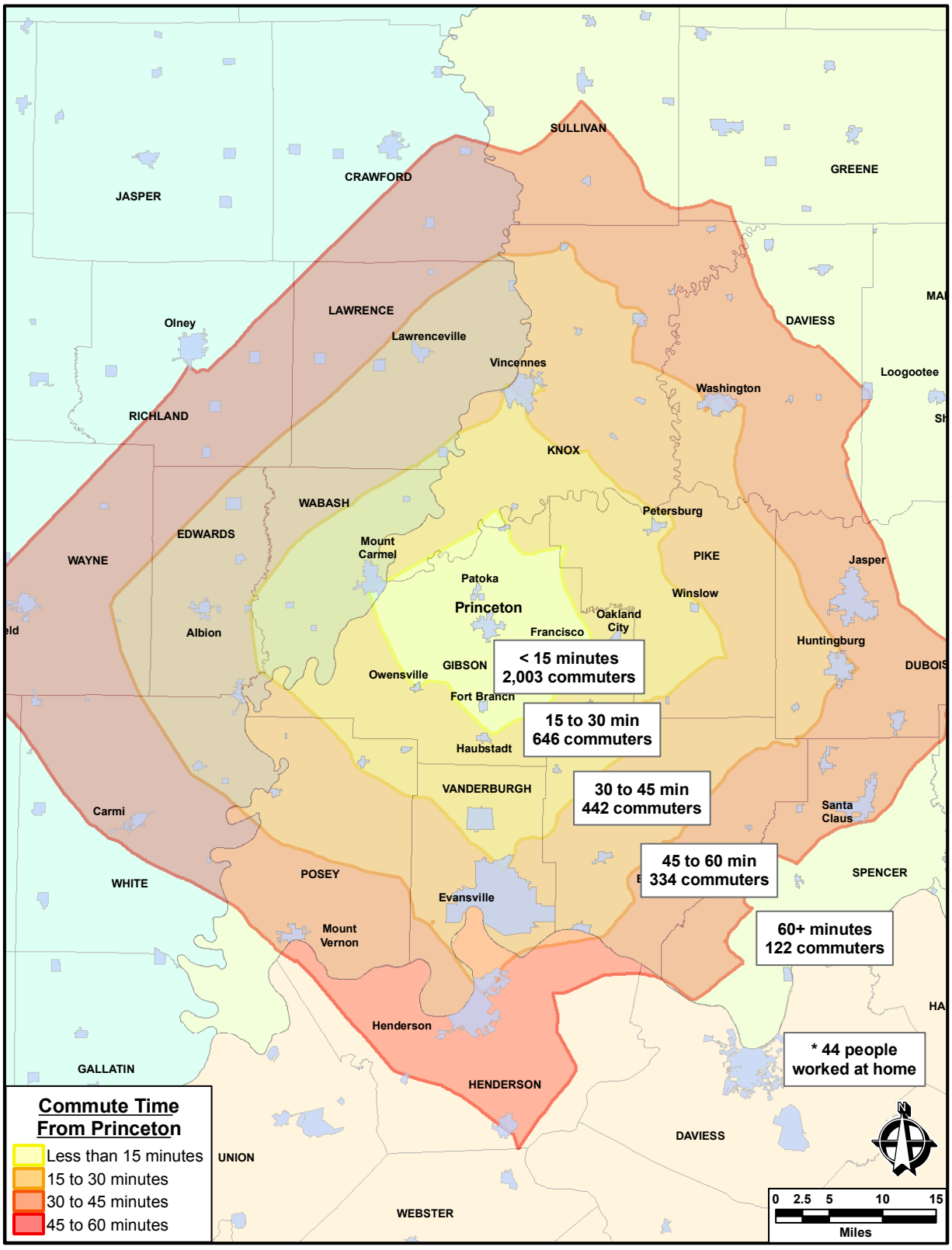
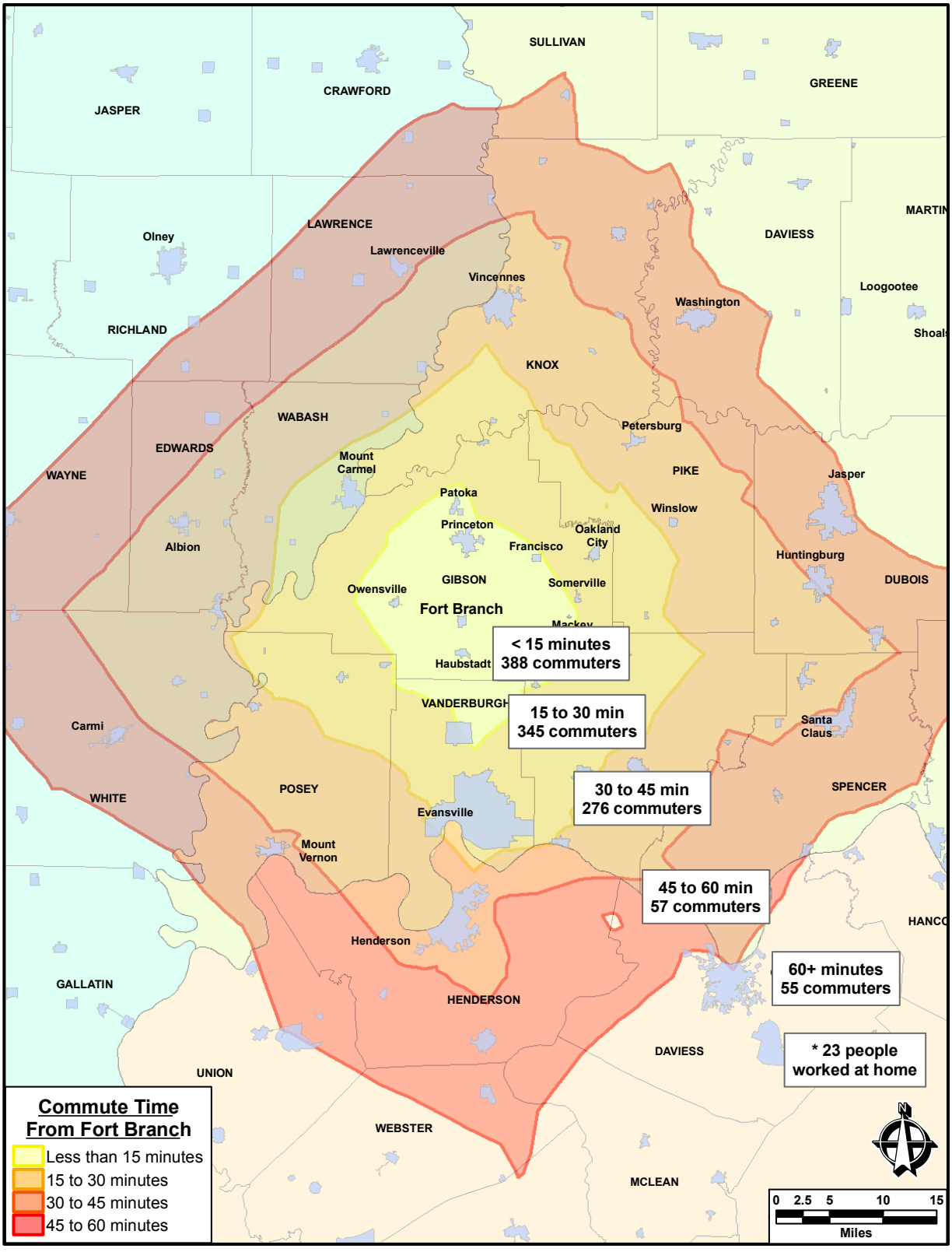


Figure 3.14: Princeton Commuting Time



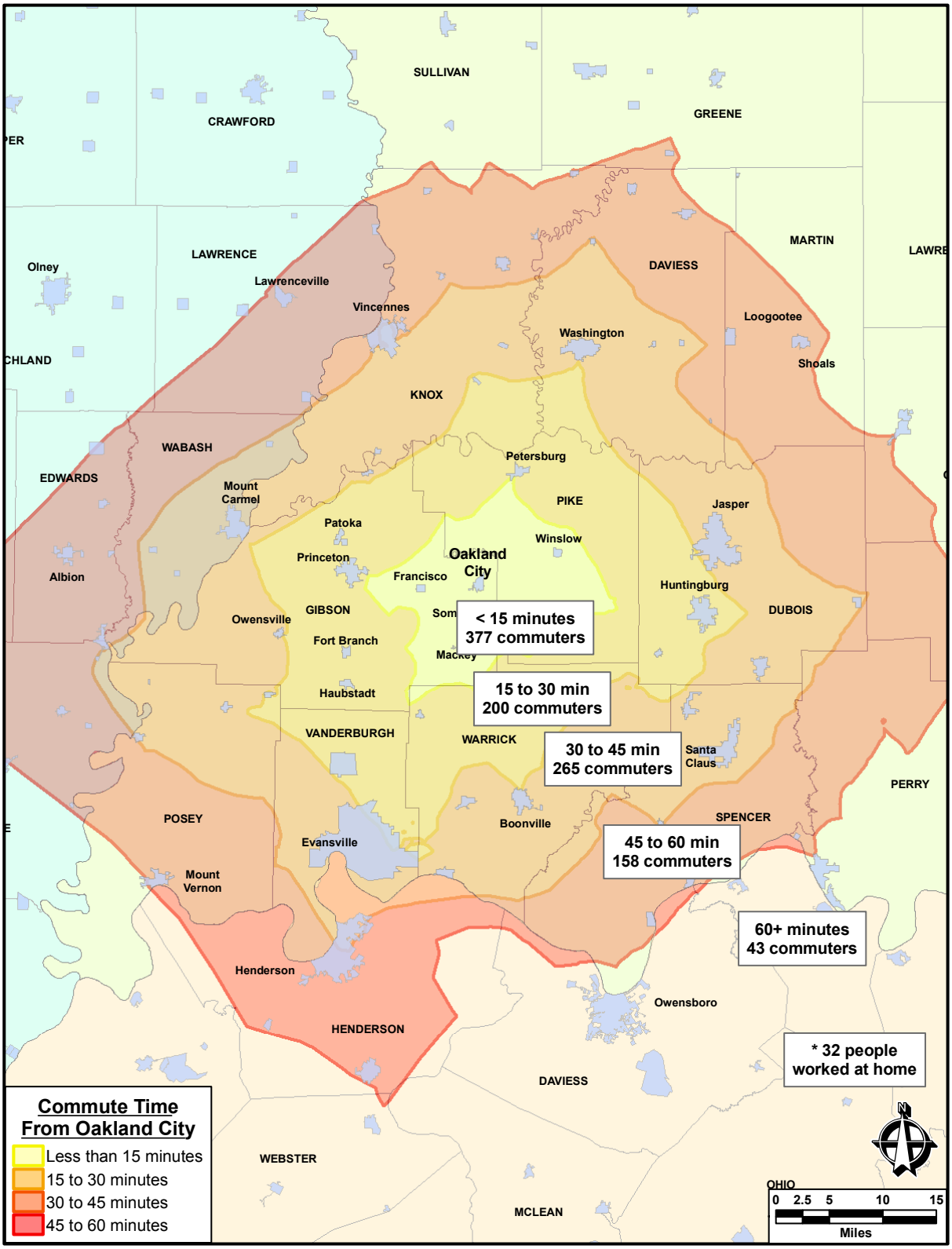
Source: Gibson County Comprehensive Plan, image courtesy of BLA, Inc.

Figure 3.15: Fort Branch Commuting Time



Source: Gibson County Comprehensive Plan, image courtesy of BLA, Inc.

Figure 3.16: Oakland City Commuting Time



Source: Gibson County Comprehensive Plan, image courtesy of BLA, Inc.

E. PEDESTRIAN AND BICYCLE FACILITIES

Sidewalks provide a significant measure of safety for those walking near roads by separating them from traffic, and are otherwise important in encouraging people to walk in their neighborhoods for transportation, health, or pleasure. Children especially benefit from sidewalks because walking is often their only option for neighborhood trips, and child pedestrians are also more prone to have traffic accidents than adults. By prioritizing pedestrian safety, a roadway is likely to attain safer attributes for all users as well.

Using a bicycle for transportation in most places requires that bicyclists use public roads. While many city streets and rural roads are technically adequate for bicycle travel, safety is major concern for busy collector and arterial streets, as well as rural roads where bicycles and cars have to share lanes that were designed to accommodate car and truck traffic. To safely use public roads, bicyclists must act as drivers of vehicles, exercising the same rights and responsibilities that motorists do. Bicyclists need continuous routes that have design features that accommodate bicycles, and which link to community activity centers such as central business districts, schools, libraries, and transit stations.

Sidewalks

Sidewalks exist in portions of cities and towns, particularly in older neighborhoods. Some of these walks can legally be used for biking, but due to fixed objects, grade changes, and pedestrian priority, sidewalk biking should be limited to use by small children in most cases.

Bicycle Accommodations

There are currently no designated on-road bicycle facilities in Gibson County or the incorporated communities within the county. Bicycles may be safely accommodated on many low-volume local, collector, and arterial roads, as well as county and state roads with shoulders more than 4 feet wide. The traffic volumes and speeds in many urban neighborhoods and suburban residential developments are low enough to permit the coexistence of automobile and bicycle traffic.

Separated Paths/Trails

A 0.7 mile nature trail at Hemmer Woods Nature Preserve near Buckskin is the only existing trail in Gibson County. The City of Princeton is currently planning a separated trail terminating at the Toyota manufacturing plant north of Ft. Branch. Development of this project will require cooperation with Gibson County. Interest in trails development documented in the Haubstadt comprehensive plan raises the potential of cooperative trail development to extend the proposed Princeton to Toyota path to the south.

F. TRANSIT

Public transit service in Gibson County is provided by Ride Solution, an on-demand transportation provider partnership based in Washington, Indiana. Stakeholder interest in expanding transit opportunities in the county was expressed. Evansville has intercity bus service and is also served by Greyhound and Trailways buses, with convenient service to Nashville, St. Louis, Chicago, Indianapolis, Louisville, and many smaller regional towns. Amtrak rail passenger service to New Orleans, Memphis, Chicago, and points in between aboard the “City of New Orleans” train may be accessed at the Carbondale and Centralia, Illinois train stations.

chapter 4

FUTURE SYSTEM NEEDS

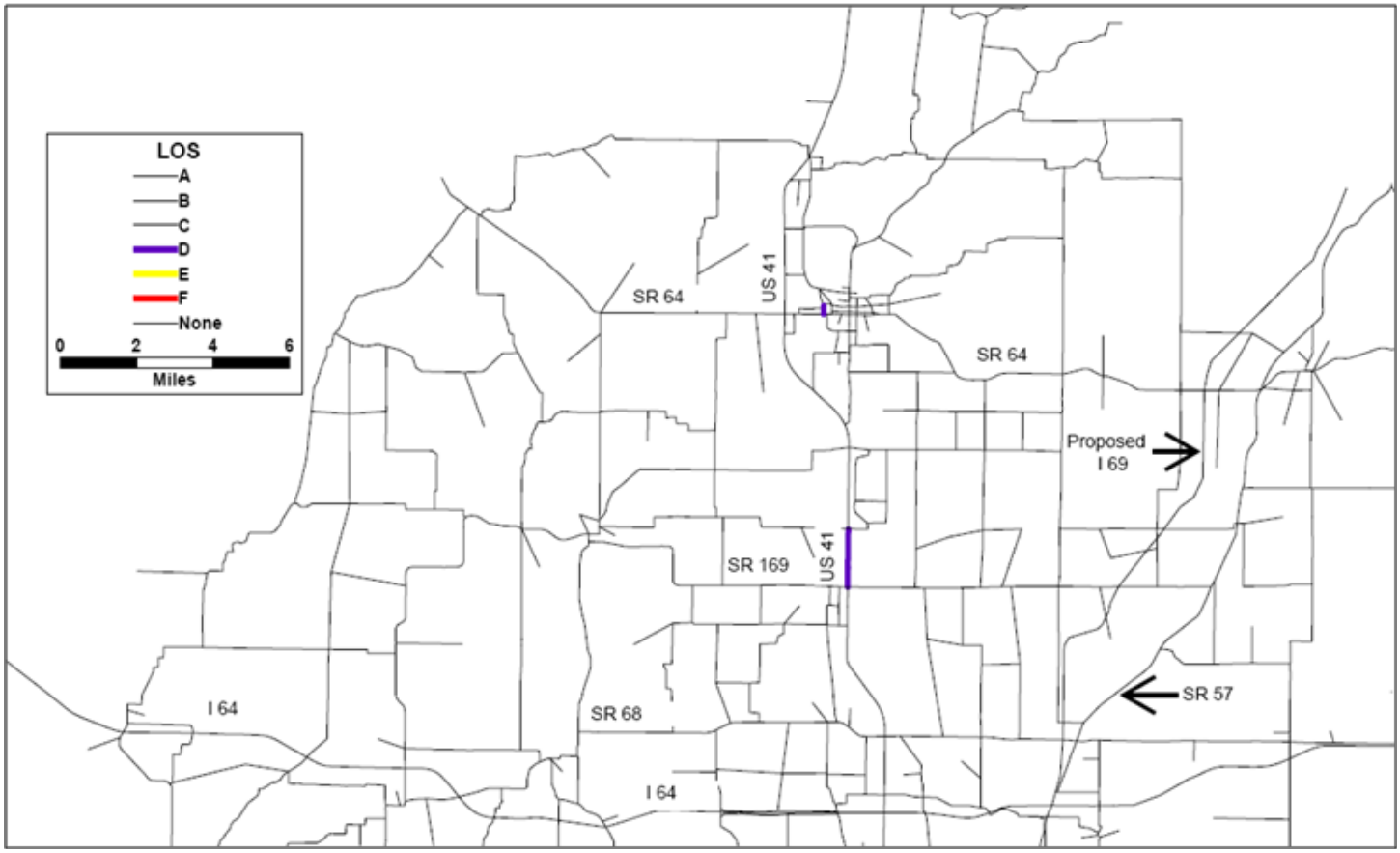
A. 2035 LEVEL OF SERVICE FORECAST AND CAPACITY NEEDS

Levels of service forecasts to the year 2035 were developed to identify future travel demands, capacity constraints, and system deficiencies. Level of service was forecasted to 2035 on existing minor Collector, Major Collector, Minor Arterial, and Principal Arterial roadways. These forecasts are illustrated in Figures 4.1 – 4.6 (pages 42-46). Forecasts for 2035 level of service were modeled (computer modeling) based on household, population, and employment growth projected by the Evansville MPO, using data from the Evansville MPO. The 2035 level of service forecasts were compared to existing roadway capacities to identify potential roadway capacity needs.

Figure 4.1: 2015 Forecast Traffic Capacity Hot Spots for Princeton

In figure 4.1, the forecast level of service for Gibson County in 2015, with anticipated growth of population and employment.

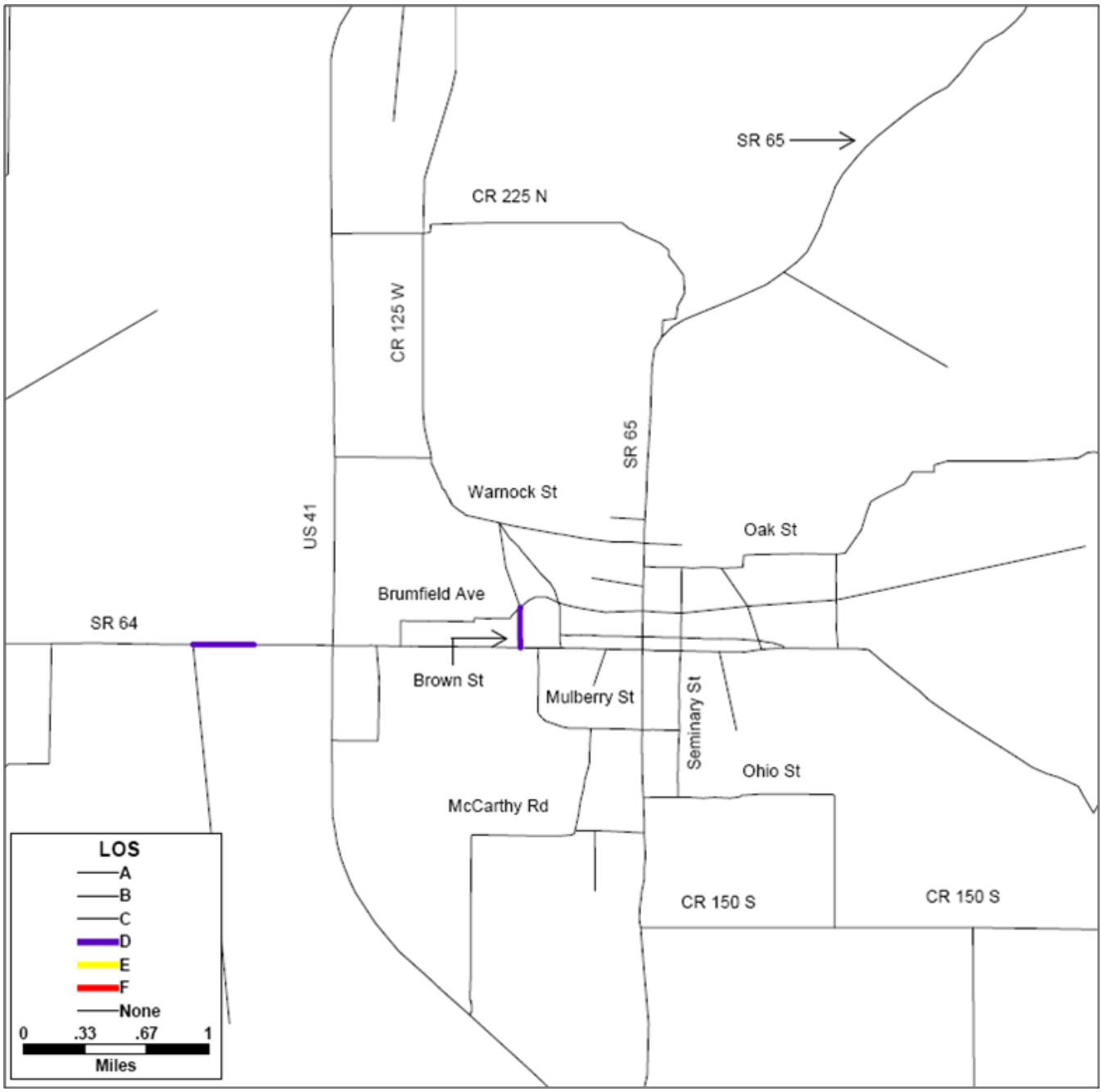
Figure 4.2: 2015 Forecast Traffic Capacity Hot Spots for Gibson County



In figure 4.2, the forecast level of service for Gibson County in 2015, with anticipated growth of population and employment.

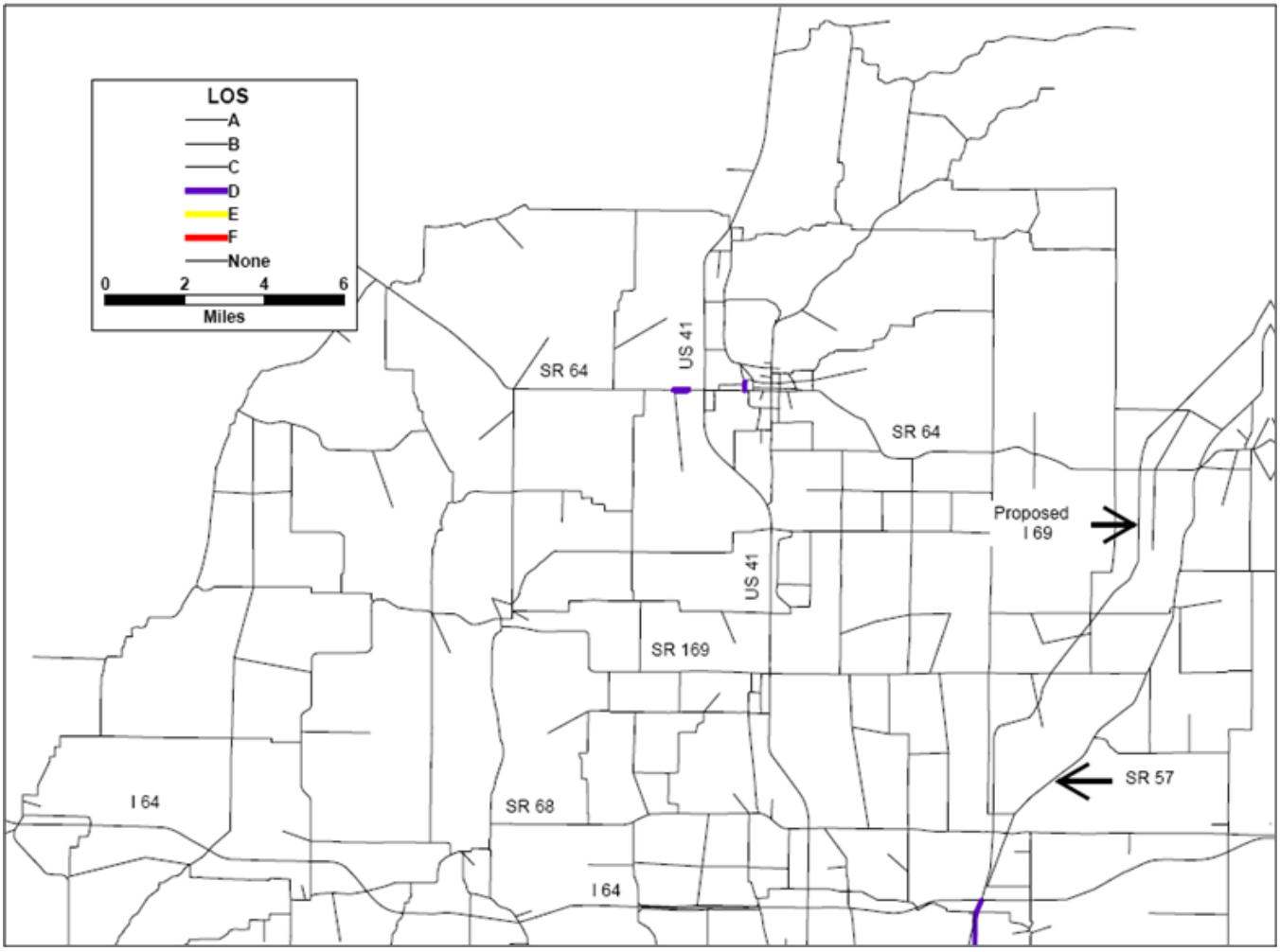
The following two figures show the forecast level of service for Gibson County in 2025, anticipated growth of population and employment, shows that limited congestion will occur periodically (at peak hours).

Figure 4.3: 2025 Forecast Traffic Capacity Hot Spots for Princeton



In figure 4.3, the forecast level of service for Gibson County in 2025, with anticipated growth of population and employment.

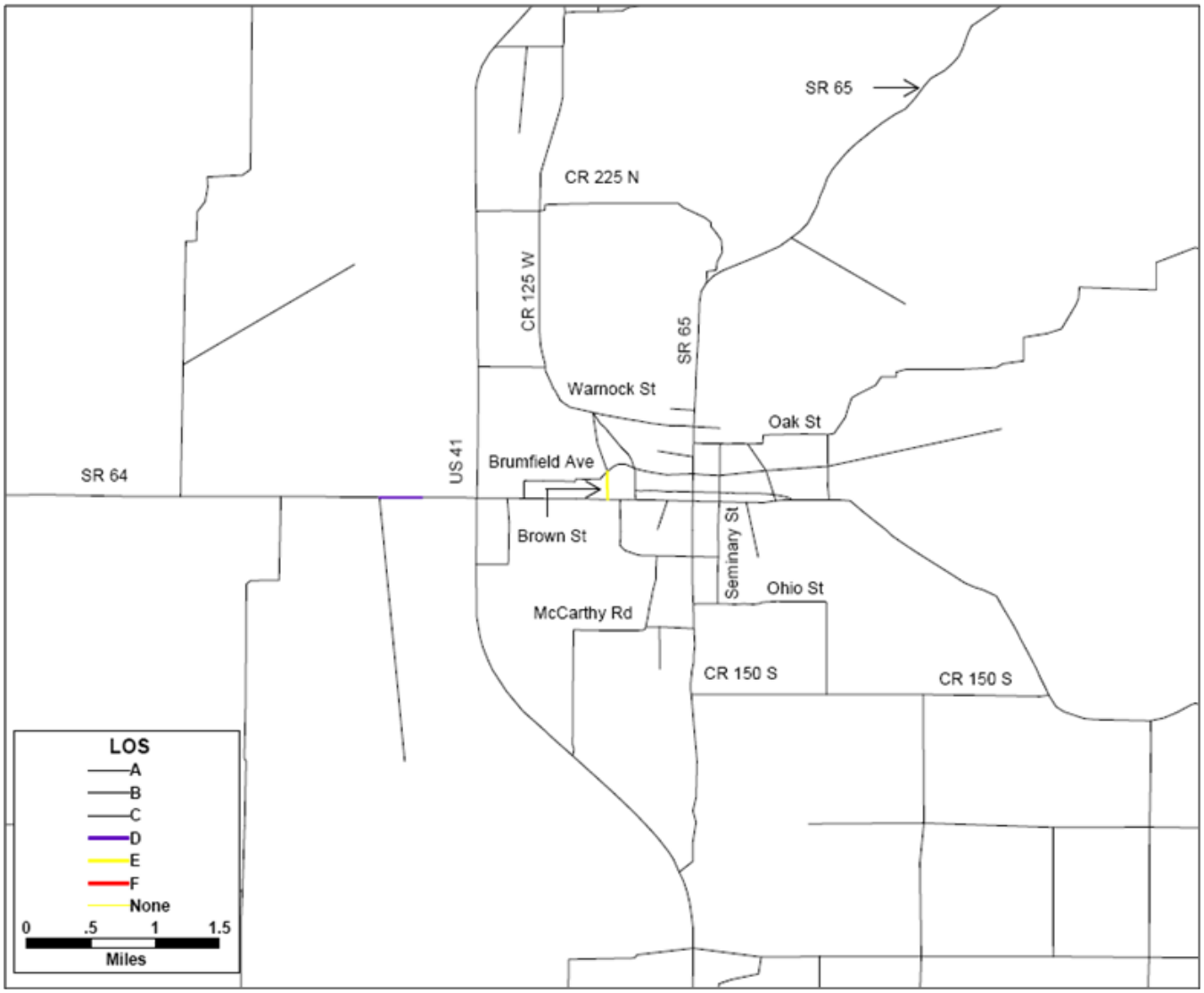
Figure 4.4: 2025 Forecast Traffic Capacity Hot Spots for Gibson County



In figure 4.4, the forecast level of service for Gibson County in 2025, with anticipated growth of population and employment.

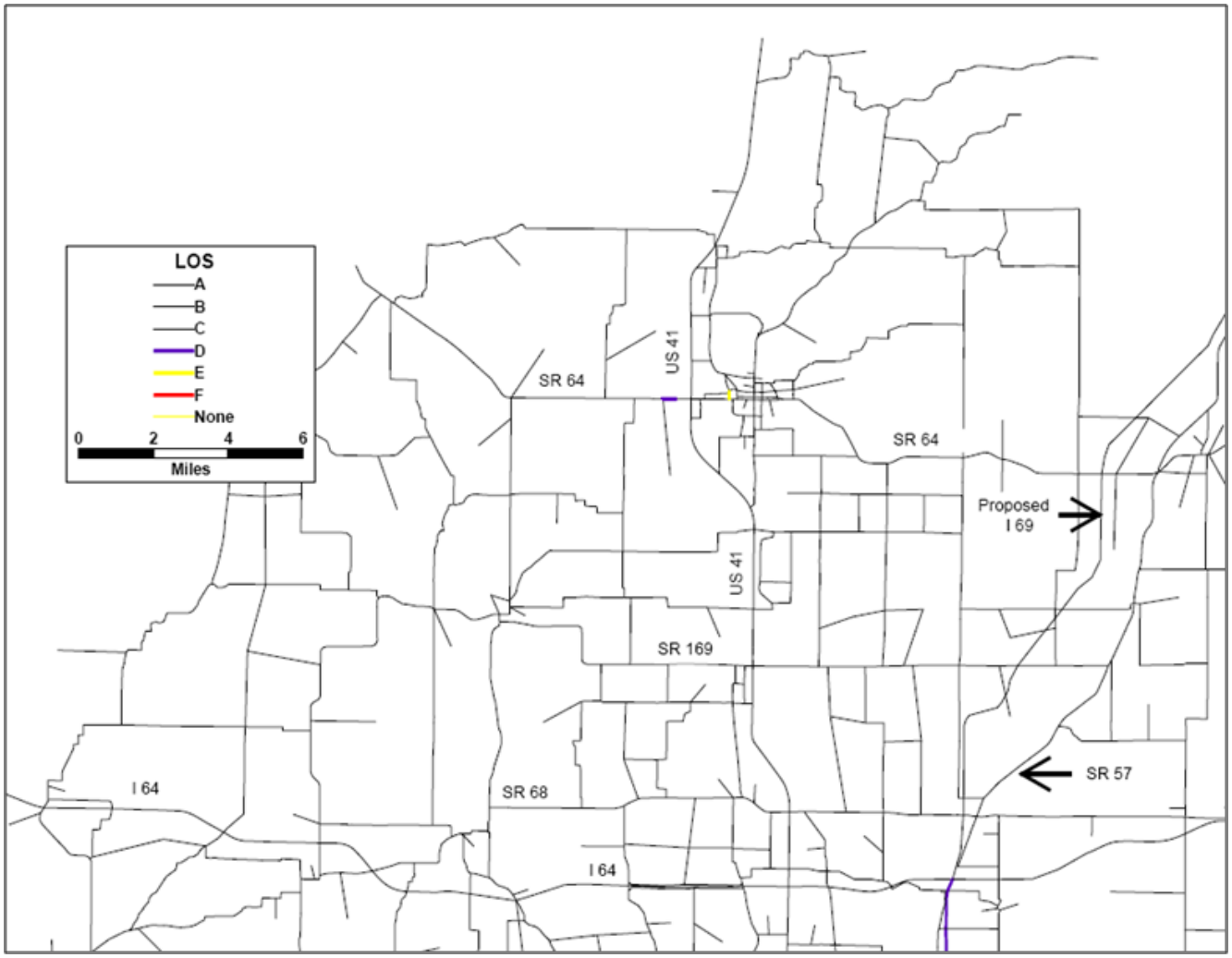
The following two figures show the forecast level of service for Gibson County and Princeton in 2035 with anticipated growth of population and employment, shows that limited congestion will occur periodically (at peak hours).

Figure 4.5: 2035 Forecast Traffic Capacity Hot Spots for Princeton



In figure 4.5, the forecast level of service for Princeton in 2035, with anticipated growth of population and employment.

Figure 4.6: 2035 Forecast Traffic Capacity Hot Spots for Gibson County



In figure 4.6, the forecast level of service for Gibson County in 2035, with anticipated growth of population and employment.

It is recognized that development may not reach the household, population, and employment projected in all areas, and as a result traffic forecasts may be relatively accurate in locations where development occurs, however in areas that do not develop, the level of service may be better than forecasted. For these reasons, specific traffic impact studies should be completed as property is proposed for development or redevelopment. In addition, Gibson County should periodically review land use and development/growth trends and adjust the projections accordingly.

B. ROADWAY NETWORK RECOMMENDATIONS

The following proposed roadway network project list, also shown in Figures 4.7 and 4.8 (pages 51-52) and in Table A1 in Appendix A, was developed with input from local stakeholders and in consideration of existing planning documents and the characteristics of the existing system and anticipated future system demands. Projects have been assigned to short, medium and long term implementation groups.

- Short term projects: Under development, or a priority for imminent development. A desired completion date of 2015 is attributed to these projects.
- Medium term projects: Targeted for 2025 completion and are not under current development at this time.
- Long term projects: These projects serve as a vision section for future development and are proposed for 2035 completion.

The recommended system supports a long term vision of safe and efficient movement of goods, people and services within and through the county. It is emphasized that the Transportation Plan is a dynamic document, one that will undergo future updates to reflect changing conditions and needs. Development groups and completion targets are illustrative and reflect project development status, available funds, agency priorities and other factors.

Short Term Projects

City of Princeton

A-1 County Road 100 W/Second Street: McCarty Road to SR 64

This project will extend County Road 100 W north and extend Princeton's Second Street south, creating a north-south corridor in the identified Southwest Princeton Critical Subarea.

A-2 County Road 50 S

This project will extend County Road 50 S eastward to connect to the 100 W/Second Street project, further developing the identified Southwest Princeton Critical Subarea.

A-3 Princeton Multi-use Path: Phase 1

A multi-use pedestrian/bicycle trail plan has been developed through the Princeton Umbrella Committee. The multi-use trail plan consists of six distinct phases and will ultimately connect the North Gibson School Campus on the northwest side of Princeton with Toyota (TMMI) facilities located south of Princeton, roughly between Princeton and Ft. Branch. Phase 1 has Transportation Enhancement funding secured for construction from North Gibson Elementary on County Road 100 N to Spruce Street in Lafayette Park.

Medium Term Projects

City of Princeton

B-1 Warnock Street/Embree Street Roundabout

Reconfiguration of this intersection is desired to continue the development of the Northwest Princeton Critical Subarea.

B-2 Makemson Avenue

This project will extend Makemeson Avenue west to connect to the new County Road 100 West described above (Project A1).

B-3 Brumfield Avenue

Upgrade from Embree Street to SR 64 (Broadway Street).

B-4 Princeton Multi-use Path: Phase 2

This project extends the multi-use pedestrian/bicycle trail described at A-3 above from Embree Street/Brumfield Avenue intersection to SR 64 (Broadway Street).

Long Term Projects

City of Princeton

C-1 SR 64 (Broadway Street)

This INDOT project will improve this state route from 9th Street to Main Street. The project is not currently listed in INDOT's Long Range Transportation Plan.

C-2 Embree Street

Upgrade from West Broadway Street (SR 64/65) to Warnock Street.

C-3 SR 64 (Broadway Street)

This desired INDOT project continues improvements to this state route from Main Street to State Street in Princeton. The project is not currently listed in INDOT's Long Range Transportation Plan.

C-4 Brumfield Avenue

This project extends Brumfield Avenue from its current terminus eastward to SR 64.

C-5 SR 65 (North Main Street)

This desired INDOT project would improve this state route from SR 64 (Broadway Street) to the north Princeton city limit. The project is not currently listed in INDOT's Long Range Transportation Plan.

Gibson County/Multi-jurisdictional

C-6 Princeton/Gibson County Multi-use Path: Phases 3-6

These four phases will carry the multi-use pedestrian/bicycle trail from SR 64 east of State Street in Princeton to the Toyota Motor Manufacturing Indiana facility entrance at Tulip Tree Drive. This multi-jurisdictional project will require a cooperative effort between the City of Princeton and Gibson County.

C-7 CR 150 South (Southern Crossing)

This project will continue the development of the Southern Crossing corridor from Toyota Boshoku to South Main Street. The first section was completed from CR 100 West to the Toyota Boshoku facility in 2008. The second phase may include an overpass of the CSX railroad.

C-8 CR 150 South

This project will continue the development of the Southern Crossing corridor from South Main Street to SR 64 east of Princeton.

Multi-jurisdictional

C-9 Bicycle and Pedestrian Infrastructure

The Gibson County, Haubstadt, Fort Branch, Owensville and Oakland City Comprehensive Plans each identify a desire to construct multi-use paths and/or bicycle and pedestrian improvements to serve the community. Development of these multi-jurisdictional

projects will require a cooperative effort between the communities and Gibson County.

C-10 Gibson Street

Upgrade from Haubstadt town limit to US 41. This project, identified in the Haubstadt Comprehensive Plan, would require a cooperative effort between the Town of Haubstadt and Gibson County.

C-11 CR 50 East

Upgrade from SR 68 to CR 1250 South. This project, identified in the Haubstadt Comprehensive Plan, would require a cooperative effort between the Town of Haubstadt and Gibson County.

Functional Classification Changes

The majority of proposed projects are currently classified as major collectors or higher; and therefore eligible for federal aid funding (see chapter two for functional class discussion). The exceptions will require updates to the Federal Highway Administration functional classification maps if federal funds are to be used. If federal funds are sought, updates are required for:

- Gibson Street/CR 1025 South: Main Street to US 41 – proposed upgrade from local road to rural major collector
- CR 50 East: SR 68 to CR 1250 South – proposed upgrade from rural collector to rural major collector for both CR 50 East and CR 1250 South from US 41 to CR 50 East.

C. FREIGHT TRANSPORTATION RECOMMENDATIONS

In consideration of the already extensive and expanding role of freight transportation in Gibson County, it is critical to take a proactive approach to freight planning and policies. The following actions are recommended to improve the efficient flow of freight while maintaining a high level of mobility and access for other vehicular traffic in the county.

- The formation of a Freight Committee to proactively deal with freight issues. Planning for increased freight impacts and for increased maintenance expenditures for freight routes are two issues that such a committee could consider to begin with.

- Truck Routes should be defined, and in urbanized areas there should be clear demarcation of roads where heavy truck traffic is not wanted.

In 2005, the Evansville MPO completed the Intermodal Freight Movement Survey. From this survey, information was obtained regarding "areas of concern" that the regional freight stakeholders deemed impediments to efficient freight movement. The MPO's Technical and Policy committees, which include freight industry representatives, local and state planners and engineers, was used to guide the scope of the study. Lists of these "areas of concern" were distributed to the appropriate jurisdictions to aid in their project selection process for potential physical improvements, policy changes and additional planning activities. Some of these recommendations, which may be applicable to Gibson County, have been generalized and are presented below.

Figure 4.7: Transportation Plan Projects - Princeton Area

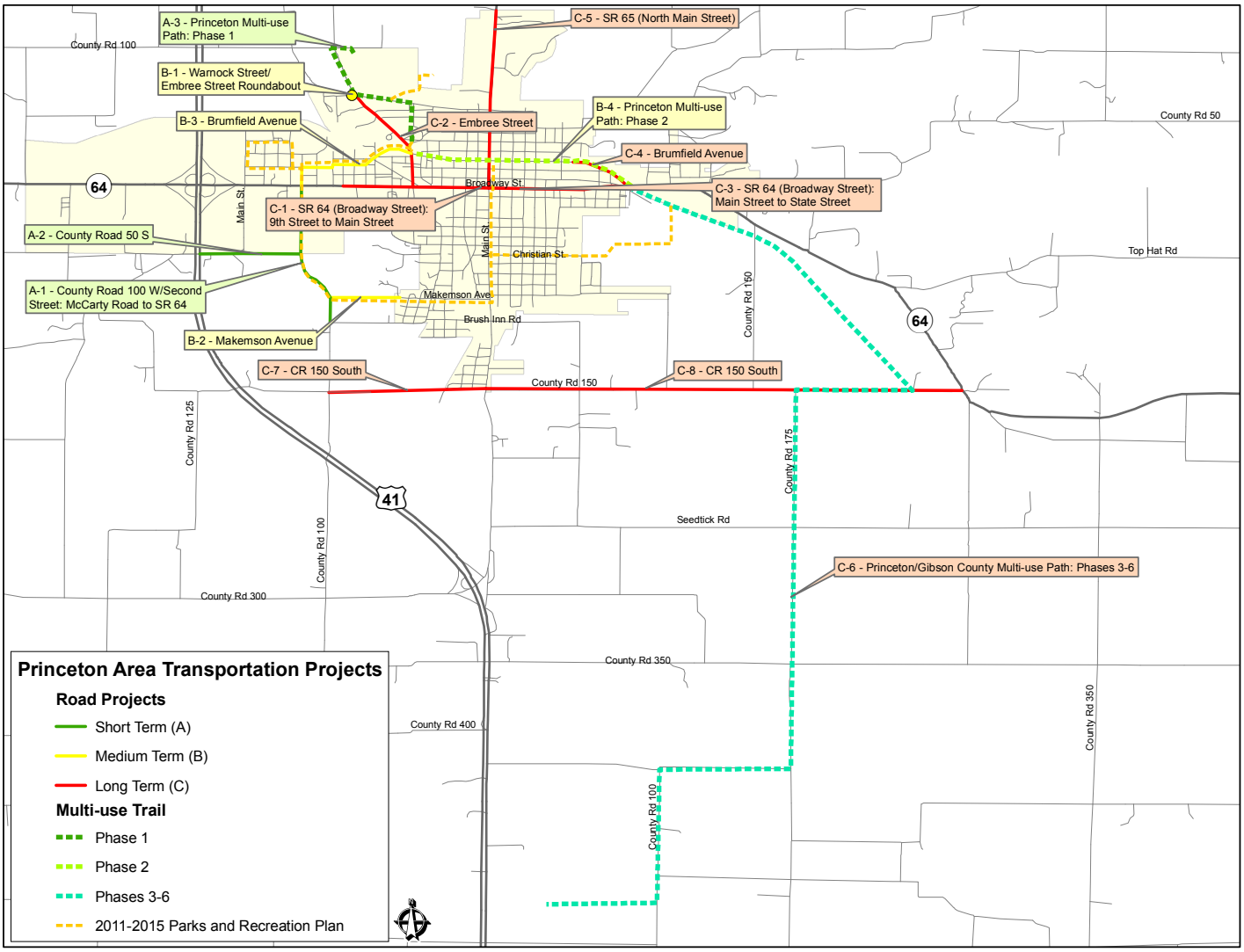
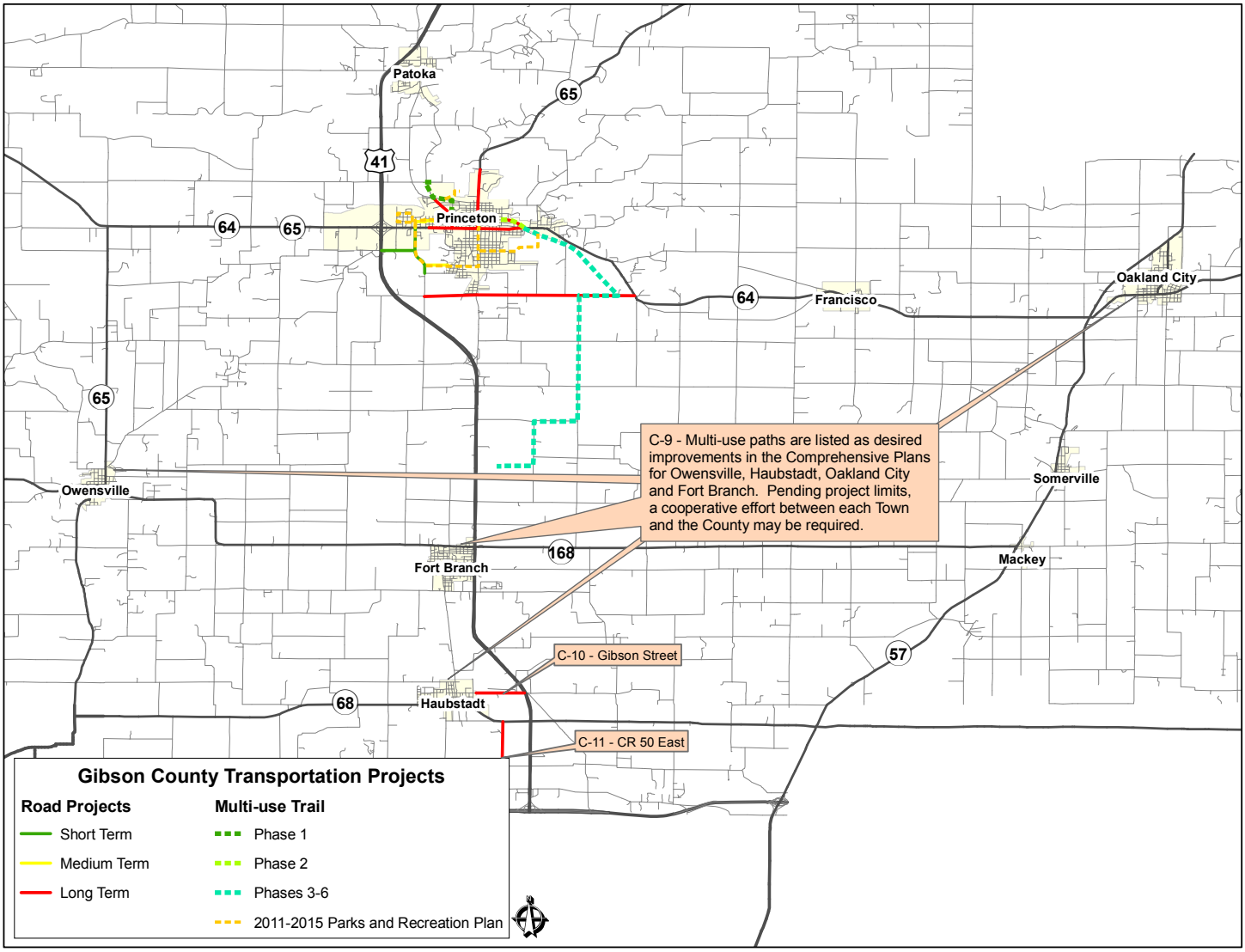


Figure 4.8: Transportation Plan Projects - Gibson County



Transportation Projects

- Coordinate with the City/County Road Department and INDOT, where appropriate, to determine the feasibility of increasing the turning radius at locations with high freight-truck volumes.

Policies

- The Evansville MPO strongly encourages the use of frontage roads, shared commercial driveways and other access management strategies along roadways with heavy truck use, to minimize the number of conflict points.

Planning Activities

- Coordinate with INDOT in planning for a weigh station or weigh-in-motion technology in the region. Such a facility would allow for more consistent enforcement of commercial vehicle laws and regulations.

D. PRESERVATION NEEDS

The County roadway inventory totals 971 miles, approximately 453 of which are paved/hard surface. City/Town jurisdictional roads total slightly more than 126 miles, of which approximately ninety five percent are paved. Preservation of the existing roadway pavement is necessary to protect previous investments made to the roadway system. Regular maintenance and rehabilitation of existing paved facilities optimizes their life cycle and maximizes return on investment.

Pavement Management

As a mechanism to protect the County's investment in pavement structures, reduce maintenance costs, improve general safety, and restore the function of pavements on Gibson County highways, the following pavement management strategies are recommended:

1) Establish a database to manage historic and ongoing records on pavement sections. The database should include the following information:
   - Existing pavement and base material types and thickness
   - Sub-grade soil types (and strength values, if known)
   - Type of roadway section (rural or urban)
   - Functional Classification
   - Construction history (year of original construction and overlays)
   - Maintenance history (year of seal coat, patching, etc.)
   - Use history (ADT, extra heavy vehicle use)
   - Field performance condition rating

2) Perform field performance condition rating and establish a pavement quality index (PQI) on each pavement section. A field performance condition rating should be completed on 1-mile intervals to establish a rating attributed to pavement roughness (ride quality) as well as pavement distress (cracking, rutting). Table 4.1 (page 54) outlines the ratings and their corresponding description.

   a. Establish a Comprehensive Pavement Rehabilitation Plan that includes:
      i. Routine maintenance–crack filling, joint filling, seal coat to counter affects of natural elements
      ii. Functional improvements–seal coat and thin overlays to improve the ride on higher volume (>1500 ADT) and/or higher functional classification routes
      iii. Structural improvements–overlays to improve structural capacity of the pavement to extend life of the pavement or address high truck loads

Table 4.1: Pavement Quality Index

Pavement Quality Index	
Numeric Rating	**Description**
3.7 to 4.5	Very Good
2.8 to 3.6	Good
1.9 to 2.7	Fair
1.0 to 1.8	Poor
0.0 to 0.9	Very Good

iv. Preservation–minimal investment in pavements to keep the surface in a safe condition until reconstruction can occur

v. Reconstruction–replacement of aggregate base and pavement when pavement can no longer be improved by one of the first four strategies

b. Establish pavement quality goals for each roadway functional classification.

i. Principal Arterials: 3.1 or higher

ii. Minor Arterial: 2.8 or higher

iii. Major Collectors: 2.5 or higher

iv. Minor Collectors: 1.9 or higher

v. Local Roads: 1.4 or higher

E. SAFETY NEEDS

Roadway system safety is of great importance to individual system users and jurisdictional operators. The roadway system in Gibson County is not unusual in its inclusion of unexpected driving conditions at some locations. These locations are often the result of construction prior to current design standards. Following the roadway design standards discussed in chapter two will help to eliminate many of these locations. While crashes will continue to occur, targeted improvements to the system should diminish the number and severity of crashes.

Specific locations throughout the County that are currently experiencing the highest number of crashes are identified in Table 3.3 in Chapter Three (page 28). Reviewing crash records for these locations may be helpful in revealing improvements that will reduce crashes. Locations with persistent crash problems would ideally be investigated systematically. One way to methodically analyze safety problems is by using the RoadHAT (Hazard Analysis Tool) that is available to Indiana county and city transportation agencies through a partnership between INDOT and the Purdue University Center for Road Safety. RoadHAT has been used by the Evansville MPO to prepare documentation required for requesting federal funds for safety projects.

The Indiana Local Technical Assistance Program (LTAP) also can assist local public agencies in developing a Road Safety Audit (RSA), which puts a trained, multi-disciplinary team of people on site to determine what roadway deficiencies exist and what improvements may result in a lower crash rate.

When road safety and traffic flow issues are investigated by local officials, it is recommended that local roadway agencies consult the Manual for Uniform Traffic Control Devices (MUTCD). The MUTCD provides guidance for the appropriate placement/installation of traffic control devices, such as stop signs, road markings, and traffic signal lights. Engineering criteria are the basis for MUTCD guidance, and by following the warrant procedures in the MUTCD to determine traffic control needs, recommendations can be reached in an unbiased manner.

General Road Safety Needs for Indiana

The 2009 Needs Assessment for Local Roads and Streets (by LTAP) identifies three areas of particular concern for local agencies to address regarding road safety: traffic signs; lane delineation; and lane width.

> "Legible traffic signs provide information necessary for the safe and efficient operation of the road system. A survey of signs in Indiana indicates that

> 245,000 signs on local roads (including counties, cities and towns) are in poor condition and should be replaced." "To remain effective, signs must accurately display their intended information without ambiguity. A major factor in the legibility of a sign is the retroreflectivity characteristics...Section 2A.08 of the MUTCD states that, "Regulatory, warning, and guide signs shall be retroreflective or illuminated to show the same shape and similar color by both day and night, unless specifically stated otherwise in the text discussion in this Manual of a particular sign or group of signs" (FHWA, 2003)."
>
> "Lane delineation plays an important role in road safety. However, 88 percent of the paved county roads included in the condition survey did not have edgeline markings and 72 percent did not have centerline markings. These findings are considered representative of all county roads in the state, although not representative of the conditions in cities and towns."
>
> "Adequate lane width is an important factor contributing to safety; however, the survey of paved county roads indicates that over half (53 percent) of the roads surveyed are less than 18 feet, the minimum width recommended by the American Association of State Highway and Transportation Officials (AASHTO, 2004). These findings are considered representative of all county roads in the state, although not representative of the conditions in cities and towns."

In the Conclusion to the 2009 Needs Assessment for Local Roads and Streets, the LTAP report has this to say about roadway safety:

> Currently, local roads are the most hazardous roads for public travel, as indicated by state police statistics which document that more crashes occur on local roads and streets than on state or interstate highways. One way to improve safety was presented over forty years ago by Purdue University Prof. Harold Michael, who suggested that "a program to increase lane width and the use of pavement markings should be undertaken (HERPICC, 1962)." In response to this and more current research (NCHRP, 2004), it is recommended that additional edgeline and centerline markings be used on local roads... Other safety improvements include increasing road width and upgrading traffic signs. Increasing road width would bring roads up to the minimum suggested AASHTO standard of at least 18 feet for low volume, low speed roads... (p. 53).

F. BICYCLE AND PEDESTRIAN TRANSPORTATION RECOMMENDATIONS

Walking and bicycling (active transportation) facilities have become a high priority of citizens in most cities and towns. All adopted planning documents in the county reference active transportation improvements as priorities.

Gibson County should seek to implement, where appropriate, measures that will more efficiently utilize existing roadway facilities, improve access to commercial and work environments, and improve air quality. These measures include active transportation strategies, which are often referred to as alternative modes, because they are alternatives to single-occupant vehicle (SOV) travel. SOV is the least desirable travel option in terms of air pollution and congestion, but is the most common way that Americans commute. A commitment by local communities to active modes of transportation is a fundamental component of addressing the system-wide transportation needs of the future.

The design of the built environment has a major impact on the safety, efficiency, and comfort of pedestrians and bicyclists. Design elements that provide for short and direct trips facilitate walking and cycling. Straight and interconnected streets, shallow building setbacks, small blocks, trees and landscaping, public spaces, and continuous facilities all encourage pedestrian and bicycle activity, as do mixed-use developments and clustered developments. Once an area has been developed with deficiencies for pedestrian and bicycle circulation it can be very difficult to add sidewalks, bike lanes, or multi-use paths. Safe, connected, and

continuous facilities for bicycling and walking are vital to encourage and support travel by foot or by bicycle, and also help to promote transit use.

The acknowledged benefits of walking and bicycling for transportation include:

- Bicycling and walking are inexpensive (or no cost) alternatives to automobile travel;
- Increased exercise from walking or biking often leads to health improvement;
- Bicycling and walking are environmentally sustainable ways to travel;
- Reductions in automobile traffic leads to improved quality of life for individuals and community;
- Active transportation builds communities by providing more opportunities for interaction with others.

Pedestrian Accommodations

Existing sidewalks in some areas are in need of repair, and additional sidewalks are needed in some areas. Sidewalk maintenance is the responsibility of abutting property owners, although many property owners are unaware of this and/or are unable to finance sidewalk repairs. There are federal grant sources for sidewalk construction costs, which are described in the following chapter. Many cities, including Evansville, Bloomington, and Terre Haute have established sidewalk improvement matching grant programs to assist property owners in making sidewalk improvements. These programs match the property owner contribution at 50 percent, and the Bloomington program reduces the property owner match for residential locations to the cost of required concrete alone. This type of program may be necessary to prevent the deterioration of sidewalk facilities as local units of government receive less funding from state sources such as property taxes.

Sidewalks provide a significant measure of safety for those walking near roads by separating them from traffic, and are otherwise important in encouraging people to walk in their neighborhoods. Children especially benefit from sidewalks because walking is often their only option for neighborhood trips, and child pedestrians are also more prone to have traffic accidents than adults. The disabled are particularly dependent on sidewalks for safety. By prioritizing pedestrian safety, a roadway is likely to attain safer attributes for all users as well.

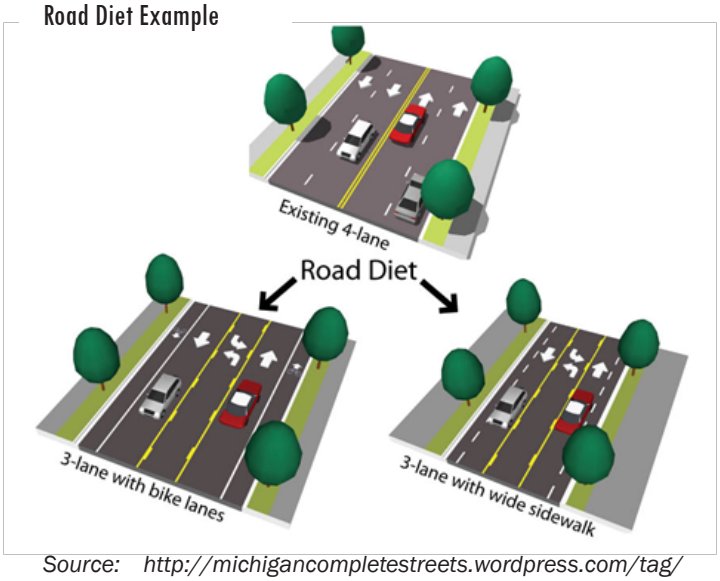
Several recent U.S. health studies have recommended improvements in the built environment to expand opportunities for walking or biking to combat increasing health problems linked to sedentary lifestyles. The Institute of Medicine, which was charged by Congress in 2002 to develop a prevention-focused action plan to decrease the prevalence of obesity in the United States, has cited an urgent need to create activity-friendly communities. In a June, 2009 article in PEDIATRICS, the American Academy of Pediatrics recommended that “State and local governments should examine their planning and zoning efforts to ensure that children’s ability to walk, play, and get to school safely are a top priority.”

In addition to sidewalks, there are a variety of other roadway facilities and treatments to improve pedestrian safety. Raised medians and refuge islands provide safe haven halfway across streets. Good lighting at crossings improves pedestrian visibility. Buffers between the curb and sidewalk provide extra safety for pedestrians, as does a buffer of on-street parking. Access controls to limit driveway and median breaks reduce conflict points. And traffic calming measures to reduce traffic speed and/or volume can increase the walkability, livability, and overall roadway safety of an area. These facilities and measures should be considered in street improvement projects, transit projects, and for new roads.

“Road diets,” which are reductions in the number of lanes on undivided roadways, can provide enhanced pedestrian safety by increasing the width of outside/curb lanes, putting the travel area for motor vehicles farther from the sidewalk. Wide curb lanes can also provide adequate space for the provision of bike lanes or a bicycle route. The City of Evansville implemented a road diet project in 2009, reducing about a two-

mile segment of four-lane Lincoln Avenue (a minor arterial) to three lanes – two through lanes and a center left-turn lane – between Rotherwood Avenue and S. Hebron Avenue. A bicycle route was designated on this segment of Lincoln Avenue after the curb lanes were widened. That project has been well-received by the public and has had a positive impact on the safety of the corridor.

Road Diet Example



Source: http://michigancompletestreets.wordpress.com/tag/complete-streets/

collector and arterial streets, as well as rural roads where bicycles and cars have to share lanes that were designed to accommodate car and truck traffic.

New roads should be designed to accommodate all roadway users, including pedestrians and bicyclists, wherever possible. Retrofitting roads to accommodate pedestrians and bicyclists is often technically and/or financially impractical. Road reconstruction and maintenance projects are excellent opportunities to review pedestrian and bicycle accommodation possibilities, and to implement accommodation upgrades cost effectively.

"Complete Street" with bicycle lanes and sidewalks

Source: http://www.m-bike.org/blog/2009/03/16/complete-streets-bills-re-introduced/

Bicycle Accommodations

Using a bicycle for transportation in most places requires that bicyclists use public roads. To safely use public roads, bicyclists must act as drivers of vehicles, exercising the same rights and responsibilities that motorists do. Bicyclists need continuous routes that have adequate design features to accommodate bicycles, and which link to community activity centers such as central business districts, schools, and transit stations. While many city streets and rural roads are technically adequate for bicycle travel, safety is major concern for busy

"Share the road" signs have recently been established on selected roadways in the region. The signs consist of a yellow, diamond-shaped bicycle warning sign and a rectangular placard (mounted below) stating share the road. The intent of these signs is to alert motorists to the possibility of encountering slower-moving cyclists. Rural roads are preferred by recreational cyclists for extended rides without frequent required stops, and there are no local alternatives for this. Most of the rural roads in this region do not have adequate shoulder width for

bicycles or cars to safely exit the road. These signs could help prevent accidents, and will at least help raise awareness of cyclist's use of rural roads.

Warning Sign

A good model for bicycle accommodation on low-volume rural roads can be found in Vanderburgh County, south of Burdette Park in Union Township. More than 32 miles of roads in southwest Vanderburgh County were designated as bicycle routes (four connected routes) during the summer of 2006. The bicycle routes, called the Burdette Park Discovery Trail, connect to Burdette Park, where a "trailhead" with information, bicycle parking, and showers are available for cyclists' use. Route Four also has a trailhead at the junction of Cypress Dale and Old Henderson roads. This comprehensive facility for recreational "road cyclists" has worked well by any measure. Warrick County is in the process of implementing a similar facility at Bluegrass Fish and Wildlife Area.

Designated facilities are only one of the several elements that are essential to creating a safe bicycling environment. Bicycle safety education, bicycle use encouragement, and the enforcement of the Rules of the Road as they pertain to bicyclists should all be combined with a network of bicycle facilities to form a comprehensive approach to system-wide bicycle travel.

Separated Paths

Children and casual adult bike riders outnumber skilled adult cyclists by 20:1 and need to be separated from high-volume traffic by multi-use paths, trails, or low-volume roads simply to accommodate their desire to ride. In urban areas, greenways may be ideal places for children to learn to ride bikes, and for families and friends to take extended walks for exercise or pleasure. Such separated bikeways can play an important role in the active transportation scheme as well.

In order to facilitate the extension and connection of multi-use paths that were discussed in Chapter Three, it is recommended that an exploratory committee be formed by interested parties in Gibson County. Parties that are involved with the development of the various trails, or who wish to develop new trails, should benefit by discussing their ideas and plans with each other, and may be able to help each other with developing paths. Beyond this, a "paths committee" could develop a vision, goals, and objectives for a separated path network in Gibson County, if there is a desire to work towards those ends.

Separated Path

Source: http://thevillagesofdetroit.com/greenways/

G. TRANSIT DEVELOPMENT

For those advocating for public transportation and for providers of public transportation, the goals of maintaining current transportation services and expanding transportation services in underserved areas is a constant challenge. One way of expanding transportation services is to collaborate with other agencies and leverage current assets. Since early 2009, the Evansville Metropolitan Planning Organization (EMPO) has collaborated in two instructive efforts to expand the public transportation options in areas outside that currently served by the Evansville Metropolitan Transportation System (METS). These collaborative efforts may serve as an example for those in Gibson County who are interested in the development of transit service in some form.

One effort intends to expand public transportation in northern Vanderburgh County outside the Evansville City limits along the Highway 41 and Highway 57 corridors, where a variety of businesses are concentrated. This effort to expand public transportation in northern Vanderburgh County continues and it is hoped a pilot program for a proposed route will be announced before the end of 2011. The second effort is twofold: First, to provide a scheduled, fixed route transit service in Warrick County; second, is to link this new service with the Metropolitan Evansville Transit System. These efforts have been successful. There are now three fixed routes in Warrick County which serve Newburgh, Chandler and Boonville. The transit service, run by Ride Solution, Inc., is called Warrick Area Transportation System or WATS. WATS service connects with METS at a stop at ITT Technical Institute in Warrick County. The following recommendations are based on the experiences of the Evansville MPO in working with other local organizations to achieve the goals of these new public transit efforts.

The initial step in expanding public transportation services is for the community to create a database of current transportation providers and the services they provide. Various social service agencies provide transportation to their clients. Some categories of clients may include low income, elderly, disabled, mentally handicapped, etc. Other organizations may provide transportation to larger segments of the population but may have geographical limitations. Often, these providers are familiar with each other but may not coordinate their services.

Regardless of the reasons organizations provide transportation, and the rules that may restrict their services, it is important to identify all these providers, along with a detailed summary of the services they provide. In order for a community to assess their unmet needs, it must know the current landscape.

The next step which may run parallel with the first is to create a committee. The committee should consist of transportation providers, community leaders, and volunteers. It is important that committee members understand that they are expected to contribute. It is also important that one member of the committee be the facilitator who identifies exactly what needs to be done, by whom and when it is expected.

The third step is to assess the unmet needs of the community. Surveys are a useful tool as well as community forums where the public is invited to speak. All the information gathered must be condensed into short, easily understood facts. This information must clearly identify the number of people, geographic area, population segments, times, etc. that are underserved.

Fourth is to propose a plan to meet the unmet transportation needs. This will be a plan tailored to the specific needs of the community. It may describe the type and number of vehicles needed, the areas to be served, frequency, cost, etc. Perhaps the most important of these will be identifying the lead public transportation agency. Lastly, the committee must act on the plan by presenting it to the public, media and elected officials. The committee must then lobby for its implementation.

H. RIDESHARING

In light of the large number of residents that commute for employment, both to and from Gibson County; and the likelihood of continued high fuel prices in years to come, it would benefit commuters to have not only a transit option, but also good options for carpooling. To make carpooling convenient, park-and-pool lots are commonly utilized.

Park-and-pool facilities provide commuters with a choice of travel to work while increasing the efficiency of the transportation network. Park-and-pool facilities benefit the community by reducing traffic congestion on major thoroughfares, noise pollution, and harmful air pollution emissions. Participant benefits include reduced wear and tear on automobiles, fuel costs, vehicle depreciation, vehicle maintenance costs and other travel-related fees. Ridesharing is also an important mobility option for non-drivers, particularly in small towns and rural areas, where notices are often posted on bulletin boards and travel needs are shared through informal networks.

Commuters with a common destination meet at a park and ride facility to travel to work together to reduce the number of vehicle miles traveled each day. The development of park and ride facilities does not require the construction of new dedicated park and ride facilities. A common trend is the joint use of existing parking lots of commercial developments, churches or vacant lots to provide a safe and efficient location for commuters to park and drive to work with other commuters in high-occupancy modes of travel. When located in commercial shopping centers, park and ride users may complete necessary shopping or errand running before or after work. Large commercial developments are also typically located on or near major roadways that are ideal for park and ride facility locations.

Research conducted by the Evansville MPO for the Employment Accessibility Study and the Park and Ride Feasibility Study (2002) indicates that transportation demand management (TDM) strategies – especially carpooling and park-and-ride facilities (remote transit parking/boarding areas) – have the potential for success within the Evansville region. Park and ride or carpool facilities are a good approach for regions such as those around Evansville, due to the number of large employers, especially factories, which encourage workers to drive longer distances to work for better benefits and work conditions than those that may exist in surrounding rural counties. Park-and-pool can serve a large portion of the population if located in highly visible, accessible locations.

Park and Ride facility

Source: http://www.scottsdaleaz.gov/page11656.aspx

A further step towards establishing carpooling as a viable option for long-distance commuters is to create formal ride-matching programs. Larger ride-matching programs use computerized partner matching systems that take into account each commuter's origin, destination, schedule, and special needs. Smaller programs may simply match potential partners by hand, or use ride notice boards. Rideshare programs can be implemented by an individual employer as part of a Commute Trip Reduction program, by a Campus Trip Management program, or by a regional transportation agency or other public agency. The City of Evansville has made some initial steps towards establishing a regional, computerized ride-matching program, but it is unknown if or when such a program will be realized.

I. LAND USE

The accepted Gibson County Comprehensive Plan establishes land use development and infrastructure policies. It documents goals and objectives for future development, acknowledges the strong link between land use and transportation infrastructure and contains a future land use map. Development guidelines that may serve as the basis for future zoning or subdivision control ordinances are established in the Plan. The thoroughfare plan and local roadway improvement recommendations of the Comprehensive Plan substantially conform to those contained in this plan.

Premature Development Prevention

For the purpose of prioritizing improvements and managing growth, it is necessary to consider the impacts of various land use decisions. Gibson County recognizes that development should occur when necessary infrastructure or support services exist or when such necessary infrastructure improvements are constructed concurrent with and by development. Premature development is the development of land prior to the necessary infrastructure or public support services capacity being available, or development occurring without the construction of necessary infrastructure improvements. Premature development can present an unnecessary risk to new residents and businesses, increased costs to taxpayers for later provision of services, and may result in the need to redirect scarce financial resources away from priority projects.

To minimize these risks, it is recommended that Gibson County, as well as Princeton and Haubstadt, adopt by ordinance provisions defining conditions when a development proposal may be considered premature. Such an ordinance may include infrastructure provisions (e.g. lack of roads or highways, adequate drainage, adequate potable water supply, waste disposal systems, stormwater management systems, etc.), public service capacity provisions (e.g. parks, fire, medical, schools, police protection, etc.), or inconsistently adopted plans (e.g. Comprehensive Plan, Capital Improvement Plans, etc.).

Premature development ordinance provisions related to roadways should include provisions addressing the effects that increased traffic from new development may have on substandard roadways. A roadway may be substandard based on conditions such as width, grade, stability, alignment, site distance, and paved surface condition, such that an increase in traffic volume generated by a proposed subdivision would create a hazard to public safety, or seriously aggravate an already hazardous condition, and when roads are inadequate for their intended use. Provisions should define conditions when development or redevelopment on a gravel roadway or other substandard roadway would be denied or funds required to be escrowed for future improvements.

Corridor Studies

In order to preserve opportunities for new corridors and extension/expansion corridors, it is recommended that corridor studies be undertaken, where appropriate, in a timely manner. As development continues to occur in Gibson County and its communities, opportunities to develop necessary connections within the transportation system diminish. Corridor studies may serve to identify corridor alignments and right-of-way requirements so that land use decisions can be made consistent with the intent of the County Comprehensive Plan, and future corridor right-of-way can be preserved. Awareness and communication of corridor study needs between all stakeholders and relevant jurisdictions are critical to ensure corridor alignment opportunities are not lost through land development and/or building construction.

chapter 5

PLAN FINANCING

Local agencies acknowledge that available funding sources do not meet all the transportation needs identified in the County. Prioritization of transportation investments is necessary to maximize the return on transportation investments.

A. SYSTEM PRIORITIES AND FUNDING

The Transportation Plan includes a tiered project listing and additional development recommendations which together address transportation challenges faced by the County and communities with the County.

Projects documented in chapter four have been assigned to short, medium and long term implementation groups.

- Short term projects: Under development, or a priority for imminent development. A desired completion date of 2015 is attributed to these projects.
- Medium term projects: Targeted for 2025 completion and are not under current development at this time.
- Long term projects: These projects serve as a vision section for future development and are proposed for 2035 completion.

Development groups and completion targets are illustrative and reflect project development status, available funds, agency priorities and other factors.

Transportation Funding

There are a variety of funding sources available to local public agencies for planned system maintenance and improvements. Many sources have specific purposes and limitations to for their use. The primary sources include:

Federal Funds

Federal transportation funding is authorized through the federal transportation funding bill (SAFETEA-LU). The various federal surface transportation funds available in Gibson County include:

1) 1. National Highway System (NHS) funds are dedicated for roadway facilities of national importance, due to direct access to interstates, transportation centers, and defense facilities. This includes the interstate system and all federal and state highway facilities classified as principal arterial. In order for a project to qualify to receive NHS funding, it must be initiated by the state DOT. Therefore, priority for NHS projects is also set by the state. Interstate construction and maintenance projects are eligible to receive 90% federal obligation, while other NHS project types are eligible for 80%.

2) Surface Transportation Program (STP) funds may be used to finance any surface transportation project on any Federal-Aid road. Federal-Aid roads consist of all surface transportation facilities, with the exception of urban local facilities or rural minor collectors and local roads. Projects initiated by state, county, or city/town agencies can qualify to receive STP funding.

   Each state receives a limited amount of STP funds. Of the funds received, 20% is obligated to Transportation Enhancement and Safety activities. Transportation Enhancement activities consist of projects which enhance the transportation system. These may include bicycle/pedestrian facilities, historic preservation, or landscape activities. Safety activities include hazard elimination and railroad crossing improvement projects. Both categories are distributed on a discretionary basis through INDOT.

   The remaining 80% of STP funds are distributed based upon population levels. This allocation is based upon the latest decennial census. 37.5% of these funds are distributed to non-urban areas of the state. Gibson county agencies compete to receive a portion of this funding. STP funds receive 80% federal participation.

3) Highway Safety Improvement Program funds are authorized in SAFETEA-LU for safety improvement projects to reduce traffic fatalities and serious injuries on all public roads. The program replaces the Hazard Elimination Safety STP setaside from earlier transportation bills. The federal participation for HSIP projects is 90-100%.

4) Bridge Replacement and Rehabilitation funds are available to be used to reconstruct, replace, or rehabilitate deficient bridge structures. Any bridge on a public road is eligible to receive funding, but funding discretion is the responsibility of the state. The federal share of Bridge Replacement and Rehabilitation funds is 80%.

5) Equity Bonus funds ensure that each state receives a guaranteed return on its contributions to the Highway Account of the Federal Highway Trust Fund.

6) Interstate Maintenance (IM) funds are available for the maintaining the interstate system. The state is responsible for programming of maintenance funds.

7) Transportation Enhancement (TE) funds are intended to enhance the transportation system through the use of non-traditional projects, such as bicycle & pedestrian facilities, landscaping, and historical facilities. TE funding is based upon a 10% set aside of Surface Transportation funds.

8) Transportation, Community, and System Preservation (TCSP) provides funding for a comprehensive initiative including planning grants, implementation grants, and research to investigate and address the relationships between transportation, community, and system preservation and to identify private sector-based initiatives. The Federal share payable on any TCSP project or activity shall be 80% or subject to the sliding scale rate in accordance with 23 USC 120(b).

9) High Priority Projects (HPP) the High Priority Projects Program provides designated funding for specific projects identified in SAFETEA-LU. A total of 5,091 projects are identified, each with a specified amount of funding over the 5 years of SAFETEA-LU. The Federal share remains at 80%.

10) Safe Routes to School (SRTS) for infrastructure related projects, eligible activities are the planning, design, and construction of projects that will substantially improve the ability of students to walk and bicycle to school. Each State must set aside from its Safe Routes to School apportionment not less than 10 percent and not more than 30 percent of the funds for noninfrastructure-related activities to encourage walking and bicycling to school. The Federal share for SRTS funds is 100%.

State Funds

State funds can be used as the sole funding instrument for a project or as matching funds to the federal assistance for state-initiated highway projects or programs.

Local Funds

There are a variety of transportation funding mechanisms available to local governments. Although many options are available, not all revenue sources may be used to fund or serve as a match to federal funds for improvement projects. Portions of some revenue sources are allocated to fund routine maintenance of transportation facilities, pay employee wages, and maintain equipment. The two major funds to maintain local transportation facilities in Indiana are referred to as the Motor Vehicle Highway (MVH) and Local Road and Street (LRS) distributions. These funds are derived from the state excise tax and taxes on gasoline and special fuels and other fees, and are received monthly by the LPAs from the Auditor of State's office. The distribution of these funds is based on formulae that consider road mileage, population, and the number of vehicle registrations. A more complete list of local sources includes:

1) The Motor Vehicle Highway Account is the principal source of revenue for operation of the county highway departments. This fund is used for the purchase of materials, equipment, and labor for the maintenance and construction of county transportation facilities.

2) Local Road & Street funds provide revenue to both city and county highway departments in Indiana. These funds may be used for various improvements to the local transportation systems, including right of way acquisition, preliminary engineering, construction, or reconstruction activities. They may also be used for bond repayment.

3) The Cumulative Bridge Fund may be used to finance the construction or repair of county bridges and grade separations.

4) The State of Indiana also provides for a local option auto excise & wheel tax. Gibson County exercises this taxing option. Revenue must be distributed evenly between the county and the municipalities based upon the ratio of city miles to total county miles.

5) Gibson County enacted an Economic Development Income Tax (EDIT) in 1995. EDIT revenue is divided among county, cities, and towns based on property tax levy shares or based on population shares. The allocation for maintenance and construction of local public agency transportation facilities is determined annually.

6) Tax Increment Financing (TIF) funds are funds collected from a specific area and can be spent to provide infrastructure improvements to encourage development in the area. Gibson County has one TIF district encompassing the Toyota Motor Manufacturing facility north of Ft. Branch. Revenue generated by this TIF is used to service development bonds for the area, as well as return revenue to assorted taxing units in the county; primarily Patoka Township. This revenue source is not reflected below for this reason.

7) Local governments may also use general obligation bonds and cumulative capital improvement funds to fund transportation improvements.

Table 5.1 documents local revenue sources reported by the Gibson County and the City of Princeton for 2008, 2009 and 2010.

B. OPERATIONS AND MAINTENANCE COSTS

In order to establish local fiscal capacity to construct new projects, it is necessary to consider the funding required to ensure the preservation of the existing transportation system (roads, sidewalks, and trails). Costs that should be included are system maintenance costs for the preservation of the transportation system such as snow & ice removal; patching pot holes and repairing shoulders; traffic control devices, including signs and signals; and highway department labor cost; administrative costs, utilities and rent, etc. Table 5.2 illustrates revenues available for capital improvement projects by subtracting reported operations and maintenance costs from total revenue. Operations and maintenance costs were collect for 2008-2010. Over this period, negative available revenues for Gibson County reflect usage of accumulated balances to maintain the existing system.

Table 5.1: Local Revenue Source Averages

Local Fund Revenue Sources*	Annual Average
Gibson County	
Motor Vehicle Highway Account	$2,342,934
Local Road and Street Account	$292,429
Local Option Highway User Tax; Wheel Tax + Excise Surtax	$415,477
Cumulative Bridge Fund	$1,147,134
Economic Development Income Tax	$1,555,329
Total	**$5,753,303**
City of Princeton	
Motor Vehicle Highway Account	$509,613
Local Road and Street Account	$32,486
Economic Development Income Tax	$889,449
Other Infrastructure Revenues/Transfers	$24,607
Total	$1,456,156

Table 5.2: Available Local Revenues

	Local Revenue Average	Average Operations & Maintenance Costs	Available Revenues
Gibson County	$5,753,303	$6,207,762	-$454,459
City of Princeton	$1,456,156	$956,200	$499,956

appendix A

PROJECTS LIST

appendix A | PROJECTS LIST

Table A.1: Long Range Plan List of Proposed Projects

ID#	ROAD	LIMITS	TYPE
SHORT TERM PROJECTS: DESIRED COMPLETION 2015			
A-1	CR 100W/CR50S/2nd Street (Princeton)	Southern Crossing to SR 64	Upgrade and New
A-2	CR 50S	US 41 to 2nd Street (Princeton)	Upgrade and New
A-3	Multi-use Path Phase 1	CR 100 North/Embree Street intersection to Embree Street/Brumfield Avenue intersection	New
MEDIUM TERM PROJECTS: DESIRED COMPLETION 2025			
B-1	Warnock Street/Embree Street Roundabout	Intersection of Warnock Street and Embree Street in Princeton	Intersection Reconfiguration
B-2	Makemson Avenue	CR 100 W to Makemson @ Hansen's Corporation	New
B-3	Brumfield Avenue	Embree Street to SR 64	Upgrade
B-4	Multi-use Path Phase 2	Embree Street/Brumfield Avenue intersection to Broadway Street (SR 64)	New
LONG TERM PROJECTS: DESIRED COMPLETION 2035			
C-1	SR 64 (Broadway Street)	9th Street (Princeton) to South Main Street	Reconstruction
C-2	Embree Street	West Broadway Street (SR64/65) to Warnock Street	Upgrade
C-3	SR 64 (Broadway Street)	South Main Street (Princeton to State Street)	Reconstruction
C-4	Brumfield Avenue	Extend from current terminus to SR 64	New
C-5	SR 65 (North Main Street)	SR 64 to Princeton City Limit	Upgrade
C-6	Multi-use Path Phase 3-6	Broadway Street (SR 64) to Tulip Tree Drive	New
C-7	CR 150 South (Southern Crossing)	Toyota Boshuku to South Main Street	New (2 lanes)
C-8	CR 150 South	South Main Street (Princeton) to SR 64	Upgrade
C-9	County Bicycle and Pedestrian Infrastructure System	Development of county wide bicycle and pedestrian improvements/trail system to potentially include Haubstadt, Fort Branch, Owensville and Oakland City.	New
C-10	Gibson Street (Haubstadt)	Haubstadt town limit to US 41	Upgrade
C-11	CR 50 East	SR 68 to CR 1250 South	Upgrade

appendix B

LEVEL OF SERVICE TABLES

Table B.1: Annual Average Daily Traffic Volumes for Urbanized Areas

STATE SIGNALIZED ARTERIALS

Class I (>0.00 to 1.99 signalized intersections per mile)

Lanes	Median	B	C	D	E
2	Undivided	9,600	15,400	16,500	***
4	Divided	29,300	35,500	36,700	***
6	Divided	45,000	53,700	55,300	***
8	Divided	60,800	71,800	73,800	***

Class II (2.00 to 4.50 signalized intersections per mile)

Lanes	Median	B	C	D	E
2	Undivided	**	10,500	15,200	16,200
4	Divided	**	25,000	33,200	35,100
6	Divided	**	39,000	50,300	53,100
8	Divided	**	53,100	67,300	70,900

Class III/IV (more than 4.5 signalized intersections per mile)

Lanes	Median	B	C	D	E
2	Undivided	**	5,100	11,900	14,900
4	Divided	**	12,600	28,200	31,900
6	Divided	**	19,700	43,700	48,200
8	Divided	**	27,000	59,500	64,700

Non-State Signalized Roadway Adjustments

(Alter corresponding state volumes by the indicated percent.)

Major City/County Roadways	- 10%
Other Signalized Roadways	- 35%

State & Non-State Signalized Roadway Adjustments

(Alter corresponding state volumes by the indicated percent.)

Divided/Undivided & Turn Lane Adjustments

Lanes	Median	Exclusive Left Lanes	Exclusive Right Lanes	Adjustment Factors
2	Divided	Yes	No	+5%
2	Undivided	No	No	-20%
Multi	Undivided	Yes	No	-5%
Multi	Undivided	No	No	-25%
–	–	–	Yes	+ 5%

One-Way Facility Adjustment

Multiply the corresponding two-directional volumes in this table by 0.6.

FREEWAYS

Lanes	B	C	D	E
4	43,500	59,800	73,600	79,400
6	65,300	90,500	110,300	122,700
8	87,000	120,100	146,500	166,000
10	108,700	151,700	184,000	209,200
12	149,300	202,100	238,600	252,500

Freeway Adjustments

Auxiliary Lanes	Ramp Metering
+ 20,000	+ 5%

UNINTERRUPTED FLOW HIGHWAYS

Lanes	Median	B	C	D	E
2	Undivided	7,800	15,600	22,200	27,900
4	Divided	34,300	49,600	64,300	72,800
6	Divided	51,500	74,400	96,400	109,400

Uninterrupted Flow Highway Adjustments

Lanes	Median	Exclusive left lanes	Adjustment factors
2	Divided	Yes	+5%
Multi	Undivided	Yes	-5%
Multi	Undivided	No	-25%

BICYCLE MODE[2]

(Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)

Paved Shoulder/ Bicycle Lane

Coverage	B	C	D	E
0-49%	**	3,200	12,100	>12,100
50-84%	2,400	3,700	>3,700	***
85-100%	6,300	>6,300	***	***

PEDESTRIAN MODE[2]

(Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)

Sidewalk Coverage	B	C	D	E
0-49%	**	**	5,000	14,400
50-84%	**	**	11,300	18,800
85-100%	**	11,400	18,800	>18,800

BUS MODE (Scheduled Fixed Route)[3]

(Buses in peak hour in peak direction)

Sidewalk Coverage	B	C	D	E
0-84%	>5	≥4	≥3	≥2
85-100%	>4	≥3	≥2	≥1

[1] Values shown are presented as two-way annual average daily volumes for levels of service and are for the automobile/truck modes unless specifically stated. Although presented as daily volumes, they actually represent peak hour direction conditions with applicable K and D factors applied. This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Calculations are based on planning applications of the Highway Capacity Manual, Bicycle LOS Model, Pedestrian LOS Model and Transit Capacity and Quality of Service Manual, respectively for the automobile/truck, bicycle, pedestrian and bus modes.

[2] Level of service for the bicycle and pedestrian modes in this table is based on number of motorized vehicles, not number of bicyclists or pedestrians using the facility.

[3] Buses per hour shown are only for the peak hour in the single direction of the higher traffic flow.

** Cannot be achieved using table input value defaults.

*** Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached. For the bicycle mode, the level of service letter grade (including F) is not achievable because there is no maximum vehicle volume threshold using table input value defaults.

Source:
Florida Department of Transportation
Systems Planning Office
605 Suwannee Street, MS 19
Tallahassee, FL 32399-0450

Source: 2009 FDOT Quality/Level of Service Handbook (http://www.dot.state.fl.us/planning/systems/sm/los/pdfs/2009FDOTQLOS_Handbook.pdf)

Table B.2: Annual Average Daily Traffic Volume for Areas Transitioning into Urbanized Areas or Areas over 50,000 not in Urbanized Areas

STATE SIGNALIZED ARTERIALS

Class I (>0.00 to 1.99 signalized intersections per mile)

Lanes	Median	B	C	D	E
2	Undivided	8,900	14,100	15,200	***
4	Divided	26,900	32,100	33,800	***
6	Divided	41,500	48,600	51,000	***

Class II (2.00 to 4.50 signalized intersections per mile)

Lanes	Median	B	C	D	E
2	Undivided	**	9,400	13,700	14,700
4	Divided	**	22,700	30,000	31,700
6	Divided	**	35,700	45,400	47,800

Class III (more than 4.5 signalized intersections per mile)

Lanes	Median	B	C	D	E
2	Undivided	**	4,700	10,700	13,400
4	Divided	**	11,500	25,500	28,900
6	Divided	**	18,000	39,800	43,900

FREEWAYS

Lanes	B	C	D	E
4	42,600	57,600	68,700	73,600
6	63,900	86,600	103,300	113,700
8	85,200	115,600	137,600	153,700
10	106,400	145,600	172,400	192,800

Freeway Adjustments

Auxiliary Lanes	Ramp Metering
+ 20,000	+5%

UNINTERRUPTED FLOW HIGHWAYS

Lanes	Median	B	C	D	E
2	Undivided	8,000	15,100	21,100	26,800
4	Divided	31,400	45,400	58,800	66,600
6	Divided	47,200	68,100	88,200	100,000

Uninterrupted Flow Highway Adjustments

Lanes	Median	Exclusive left lanes	Adjustment factors
2	Divided	Yes	+5%
Multi	Undivided	Yes	-5%
Multi	Undivided	No	-25%

Non-State Signalized Roadway Adjustments

(Alter corresponding state volumes by the indicated percent.)

Major City/County Roadways	- 10%
Other Signalized Roadways	- 35%

State & Non-State Signalized Roadway Adjustments

(Alter corresponding volume by the indicated percent.)

Divided/Undivided & Turn Lane Adjustments

Lanes	Median	Exclusive Left Lanes	Exclusive Right Lanes	Adjustment Factors
2	Divided	Yes	No	+5%
2	Undivided	No	No	-20%
Multi	Undivided	Yes	No	-5%
Multi	Undivided	No	No	-25%
–	–	–	Yes	+ 5%

One-Way Facility Adjustment

Multiply the corresponding two-directional volumes in this table by 0.6.

BICYCLE MODE[2]

(Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.

Paved Shoulder/ Bicycle Lane Coverage	B	C	D	E
0-49%	**	2,800	7,300	>7,300
50-84%	2,200	3,400	13,100	>13,100
85-100%	4,100	>4,100	***	***

PEDESTRIAN MODE[2]

(Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)

Sidewalk Coverage	B	C	D	E
0-49%	**	**	5,000	14,400
50-84%	**	**	11,300	18,800
85-100%	**	11,400	18,800	>18,800

[1] Values shown are presented as two-way annual average daily volumes for levels of service and are for the automobile/truck modes unless specifically stated. Although presented as daily volumes, they actually represent peak hour direction conditions with applicable K and D factors applied. This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Calculations are based on planning applications of the Highway Capacity Manual, Bicycle LOS Model, Pedestrian LOS Model and Transit Capacity and Quality of Service Manual, respectively for the automobile/truck, bicycle, pedestrian and bus modes.

[2] Level of service for the bicycle and pedestrian modes in this table is based on number of motorized vehicles, not number of bicyclists or pedestrians using the facility.

** Cannot be achieved using table input value defaults.

*** Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached. For the bicycle mode, the level of service letter grade (including F) is not achievable because there is no maximum vehicle volume threshold using table input value defaults.

Source:
Florida Department of Transportation
Systems Planning Office
605 Suwannee Street, MS 19
Tallahassee, FL 32399-0450

Source: 2009 FDOT Quality/Level of Service Handbook (http://www.dot.state.fl.us/planning/systems/sm/los/pdfs/2009FDOTQLOS_Handbook.pdf)

Table B.3: Annual Average Daily Traffic Volumes for Urbanized Areas

Rural Undeveloped Areas

FREEWAYS

Lanes	B	C	D	E
4	37,100	50,800	59,900	63,700
6	56,500	76,400	89,900	98,300
8	75,100	101,100	119,900	132,900

Freeway Adjustments

Auxiliary Lanes
+18,000

UNINTERRUPTED FLOW TWO-LANE HIGHWAYS

Lanes	Median	B	C	D	E
2	Undivided	4,500	8,100	13,800	27,600

Passing Lane Adjustment

Alter LOS B-D volumes in proportion to passing lane length to the highway segment length.

UNINTERRUPTED FLOW MULTILANE HIGHWAYS

Lanes	Median	B	C	D	E
4	Divided	26,300	41,100	52,100	59,100
6	Divided	39,400	61,700	78,000	88,600

ISOLATED STATE SIGNALIZED INTERSECTIONS

Lanes	B	C	D	E
2	**	4,700	10,400	12,300
4	**	10,300	23,200	25,500
6	**	15,800	36,000	38,500

BICYCLE MODE[2]

(Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)

Paved Shoulder/ Bicycle Lane Coverage	B	C	D	E
0-49%	**	**	**	7,800
50-84%	**	**	**	14,000
85-100%	**	4,200	>4,200	***

[1] Values shown are presented as two-way annual average daily volumes for levels of service and are for the automobile/truck modes unless specifically stated. Although presented as daily volumes, they actually represent peak hour direction conditions with applicable K and D factors applied. This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Calculations are based on planning applications of the Highway Capacity Manual, Bicycle LOS Model and Pedestrian LOS Model, respectively for the automobile/truck, bicycle, and pedestrian modes.

[2] Level of service for the bicycle and pedestrian modes in this table is based on number of motorized vehicles, not number of bicyclists or pedestrians using the facility.

** Cannot be achieved using table input value defaults.

*** Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached. For the bicycle mode, the level of service letter grade (including F) is not achievable because there is no maximum vehicle volume threshold using table input value defaults.

Source:
Florida Department of Transportation
Systems Planning Office
605 Suwannee Street, MS 19
Tallahassee, FL 32399-0450

Cities or Rural Developed Areas Less Than 5000

FREEWAYS

Lanes	B	C	D	E
4	37,100	49,900	59,400	63,700
6	54,800	74,600	89,000	98,300
8	73,300	100,200	118,700	132,700

Freeway Adjustments

Auxiliary Lanes
+18,000

UNINTERRUPTED FLOW HIGHWAYS

Lanes	Median	B	C	D	E
2	Undivided	7,800	14,200	20,000	25,600
4	Divided	23,800	37,200	48,000	54,600
6	Divided	35,600	55,800	72,000	82,000

Uninterrupted Flow Highway Adjustments

Lanes	Median	Exclusive left lanes	Adjustment factors
2	Divided	Yes	+5%
Multi	Undivided	Yes	-5%
Multi	Undivided	No	-25%

STATE SIGNALIZED ARTERIALS

Lanes	Median	B	C	D	E
2	Undivided	**	9,800	13,000	13,900
4	Divided	**	23,300	28,000	29,900
6	Divided	**	36,400	42,400	45,000

Non-State Signalized Roadway Adjustments

(Alter corresponding state volumes by the indicated percent.)

Major City/County Roadways - 10%
Other Signalized Roadways - 35%

State & Non-State Signalized Roadway Adjustments

(Alter corresponding volume by the indicated percent.)

Divided/Undivided & Turn Lane Adjustments

Lanes	Median	Exclusive Left Turn Lanes	Exclusive Right Turn Lanes	Adjustment Factors
2	Divided	Yes	No	+5%
2	Undivided	No	No	-20%
Multi	Undivided	Yes	No	-5%
Multi	Undivided	No	No	-25%
–	–	–	Yes	+ 5%

BICYCLE MODE[2]

(Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)

Paved Shoulder/ Bicycle Lane Coverage	B	C	D	E
0-49%	**	2,800	7,300	>7,300
50-84%	2,200	3,400	13,100	>13,100
85-100%	4,100	>4,100	***	***

PEDESTRIAN MODE[2]

(Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)

Sidewalk Coverage	B	C	D	E
0-49%	**	**	5,000	14,400
50-84%	**	**	11,300	18,800
85-100%	**	11,400	18,800	>18,800

Source: 2009 FDOT Quality/Level of Service Handbook (http://www.dot.state.fl.us/planning/systems/sm/los/pdfs/2009FDOTQLOS_Handbook.pdf)