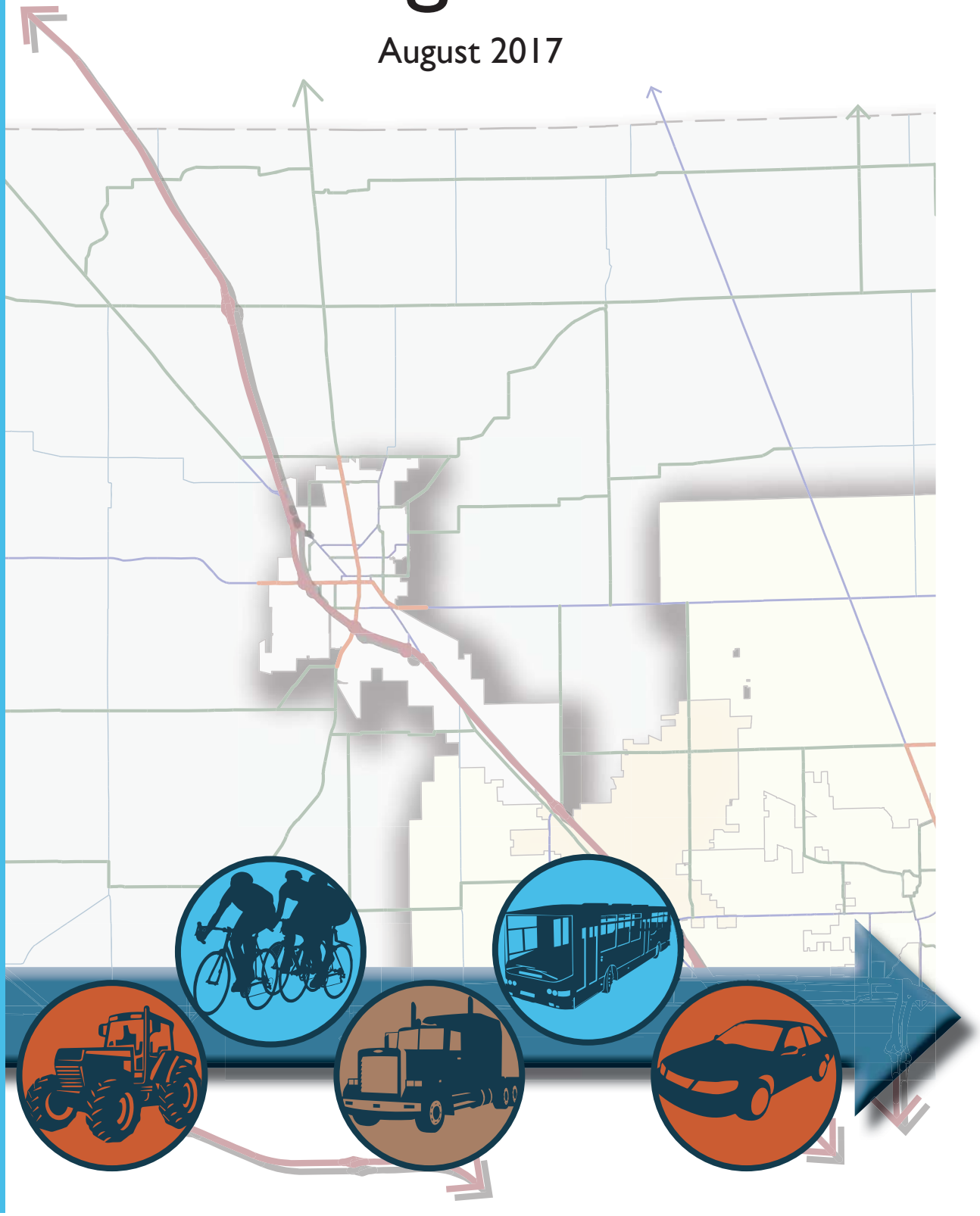
Boone County Thoroughfare Plan

August 2017



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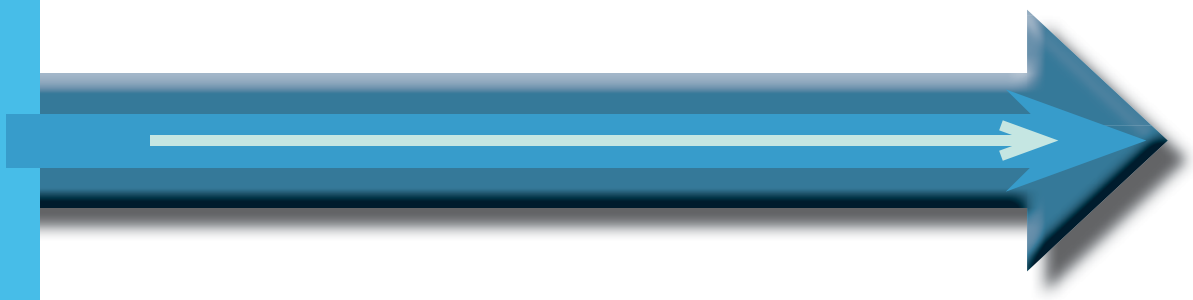

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Acknowledgments

This plan was prepared with the assistance, direction, and cooperation of Craig Parks and the Boone County Highway Department

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Key Terms

There are several technical terms and jargon used throughout this plan that are specific to transportation planning. Some of these key terms are listed below. A more complete listing can be found in the appendix.

Annual Average Daily Traffic (AADT): The total traffic volume passing a point or segment of a highway facility in both directions for one year divided by the number of days in a year

Capacity: The maximum rate of flow at which persons or vehicles can be reasonably expected to traverse a point or uniform segment of a lane or roadway during a specified time period under prevailing roadway, traffic and control conditions, usually expressed as vehicles per hour or persons per hour.

Functional Classification: Classification of roadways based on two key characteristics: roadway mobility (traffic volume) and roadway accessibility (entry and exit onto the roadway)

Land Use: Classification of geographic areas of land according to their primary use. Examples can include agricultural, residential, commercial, industrial and open space and recreation

Level of Service: Qualitative measure describing operational conditions within a traffic stream, generally described in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience and safety

Multi-Modal: Utilizing multiple forms of transportation, including transit, vehicular, cycling and pedestrian

Right of Way: Publicly owned land reserved for public infrastructure purposes such as roadways, railroads, utilities, greenways, etc.

FHWA: Federal Highway Administration. Agency within the U.S. Department of Transportation that supports state and local governments in the design, construction and maintenance of the nation's highway system (Federal Aid Highway Program) and various federally and tribally owned lands

Indianapolis MPO: Indianapolis Metropolitan Planning Organization. Responsible for conducting a continuing, cooperative and comprehensive transportation planning process within the Indianapolis region

INDOT: Indiana Department of Transportation

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Executive Summary

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THE LAST THOROUGHFARE PLAN FOR BOONE COUNTY WAS UPDATED IN 1999.

Since that document, the county's ***population has increased by 50%*** and is ***projected to nearly double*** it's 1999 population over the next 18 years.

Since 1999, the ***Ronald Reagan Parkway has been constructed in Hendricks County,*** with firm plans taking shape for the segment of the parkway in Boone County up to I-65. Plans are also progressing for the extension of 146th Street, which will ***connect the Ronald Reagan Parkway to Hamilton County*** through Boone County, further solidifying the growth trend for the county into the future.

With this growth will come new residential, commercial and industrial development opportunities. These opportunities also bring with them ***additional right-of-way needs*** and further ***need for mitigating congestion and safety concerns*** on the transportation network.

To help plan for and mitigate these coming impacts to the transportation network, the Boone County Commissioners, through the Boone County Highway Department, initiated this update to the 1999 thoroughfare plan.

THE BOONE COUNTY THOROUGHFARE PLAN HAS BEEN DEVELOPED AROUND **FOUR KEY VISION PRINCIPLES**

- Enhance ***mobility and accessibility*** through an efficient transportation network.
- Improve ***safety and security*** throughout the transportation network.
- Integrate the thoroughfare plan with approved comprehensive plans to ***support desired future land uses*** in the county.
- Provide improvements that will support and ***strengthen economic vitality and quality of life efforts*** in the county.

THE KEY VISION PRINCIPLES FURTHER HELPED DEFINE THE FOLLOWING **GOALS AND OBJECTIVES**

Provide a balanced transportation network that will facilitate safe and efficient movement to meet the needs of users, both rural and urban.

The transportation network should safely and comfortably serve a wide variety of users, including automobiles, motorcyclists, cyclists, pedestrians, transit users, school bus riders, delivery and service personnel, freight haulers, agricultural equipment operators and emergency responders. Ways to further this goal include:

- Identify intersections and thoroughfares to improve for increased safety and capacity.
- Incorporate quality of life improvements, such as, regional pedestrian connectivity and aesthetic streetscape design standards.
- Ensure the continuity of major corridors and thoroughfares between jurisdictions.

Provide a transportation network which balances capacity needs with the need to connect the community through right-of-way preservation and the use of access management best practices.

Right-of-way needs to be preserved to accommodate existing and future transportation needs, including vehicle, bicycle and pedestrian needs. Right-of-way preservation should occur according to the design standards established in this plan and the future classification of the roadway as shown in the thoroughfare plan map.

As defined by the *Access Management Manual*, published in 2003 by the Transportation Research Board of the National Academy of Sciences, access management is the systemic control of the location, spacing, design and operation of driveways, median openings, interchanges and street connections to a roadway. Access management provides vehicular access to land development in a manner that preserves the safety and efficiency of the transportation system. Additionally, access management should:

- Preserve the flow of traffic.
- Improve traffic safety and reduce the frequency of crashes.
- Preserve existing road capacity.
- Improve access to businesses and homes.

Encourage transportation improvements that support economic growth in Boone County.

A robust and thorough transportation network helps drive and promote economic development as a strong relationship exists between infrastructure and job attraction. To further this goal, the transportation network should:

- Balance changes in land use with the capabilities of the transportation system.
- Improve accessibility to regional employment and activity centers, with a focus on access to the arterial roadway network.
- Support public transit options, which link areas with high concentrations of employers to areas with high concentrations of potential employees.
- Provide adequate access to primary distribution routes.

Foster greater communication and cooperation between all entities responsible for transportation systems within the county.

This thoroughfare plan covers all areas within the Boone County Plan Commission's jurisdiction and was developed with consideration of the other municipal transportation plans as they existed at the time of adoption. However, future coordination will be critical as other municipal plans or the county's plan are modified to ensure continuity of the transportation system. To further this goal, Boone County should encourage the following with adjacent jurisdictions:

- Communicate development opportunities which will impact the transportation network.
- Coordinate major infrastructure investments.

Encourage the development of a county thoroughfare system that efficiently uses limited funding and maintenance resources.

The county is responsible for maintaining most of the roads and streets within the county with the exception of roadways inside corporate limits and state routes. To best utilize limited resources, the county should:

- Identify corridors which may need updated interlocal agreements.
- Identify a process by which roads can be identified for paving, dependent on key thresholds or variables.
- Update the county's functional classification map maintained by INDOT per recommendations in this plan to ensure eligibility for potential future federal funding of road projects.
- Require private right-of-way dedication
- Require private funding to support new development activity.

KEY RECOMMENDATIONS

FUNCTIONAL CLASSIFICATION RECOMMENDATIONS

The recent surge in development and anticipated continued growth brings about the opportunity to revisit the functional classification of Boone County roadways.

As areas become more densely populated, the density of collectors and arterials increases as well. As more industrial complexes and retail centers are constructed, improved roadways are needed to connect these destinations.

As part of the thoroughfare planning process, the steering committee evaluated classifications with respect to the changes in land use and urbanization in Boone County since the last thoroughfare plan was published.

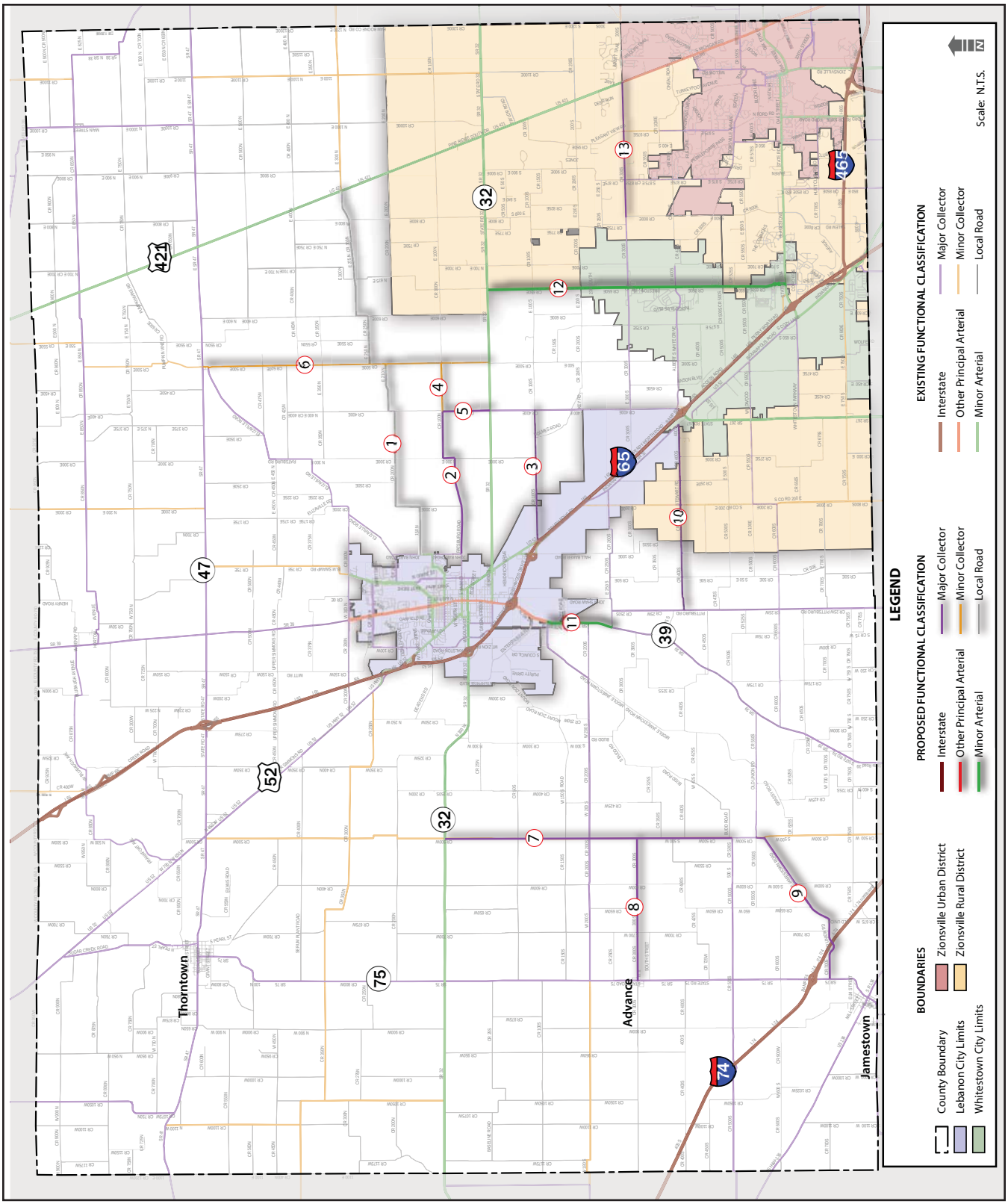
The following roadways are recommended for consideration of reclassification by INDOT:

Table 1: Functional Classification Recommended Reclassifications

Route	Current Classification	Proposed Classification
1. **CR 150 North/200 North/210 North/250 North/275 North/300 North from John Bart Road to US 421**	Major Collector	Local Road
2. **CR 75 North/100 North from John Bart Road to CR 400 East**	Local Road	Major Collector
3. **CR 100 North from CR 400 East to Indianapolis Avenue**	Local Road	Major Collector
4. **CR 100 South from CR 400 East to CR 500 East**	Local Road	Minor Collector
5. **CR 400 East from SR 32 to CR 100 North**	Local Road	Major Collector
6. **CR 500 East from SR 47 to SR 32**	Local Road	Minor Collector
7. **CR 500 West from Middle Jamestown Road/Old Union Road to SR 32**	Minor Collector	Major Collector
8. **CR 300 South from SR 75 to CR 500 West**	Local Road	Major Collector
9. **Old Union Road/Middle Jamestown Road from SR 75 and CR 500 West**	Minor Collector	Major Collector
10. **CR 400 South from Pittsboro Road to Indianapolis Road**	Local Road	Major Collector
11. **SR 39 from between Middle Jamestown Road to CR 250**	Major Collector	Minor Arterial
12. **CR 650 East from Whitestown Parkway to SR 32**	Major Collector	Minor Arterial
13. **CR 300 S from CR 800 E to US 421**	Local Road	Major Collector

Exhibit A: Proposed Functional Classification Revisions

Source: Existing Functional Classifications sourced from INDOT.



FUTURE THOROUGHFARE PLAN

Separate from the proposed changes to the functional classification map is the Future Thoroughfare Plan Map, as shown in Exhibit B.

While the proposed functional classification map illustrates recommended changes to the functional classification system based on current conditions, the Future Thoroughfare Plan Map lays out the envisioned future roadway network in the county. Both maps utilize the same terms (arterials and collectors) in order to ensure continuity for future funding, as roadways shown in the Future Thoroughfare Plan may someday be included in the functional classification map. However, the Future Thoroughfare Plan map is specifically for the county to plan for changes to its transportation network forward to the year 2035 and allow for right-of-way acquisition. The Future Thoroughfare Map does not include thoroughfare classifications for state routes, as they are not within county control. However, the existing functional classification is shown on the map for reference.

The roadway classifications in the Future Thoroughfare Plan also relate to right-of-way and street design standards presented in this plan. All classified roadways in the Future Thoroughfare Plan map will be required to provide a minimum right-of-way dedication and meet certain other standards, such as lane widths, curb/gutter and sidewalk depending on the classification.

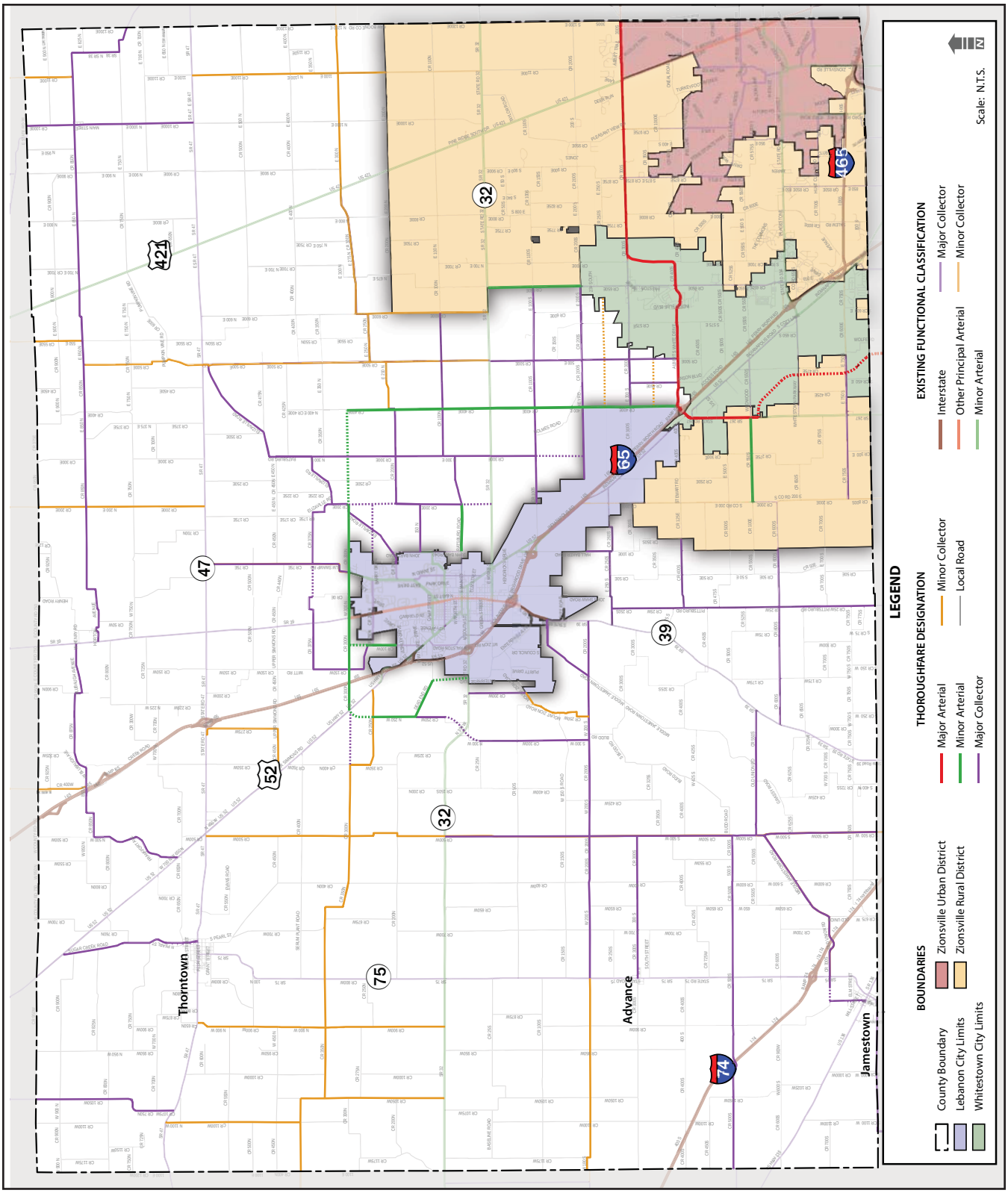
Roadway alignments and proposed road segments on the Future Thoroughfare Plan map are representations only and do not indicate actual alignments. Detailed surveys and studies will be required for any new right-of-way dedication or new road construction.

It should be noted that efforts have been made to coordinate other jurisdictional thoroughfare plans and designations. However, if Boone County Thoroughfare Plan classifications differ with those adopted thoroughfare classifications in other jurisdictions, the classification with the higher design standard shall prevail.

As of the writing of this plan, Lebanon and Whitestown are in the process of updating their own thoroughfare plans. Zionsville has a thoroughfare plan from 2010 on file, but it does address the newly acquired Zionsville Rural District areas. As such, the thoroughfare network within these municipality boundaries are not shown on the Future Thoroughfare Map. The designations for the county thoroughfare network stop at the municipal boundaries. However, the current INDOT functional classification system is shown within these municipal boundaries. Current adopted thoroughfare plan maps for these municipalities can be found in the appendix.

Exhibit B: Thoroughfare Map

Source: Existing Functional Classifications sourced from INDOT.



- *The above map is a graphic representation only. Detailed surveys and studies will be required for any new right-of-way dedication or new road construction.*
- *If Boone County Thoroughfare Plan Designations differ with those within the jurisdictional limits of a local planning authority, the classification with the higher design standards shall prevail.*

PRIORITY IMPROVEMENT RECOMMENDATION SUMMARY

- Consider paving CR 450 E between Albert S. White Boulevard and CR 300 S as this creates a north/south connection to CR 300 S in a growing area
- Consider paving CR 200 S between CR 400 E and CR 500 E as this is a break in an otherwise paved roadway
- Improvements to CR 650 S/Whitestown Parkway in anticipation of continue growth along this corridor.
- Address off-set intersections of CR 500 E and CR 800 E along SR 32
- Safety improvements at CR 300 E and CR 75 N
- Safety improvements at CR 500 W and CR 200 S
- Continue Ronald Reagan Parkway progress
- Continue 146th Street extension progress
- Right-of-way procurement
  - CR 400 E from Albert S. White Boulevard to SR 32
  - CR 550 S from CR 200 E to Whitestown Corporate Limits
  - CR 750 S from CR 200 E to Whitestown Corporate Limits

PRIORITY POLICY RECOMMENDATIONS SUMMARY

- Adopt an access management policy for the Ronald Reagan Parkway and the 146th Street Extension corridors
- Develop a policy for gravel road conversions
- Develop traffic impact study requirements
- Update the Boone County Zoning Ordinance and Subdivision Control Ordinance to reflect the recommendations and language of this plan
- Support future interchange locations and modifications as advanced by municipalities within the county.

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Introduction

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PURPOSE AND DEFINITION OF THE PLAN

The Boone County Thoroughfare Plan is a long-range transportation planning tool which provides public officials, property owners, developers, residents and other parties involved in development and transportation projects with guidance on creating a transportation system to support the community's future needs. The thoroughfare plan builds upon the transportation policies presented in the 2009 Boone County Comprehensive Plan and the previous 1999 Boone County Thoroughfare Plan and is intended to accomplish the following:

- **Enhance mobility and accessibility through an efficient transportation network.**
- **Improve safety and security throughout the transportation network.**
- **Integrate the thoroughfare plan with approved comprehensive plans to support desired future land uses in the county.**
- **Provide improvements that will support and strengthen economic vitality and quality of life efforts in the county.**

It is important to note that the plan is not a traffic study intended to address immediate traffic concerns. The plan does not establish rules and procedures for dealing with neighborhood traffic conditions, such as traffic calming mechanisms.

This is not the county's first plan and will not be its last. The previous thoroughfare plan was completed in 1999, when the county's population was only 40,000 people. It has since grown to an estimated 60,000 people and is projected to increase to 78,000 people over the next 18 years. Not only has the population grown, but the ways roads are utilized in the county have changed as well. As the urbanized boundary of metropolitan Indianapolis expands further into Zionsville, Whitestown and Lebanon, additional pressure is placed on county roadways to accommodate commuter traffic. At the same time, a majority of Boone County remains rural and agricultural. Local roads still need to accommodate large agricultural machinery as well as freight delivery vehicles in support of industrial development. There is renewed focus in Boone County as well as around the country on providing transportation networks for all users, which supports economic development.

The plan highlights that there are various jurisdictions within the county, each with control of improvements and priorities within their own planning areas. Many of these jurisdictions have adopted their own transportation plans, which have been reviewed as part of the planning process.

Projects identified in this plan will be considered for implementation as funding at the federal, state and local level permits.

PLANNING PROCESS

Preparation for this plan began with a review of the 1999 comprehensive plan and review and analysis of the following data:

- Existing and future land uses
- Population and growth trends
- Travel demand forecasts
- Traffic analysis of crashes, congestion, and traffic volume
- Existing and future functional classification of county roadways

Formation of the current plan was developed during an eight-month timespan through input and feedback from a variety of sources including meetings, public input, and coordination with existing plans.

Steering Committee Meetings

A steering committee of 16 volunteers met five times during plan development. The committee set priorities, outlined plan goals and objectives and reviewed draft plans. The committee served as the sounding board for ideas presented in the plan and for feedback received through public and stakeholder input. The steering committee included public officials and citizens that represented public safety, county towns and county interests, such as the highway and planning departments.

Stakeholder Discussions

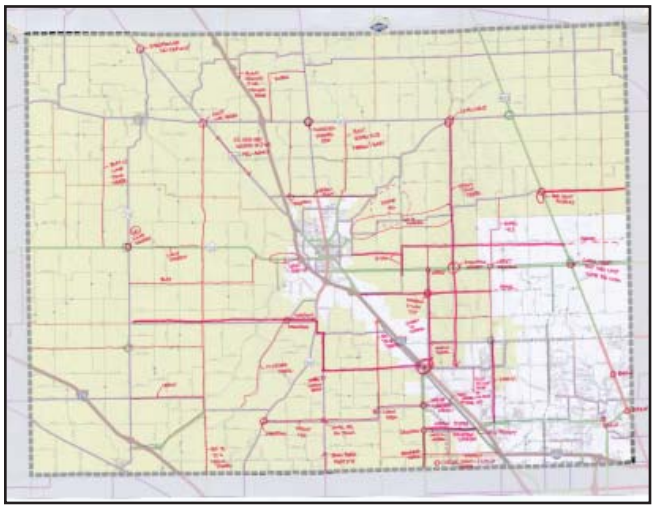
To further gauge the positive or negative impacts of the transportation network, several community stakeholders were also engaged. These stakeholders included representatives from agricultural interests, manufacturing and distribution interests, commercial and industrial developers and local citizens who travel the roads daily.

Public Presentation and Website

Additional information was distributed to the public for feedback through a public website, www.boonecountytf.com, and public open house.

The public open house was held June 13, 2017 to review plan priorities and present recommendations. The open house was noticed by the county, and the Lebanon Reporter ran a story on June 8th about the thoroughfare plan inviting the public to attend.

Public open house on June 13
Source: Rod Rose, The Lebanon Reporter



Marked up map developed as part of discussions with stakeholders.

Referenced Planning Documents

Many other plans were reviewed and consulted as appropriate when their content and goals directly or indirectly related to objectives identified in this plan. Types of plans reviewed include:

Comprehensive plans: A plan which provides policy and objectives for future development, land use and public ways, public spaces, public land public structures and public utilities within a community

Economic development plans: A plan which provides guidance and action steps towards improving the economic prospects and climate within a defined geographic area

Statewide Transportation Improvement Plan (STIP): A four-year planning document that lists all state transportation projects expected to be funded in those four years with federal funds and those state-funded projects that have been deemed as regionally significant and federally funded local projects.

Thoroughfare/transportation plans: A coordinated plan for future transportation needs containing recommendations and prioritization for improvements to transportation deficiencies

Plans and documents reviewed include:

Regional

- Indianapolis Metropolitan Planning Organization (MPO) 2035 Long Range Transportation Plan
- Indianapolis MPO Regional Pedestrian Plan
- Indianapolis MPO Complete Streets Policy
- Indy Connect Regional Transit System Plan
- INDOT Complete Streets Guideline and Policy
- INDOT Statewide Transportation Improvement Plan

Local

- 1999 Boone County Thoroughfare Plan
- 2009 Boone County Comprehensive Plan
- 2014 Whitestown Transportation Plan
- 2015 Whitestown Comprehensive Plan
- 2011 Town of Zionsville Transportation Plan
- 2012 Town of Zionsville Economic Development Plan
- 2014 Town of Jamestown Economic Development Plan
- 2007 Lebanon Comprehensive Plan
- 2006 Center Township Thoroughfare Plan
- 2004 Hendricks County Ronald Reagan Parkway Master Plan
- 2007 Hamilton County Thoroughfare Plan
- 2015 Marion County Thoroughfare Plan

Key Themes

While the previously listed plans all had very specific planning areas and topics, there are some key themes present in these plans that impact Boone County.

- The growth trend of Boone County as one of the fastest in the state is projected to continue
- Urbanization trends radiating out along major interstate and highway corridors from Indianapolis and Marion County will continue expanding
- The need for coordination between multiple agencies as transportation networks grow and become more complex will become increasingly important
- A need for continued coordination on major transportation initiatives, such as the Ronald Reagan Parkway and the 146th Street Extension
- Growing emphasis on multi-modal transportation networks, which consider more than just vehicular users

The transportation element of the 2009 Boone County Comprehensive Plan were used to inform the goals and recommendations presented in this plan. These goals include:

- Promote local policies and practices that protect land through the use of best management practices to ensure sustainable long-term use.
- Improve inter- and intra-governmental communication and cooperation while respecting diverse interests and objectives of each government and community.
- Encourage proactive local government.
- Promote the development of a transportation system to ensure the most efficient and safe movement of people and goods.
- Employ best management practices to minimize negative short and long-term impacts of development.
- Encourage the expansion of existing infrastructure to targeted growth areas through coordination between utility providers, municipalities and the county.
- Preserve the viability, productivity, character and quality of Boone County's agricultural and water resources.

Context and Background

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DEMOGRAPHIC, ECONOMIC AND POPULATION TRENDS

Location

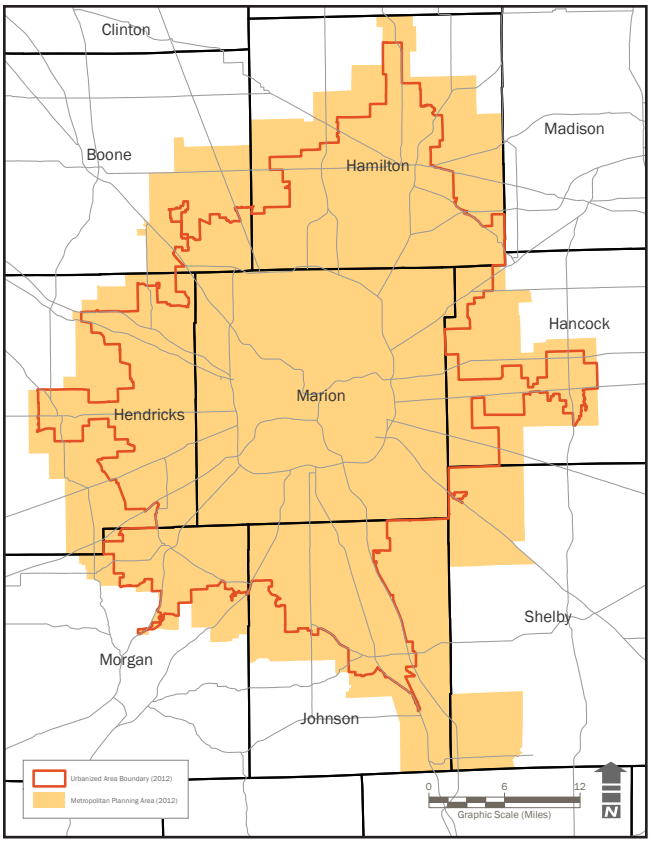
Boone County is located within the Indianapolis Metropolitan Area, northwest of Indianapolis and Marion County. The southeast portion of the county is within the Indianapolis Metropolitan Planning Organization's (MPO) planning area and within the urbanized boundary as defined by the 2010 U.S. Census.

Boone County's partial inclusion in the MPO planning boundary is significant. As urbanization trends continue to advance outward along I-65, more and more of southeaster and central Boone County will become urbanized, and thus will be absorbed into an adjusted MPO planning boundary. As the Indianapolis MPO assumes more responsibility for planning in Boone County, the county will need to ensure that their voice is heard and that they maintain a presence with the organization.

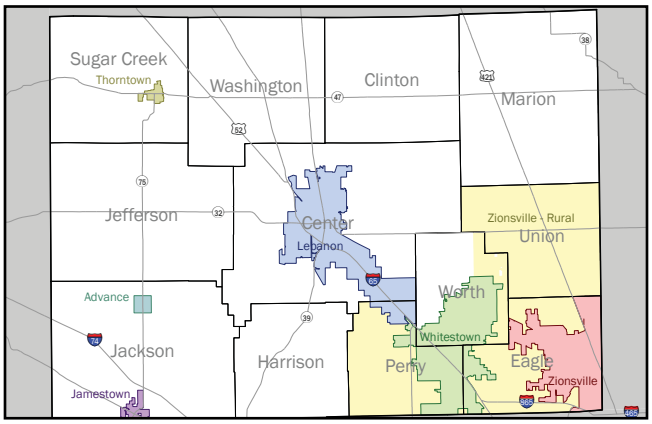
The county is comprised of 12 townships. The three largest municipalities in the county are Lebanon, Zionsville and Whitestown. While Lebanon is the county seat, Whitestown and Zionsville are part of the urbanized census boundary in the southeast corner. These three municipalities account for three quarters of the population in the county, which was estimated at 60,511 in 2015.

- Zionsville's 2015 population (25,072) accounted for 41 percent of the county.
- Lebanon's 2015 population (15,762) accounted for 26 percent of the county.
- Whitestown's 2015 population (4,864) accounted for 8 percent of the county.

The county also has several smaller towns, including Jamestown, Advance and Thorntown, which can all be found in the western half of the county.



MPO Boundary and US Census Urbanized area
Source: Indianapolis MPO



Boone County Townships

While the southeast and central part of the county are very urbanized and growing, the remainder of the county remains very rural with a majority of it productive agricultural land.

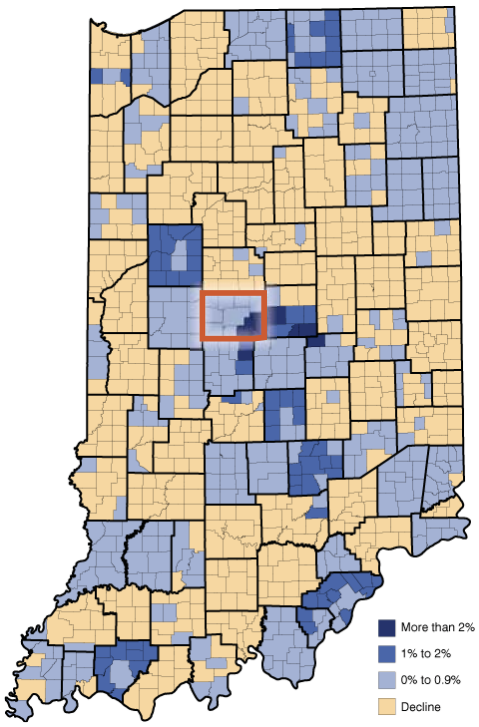
Population Growth

Boone County was the second fastest growing county in the state between 2010 and 2015, with nearly 12 percent growth. It was second only to its eastern neighbor, Hamilton County, which experienced a nearly 13 percent population increase. Hendricks County, just south of Boone County, experienced 9 percent growth, and Tippecanoe County, north of Boone County along I-65, experienced 7.5 percent growth. Most of this growth is because the southeast corner of the county as highlighted by the red box in the map of 2015 Indiana Township Growth.

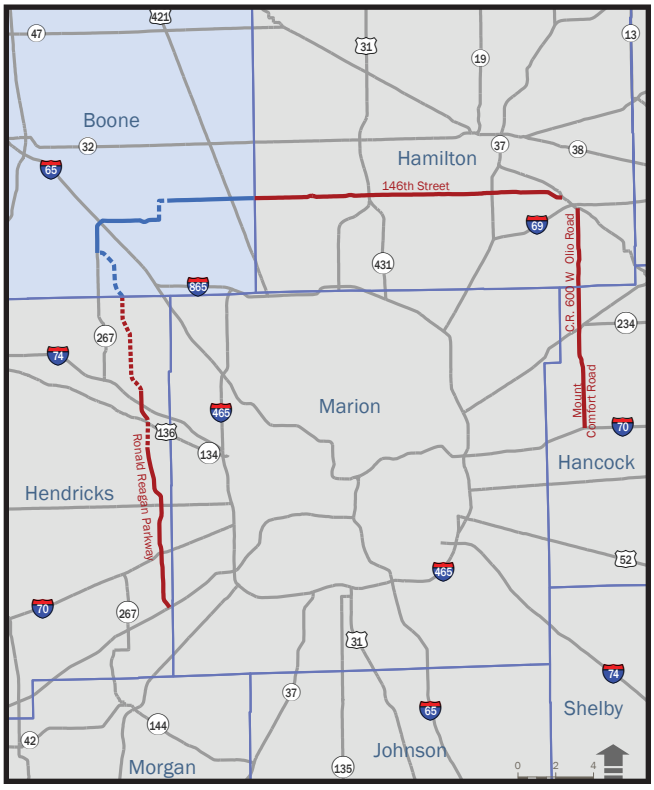
A major contributor to growth has been domestic in-migration (more people moving into the county from other counties in Indiana or from other places in the U.S.), with a much smaller percentage of the growth attributed to natural increase (births minus deaths).

Not only has Boone County seen historic growth, but it is projected to continue doing so. According to STATS Indiana, Boone County is projected to grow to a population of 78,509 by 2035, representing an increase of 24 percent from the 2015 population estimate. The 2010 to 2015 population projection was 8.8 percent, but actual growth was 11.8 percent. As such, the county may grow more than projected.

Part of this growth can be attributed to Boone County's connection to critical corridors, such as Interstate 65 and Interstate 74. The southeast corner of the county will also benefit from the extensions of the Ronald Reagan corridor from Hendricks County and the 146th Street extension from Hamilton County, helping to create a secondary loop connection among the fastest growing areas in the state.



Indiana Township Growth between 2014 and 2015
Source: Indiana Business Research Center



Regional Context Map

Employment

There has been an increase in the population with post-secondary education, which has helped total employment grow as well. 50.6 percent of the population had a post-secondary education in 2015 compared to 35 percent in 2000. As a comparison, only 31.2 percent of the population in Indiana as a whole had a post-secondary education in 2015.

Total employment also grew 28.29 percent between 2010 and 2014. The biggest increases in employment were seen in:

- Retail Trade (86.73 percent)
- Administration and Waste Services (54.38 percent)
- Information (45.78 percent)
- Real Estate, Rental Leasing (42 percent)
- Accommodation and Food Service (34.62 percent)

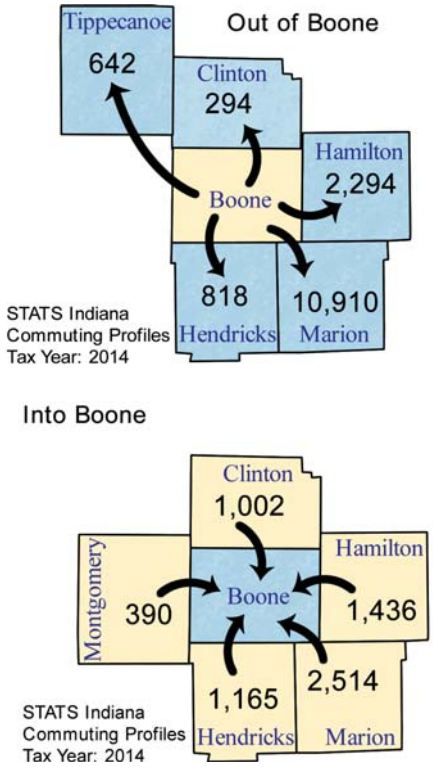
According to Emsi economic modeling, four out of the top five job postings for occupations in Boone County between 2011 and 2016 were related to transportation and material moving.

Commuting

STATS Indiana has compiled commuting data on all Indiana counties based on Indiana IT-40 returns for tax year 2014. Their analysis indicates the following commuting characteristics.

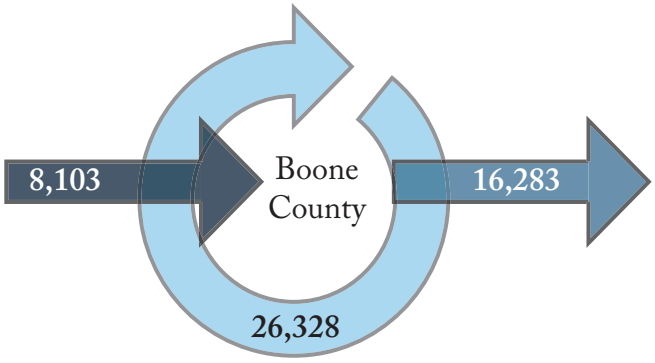
Commuteshed: 38.2 percent of the implied resident labor force commute outside of the county. Of those commuting out of the county, 67 percent commute to Marion County and another 14 percent commute to Hamilton County.

Laborshed: 23.2 percent of the Boone County implied workforce commutes into the county. Marion County and Hamilton County are the biggest sources of workers outside of Boone County, representing 7.3 percent and 4.2 percent of the county work force. Nearly 19 percent of workers commute into the county from the five adjacent counties.



Of the 93 percent of workers using a car, truck or van to get to work, only 7 percent carpooled, while the remainder traveled alone.

More people commute out of the county than into it for work. This generally indicates that Boone County serves as a residential location for the regional labor force, as opposed to an employment center for the labor market region.



Commuter flow into and out of Boone County
Source: Census on the Map

LAND USE AND ECONOMIC DEVELOPMENT

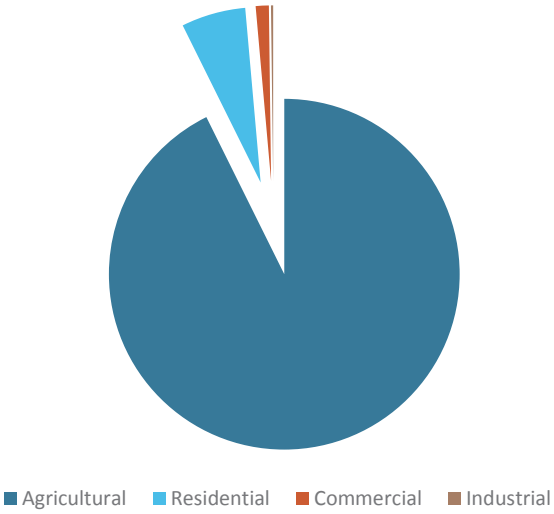
Existing Land Use

According to the 2009 Boone County Comprehensive Plan, 92.3 percent of the county's land use was agricultural. Residential uses comprised only 5.9 percent of the county, commercial uses only 1.2 percent and industrial uses 0.2 percent.

The areas that comprise the majority of the residential, commercial and industrial land uses can be found in the southeast corner of the county around Zionsville and Whitestown, in the center of the county around Lebanon and in the smaller towns of Jamestown, Thorntown and Advance.

While residential, commercial and industrial land uses have all increased since the 2009 Boone County Comprehensive Plan, the county remains overwhelmingly agricultural.

Boone County Existing Land Use 2009 Comprehensive Plan



Future Land Use

The 2009 Boone County Comprehensive Plan also indicated likely future land use through projected acreages and a future land use map. The comprehensive plan projected a 20 percent increase of commercial and industrial land by 2035. Residential land uses were projected to increase by 41 percent.

During the planning process, the 2009 future land Use Map was reviewed to determine if any changes were warranted for consideration in this study. While most of the future land use is still applicable, there were a few areas of change. Exhibit C illustrates the 2009 future land use map with areas of change circled in red. Changes include:

- Additional industrial land uses around the north side of Jamestown
- Additional mixed land uses around the south side of Lebanon
- Additional commercial land uses around SR 32 and US 421
- Commercial land uses around US 421 and CR 300 S
- Additional mixed and residential land uses on the south side of Whitestown
- Additional residential land uses on the south side of Thorntown

Exhibit C: 2009 Future Land Use Map and Areas of Change

Source: Future Land Use Map - 2009 Boone County Comprehensive Plan

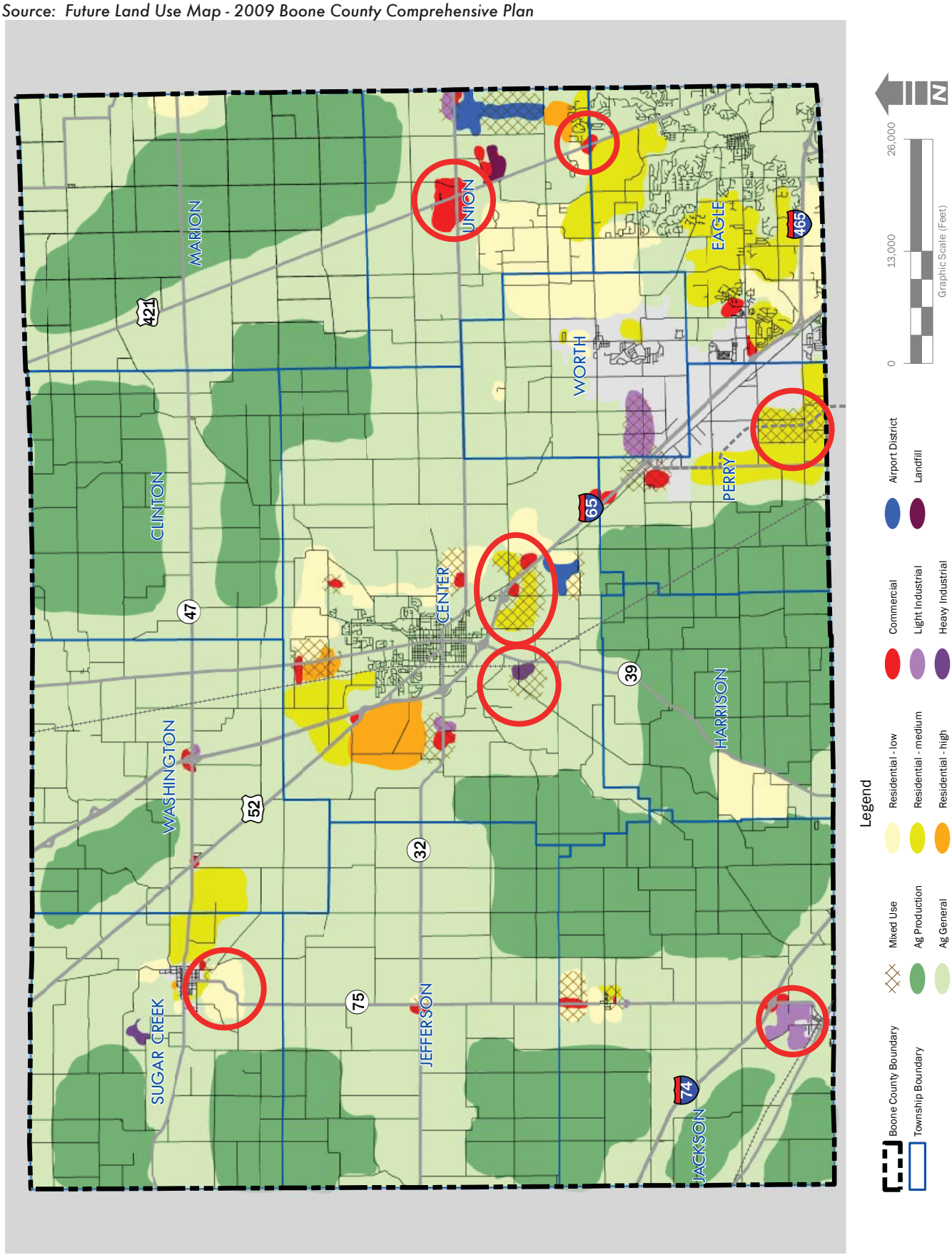


Table 2: Boone County Residential Building Permits					
Year	**1 Family**	**2 Family**	**3-4 Family**	**5+**	**Total**
2016	402	--	--	--	**--**
2015	389	20	0	42	**451**
2014	424	6	11	85	**526**
2013	488	86	0	266	**840**
2012	368	2	0	128	**498**
2011	358	20	0	152	**530**
2010	352	74	4	337	**767**
2009	260	8	0	0	**268**

Source: Building Permits Survey, U.S. Census Bureau

Table 3: Single Family Residential Permits				
Year	**Zionsville**	**Whitestown**	**Lebanon**	**Unincorporated Boone County**
2016	128	222	34	18
2015	139	215	27	12
2014	190	212	10	12
2013	261	199	10	20
2012	184	152	4	18
2011	150	128	2	25
2010	131	--	12	159
2009	60	--	9	201

Source: Builder's Association of Greater Indianapolis

A review of residential building permits for the county since 2009 also indicates a general trend in growth, as shown in Table 1. However, individual municipalities show a more nuanced trend, as shown in Table 2.

The dramatic decrease in building units for unincorporated areas of the county may be attributed to annexations by Zionsville, Whitestown and Lebanon in growing areas around the cities.

Whitestown has been one of the fastest growing areas in the state for several years. 2015 estimates indicate its population has more than doubled since 2010, to around 6,000.

Future Economic Development Areas

Future economic development areas are likely to continue in the urbanized southeast of the county around Zionsville and Whitestown, and in the center of the county around Lebanon. With available land and planned improvements around Whitestown, including the Ronald Reagan Parkway and extension of 146th Street, Whitestown will likely lead the county and the region in growth. The Anson development in Whitestown continues to attract industrial users. Additional land north of the I-65/SR 267 interchange, available properties along and east of Indianapolis Road between the SR 267/I-65 interchange and the Whitestown Parkway/I-65 interchange all provide for future commercial and industrial development around Whitestown. Based on published growth forecasts and trends illustrated in the number of building permits, future projections by 2035 for Whitestown are indicated below by the total number of acres needed for future development:

- Total Industrial: 545 acres
- Total Retail: 380 acres
- Total Commercial: 200 acres
- Total Single Family: 5680 units
- Total Multi-Family: 1230 units

However, growth of these areas are dependent on quality planned, managed and implemented infrastructure, such as new roadways. Quality roadways play a critical role in supporting and encouraging economic growth in a region. According to a WISH TV news segment aired on March 14, 2017, poor roads in Boone County are slowing business. According to Don Lamb, with Lamb Farms in Boone County,

"There are lots of places in Boone County we can't drive our truck because the bridge is not rated for that heavy of a load," said Don Lamb of Lamb Farms in Boone County. "We use semi trucks for everything we do now. We used to use tractors and wages when things were smaller. It's just changed in how much demand and use we put on the roads."

Boone County should stay informed as state lawmakers continue to debate how best to fund improvements to roadway infrastructure and the county also must prepare to be in a position to capitalize on funding opportunities when they are announced.

Other Significant Projects of Importance

The following projects are planned and funded in adjacent counties which have a direct impact on the transportation facilities and economic development opportunities within Boone County:

Hamilton County

- 146th Street Extension from Towne Road to Shelborne Road: 2019 Construction
- 146th Street Extension from Shelborne Road to Hamilton County/Boone County Line: Future Project
- 236th Street West Rehabilitation from Bridge #201 to US 31: Future Project

Hendricks County

- Ronald Reagan Parkway from CR 300 N to US 136: Currently Under Construction.

OTHER MODES OF TRANSPORTATION

Pedestrian and Cyclist

The beginnings of a regional pedestrian network have started in Boone County, but critical connections have not yet been completed. The Farm Heritage Trail is perhaps the most prominent planned multi-use trail through Boone County. It will stretch from Prophetstown State Park north of Lafayette to the Cultural Trail in downtown Indianapolis, passing through Thorntown, Lebanon, Whitestown and Zionsville. Currently, a section of the trail is complete between Thorntown and Lebanon, with additional sections complete in Zionsville and Whitestown. Portions of the trail have been renamed the Big 4 Heritage Trail.

Lebanon, Whitestown and Zionsville also have several trails built and many more miles planned within their municipal boundaries as indicated in their respective Bike and Pedestrian Plan, Comprehensive Plan and Pathways Master Plan. These maps can be found in the appendix.

Local pedestrian networks are comprised of the trails listed above as well as sidewalk networks, bicycle lanes and smaller multi-use paths. If the regional trails can be thought of as arterials, the multi-use paths, bike lanes and sidewalks can be thought of as major and minor collectors and local streets.

Because the county is largely rural in nature and jurisdiction, trails along most county roads are not a priority. However, there are key corridors where regional connectivity is important.

Planning continues for completing and building the regional trail network. The 2016 State Visionary Trail Network and the 2015 Central Indiana Regional Bikeways Plan identify priority corridors in the county, including:

- SR 32
- E 300 S
- CR 800 E
- Farm Heritage Trail

It should also be noted that The Complete Streets policy of the Indianapolis MPO requires pedestrian facilities as part of any federally funded Surface Transportation Projects (STP) and Transportation Alternatives Projects (TAP), and these policies should be referenced for any future improvements.

Exhibit D: Built and Proposed Trails

Source: Indianapolis MPO

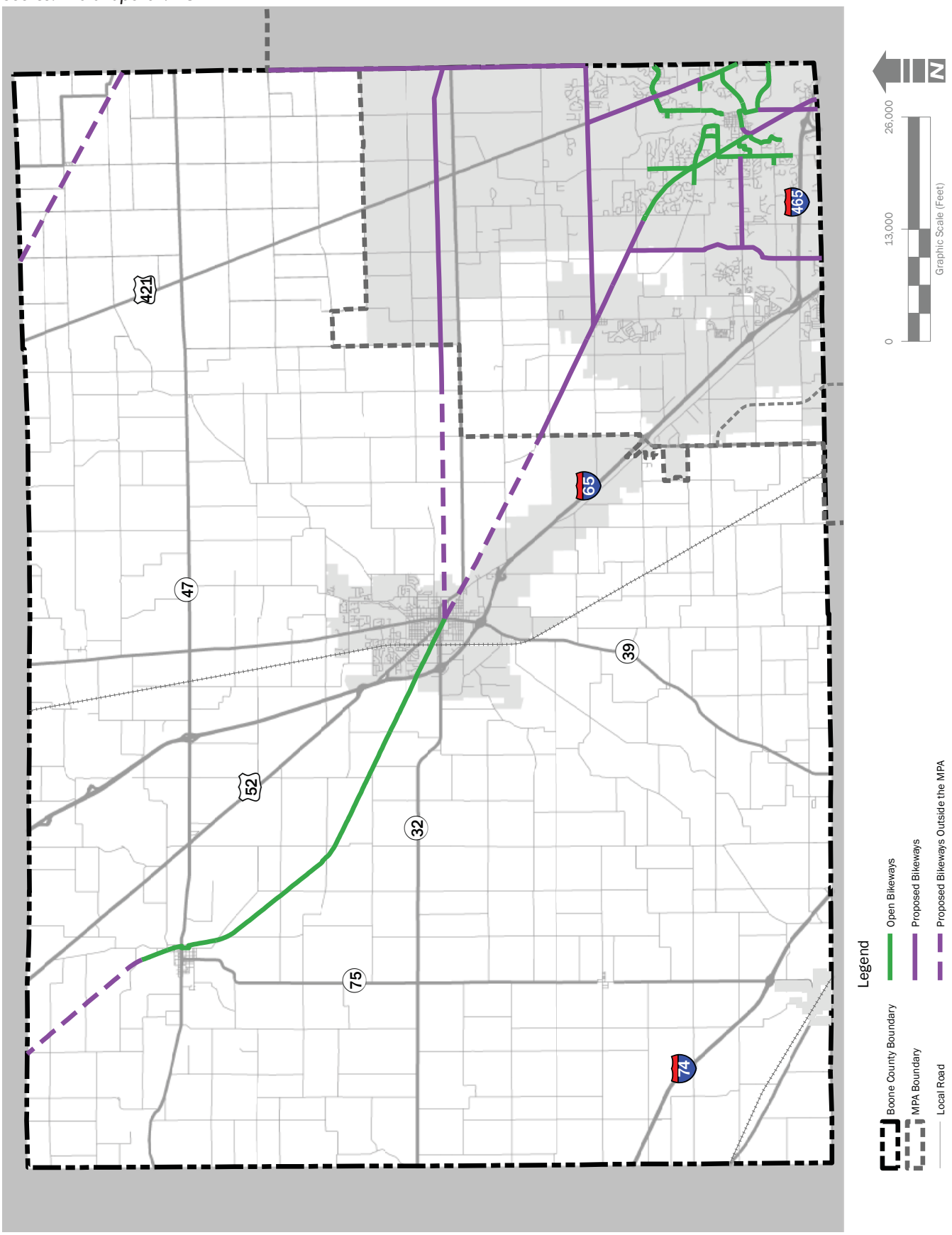
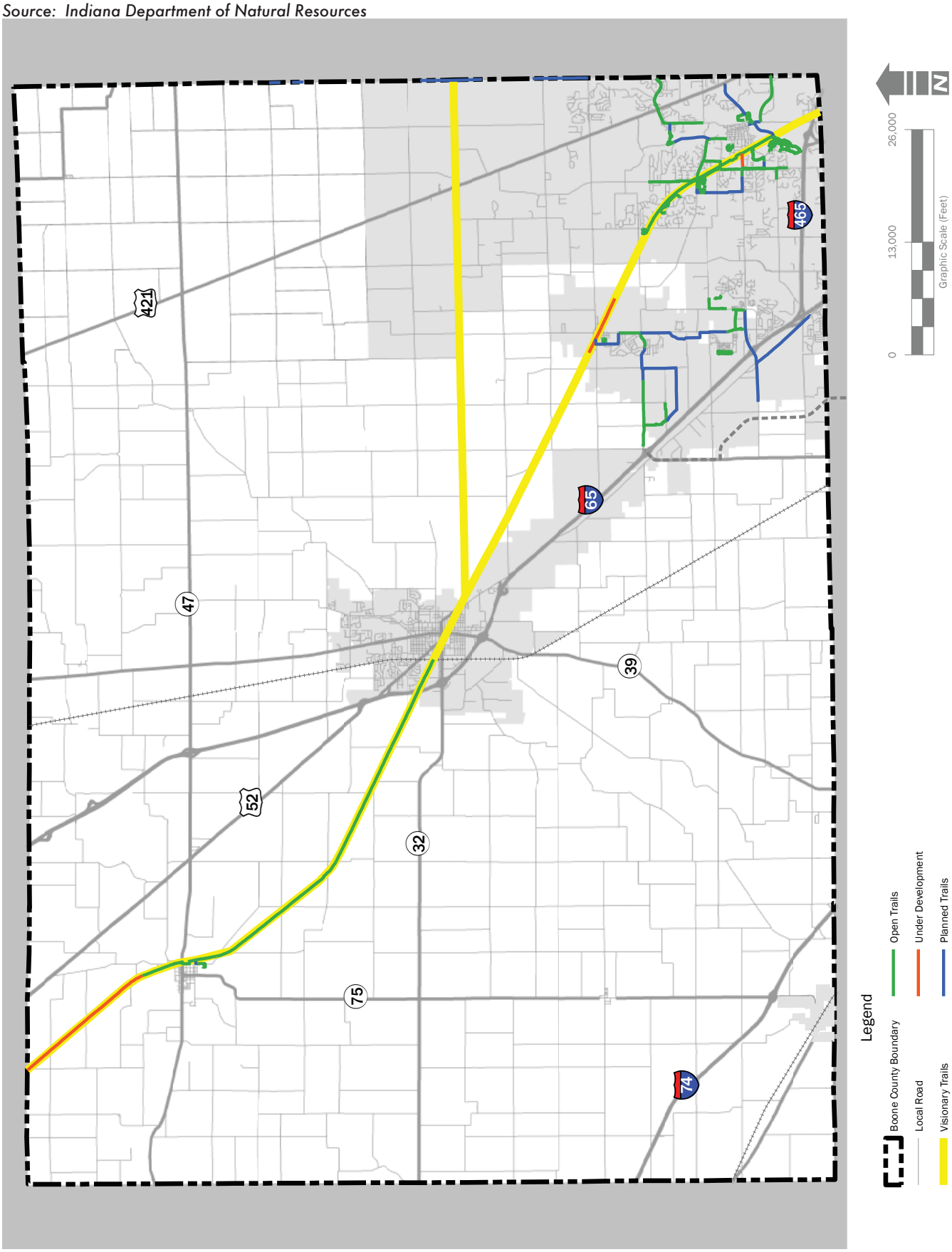


Exhibit E: State Visionary Trail Network

Source: Indiana Department of Natural Resources



Public Transit

Boone County is currently served by the Boone County Senior Services and the Central Indiana Regional Transportation Authority.

Boone County Senior Services is an on-demand service for Boone County residents over age 60. The service is available weekdays from 7:30 a.m. to 4:30 p.m. Boone County Senior Service also operates the Boone Area Transit System (BATS0, which is available to any Boone County resident weekdays from 7:30 a.m. to 4:30 p.m. Both services offer rides to locations within Boone County.

Boone County is also served by real time ride-sharing services, such as Uber and Lyft, which serve the greater Indianapolis region.

Pressure currently exists for increased public transportation options for Boone County. Several industries have indicated they are unable to fill all available job positions due to work force availability issues. As an example of current demand, during the peak holiday season, Amazon busses hundreds of people from Indianapolis to its distribution center. Potential businesses and industries have also indicated to developers that public transportation is a critical component in their decision making.

The region has started to respond to this need with the Whitestown Connector, which connects several businesses in the Anson industrial park to the public transportation network of Indianapolis and Marion County. Implemented by the Central Indiana Regional Transportation Authority, the route runs from Whitestown to Zionsville, and connects to the IndyGo public transit system in Marion County/Indianapolis. The connector travels through the Allpoint at Anson industrial park area, making five stops and providing access to employment centers such as Amazon, Express Scripts, GNC, Kenco and Weaver Popcorn. The connector runs Monday through Saturday (see exhibit F)

The county should look for opportunities to work with CIRTA to promote and improve public transportation options through Boone County. The Whitestown Connector was a great first step. Options may exist to partner with large regional employers for additional public transportation choices.

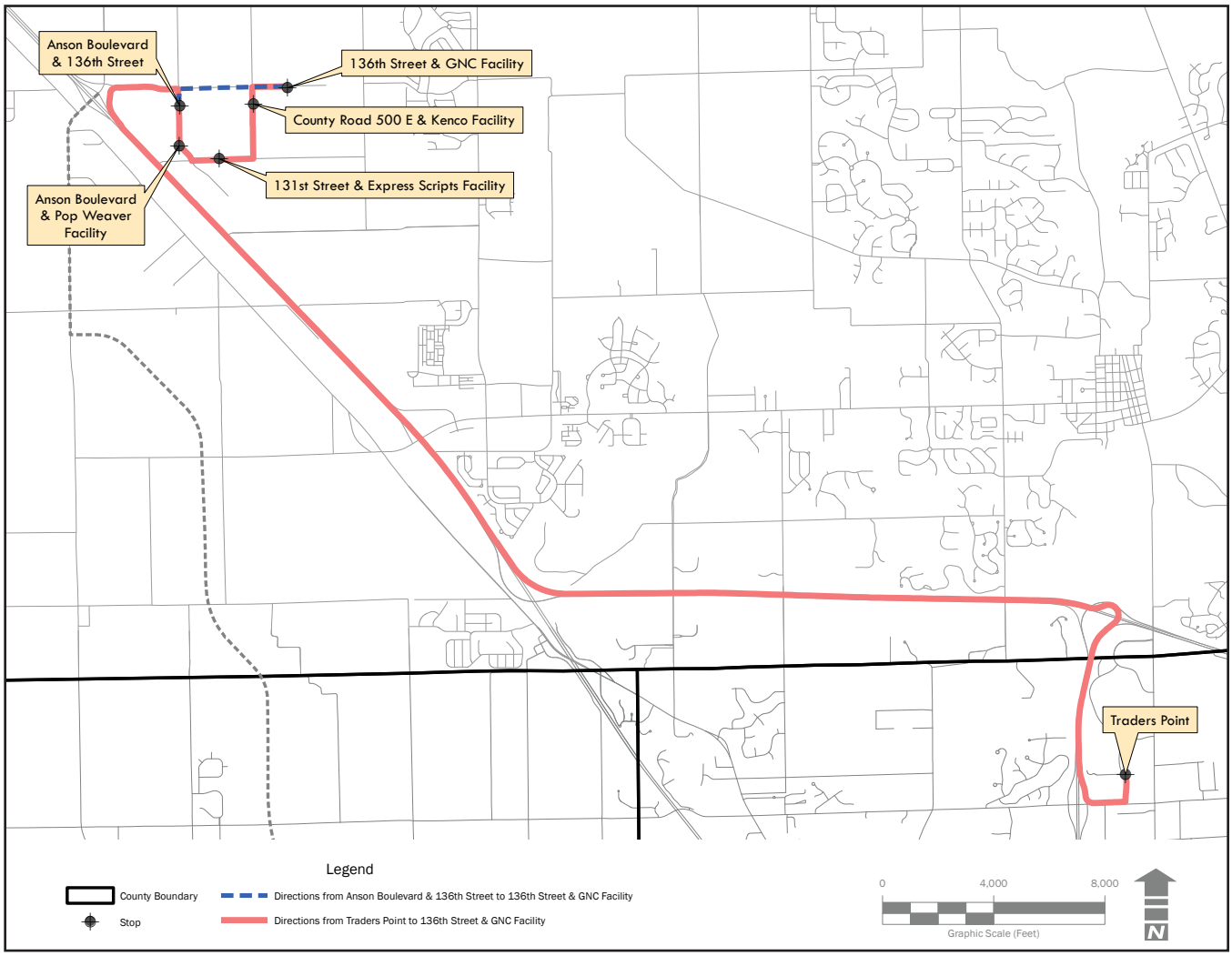
An example of this type of partnership can be found in Plainfield, where the South Plainfield Connector was established in 2012. The grant money has run out for the connector, but the town council approved the creation of an Economic Improvement District, which includes 59 business south of US 40. The owners of those businesses pay more in property taxes, which will go towards an estimated $334,000 a year to pay for the commuter buses established by the South Plainfield Connector to continue running. Last year, there were 28,000 one-way trips on the South Plainfield Connector.

Voters in Marion County passed a referendum in November 2016 to fund an expansion of mass transit, raising nearly $56 million a year for IndyGo. Those funds will allow the network's buses to run more frequent routes and expand the Red Line, the city's first bus rapid transit line. The Red Line is proposed to eventually run from Westfield, north of Indianapolis, to Greenwood, south of Indianapolis.

Several planning initiatives, including the 2016 Central Indiana Transit Plan and the 2015 IndyGo Forward, have started to chart out future action steps for the region. Transit goals for Boone County will need to be reevaluated as this progress continues, even if it is outside the life of this version of the thoroughfare plan.

Exhibit F: Whitestown Connector Public Transit Route

Source: Central Indiana Regional Transportation Authority



Air

Boone County is served by two airports, the Boone County Airport and the Indianapolis Executive Airport.

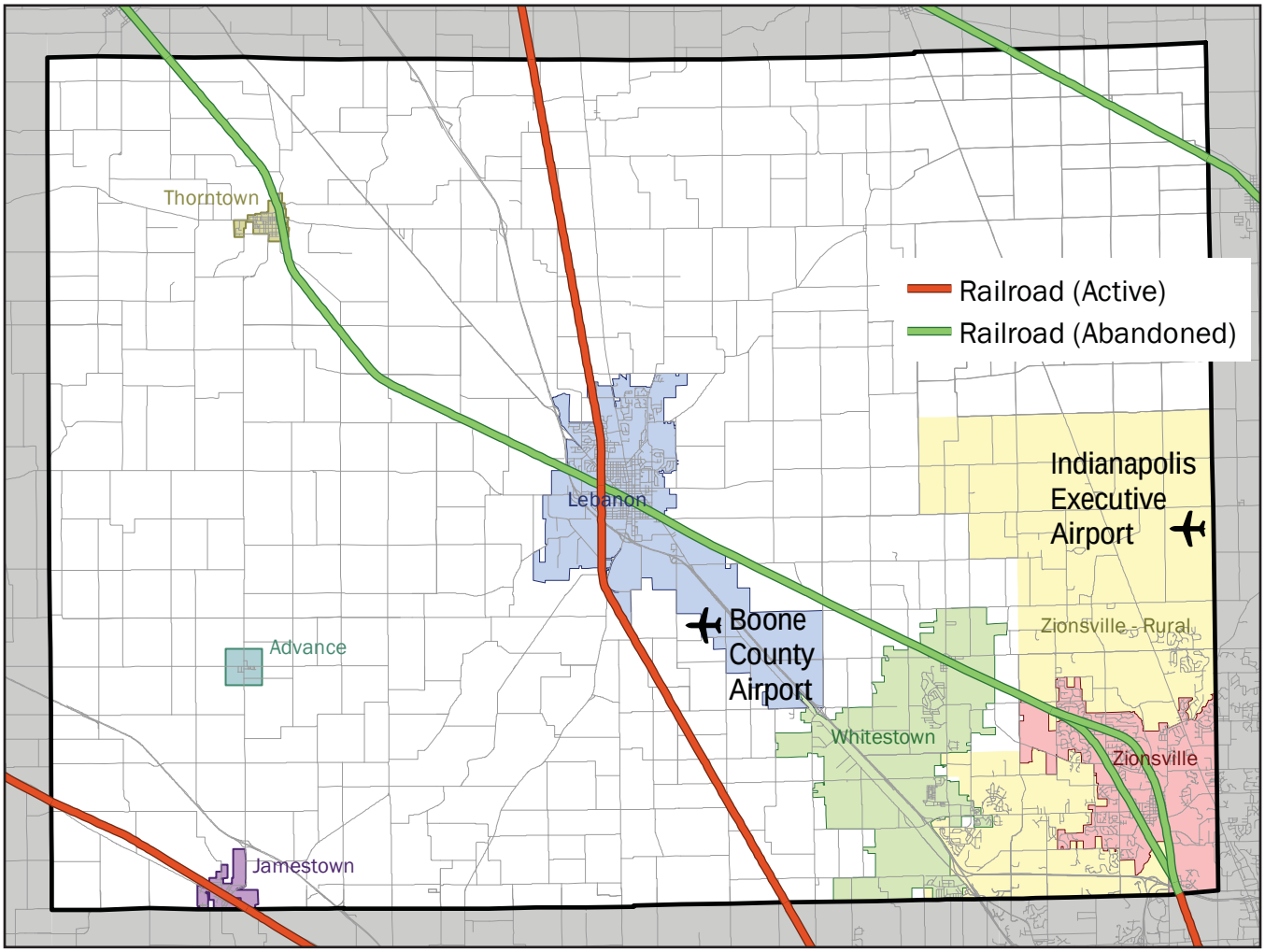
The Boone County Airport is located southeast of Lebanon, and is a small recreational airport, intended for less intensive use, both in frequency of use and size of aircraft. The Indianapolis Executive Airport is located north of Zionsville, just south of SR 32 and serves general aviation uses as well as an overflow to the Indianapolis International Airport, which is 25 miles south/ southeast. The Indianapolis Executive Airport is owned by Hamilton County Airport Authority.

Rail

CSX operates one two rail lines through Boone County. The first one bisects Boone County from north to south, running through the Lebanon Business Park. Another CSX rail line clips the southwestern corner of the county, running alongside US 136 through Jamestown.

Exhibit G: Railroad and Airport Locations

Source: Boone County



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Network Analysis

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EXISTING CONDITIONS

The traffic analysis discussed in the following pages primarily focuses on the on-system roads in Boone County, which are the roads identified in the functional classification map on page 59. Many of these roads are the responsibility of INDOT, but intersect with county roads and function as part of the county roadway network. Recommendations from this section may include coordinating with INDOT. However, additional recommendations for off-system roads are discussed in Section 5 of this plan.

Existing Road Network

The existing roadway network in Boone County consists of two interstates, several state highways, busy urban streets, low-volume rural roads, and local roads. These different types of roadways serve different purposes; some carry vehicles at a high speed over a long distance, while others provide access to businesses and residences.

AVERAGE ANNUAL DAILY TRAFFIC AND CONGESTION

Existing AADT

The Average Annual Daily Traffic volumes, or AADTs, are based on traffic counts conducted by INDOT in October 2016. Additional counts were conducted by Shrewsberry in March 2017. For some roadways that were not counted, traffic estimates were estimated based on similar facilities. A traffic volume is shown for each roadway that is classified as a collector or higher, and in some cases, local roads of particular interest were counted as well.

The results of traffic data collection and estimation are shown in Exhibit H. Interstates and state roads carry most the traffic through the county. Most county roads, excluding those within cities and towns, are low in volume.

Existing Congestion

The existing AADT volumes for intersections were compared against the capacity for that type of intersection control (two-way stop, all-way stop, signal, or roundabout) to estimate the degree of congestion. Exhibit J shows the results of the congestion analysis. The three intersections with the highest congestion are controlled by INDOT. They are US 136 and SR 75 in Jamestown (high congestion), SR 75 and SR 32 near Western Boone schools (moderately high congestion) and SR 47 and SR 39 north of Lebanon (moderate congestion). The remaining intersections, excluding those in cities and towns, are operating without significant congestion.

Future AADT

Several sources were used to determine forecasted traffic volumes for the year 2036. First, the historical data counted by INDOT was compared to the current data to determine the historical growth factor. Second, the Indianapolis Metropolitan Planning Organization's (Indy MPO's) travel demand model was used to determine 2016-2036 future growth trends. The MPO model took into account new major roadways / extensions, such as Ronald Reagan Parkway, Albert S. White Boulevard/146th Street, and a proposed I-65 interchange in the Whitestown area. The historical growth rate was compared to the MPO growth rate, adjusted as needed, and an average annual growth rate was assigned to each roadway (collectors and higher). These growth rates were applied to the base year traffic data to calculate 2036 AADTs.

Exhibit H: 2016 Average Daily Traffic (with assumptions)

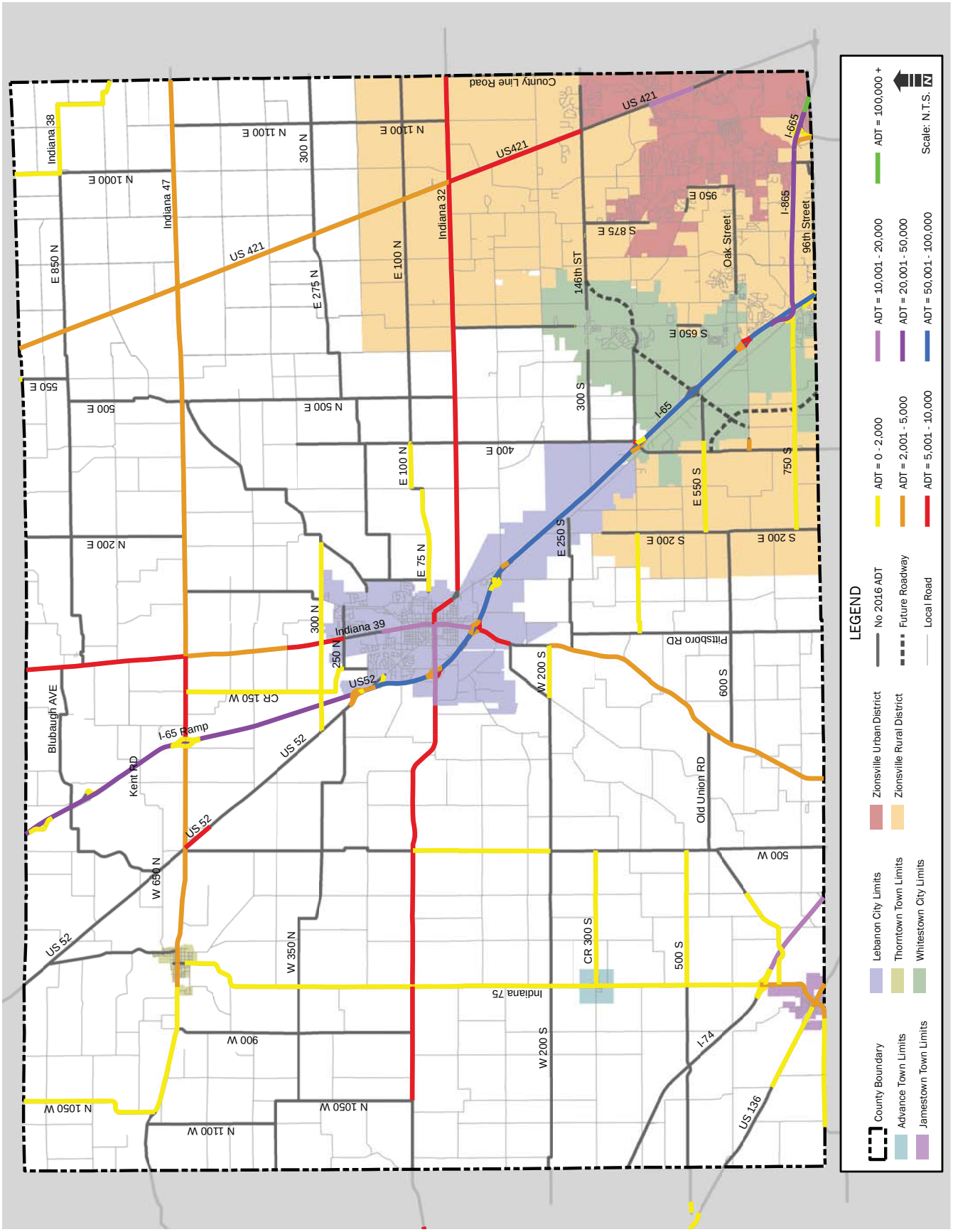


Exhibit I: 2016 Congestion

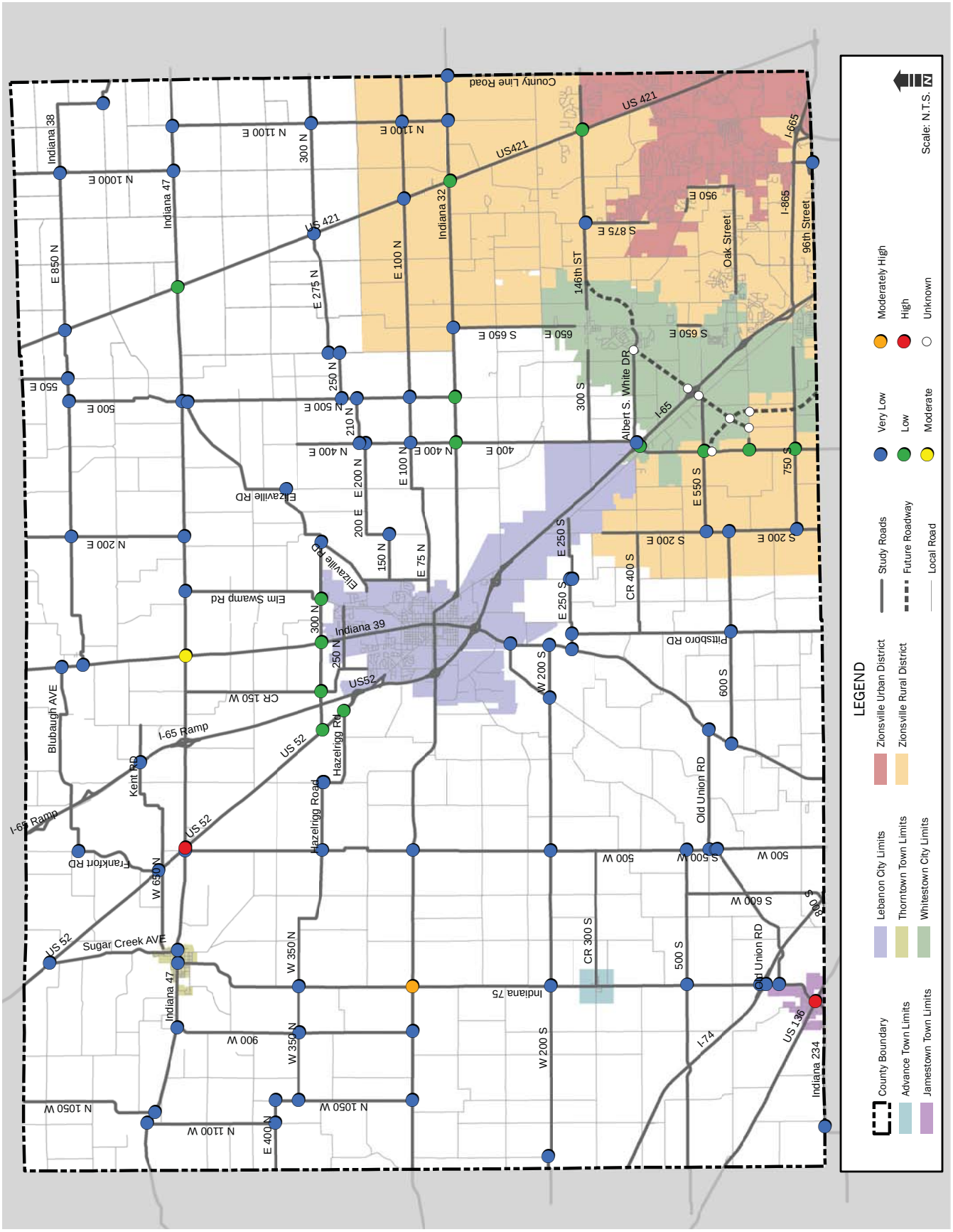
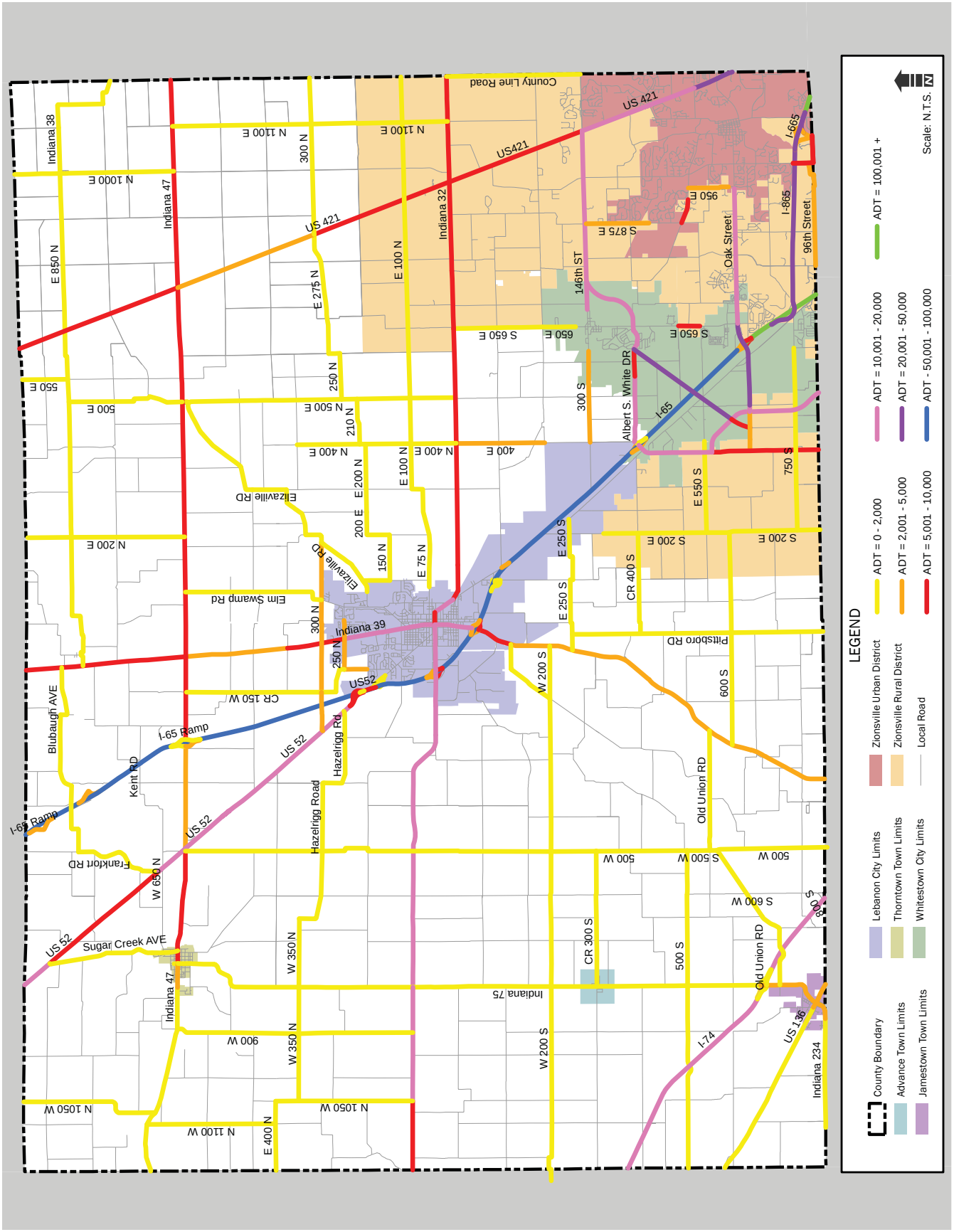


Exhibit J: 2036 Projected Average Daily Traffic



The construction of new major roadways and extensions will have a major impact on growth and development in the vicinity. Based on the proposed land use, new development types and intensities were estimated. Traffic generation was then calculated and distributed to area roadways. This traffic from developments spurred by roadway improvements is in addition to the growth determined by historical and MPO sources.

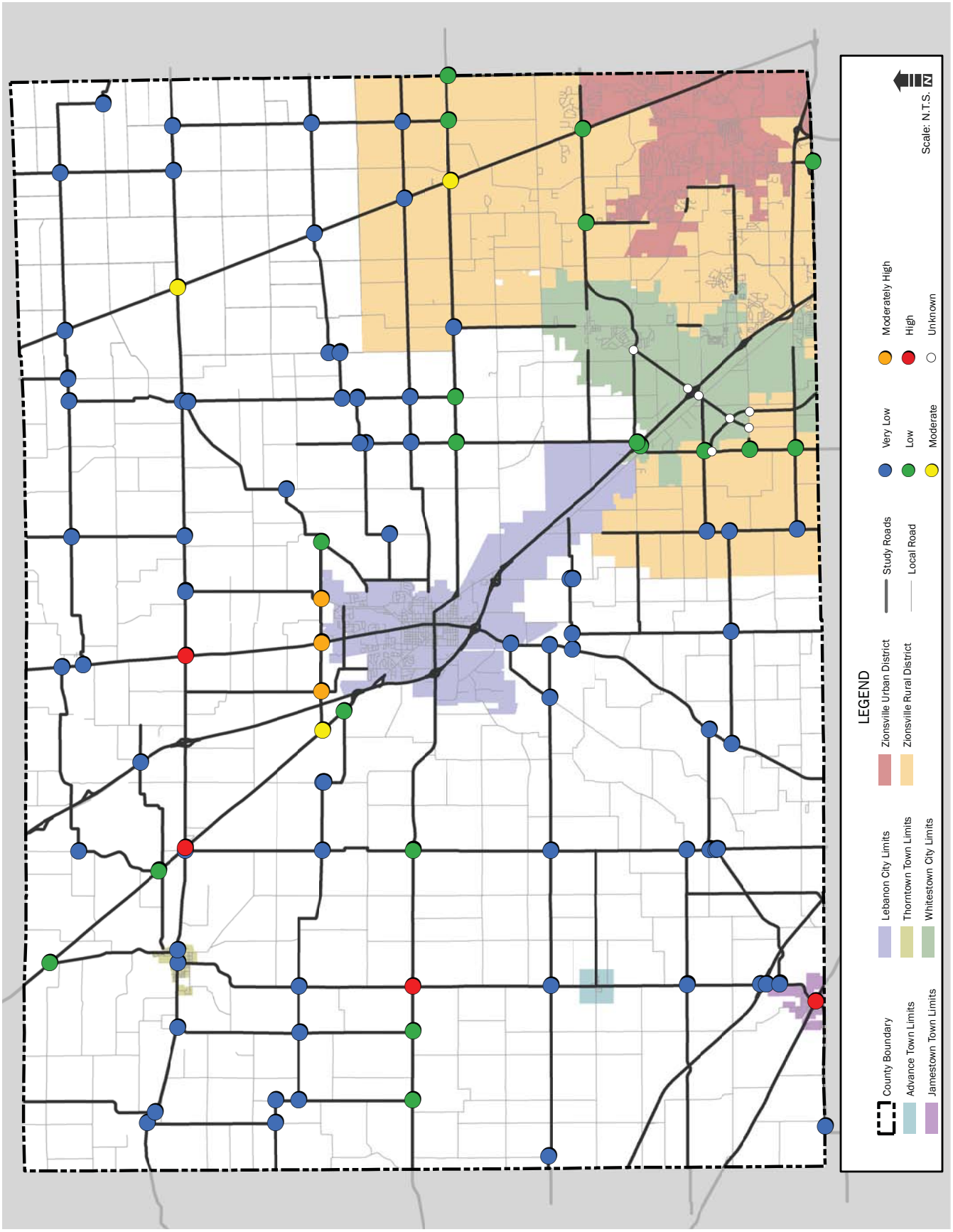
The culmination of this analysis is the 2036 forecasted AADT volumes, as seen in Exhibit J. The roadways showing high rates of growth include US 52 and I-65 northwest of Lebanon; SR 32 west of Lebanon, which connects to I-74; and most roadways east and south of Lebanon, adjacent to existing developed areas.

Future Congestion

Using the forecasted AADT volumes and the existing intersection control, an analysis of future congestion was performed. Exhibit L shows the results of the future congestion analysis. Again, the intersections with the highest congestion are controlled by INDOT. The same intersections that were congested in 2016 are projected to get worse. The intersections of US 136 and SR75, SR 75 and SR 32, and SR 47 and SR 39 are projected to have a high level of congestion. In addition, the intersection of US 52 and CR 500 W is predicted to experience high congestion as well. The remaining intersections, excluding those in cities and towns, will continue to operate without significant congestion.

The future congestion analysis does not take into account the new/extended roadways, the intersections of which are shown with white dots on Exhibit K. Since those roadways and intersections have not yet been designed or built, the number of lanes and intersection configurations are unknown. As such, the future congestion cannot be accurately predicted.

Exhibit K: 2036 Projected Congestion



CRASHES AND SAFETY

Existing Crashes and Safety

Crash data for all of Boone County was obtained from ARIES, the database used by law enforcement agencies to input crash data, for a four-year period from December 2012 to December 2016. Crashes were summarized for the intersections of collector and arterial roadways. Locations with more traffic tend to have more crashes. To account for volume, the average number of crashes per year was divided by the traffic volume, multiplied by conversion factors, to yield the crashes per million entering vehicles (MEV). This rate of crashes per MEV levels the playing field to show which intersections have the highest risks for drivers, regardless of volume.

The intersection with the highest number of crashes was US 52 and SR 47. This intersection experienced a large influx of traffic when I-65 was closed for an emergency bridge repair in 2015. During the closure, traffic was detoured to US 52 for about one month. The high number of crashes can be attributed to the short-term unusual traffic circumstances and is not indicative of a long-term trend. A traffic signal was installed during the detour period and remains in place. The rate of crashes was 13.9 per year before the detour and reduced to 7.6 crashes per year after the installation of a traffic signal.

The crash rates per MEV are shown by varying size circles on Exhibit L. Intersections with the highest crash rate per MEV are:

- SR 47 and CR 900W: 11 crashes in 4 years, 4.33 crashes per MEV
- SR 38 and CR 750N: 3 crashes in 4 years, 4.21 crashes per MEV
- Old Union Road and CR 500W: 2 crashes in 4 years, 3.19 crashes per MEV

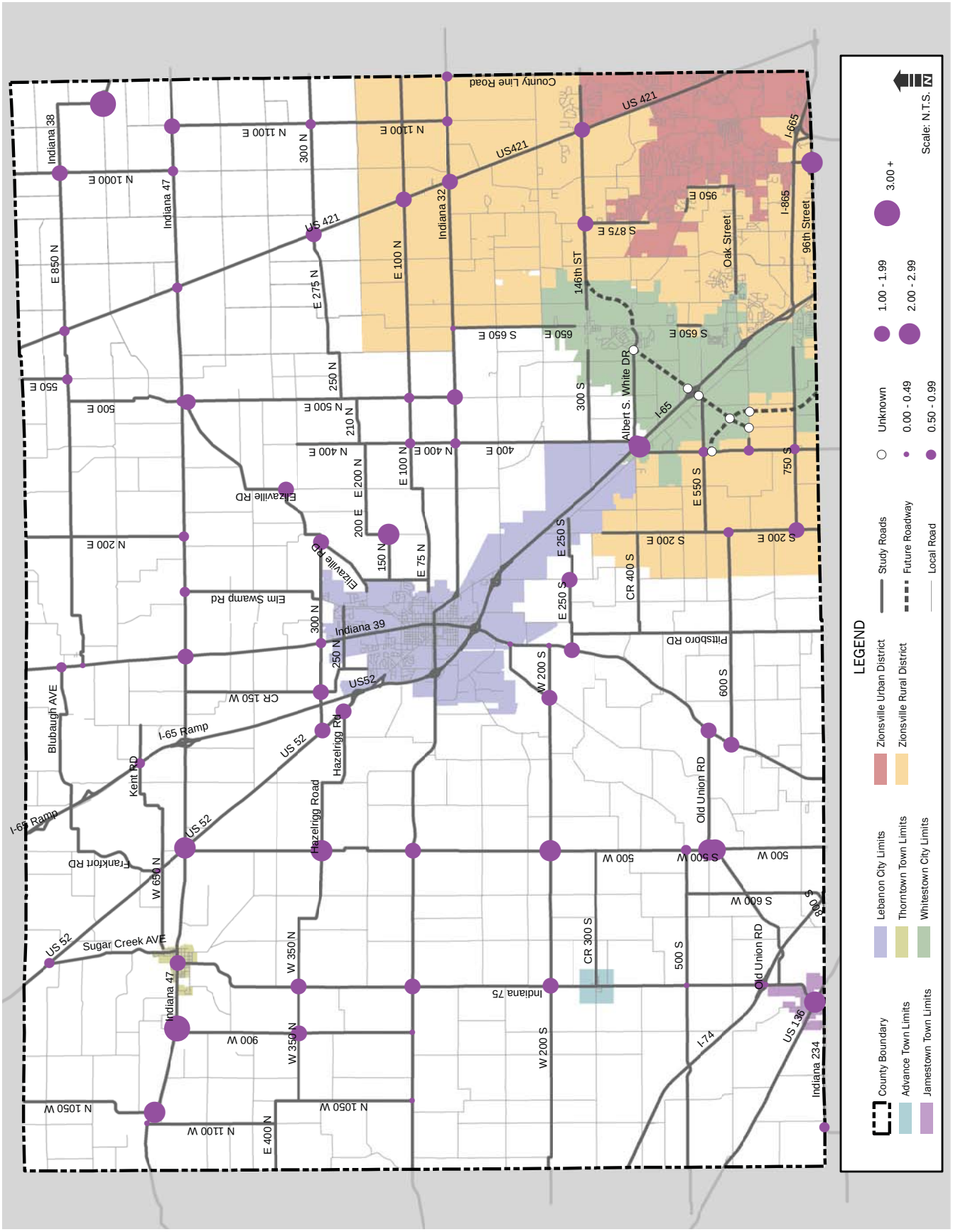
At SR 47 and CR 900W, there were no fatal or injury crashes during the four-year period. Of the 11 crashes, 73 percent were "run off road" crashes, with most involving the horizontal curve just west of the intersection. This intersection is controlled by INDOT.

The intersection of SR 38 and CR 750N is a ninety-degree turn for SR 38 and a T-intersection with 750N. The intersection has low traffic volumes, which contributes to the high crash rates. Two-thirds of crashes were "run off road", and there were no injuries or fatalities. This intersection is controlled by INDOT.

Old Union Road is also referred to as Middle Jamestown Road. The intersection at CR 500W is a Y-shape with a triangular island in the middle. The intersection is controlled with two stop signs and a yield sign. Of the two crashes reported, one involved icy conditions and a "run off road" crash. The other was a "head on" crash when one vehicle failed to yield to the other, resulting in injury.

The steering committee was interested in the crash history of 96th Street and Ford Road. A review of this location showed a total of 56 crashes during the four-year period. A bridge replacement project closed Ford Road for seven months in 2015. This project also relocated the intersection of 96th and Ford Road, cleared some trees, and reduced the degree of horizontal curvature. Due to the extensive reconstruction, the "before" condition was compared to the "after" condition, while crashes that occurred during construction were not evaluated further. Before construction, crashes occurred on average 6.9 times per year. After construction, 32 crashes occurred in one year. Of those, 16 crashes involved a southbound vehicle on Ford Road unsuccessfully navigating the curve to 96th Street. There were also 11 "run off road" crashes among the four horizontal curves west of Ford Road.

Exhibit L: 2012-2016 Crash Rates



Transportation Plan and Recommendations

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TRANSPORTATION PLAN OUTLINE

The transportation plan contained in this section contains several components, including:

- Proposed changes to existing INDOT functional classification
- Thoroughfare classifications
- Right-of-way standards
- Typical road sections and standards
- Potential improvement recommendations

Priorities and policy recommendations, based upon the transportation plan, network analysis and steering committee/stakeholder input can be found in the Implementation Section.

FUNCTIONAL CLASSIFICATION

Classification Definitions (FHWA)

The Federal Highway Association (FHWA) defines functional classification designations based on the priority of mobility for through traffic versus access to adjacent land. In other words, streets are designed along opposing continuums to either connect to destinations or to carry through traffic. Other important factors related to functional classification include access control, speed limit, traffic volume, spacing of routes, number of travel lanes and regional significance.

Interstates, such as I-65, are the highest classification of roadway. They prioritize mobility and have extremely limited access. Interstates are high speed, high volume and have statewide or national significance. They are planned and maintained by state authorities with federal oversight.

Other Freeways & Expressways look very similar to interstates, but without the interstate designation. These have regional or statewide significance. US 31 in Hamilton County is an example of this classification; there are none in Boone Co. at this time.

Principal Arterials carry high volumes of regional traffic. They serve major cities from multiple directions, while in rural areas they provide connectivity between cities such as Lebanon and Westfield. Arterials provide direct access to adjacent land, but may limit the number of intersections and driveways in order to give higher priority to through traffic. Principal arterials are spaced at three to five miles in suburban areas, and farther apart in rural areas. SR 39 through the Lebanon corporate limits is an example of a principal arterial.

Minor Arterials are similar to principal arterials, but are spaced more frequently and serve trips of moderate length. Spacing of minor arterials is two to three miles in suburban areas and less in rural areas. Minor arterials connect most cities and larger towns and provide connectivity between principal arterials. SR 32 throughout Boone County is a minor arterial.

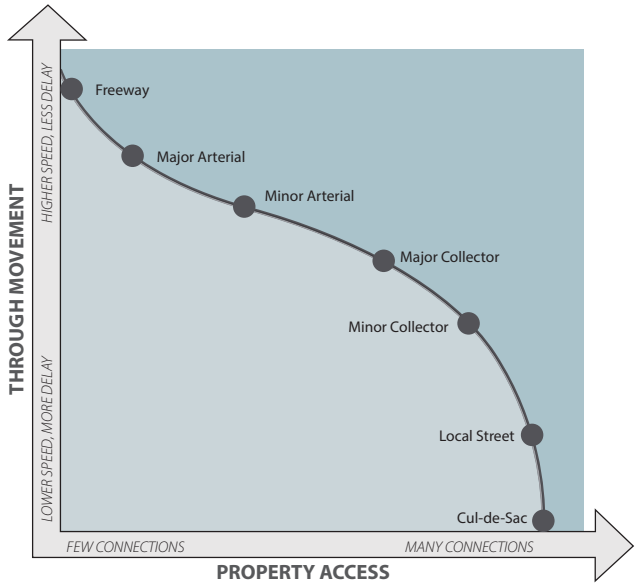
Major Collectors gather traffic from the local roads and connect them to the arterial network. These shorter trips are usually completed within the county and at lower speeds. They provide a balance between access to land and corridor mobility. Major collectors provide connectivity to traffic generators not already on the arterial system, such as schools, parks and major employers. Elizaville Road and SR 75 are both examples of major collectors.

Minor Collectors are similar to major collectors, but are used for shorter trips. They provide traffic circulation in lower-density developed areas and connect rural areas to higher-class roadways. Elm Swamp Road north of Lebanon is a minor collector, as is much of CR 500 W.

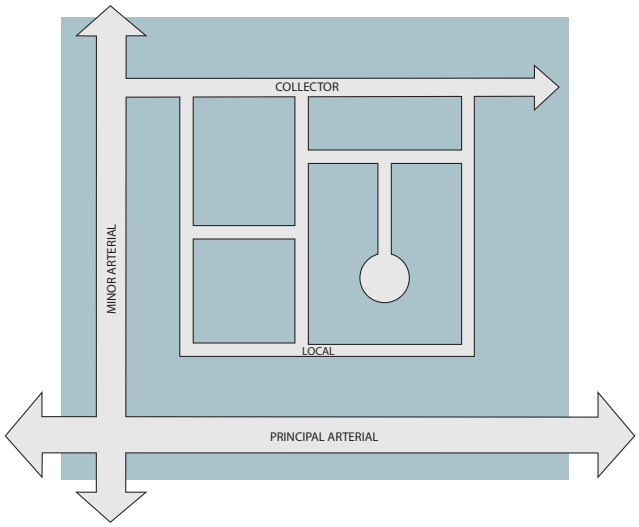
Local Roads make up the largest percentage of roadways in the county. Their primary function is to provide access to land. Trips are short, lower speeds prevail, and cut-through traffic may be discouraged. All remaining roads that are not arterials or collectors are considered local roads. Local roads are not part of the system of roads that is eligible for federal funding, in most cases.

Existing Functional Classification

Exhibit M illustrates the existing functional classification map, which indicates the roadways currently classified by INDOT.



Roadway classifications occur along diverging axis of through movement (mobility) and property access (accessibility)



Roadway classifications establish a hierarchy, which serve to create a functioning and efficient roadway network

Exhibit M: Existing INDOT Functional Classification

Source: Indiana Department of Transportation

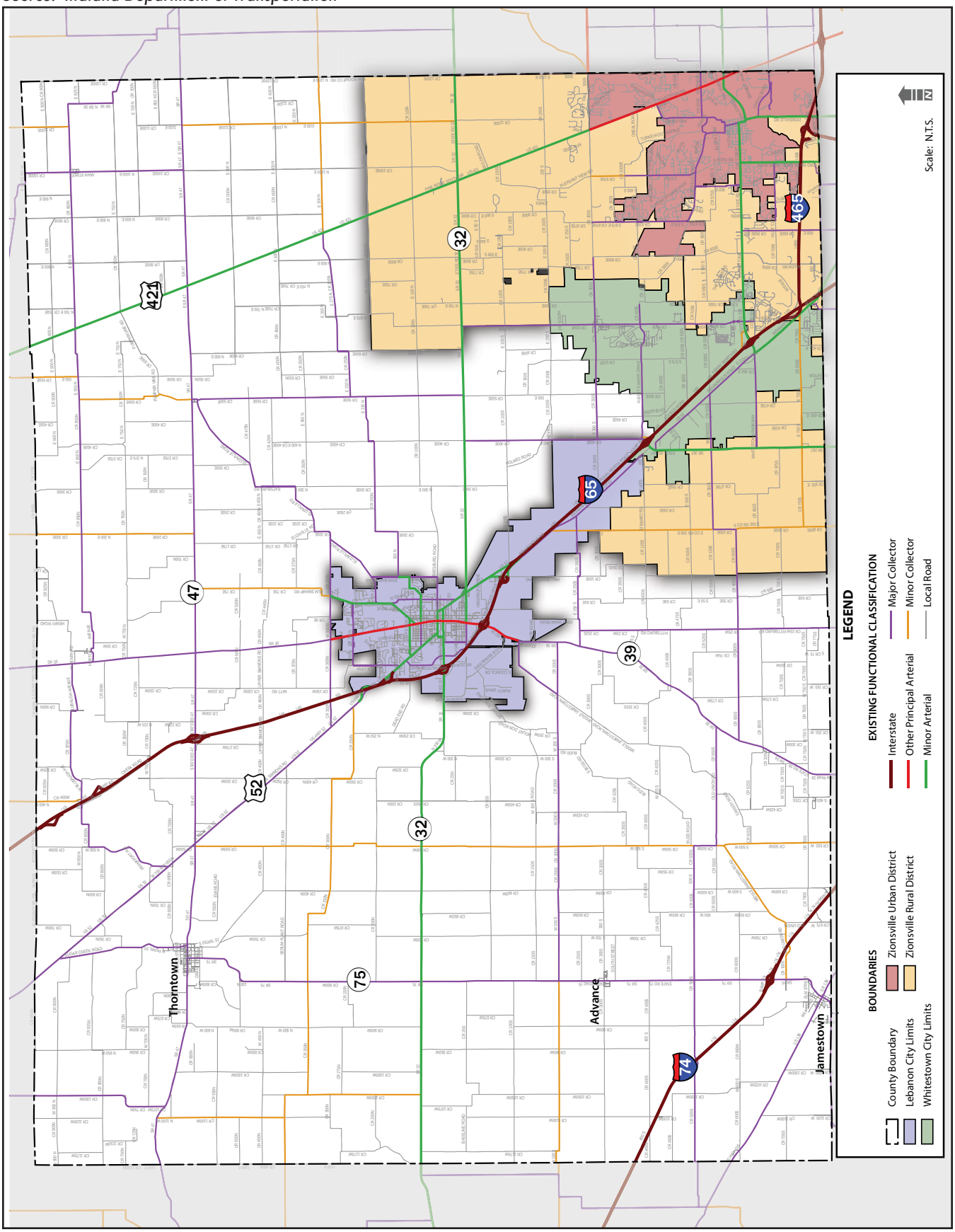
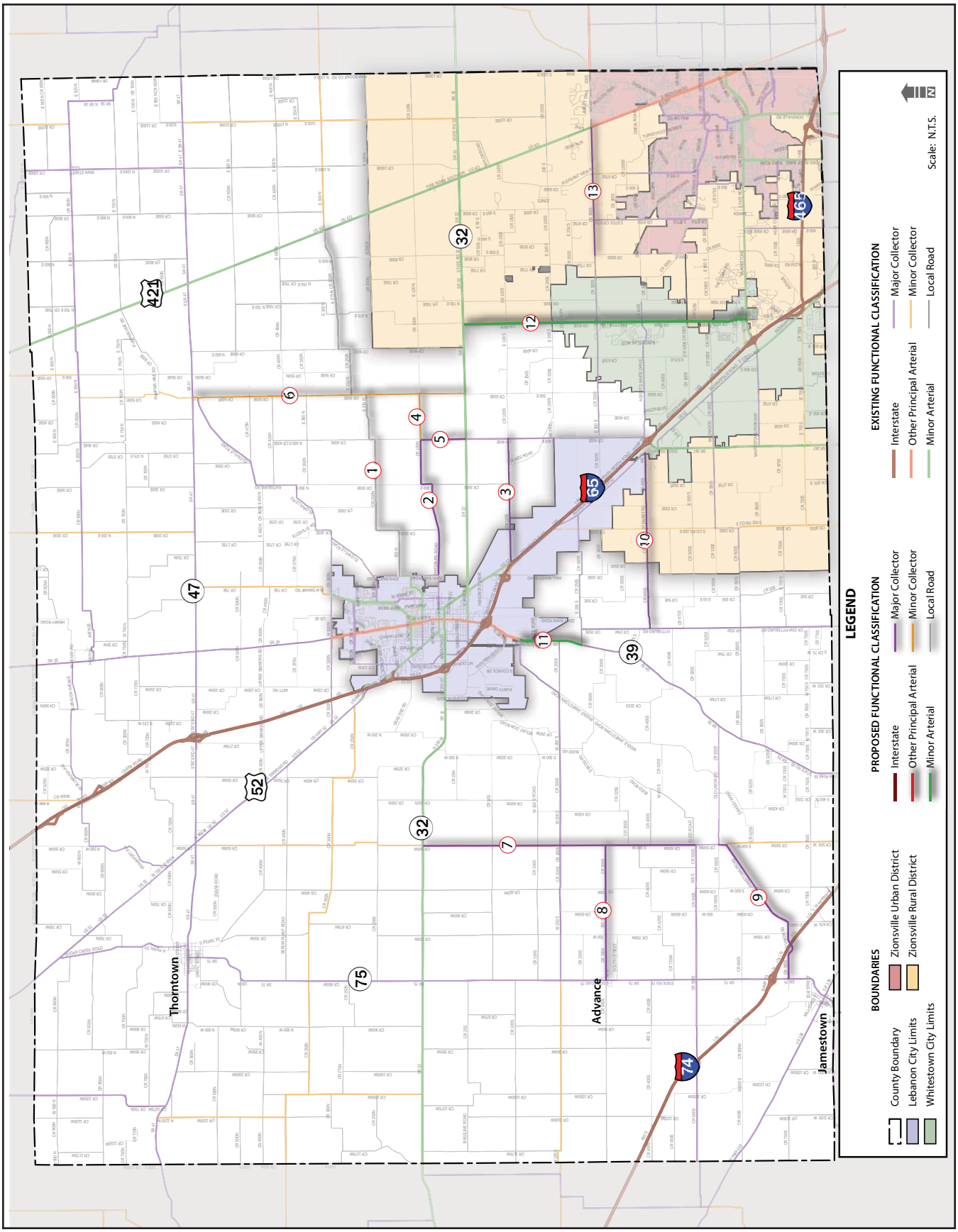


Exhibit A: Proposed INDOT Functional Classification Revisions

Source: Existing Functional Classifications sourced from INDOT.



Proposed Functional Classification

The recent surge in development and anticipated continued growth brings about the opportunity to revisit the functional classification of Boone County roadways. As areas become more densely populated, the density of collectors and arterials increases as well. As more industrial complexes and retail centers are constructed, improved roadways are needed to connect these destinations. As part of the thoroughfare planning process, the steering committee evaluated classifications with respect to the changes in land use and urbanization in Boone County since the last thoroughfare plan was published.

1. The route consisting of CR 150 N/200 N/210 N/250 N/275 N/300 N from John Bart Road at the eastern edge of Lebanon to US 421 is classified as a major collector and is recommended to be reclassified to a local road. Due to the frequent changes in direction along this route, it is not frequently traveled by through traffic, and is mainly used by people who live or farm on those roads.

2. Instead of the aforementioned route, local drivers use CR 75 N/100 N for east-west travel within the county. Therefore, these roadways are recommended to upgrade classification from local roads to major collectors from John Bart Road to CR 400 E.

3. CR 100 N is proposed as a minor collector starting at CR 400 E, as it serves to connect CR 400 E, a proposed major collector, and CR 500 E, a proposed minor collector.

4. CR 100 S connects increasingly developed residential areas with the southernmost Lebanon interchange with I-65 (exit 138). This route is recommended to be a major collector from CR 400 E to Indianapolis Avenue.

5. CR 400 E is already a major collector from the I-65 interchange to SR 32. As development continues northward, the classification should be extended north to CR 100 N.

6. CR 500 E is currently a minor collector north of SR 47. This classification is recommended to extend south to SR 32, as this is one of few roadways that connect SR 47 and SR 32 east of Lebanon.

7. CR 500 W is classified as a minor collector from the south county line to SR 47. The segment between Middle Jamestown Road/Old Union Road and SR 32 is recommended for major collector, as part of a series of upgraded roads linking Lebanon with Advance and Lebanon with Jamestown.

8. CR 300 S is the main east-west route through the Town of Advance, where it is known as Wall Street within town. To provide better connectivity to Lebanon, CR 300 S from SR 75 to CR 500 W is recommended to be a major collector.

9. Old Union Road/Middle Jamestown Road is a minor collector from SR 75 and CR 500 W. To provide better connectivity to Lebanon, it should be upgraded to a major collector.

10. CR 400 S provides connectivity between the developing area south of Lebanon and the I-65 interchange (via Indianapolis Road). As such, it should be reclassified as a major collector from Pittsboro Road to Indianapolis Road.

11. SR 39 transitions abruptly from a principal arterial within the Lebanon city limits to a major collector south of town. To ease this transition, a minor arterial classification is proposed between Middle Jamestown Road and CR 250 S.

12. CR 650 E is a major north-south road connecting the newly developed Anson area with downtown Whitestown and SR 32. It is currently a major collector, but is recommended for upgrade to minor arterial from Whitestown Parkway to SR 32. The arterial designation will help to preserve mobility along the corridor as new developments continue to arise.

13. CR 300 S connects Whitestown to US 421. Portions of CR 300 S east and west of Whitestown are already classified as a major collector. This would make this classification continuous to US 421.

Table 4: Functional Classification Recommended Reclassifications

Route	Current Classification	Proposed Classification
1. CR 150 North/200 North/210 North/250 North/275 North/300 North from John Bart Road to US 421	Major Collector	Local Road
2. CR 75 North/100 North from John Bart Road to CR 400 East	Local Road	Major Collector
3. CR 100 North from CR 400 East to Indianapolis Avenue	Local Road	Major Collector
4. CR 100 South from CR 400 East to CR 500 East	Local Road	Minor Collector
5. CR 400 East from SR 32 to CR 300 North	Local Road	Major Collector
6. CR 500 East from SR 47 to SR 32	Local Road	Minor Collector
7. CR 500 West from Middle Jamestown Road/Old Union Road to SR 32	Minor Collector	Major Collector
8. CR 300 South from SR 75 to CR 500 West	Local Road	Major Collector
9. Old Union Road/Middle Jamestown Road from SR 75 and CR 500 West	Minor Collector	Major Collector
10. CR 400 South from Pittsboro Road to Indianapolis Road	Local Road	Major Collector
11. SR 39 from between Middle Jamestown Road to CR 250	Major Collector	Minor Arterial
12. CR 650 East from Whitestown Parkway to SR 32	Major Collector	Minor Arterial
13. CR 300 S from CR 800 E to US 421	Local Road	Major Collector

FUTURE THOROUGHFARE PLAN MAP

Separate from the proposed changes to the functional classification map is the Future Thoroughfare Plan Map.

While the proposed functional classification map illustrates recommended changes to the functional classification system based on current conditions, the Future Thoroughfare Plan Map lays out the envisioned future roadway network in the county. Both maps utilize the same terms (arterials and collectors) in order to ensure continuity for future funding, as roadways shown in the future thoroughfare plan map may someday be included in the functional classification map. However, the Future Thoroughfare Plan Map is specifically for the county to plan for changes to its transportation network forward to the year 2035.

In order to develop the Future Thoroughfare Plan Map, the existing functional class roads, as illustrated in Exhibit M were assumed as the base for the map. For example, a roadway classified as a collector on the functional class map is assumed to be a collector on the Future Thoroughfare Plan Map, with the exception of state routes, as these are not county jurisdiction. Roadways which warranted a change in classification or included as a thoroughfare were then evaluated and added as illustrated on Exhibit N, to create the Future Thoroughfare Plan Map, Exhibit B. As the last thoroughfare plan map was updated in 1999, there were several new roadways included.

The roadway classifications in the Future Thoroughfare Plan Map also relate to right-of-way and street design standards presented in this plan. All classified roadways in the Future Thoroughfare Plan Map will be required to provide a minimum right-of-way dedication and meet certain other standards, such as lane widths, curb/gutter and sidewalk depending on the classification.

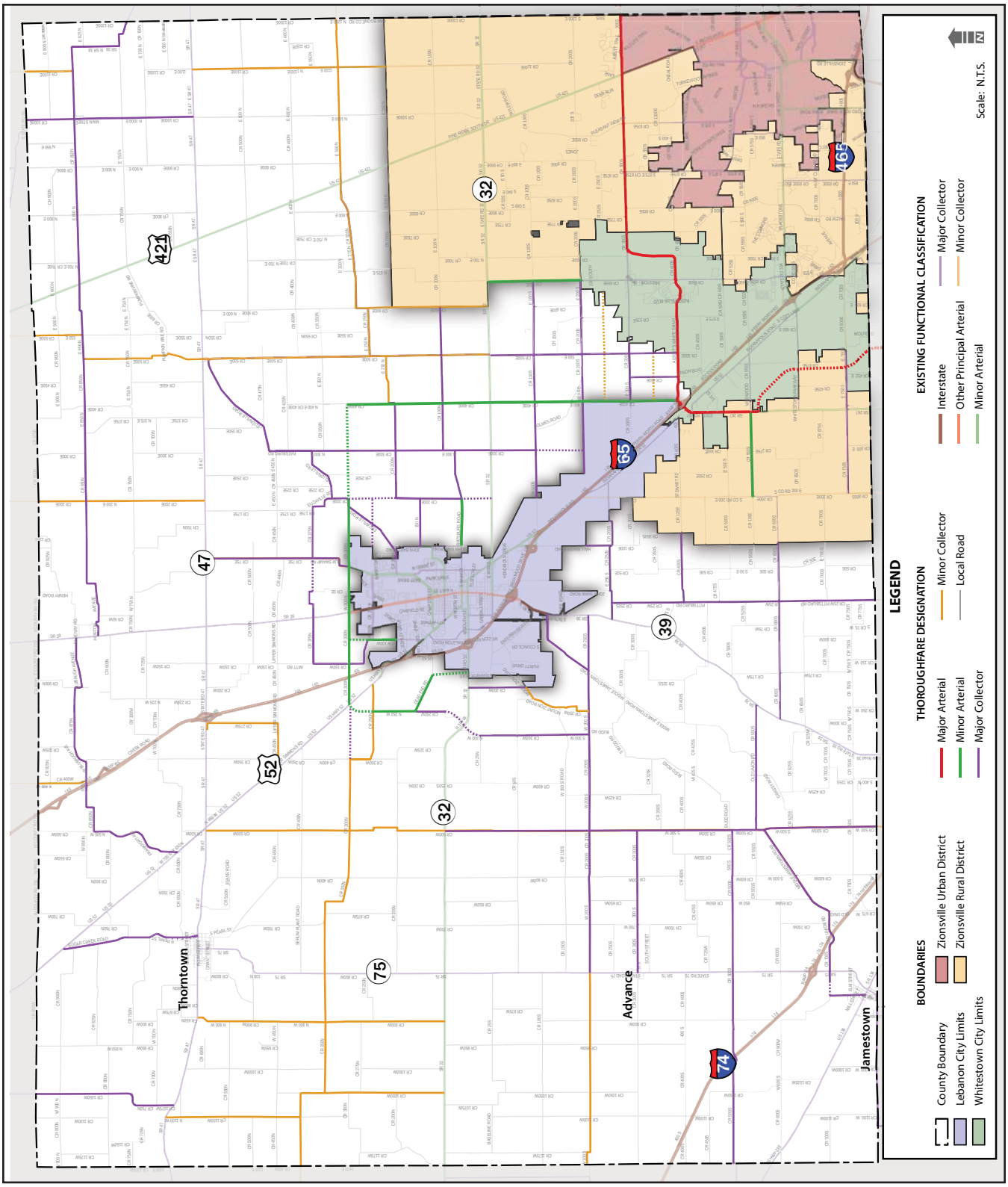
Roadway alignments and proposed road segments on the Future Thoroughfare Plan Map are representations only and do not indicate actual alignments. Detailed surveys and studies will be required for any new right-of-way dedication or new road construction.

Efforts have been made to coordinate other jurisdictional thoroughfare plans and designations. However, if Boone County Thoroughfare Plan classifications differ with those adopted thoroughfare classifications in other jurisdictions, the classification with the more restrictive design standard shall prevail.

As of the writing of this plan, Lebanon and Whitestown are in the process of updating their own thoroughfare plans. Zionsville has a thoroughfare plan from 2010 on file, but it does not address the newly acquired Zionsville Rural District areas. As such, the thoroughfare network within these municipality boundaries are not shown on the Future Thoroughfare Plan Map. The designations for the county thoroughfare network stop at the municipal boundaries. However, the current INDOT functional classification system is shown within these municipal boundaries. Current adopted thoroughfare plan maps for these municipalities can be found in the appendix.

Exhibit B: Future Thoroughfare Plan Map

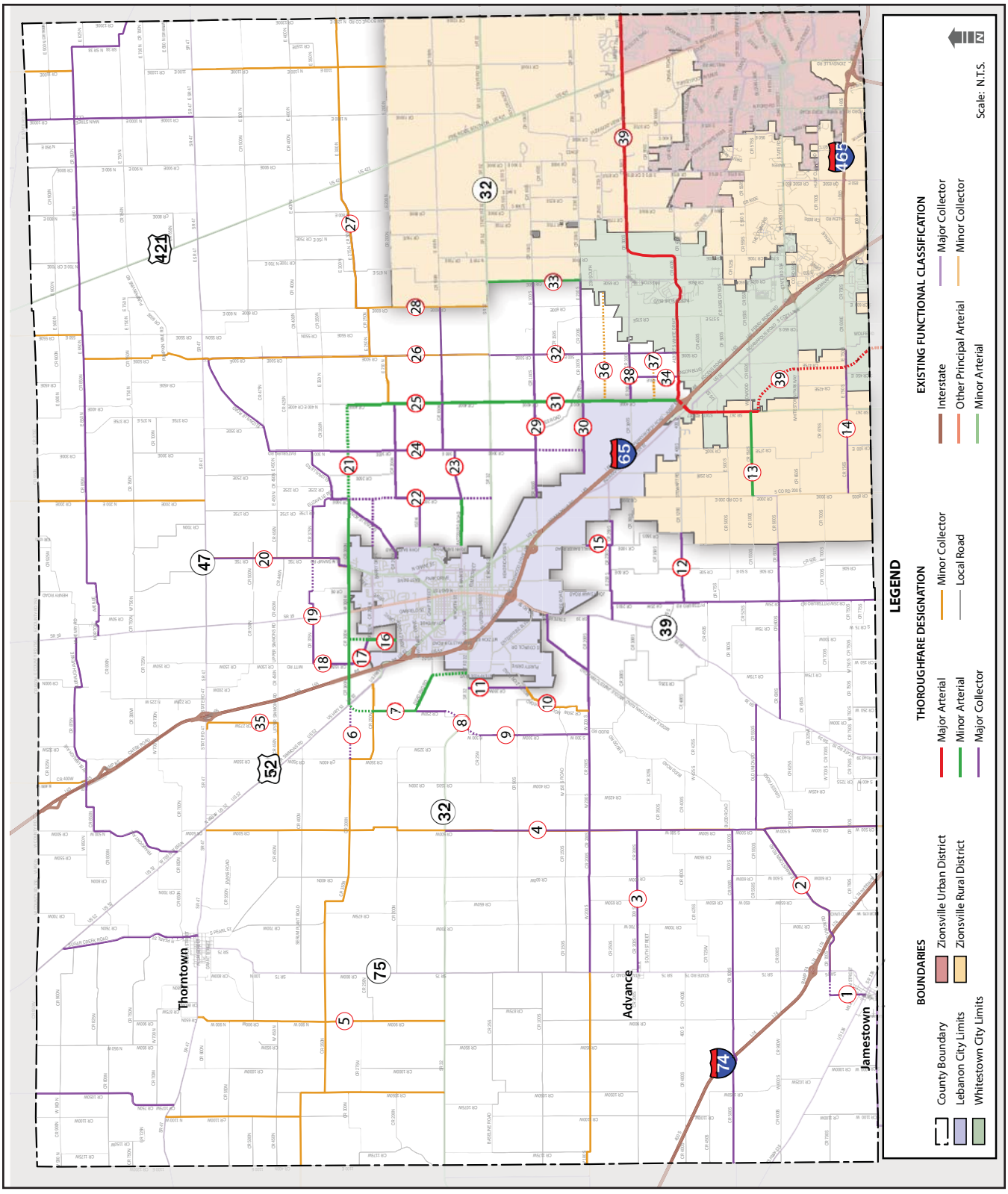
Source: Existing Functional Classifications sourced from INDOT.



- *The above map is a graphic representation only. Detailed surveys and studies will be required for any new right-of-way dedication or new road construction.*
- *If Boone County Thoroughfare Plan Designations differ with those within the jurisdictional limits of a local planning authority, the classification with the higher design standards shall prevail.*

Exhibit N: Thoroughfare Classifications that Differ from Existing Functional Classifications

Source: Existing Functional Classifications sourced from INDOT.



- *The above map is a graphic representation only. Detailed surveys and studies will be required for any new right-of-way dedication or new road construction.*
- *If Boone County Thoroughfare Plan Designations differ with those within the jurisdictional limits of a local planning authority, the classification with the higher design standards shall prevail.*

Table 5: Thoroughfare Classifications that Differ from Existing Functional Classifications		
Route	**Description**	**Thoroughfare Classification**
1. Darlington Street/Middle Jamestown Road	Darlington Street from E. Main Street to the point where it turns 90 degrees to the west. Middle Jamestown Road from I-74 to SR 75. A new road segment from SR 75 to Darlington Street.	Major Collector
2. CR 700S/Middle Jamestown Road	From I-74 to CR 500 W	Major Collector
3. CR 300 S	Between SR 75 and CR 500 W	Major Collector
4. CR 500 W	From southern county line to SR 32	Major Collector
5. CR 900 W	From SR 32 to SR 47	Minor Collector
6. CR 300 N	New road segment from CR 400 N to US 52.	Major Collector
7. CR 250 W/Dead End Road	New road segment from CR 300 N to CR 250 N, from CR 250 N to Dead End Road, Dead End Road to new road segment to SR 32	Minor Arterial
8. CR 300 W/CR 250 W	New road segment to connect CR 300 W to CR 250 W.	Major Collector
9. CR 300 W	From CR 200 S to CR 25 N.	Major Collector
10. Mount Zion Road	From CR 200 S to Lebanon Corporate Limits	Minor Collector
11. CR 200 W	From Mount Zion Road to SR 32	Major Collector
12. CR 400 S	From Pittsboro Road to Indianapolis Road	Major Collector
13. CR 550 S	From CR 200 E to SR 267	Minor Arterial
14. CR 750 S	From CR 200 E to Wolfe Road	Major Collector
15. Hall Baker Road	From CR 250 S to Lebanon Corporate Limits	Major Collector
16. Witt Road	From Lebanon Corporate Limit, including new road segment to CR 300 N	Major Arterial
17. Witt Road	From new road extension in 15 to new road segment to CR 300 N	Major Collector
18. Witt Road	Witt Road from CR 300 N to CR 375 N	Major Collector
19. CR 375 N	375 N to a new road segment from CR 0 E to CR 75 E, from CR 75 E to Elizaville Road	Major Collector
20. Elm Swamp Road	CR 300 N to SR 47	Major Collector
21. CR 300 N	New road segment from CR 200 E to CR 400 E	Minor Arterial
22. CR 200 E	New road segment from SR 32 to Ratsburg Road. From Ratsburg Road to CR 200 N. New road segment from CR 200 N to CR 300 N	Major Collector
23. Ratsburg Road/ CR 100 N	From John Bart Road to CR 600 E	Minor Arterial/Major Collector
24. CR 300 E	New road segment from CR 200 S to CR 100 S. CR 100 S to Elizaville Road	Major Collector
25. CR 400 E	From SR 32 to CR 300 N	Minor Arterial
26. CR 500 E	From SR 32 to Elizaville Road	Minor Collector
27. CR 250 N/CR 600 E/CR 275 N/ CR 300 N	From CR 400 E to US 421	Minor Collector

Table 5: Thoroughfare Classifications that Differ from Existing Functional Classifications		
Route	**Description**	**Thoroughfare Classification**
28. CR 600 E	From SR 32 to CR 275 N	Minor Collector
29. CR 100 S	From Lebanon Corporate Limits to CR 650E	Major Collector
30. CR 200 S	From Lebanon Corporate Limits to CR 650E	Major Collector
31. CR 400 E	From SR 32 to Albert S. White Drive	Minor Arterial
32. CR 500 E	From SR 32 to Albert S. White Drive	Major Collector
33. CR 650 E	From SR 32 to CR 200 S	Major Arterial
34. CR 450 E	From Albert S. White Drive to CR 300 S	Major Collector
35. CR 450N/CR 275W	From US 52 to SR 47	Minor Collector
36. CR 300 N	From US 52 to CR 200 E	Minor Arterial
37. CR 250 S	New road segment from CR 400 E to Whitestown Corporate Limits	Minor Collector
38. CR 300 S	From CR 400 E to Whitestown Corporate Limits	Major Collector
39. CR 350 S	New road segment from CR 400 E CR 500 E	Minor Collector
40. 146th Street Extension	From eastern county line along CR 300 S to CR 700 E. New road from CR 300S to CR 400S. From CR 700E along CR 400 S to I-65	Major Arterial
41. Ronald Reagan Parkway	From I-65 along SR 267 to just south of CR 550 S. New road segment from just south of CR 550 S to south county line road	Major Arterial
42. CR 250 N	New road segment from Lebanon Corporate Limits to future extension of CR 200 E	Major Collector

CONTEXT ZONES

The right-of-way standards and typical proposed sections described in the next few pages both differentiate between urban and rural contexts. This distinction for Boone County is crucial given the growing urbanized southeast and central portion of the county, and the remainder of the county which is very rural, with the exception of the communities of Thorntown, Jamestown and Advance.

In order to better guide decisions related to road construction through the county, boundaries were created for urban and rural classifications. New or improved roadways which fall within the urban context zone should be considered for an urban cross section at time of construction. The urban context zone was developed by offsetting the corporate limits of Whitestown, Lebanon and Zionsville to the nearest roadway, using a mile offset as a guide. Similarly, the corporate limits of Jamestown, Advance and Thorntown were offset a half mile to the nearest roadway.

RIGHT-OF-WAY STANDARDS

The standards contained within this plan are minimum design standards. The county may require increased standards if necessitated by local conditions. It should be noted that urban and rural classifications exist. However, the right-of-way is consistent among all classifications between urban and rural except for local streets.

Improvement location permits, driveway permits and zoning compliance certificates shall be issued only if the right of way designated in this plan is dedicated and protected from encroachment.

If the thoroughfare plan shows a new street, or a street as being improved or widened, on land proposed to be platted, sub-divided or developed, the owner of the land shall dedicate the right-of-way width as designated for the classification of the street as provided in the thoroughfare plan.

TYPICAL PROPOSED SECTIONS

In addition to the right-of-way standards, the classifications identified in the future thoroughfare plan also have typical sections associated with them. These are minimum standards to be used for guidance and in conjunction with the county's ordinances and street design standards.

It should be noted that urban and rural sections exist for all roadway classifications.

The following pages illustrate potential sections for the thoroughfare designations and the standards illustrated in Table 7.

Table 6: Right-Of-Way Requirements

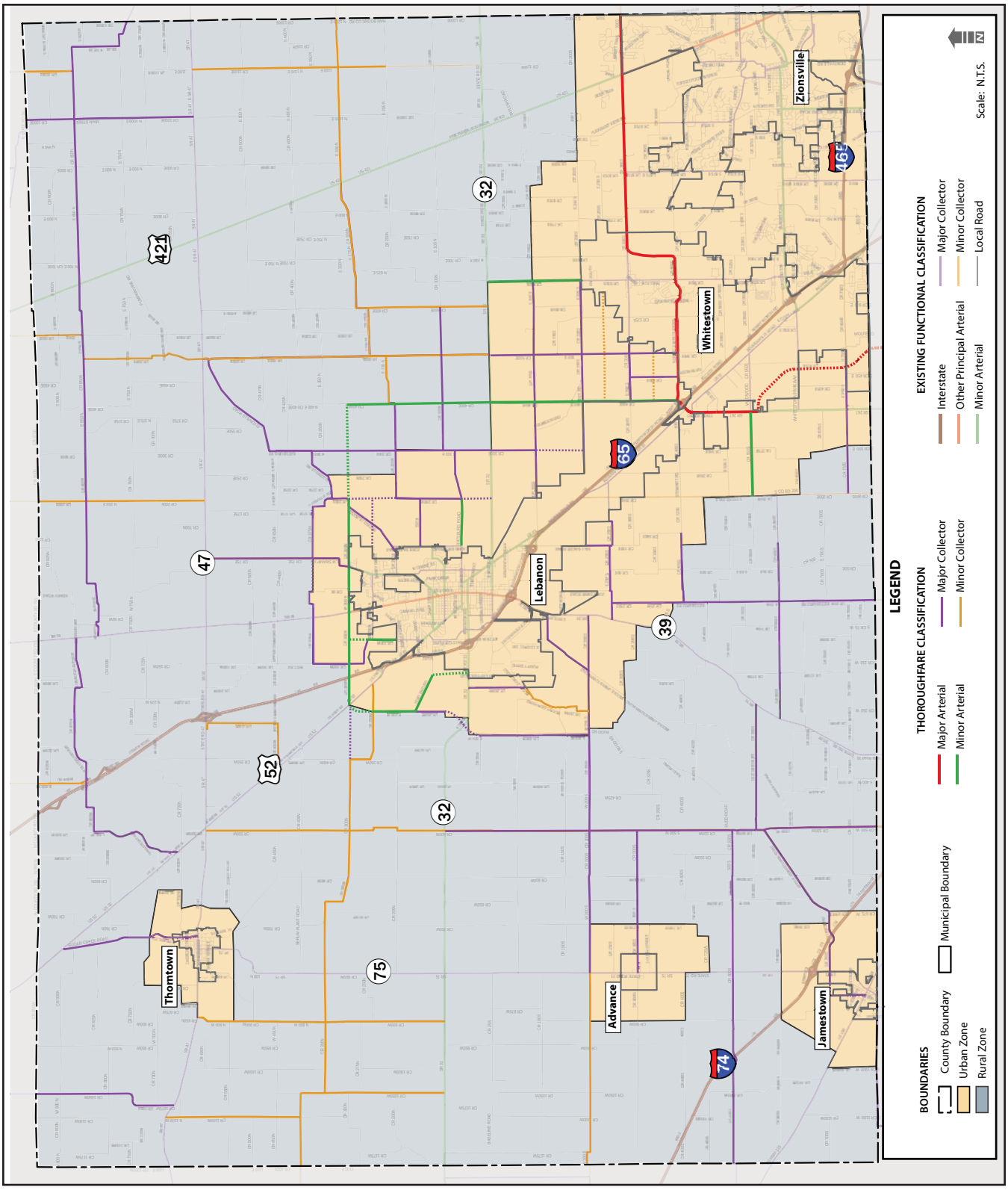
	Urban	Rural
Other Principal Arterial		
Right-of-Way	140'	140'
Number of Lanes	2-4	2-4
Minor Arterial		
Right-of-Way	120'	120'
Number of Lanes	2-4	2-4
Major Collector		
Right-of-Way	90'	90'
Number of Lanes	2	2
Minor Collector		
Right-of-Way	80'	80'
Number of Lanes	2	2
Local Roads		
Right-of-Way	50'-60'	60'-80'
Number of Lanes	2	2

Notes: Minimum required right of way. See Boone County design standards for roadways for details on additional requirements.

Priority mobility corridors may require additional right of way in this plan. See Section 6, Mini Corridor Plans

Exhibit O: Context Zones

Source: Existing Functional Classifications sourced from INDOT.



- *The above map is a graphic representation only. Detailed surveys and studies will be required for any new right-of-way dedication or new road construction.*
- *If Boone County Thoroughfare Plan Designations differ with those within the jurisdictional limits of a local planning authority, the classification with the higher design standards shall prevail.*

Table 7: Typical Roadway Sections

				Pavement Section							Border Section		
	Min. R.O.W.	No. of Travel Lanes	No. of Parking Lanes	Travel Lane Width	Aux. Lanes Width	Min. Parking Lane Width	Min. Shoulder Width	Median Divider	Curb and Gutter (each side)	Bike Lane (each side)	Tree Lawn Min.	Sidewalk (each side)	Multi-use Path
Other Principal Arterial													
Rural	140’	2-4	0	12'	12'	none	8' (6' paved)	none	none	5' opt.	10'	5' opt.	8'-12' opt.
Urban	140'	2-4	0	11' min.	12'	none	none	3'-16' opt.	2'	5’ opt.	8'	5'	8'-12' opt.
Minor Arterial													
Rural	120’	2-4	0	12'	12'	none	8' (6' paved)	none	none	5’ opt.	10'	5' opt.	8'-12' opt.
Urban	120’	2-4	0	11' min.	12'	none	none	3'-16' opt.	2'	5’ opt.	8'	5'	8'-12' opt.
Major Collector													
Rural	90’	2	0	11'	12’	none	8' (6' paved)	none	none	5’ opt.	10'	5' opt.	8'-12' opt.
Urban	90’	2	1-2 opt.	11' min.	12’	8'	none	3'-16' opt.	2'	5’ opt.	5'	5'	8'-12' opt.
Minor Collector													
Rural	80’	2	0	11'	none	none	8' (6' paved)	none	none	none	10'	5' opt.	8'-12' opt.
Urban	80'	2	1-2 opt.	11' min.	none	8'	none	none	2'	4' opt.	5'	5'	8'-12' opt.
Local Street													
Rural	60'-80'	2	0	10' min.	none	none	2'	none	none	none	10'	5' opt.	8'-12' opt.
Urban	50'-60'	2	1-2 opt.	10' min.	none	8'	none	none	2'	4' opt.	5'	5'	8'-12' opt.

Notes: Minimum required right-of-way. See Boone County design standards for roadways for details on additional requirements.
Priority mobility corridors may require additional right-of-way. See Section 6, Mini-Corridor Plans.
Parking may be permitted on a case by case basis if not noted above, particularly in an urban context.

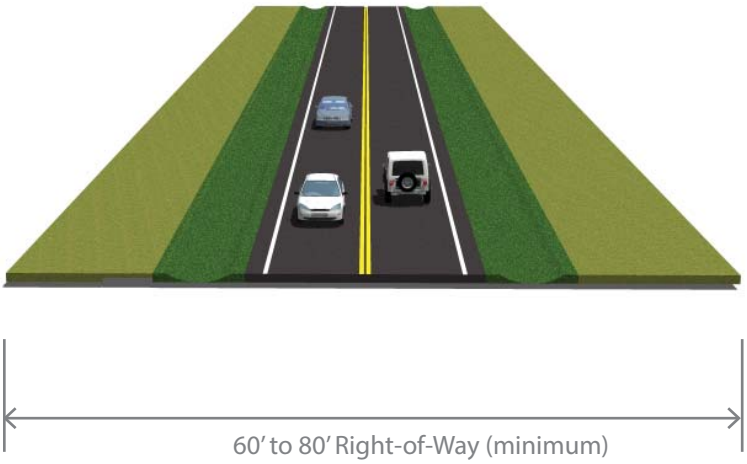
LOCAL ROAD

Urban

Minimum Standards
- 10' minimum travel lanes
- 2 lanes
- 2' curb and gutter
- 5' sidewalk both sides
- 5' minimum tree lawn

Optional Standards
- 4' bike lane(s)
- 8-12' multi-use path
- Parking lane(s)

Rural

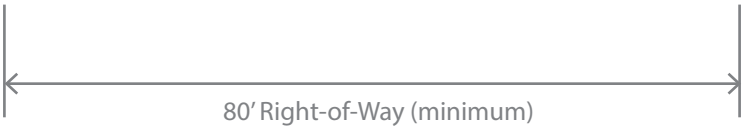


Minimum Standards
- 10' minimum travel lanes
- 2 lanes
- 2' paved shoulder
- 10' minimum tree lawn
- No parking

Optional Standards
- 5' sidewalks
- 8-12' multi-use path

MINOR COLLECTOR

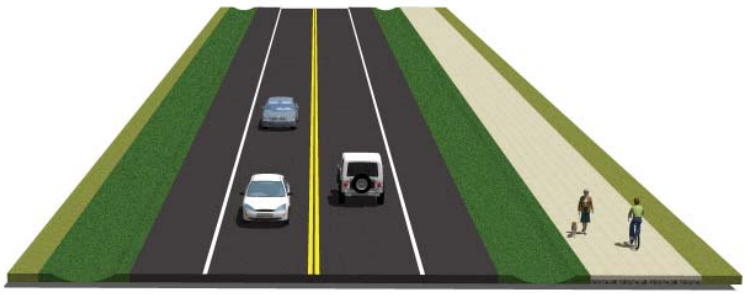
Urban

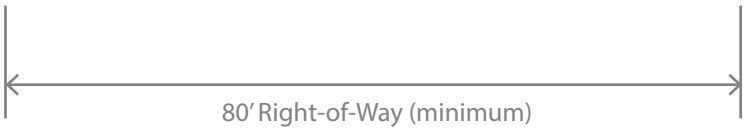


Minimum Standards
- 11' minimum travel lanes
- 2 lanes
- 2' curb and gutter
- 5' sidewalk both sides
- 5' minimum tree lawn

Optional Standards
- 4' bike lane(s)
- 8-12' multi-use path
- Parking lane(s)

Rural



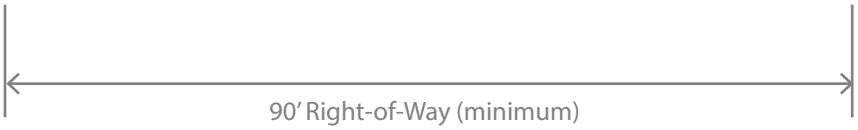


Minimum Standards
- 11' travel lanes
- 2 lanes
- 8' shoulder (6' paved)
- 10' minimum tree lawn
- No parking

Optional Standards
- 5' sidewalk(s)
- 8-12' multi-use path

MAJOR COLLECTOR

Urban



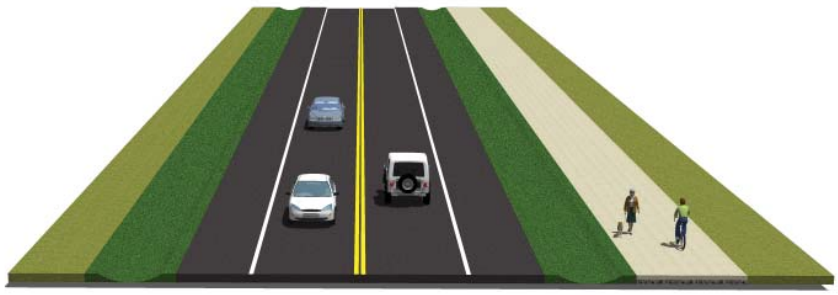
Minimum Standards

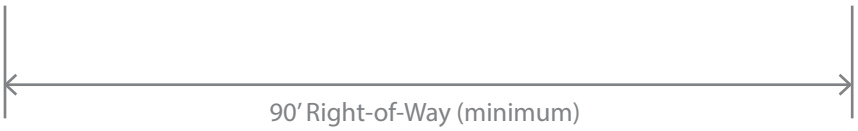
- 11' minimum travel lanes
- 2 lanes
- 2' curb and gutter
- 5' sidewalk both sides
- 5' minimum tree lawn

Optional Standards

- 3' to 16' median/center turn lane
- 5' bike lane(s)
- 8-12' multi-use path
- Parking lane(s)

Rural





Minimum Standards

- 11' travel lanes
- 2 lanes
- 8' shoulder (6' paved)
- 10' minimum tree lawn
- No parking

Optional Standards

- 5' bike lane(s)
- 5' sidewalk(s)
- 8-12' multi-use path

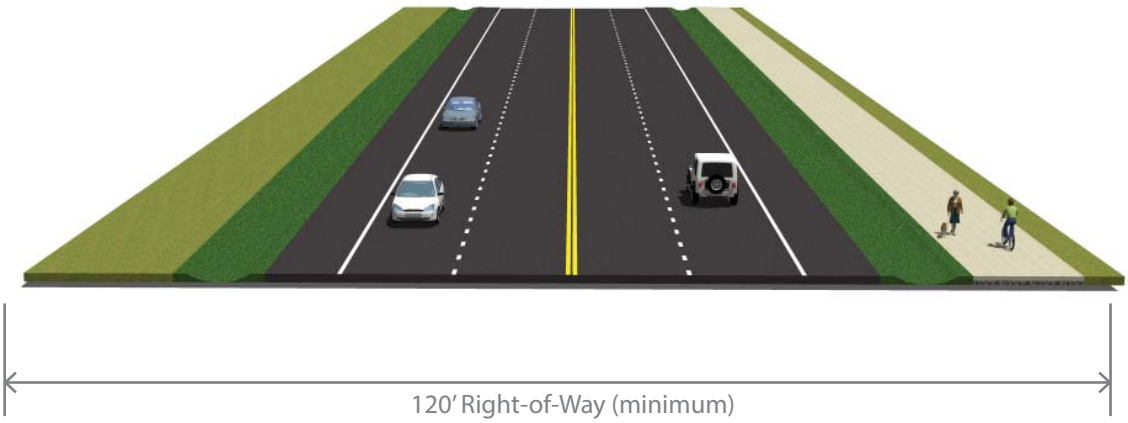
MINOR ARTERIAL

Urban

Minimum Standards
- 11' minimum travel lanes
- 2-4 lanes
- 2' curb and gutter
- 5' sidewalk both sides
- 8' minimum tree lawn
- No parking

Optional Standards
- 3' to 16' median/center turn lane
- 5' bike lane(s)
- 8-12' multi-use path

Rural



Minimum Standards
- 12' travel lanes
- 2-4 lanes
- 8' shoulder (6' paved)
- 10' minimum tree lawn
- No parking

Optional Standards
- 5' bike lane(s)
- 5' sidewalk(s)
- 8-12' multi-use path

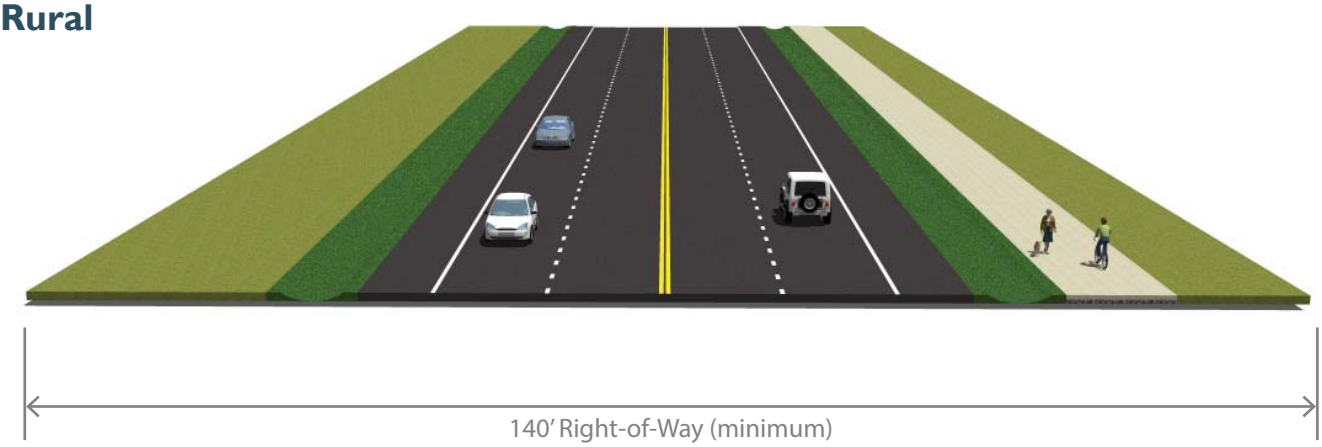
MAJOR ARTERIAL

Urban

Minimum Standards
- 11' minimum travel lanes
- 2-4 lanes
- 2' curb and gutter
- 5' sidewalk both sides
- 8' minimum tree lawn
- No parking

Optional Standards
- 3' to 16' median/center turn lane
- 5' bike lane(s)
- 8-12' multi-use path

Rural



Minimum Standards
- 12' travel lanes
- 2-4 lanes
- 8' shoulder (6' paved)
- 10' minimum tree lawn
- No parking

Optional Standards
- 5' bike lane(s)
- 5' sidewalk(s)
- 8-12' multi-use path

POTENTIAL IMPROVEMENTS

Potential improvements for consideration by the county on the following pages were developed based on network analysis, input from the steering committee and review of previous plans. The Implementation Section prioritizes some of those improvements, as well as provides policy recommendations.

Improvements were also considered based upon consistent comments from stakeholder discussions. Some of the key discussion points discussed during these stakeholder sessions included:

- There is a need for better north/south access between SR 47, SR 32 and the Whitestown/ Zionsville area.
- East/west travel along CR 100 N is not accurately represented in the existing functional classification map. It is much heavier.
- Future connectivity and upgrade of county roads in the southeast corner of the county will be critical for future growth.
- CR 500 W is a critical north/south corridor in the western half of the county.

Truck traffic, including agricultural traffic, has difficulty on several county roads due road and bridge capacity and width.

Current and Committed Projects

There are already several current and committed projects planned in Boone County through the Indianapolis MPO and INDOT, as shown on Exhibit P . Table 8 indicates the likely timeframe for the projects. Those projects listed as illustrative are planned, but do not currently have any funding for them.

In addition, the Regional Logistics Council has also identified priority roadway improvement projects in Boone County. These recommendations include:

- An "outer loop" to connect Interstates 65 and 69, running through Boone, Hamilton, Hancock, Hendricks, Johnson, Madison and Morgan counties.
- Extension of the Ronald Reagan Parkway to State Route 267 in Boone County.
- Widening US 421 to three lanes from W 126th Street in Zionsville to SR 28 in Frankfort.
- Rebuilding the I-65/SR 267 interchange at the 133 mile marker.

Exhibit P: Current and Committed Projects

Source: Indianapolis MPO and INDOT Statewide Transportation Improvement Plan

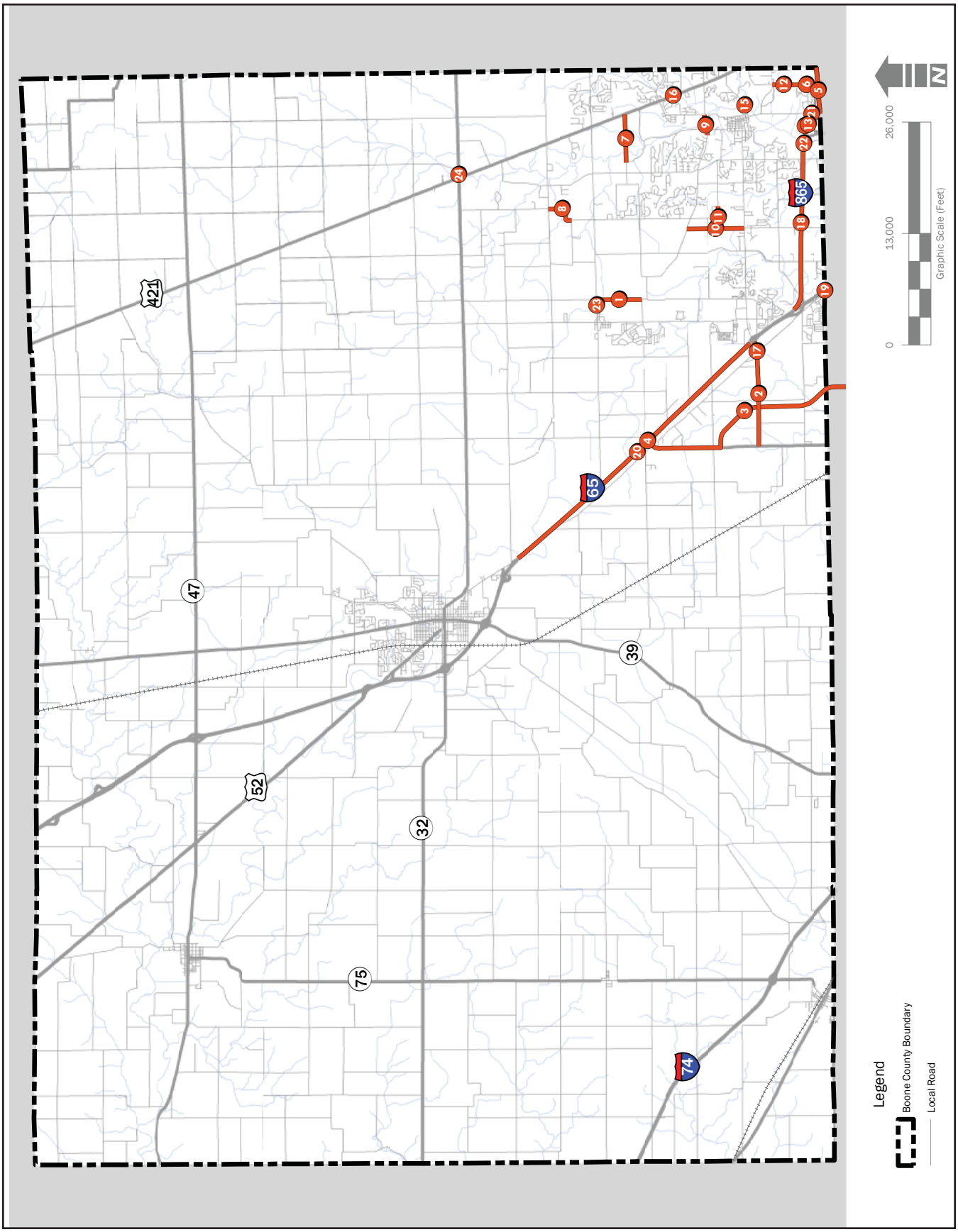


Table 8: Current and Committed Projects

	MPO #	INDOT DES #	Sponsor/ Lead Agency	Facility and Location	Description	Timeframe/ Letting Date
1	1103	1383408	Boone Co.	146th St. Ext, Phase 3. Connect CR 400S to CR 300 S	New Road, 2 lane divided	2016-2025
2	1104	-	Boone Co.	CR 650 S from SR 267 to the western limit of the I-65 interchange	Widen to 4 lanes	2016-2025
3	1107	-	Boone/ Hendricks Co.	Ronald Reagan Parkway from 56th St. in Hendricks County to SR 267/I-65 interchange	New road, 4 lane divided	2016-2025
4	1102	1400071	INDOT	SR 267/I-65 interchange modifications	Interchange modification	2016-2025
5	1203	-	Zionsville	96th Street from Zionsville Road to Hamilton County line	Widen to 4 lane divided	2016-2025
6	1208	-	Zionsville	Bennett Parkway from .5 miles north of 96th St. to 96th St.	New 2 lane	2016-2025
7	1205	-	Zionsville	CR 375 from CR 1000 W to US 421	New 2 lane	2026-2035
8	1207	-	Zionsville	CR 875 from CR 250 S to CR 200 S	New 2 lane	2026-2035
9	1206	-	Zionsville	Templin Road from Mulberry St. to Willow Road	New 2 lane	2026-2035
10	1201	-	Zionsville	Cooper Road from SR 334 to CR 500 S	New 2 lane	Illustrative
11	1202	-	Zionsville	CR 600 S from Cooper Road to CR 900 E	New 2 lane	Illustrative
12	1204	-	Zionsville	Bennett Parkway from .5 miles south of 106th St. to 106th St.	New 2 lane	2011-2015
13	-	1400037	INDOT	Bridge repair of I-465 directional ramp over I-865	Replace bridge superstructure	2018
14	-	1400484	INDOT	Connector from I-465 NB to I-865 WB	Repair or replace joints	2015
15	-	1600686	Boone Co.	Bridge 202 on Sycamore St. in Zionsville	Rehabilitation of bridge	2020
16	-	1592834	INDOT	Little Eagle Creek Bridge on Michigan Road	Bridge deck overlay	2019
17	-	1400926	Whitestown	Indianapolis Road and Whitestown Parkway	Roundabout construction	2017
18	-	1500814	INDOT	I-865 from I-65 to I-465	HMA overlay	2018
19	-	1400339/ 1400341	INDOT	I-65 Bridge over Lafayette Road	Bridge deck overlay	2016
20	-	1600315	INDOT	I-65 from 130.13 to 137.19 milepost	HMA overlay	-
21	-	1592319	INDOT	I-865 bridge over Zionsville Road	Bridge rehabilitation	2016
22	-	1006453/ 100654	INDOT	I-865 bridge over Eagle Creek	Bridge deck replacement and overlay	2018
23	-	1592482	Boone Co.	E 300 S bridge over Jackson Run in Whitestown	Bridge deck replacement	-
24	-	1600356	INDOT	SR 32 bridge over Big Eagle Creek	Bridge deck overlay	2019

Source: Indianapolis MPO and INDOT Statewide Transportation Improvement Plan

Gravel Roads

As Boone County has historically been a very rural county, a significant portion of county roads are gravel. As areas continue to urbanize, key roads will need to be considered for paving. To aid in this effort, the county should develop a gravel transition policy, to decide what warrants a road transition from gravel to paved. The Implementation Section provides recommendations of what such a policy might include.

In order to understand how existing gravel roads relate to the Future Thoroughfare Plan Map, the gravel roads inventory, as provided by Boone County, was overlaid with the Future Thoroughfare Plan Map. Table 9 indicates classified thoroughfares per the Future Thoroughfare Plan Map which are also gravel roads. Exhibit Q illustrates the gravel roads in Boone County.

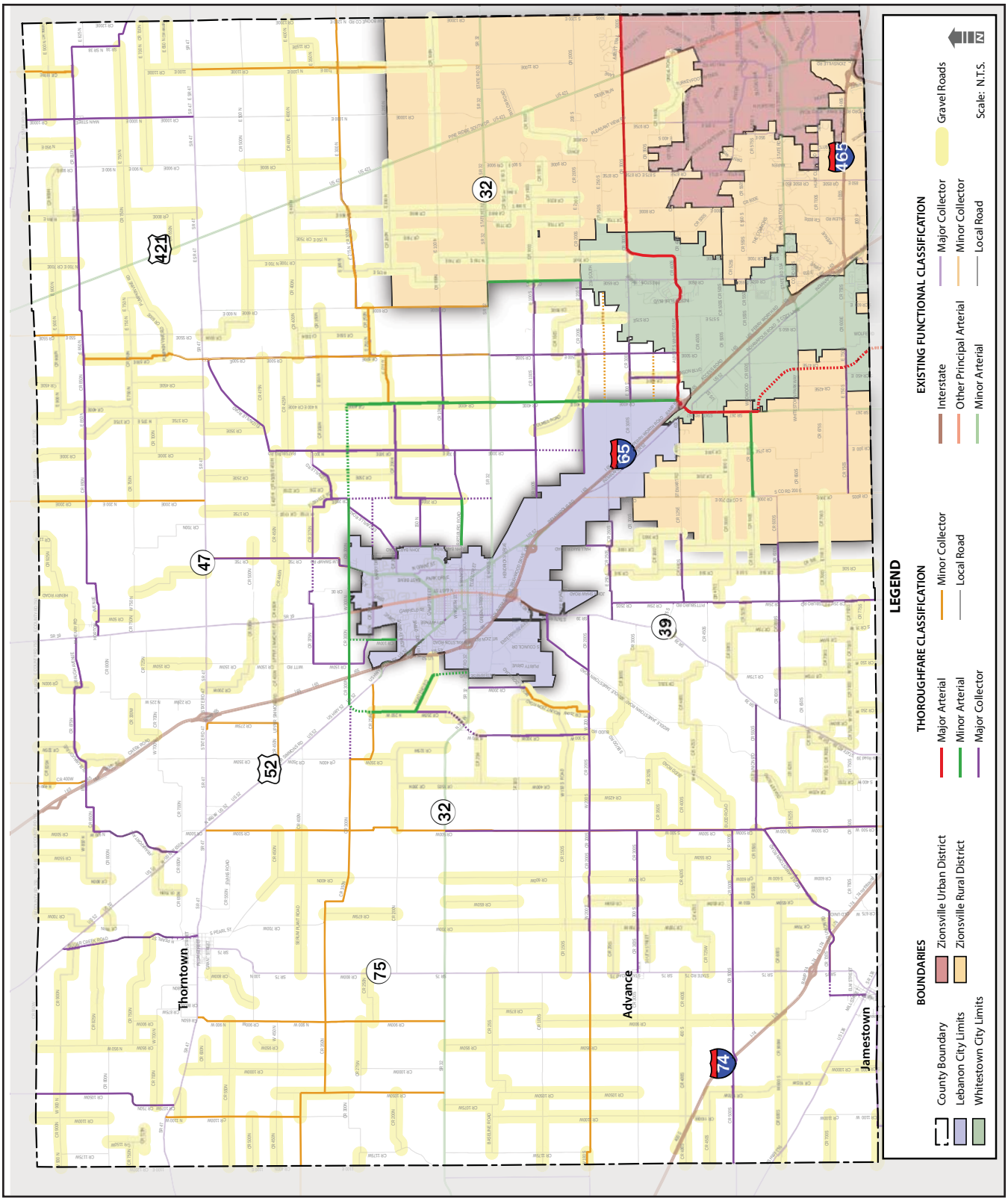
Table 9: Gravel Roads Designated as Thoroughfares

Facility	Location	Thoroughfare Classification	County Area	In Urban Context Zone
CR 375 N	Between Elizaville Road and Elm Swamp Road	Minor Collector	North of Lebanon	Yes
CR 200 E	Between Ratsburg Road and CR 200 N	Minor Arterial	East of Lebanon	Yes
CR 200 N	Between CR 200 E and CR 400 E	Major Collector	East of Lebanon	Partially
CR 210 N	Between CR 400 E and CR 500 E	Major Collector	East of Lebanon	No
CR 250 N	Between CR 500 E and CR 600 E	Minor Collector	East of Lebanon	No
CR 300 E	Between CR 100 N and Elizaville Road	Major Collector	East of Lebanon	Partially
CR 400 E	Between SR 32 and CR 350 N	Major Collector	East of Lebanon	No
CR 250 W	Between Dead End Road and CR 250 N	Minor Arterial/Major Collector	West of Lebanon	Yes
Dead End Road	Between CR 250 W and I-65	Minor Arterial	West of Lebanon	Yes
Mount Zion Road	Between CR 200 S and CR 200 W	Minor Collector	SW of Lebanon	Yes
CR 300 W	Between CR 200 S and CR 50 S	Major Collector	SW of Lebanon	Yes
CR 450 E	Between Albert S. White and CR 300 S	Major Collector	North of Whitestown	Yes
CR 200 S	Between CR 400 E and CR 500 E	Major Collector	East of Lebanon/ North of Whitestown	Yes
CR 1100 E	Between SR 32 and CR 700 N	Minor Collector	East	No
CR 1100 E	Between CR 850 N and County Line	Minor Collector	Northeast	No
CR 500 E	Between Pumpkin Vine Road and CR 850 N	Minor Collector	North	No
CR 200 E	Between CR 850 N and County Line	Minor Collector	North	No
CR 1500 W	Between CR 300 N and CR 400 N	Minor Collector	West	No

Source: Boone County Highway Department

Exhibit Q: Gravel Roads in Boone County

Source: Boone County Highway Department



- *The above map is a graphic representation only. Detailed surveys and studies will be required for any new right-of-way dedication or new road construction.*
- *If Boone County Thoroughfare Plan Designations differ with those within the jurisdictional limits of a local planning authority, the classification with the higher design standards shall prevail.*

Pavement Surface Evaluation and Rating (PASER)

Pavement Surface Evaluation and Rating (PASER) is a 1-10 rating system used for road pavement condition. Similar to the analysis used for gravel roads, the 2017 PASER rating inventory provided by Boone County Highway Department was overlaid with the Future Thoroughfare Plan Map. Table 10 indicates roads at the lower end of the PASER scale (ratings 1-4) which are also classified as thoroughfares per the Future Thoroughfare Plan Map.

Interstate Interchanges

Growth through Boone County has been largely driven by Interstate 65 as it runs diagonally through the county. As the county continues to develop, pressure will build for additional or reconfigured interchanges. In fact, a 2007 INDOT Statewide Interchange Study identified a potential relocation of the US 52 interchange to CR 300 N north of Lebanon and an potential interchange at I-865 and Cooper Road in Zionsville.

Though not discussed in the 2007 study, plans for a new interchange between SR 267 and Whitestown Parkway in Whitestown are progressing. The City of Lebanon would still like to see the US 52 interchange relocated, as well as a potential reconfiguration of the Indianapolis Avenue interchange and future new interchange south of the city.

Though this interchanges are driven by cities, their construction would inevitably have significant impact on county roads. The county should support continued dialogue with Whitestown and Lebanon as plans for interchange locations or modifications progress.

Table 10: Low Rated PASER Roadways Designated as Thoroughfares

Facility	Location	Thoroughfare Classification	PASER Rating	County Area	In Urban Context Zone
CR 500 W	Between CR 200 S and SR 32	Major Collector	4	East of Advance	No
Middle Jamestown Road	Between CR 200 S and SR 39	Major Collector	4	South of Lebanon	Yes
Elm Swamp Road	Between CR 300 N and CR 450 N	Major Collector	2 and 4	North of Lebanon	Yes
CR 300 E	Between SR 32 and CR 100 N	Major Collector	2 and 4	East of Lebanon	Partially
CR 500 E	Between Albert S. White and SR 32	Major Collector	2	East of Lebanon/ North of Whitestown	Yes
CR 550 S	Between CR 200 E and Whitestown Limits	Minor Arterial	4	West of Whitestown	Yes
CR 750 S	Between CR 200 E and SR 267	Major Collector	4	West of Whitestown	Partially

Source: Boone County Highway Department

Network Analysis Recommendations

Existing Conditions

Several network deficiencies were identified based on the results of the capacity and crash data analysis for existing conditions. Some of the deficiencies occur on roadways under INDOT's jurisdiction. In many communities, INDOT roads carry more traffic than local roads. Despite being outside of Boone County's jurisdiction, travel on INDOT roadways is critical to the economic opportunities and quality of life for Boone County residents. As such, Boone County should maintain communication with INDOT as a partner in improving area roadways.

County Intersections

Middle Jamestown Road and CR 500 West

The Middle Jamestown Road and CR 500 W intersection has a high rate of crashes. The intersection has unusual geometry and improper traffic control. Stop signs and yield signs must not be used on opposing approaches, according to the MUTCD.

> **Recommendation:** As a short-term measure, convert the intersection to either all-way-stop control with stop signs on all approaches, or one-way stop control with stop signs on both forks of Old Union Road (Middle Jamestown Road). Long-term, and as traffic volumes increase, a roundabout intersection could provide safer and more efficient traffic control.

96th Street and Ford Road

The intersection of 96th Street and Ford Road had a high rate of crashes in the 12 months following a reconstruction project. Additional and/or enhanced warning signs may improve visibility of the horizontal curves. Particularly for southbound traffic on Ford Road, a warning sign supplemented by a flashing beacon would provide additional visibility.

INDOT Jurisdiction

US 136 and SR 75

The analysis of US 136 and SR 75 showed high congestion, which was confirmed by the steering committee members. The intersection is a two-way stop, with SR 75 stopping and US 136 free-flowing, and a flashing beacon overhead. SR 75, which has direct access to nearby I-74, has more traffic volume than US 136. A building close to the roadway on the northwest corner may interfere with sight distance.

> **Recommendation:** Discuss this location with INDOT, since it is under their jurisdiction. Consider modifying the traffic control to an all-way stop or traffic control signal, if warranted.

SR 75 and SR 32

The intersection of SR 75 and SR 32 experiences high congestion as well. With close proximity to schools, this condition is worsened during arrival and dismissal periods. SR 75 stops for SR 32, and an overhead flashing beacon provides additional warning. A passing blister is located on eastbound SR 32 approaching the intersection.

> **Recommendation:** Discuss this location with INDOT. Evaluate potential intersection improvements, such as auxiliary lanes, traffic control signal, or reconstruction as a roundabout intersection. Also, confer with school officials to see whether their ingress/egress patterns can be further optimized for safe and efficient traffic flow.

SR 47 and CR 900 West

SR 47 and CR 900 W. has a high rate of crashes. A horizontal curve just west of the intersection with utility poles alongside the road are contributing factors to the "run off road" crashes.

Recommendation: Discuss this location with INDOT. Improved signage, such as advanced warning signs in-curve alignment signs, fluorescent signs, or retroreflective post strips may help to improve visibility of the curve.

SR 38 and CR 850 North

SR 38 and CR 850 N has a high rate of crashes. Low traffic volumes combined with a sharp horizontal curve may contribute to the high crash rates.

Recommendation: Discuss this location with INDOT. Upgraded warning signs may help to reduce the risk of crashes.

Future Conditions

As growth and development occurs, traffic volumes increase and congestion worsens at intersections. The number of crashes is also expected to increase as traffic volumes intensify. If not improved, locations identified with deficiencies in 2016 will continue to worsen. In addition, with the influx of development and higher traffic volumes, new issues will arise based on 2036 projected traffic volumes.

INDOT Jurisdiction

County Road 500 West and US 52

County Road 500 W is projected for congestion at the intersection with US 52. This two-way stop is located less than 500 feet from the signalized intersection of SR 47 and US 52, so another signal is not recommended.

Recommendation: Discuss this location with INDOT. Reconfigure the intersection, or limit access from CR 500 W to US 52. Potential options include closing the south leg of CR 500W and forcing traffic to the signalized intersection nearby, closing the median and allowing only right turns to and from County Road 500 W, constructing a J-turn intersection, or some combination thereof.

SR 47 and SR 39

Based on future traffic projections, the intersection of SR 47 and SR 39 is predicted to experience a high rate of congestion in the future. The intersection is an all-way stop with supplemental flashing beacons.

Recommendation: Discuss this location with INDOT. Monitor traffic growth on these roadways and evaluate whether a traffic control signal or a roundabout would be preferred for this intersection.

Other Improvement Recommendations

In addition to analysis driven recommendations described in the preceding pages, there we some additional recommendations garnered through feedback from the steering committee and discussions with the Boone County Highway Department. These include:

- Review improving the safety off-set intersections along SR 32, including:
  - CR 500 E
  - CR 800 E
- Review safety improvements at CR 500 W and CR 200 S
- Improvements to CR 650 S/Whitestown Parkway in anticipation of continue growth along this corridor.
- Review safety improvements at CR 300 E and CR 75 N
- Continue Ronald Reagan Parkway progress
- Continue 146th Street extension progress
- Right-of-way procurement
  - CR 400 E from Albert S. White Boulevard to SR 32
  - CR 550 S from CR 200 E to Whitestown Corporate Limits
  - CR 750 S from CR 200 E to Whitestown Corporate Limits

Corridor Mini-Plans

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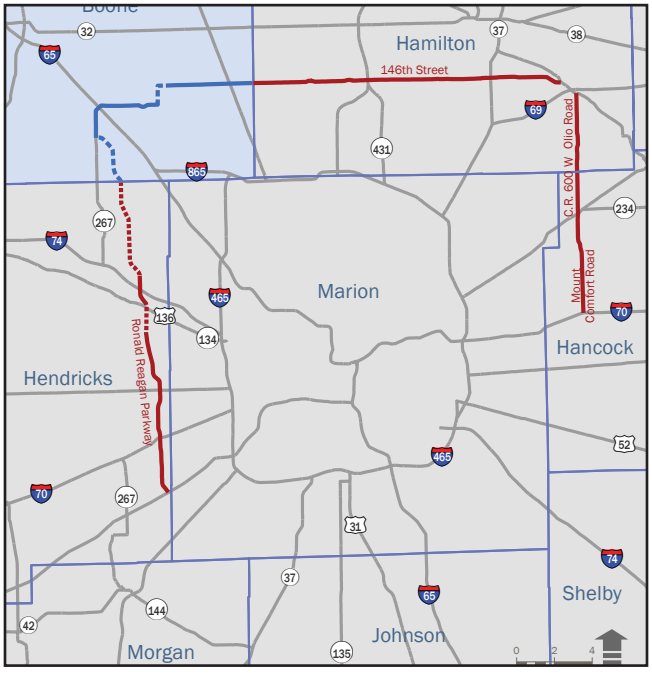
CORRIDOR MINI-PLANS

Purpose

Within the next several years, the transportation network in Boone County is poised to change significantly with the construction of the Ronald Reagan Parkway, construction of a connector between CR 300 S and CR 400 S and the extension and upgrade of 146th Street from Hamilton County into Boone County at the aforementioned connector.

These projects will help complete some of the missing links in a regional mobility corridor that extends from I-70 at the Indianapolis International Airport in Hendricks County through Boone County, through Hamilton County, and into Hancock County, terminating at I-70.

Due to the corridor's regional significance and impact on Boone County, this mini corridor plan seeks to develop a framework for the county to consider how to mitigate and capitalize on the Ronald Reagan Parkway, including land use, jurisdictional oversight, access management and design standards.



Regional Context Map

Land Use

The corridor will have significant impacts upon land uses in the county. Proposed future land uses along the corridors will be proposed based on the existing future land use plans from Boone County, Whitestown, Lebanon and Zionsville.

Jurisdictional Oversight

In order to ensure the county and local municipalities realize the benefits from a cohesive corridor, it is recommended that a zoning overlay district be established and developed by the county in coordination with the communities along the corridor. An overlay district, with primary management by the county, would have many benefits, including:

- Allow the county to take the lead in purchasing and maintaining right-of-way
- Present a unified voice for potential economic development opportunities
- Lessen the confusion for potential developers seeking permits and understanding right-of-way requirements

An overlay district would need to consider the following:

- How far on either side of the corridor should the district reach?
- How will zoning be implemented and enforced? (county vs. municipality)
- What uses would be excluded in the overlay district?

A few examples of local overlay districts include:

- Zionsville US 421 Overlay District
- Westfield US 31 and SR 32 Overlay District
- Boone County I-65 Overlay District

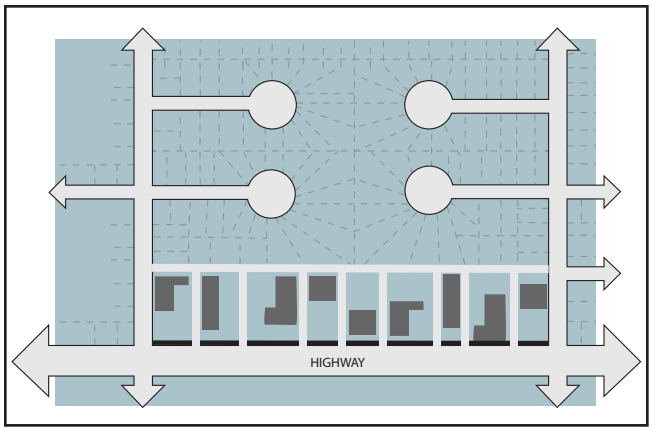
Access Management

According to the Transportation Research Board's Access Management Manual, the purpose of access management is to provide vehicular access to land development in a manner that preserves the safety and efficiency of the transportation system.

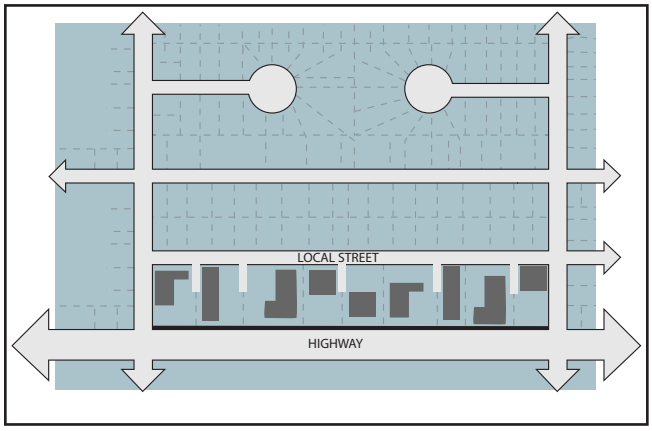
Given the importance of the corridor to both movement of traffic and access to residential and commercial land uses, proper access management will be tantamount to the success of the corridor and to the realization of benefits of the corridor to adjacent communities. Some aspects which should be considered as part of access management include:

- Access locations and control
- Traffic signal spacing
- Driveway location, spacing and design
- Permitting requirements
- Intersection enhancements
- Frontage and access roads
- Roadway cross section
- Number of lanes
- Median width

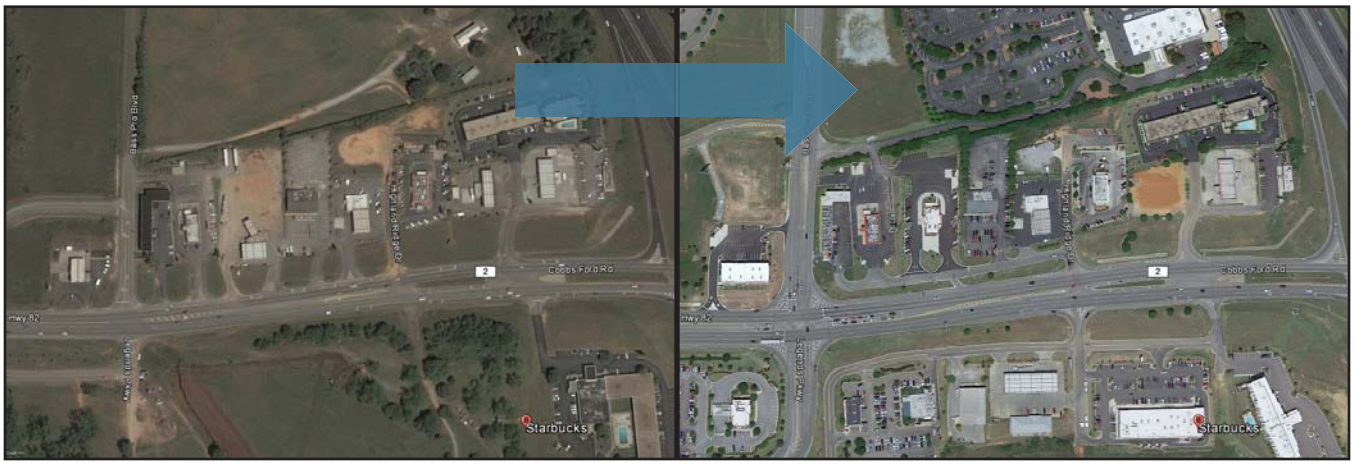
The implementation section at the end of the document contains additional specifics for consideration in an access management policy.



Without Access Management



With Access Management



Before(2003) and after (2016) with access management in Birmingham, AL

Site and Design Standards

An overlay district should also consider additional site and design standards along the corridor depending on the adjacent land use.

Design standards for these corridors could be modeled after the Ronald Reagan Corridor Design Guidelines developed by Brownsburg, Indiana. Design guidelines would ensure continuity along the corridor and take the following into consideration:

- Consistency of material and color selections along the corridor
- Lighting treatments
- Landscape treatments
- Bridge and wall treatments
- Pedestrian facility amenities
- Sign requirements, i.e. wayfinding, gateways and commercial districts
- Access management

Beyond the corridor itself, it would also be beneficial to consider specific site development standards to ensure cohesive and quality development along the corridor, further defining the corridor as defining thoroughfare through the county. Aspects of site development standards that should be considered include:

- Building and development setbacks from the right-of-way line
- Green space and open space requirements
- Landscape design requirements
- Parking requirements
- Architectural design requirements, such as building massing, facade treatments, roofs, and entryways
- Building elements and accessory structures
- Signage standards

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RONALD REAGAN CORRIDOR MINI PLAN

Background

The Ronald Reagan Parkway is a planned major north-south primary mobility corridor in southeast Boone County. The parkway is currently built or under construction in Hendricks County from an interchange on I-70 near the Indianapolis International Airport to CR 600 N, including an interchange on I-74.

Alignment

Design of the 9.8 mile parkway extension from CR 600 N in Hendricks County to I-65 in Boone County is currently underway. Most of the roadway will be constructed on undeveloped terrain east of SR 267, until the parkway intersects with SR 267 near CR 550 S in Boone County. SR 267 will then be improved up to the I-65 interchange.

The alignment has been approved per the federal environmental review process. INDOT is also exploring a mid-point interchange on I-65 to alleviate traffic pressure on the 267 interchange while allowing direct access into Whitestown. This connector would link the north/south portions of Ronald Reagan and the east/west portions of 146th Street through Whitestown.

The roadway is planned to continue the Hendricks County Roadway typical cross-section, with four 12 foot travel lanes, a 16 foot raised center median/turn lane, and a 230 foot right-of-way.

Primary Goals for the Ronald Reagan Parkway Corridor

- **Balance needs for regional traffic flow and mobility with access to businesses and destinations along the corridor.**
- **Maximize opportunity for desired development through land use planning.**
- **Manage future growth and development along the corridor.**
- **Enhance the aesthetics and visual appeal of the corridor through corridor design standards and site design standards for development adjacent to the corridor.**
- **Provide for multi-modal transportation opportunities along the corridor.**

Land Use

Land use along the corridor is within the jurisdiction of Whitestown corporate limits and Zionsville's Rural District limits.

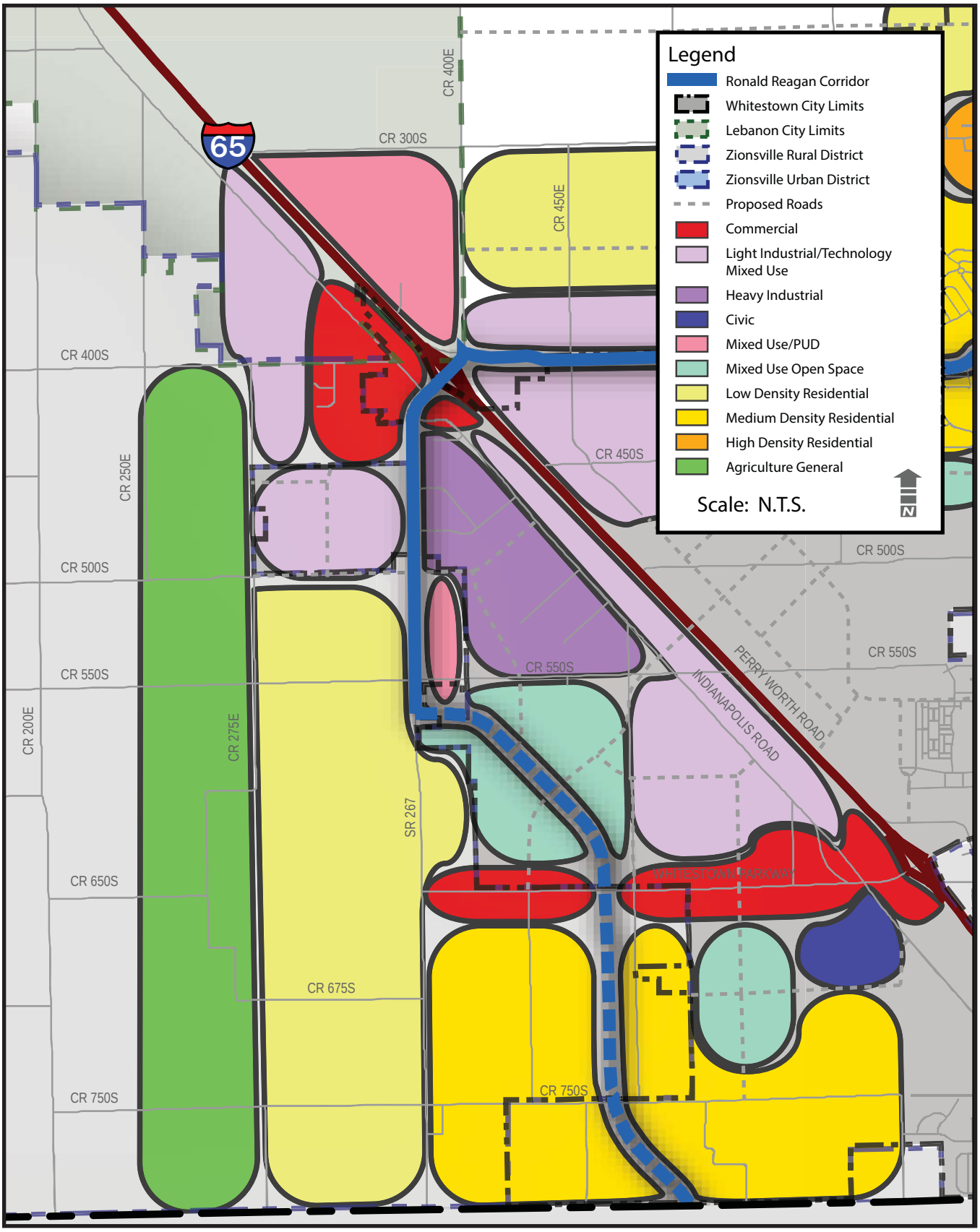
Based on the 2009 Boone County Comprehensive Plan, the 2007 Center Township Comprehensive Plan and the 2014 Whitestown Comprehensive Plan, the land uses along the corridor are:

- Residential south of Whitestown Parkway and west of SR 267
- A mix of commercial and industrial uses between Whitestown Parkway and I-65 interchange
- Commercial corridor along Whitestown Parkway
- Commercial node around the I-65 interchange

It is recommended that an overlay district be established to further promote these land uses.

Exhibit R: Future Land Use along the Ronald Reagan Parkway

Source: 2009 Boone County Comprehensive Plan, the 2007 Center Township Comprehensive Plan and the 2014 Whitestown Comprehensive Plan



Access Management

This corridor is classified as a major arterial on the future thoroughfare plan and is likely to be classified as an other principal arterial on the functional classification map maintained by INDOT once it is constructed.

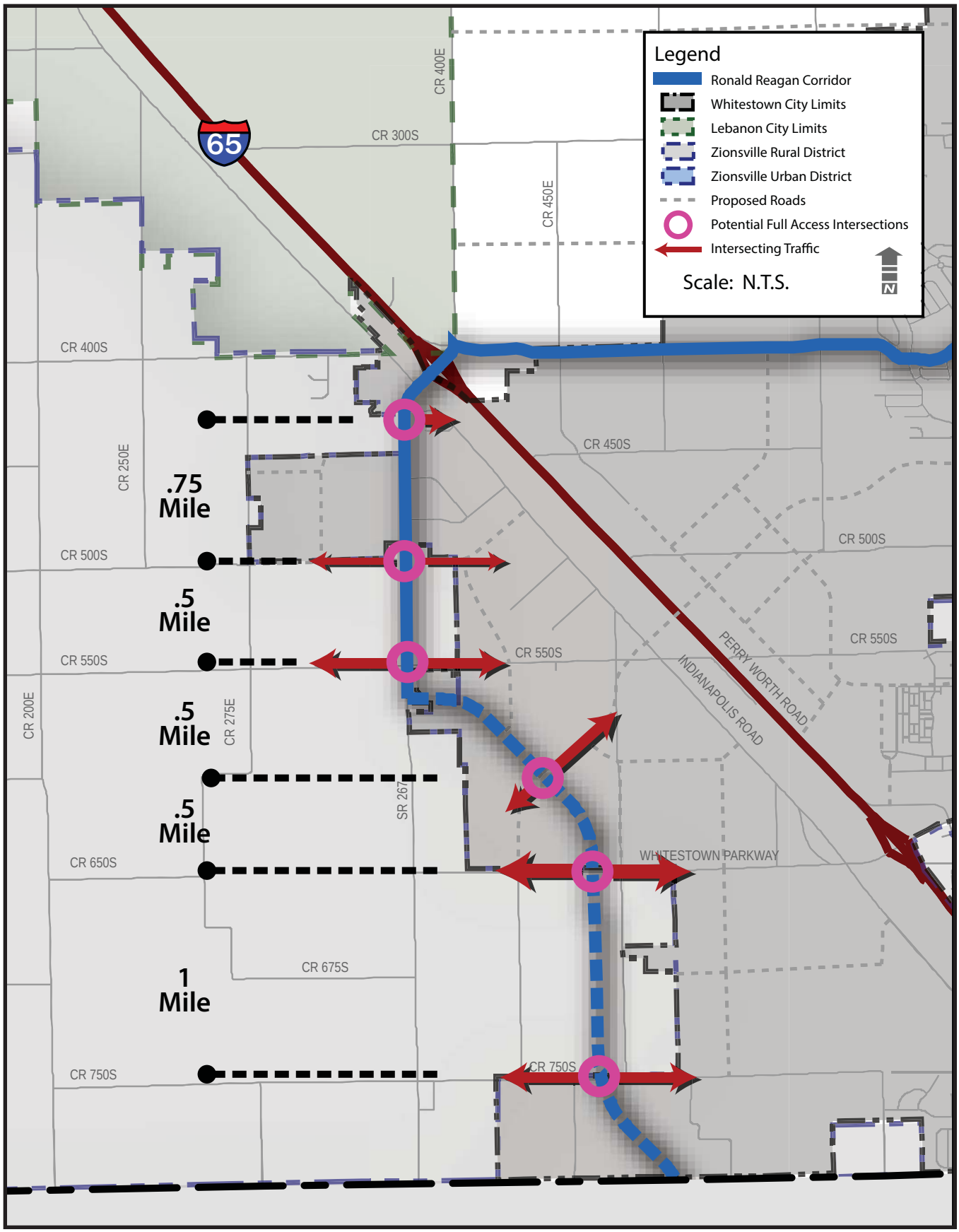
Due to its importance to regional connectivity and access to commercial and residential uses along the parkway, several access management strategies are recommended, including:

- Access to individual tracts along the Ronald Reagan Parkway should be gained by frontage roads if access does not exist.
- Require that shared access drives be provided with contiguous lots.
- Full access intersections should be spaced no closer than one-half mile minimum intervals within commercial and industrial areas and one mile minimum intervals in residential areas. Exhibit Q illustrates potential full access intersections along the corridor, mainly at existing county roads.
- Direct access to the Ronald Reagan Parkway should be considered only where physical limitations and/or traffic impacts studies show there is no other feasible option or where enhancement to traffic flow can be demonstrated. Additional access points may be considered, but in no case should not occur at intervals of less than 600 feet. These access points should be "right turn only" and no median cuts should be allowed.
- While the corridor develops, farm access should be maintained where feasible and appropriate. Preserved farm access should not equal a future development access or intersection.
- All new access and intersection improvements shall be approved by the county and adjacent jurisdiction.

It is recommended that the county adopt an access management ordinance to address access management concerns along the corridor. The Ronald Reagan Corridor Master Plan, developed for Hendricks County, contains a model ordinance, which would make a great template for a Boone County ordinance.

In addition, Westfield has overlay ordinances for US 31 and SR 32, which address access management and provide good examples for a future ordinance. Boone County also already has an overlay district in place for portions of land along I-65, which contains some requirements for access management.

Exhibit S: Potential Full Access Intersections



Corridor Design Standards

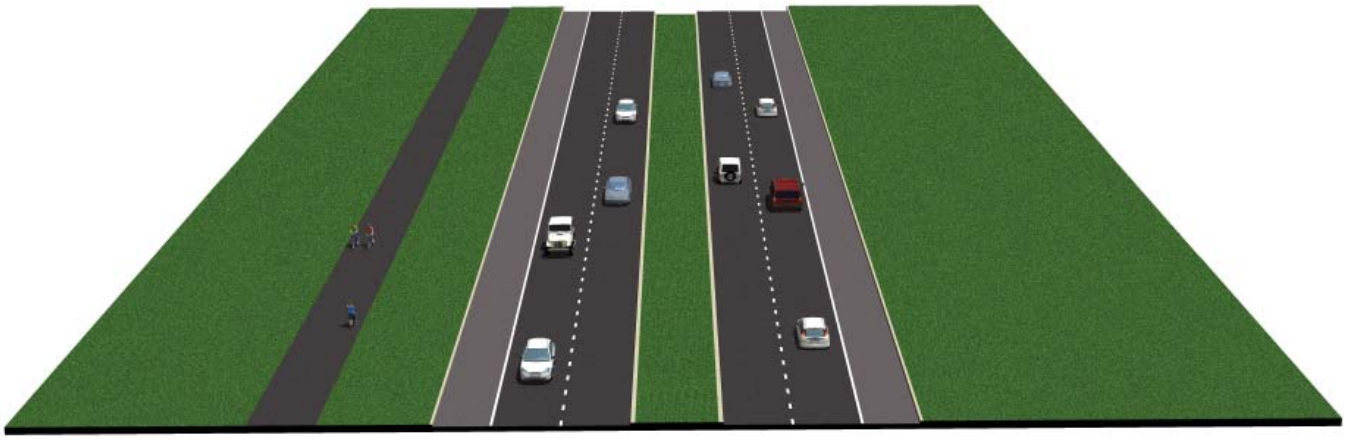
The current roadway section under design for the Ronald Reagan Parkway includes four 12 foot travel lanes with a 10 shoulder, curb and gutter, and a 16' median. The current section also provides for a 10' wide multi-use path and provides drainage along the corridor through swales. The current proposed right-of-way for the Ronald Reagan Parkway is approximately 230'.

Beyond the basic section described above, the corridor should consider providing additional design components and standards which create a welcoming statement into the county and communities within. Additional design standards for consideration could include such items as:

- Landscaping
- Street trees
- Decorative lighting
- Decorative signal arms and regulatory signage

PROPOSED CROSS SECTION

Ronald Reagan Parkway



230' Right-of-Way

Minimum Standards

- 12' travel lanes
- 4 lanes
- 16' median
- Multi-use trail on one side

Site and Architectural Design Standards

Illustration of potential site and design standards

A significant portion of the adjacent land along the Ronald Reagan Parkway in Boone County are proposed as commercial or industrial uses. Site and architectural design standards will be critical to ensure development quality and cohesion.

There is a delicate balance that must be achieved between community desired aesthetics and market supported development standards. The county needs to make extra efforts to clearly define their aesthetic value expectations when it comes to the following key features for new development along the corridor. Those expectations include:

- Architectural styles and standards
- Efficient access
- Business and wayfinding signs
- Lighting standards
- Complete road networks for ease of navigation
- Fit, finish, and durability of exterior building materials
- Landscape and screening treatments, including roadside buffer
- Building setback distances
- Parking lot orientation and circulation patterns
- Pedestrian connectivity and amenities

It is recommended that an overlay district be established by the county and adopted as reference by municipalities along the corridor. The overlay district can provide continuity in addressing the expectations for development along the corridor.

146TH EXTENSION STREET MINI PLAN

Background

The 146th Street extension is a planned major east/west primary mobility corridor in southeast Boone County that will connect to the Ronald Reagan Parkway at I-65. The extension is comprised of three road segments:

- CR 300 S (146th Street in Hamilton County)
- A new north/south connector road between CR 300 S and CR 400 S
- The existing Albert S. White Boulevard

Alignment

The alignment of this corridor will follow CR 300 S from the Boone County/Hamilton County line until CR 700 E. At this point, the corridor will turn south to CR 400 S/Albert S. White Boulevard. The construction project to create this north/south connector will be let to bid in early 2017. The corridor will then continue along Albert S. White Drive to connect to the I-65/SR 267 interchange.

INDOT is also exploring mid-point interchange on I-65 to alleviate traffic pressure at the current I-65/SR 267 interchange while allowing direct access into Whitestown. This connector would connect the north/south portions of Ronald Reagan and the east/west portions of 146th Street through Whitestown.

The corridor will have varying road sections along its length, including:

- 146th Street: 140' right of way
- 300S/400S Connector: 160' right of way
- Albert S. White Boulevard: 110' right of way

Primary Goals for the 146th Street Extension Corridor

- **Balance needs for regional traffic flow and mobility with access to businesses and destinations along the corridor.**
- **Maximize opportunity for desired development through land use planning.**
- **Manage future growth and development along the corridor.**
- **Enhance the aesthetics and visual appeal of the corridor through corridor design standards and site design standards for development adjacent to the corridor.**
- **Provide for multi-modal transportation opportunities along the corridor.**

Land Use

Land use along the corridor is within the jurisdictions of Boone County, Lebanon, Whitestown and the Zionsville Rural District.

Based on the 2009 Boone County Comprehensive Plan, 2007 Center Township Comprehensive Plan, and the 2014 Whitestown Comprehensive Plan, the land uses along the corridor are:

- Primarily residential along most of the corridor east of Whitestown along 146th Street
- A mix of industrial and commercial around the I-65 interchange and along Albert S. White Boulevard.
- Mixed use around the CR 300 S/ CR 400 S north/south connector.

It is recommended that an overlay district be established to further promote these land uses.

Exhibit T: Future Land Use along 146th Street, 300S/400S Connector and Albert S. White Parkway

Source: 2009 Boone County Comprehensive Plan, the 2007 Center Township Comprehensive Plan and the 2014 Whitestown Comprehensive Plan

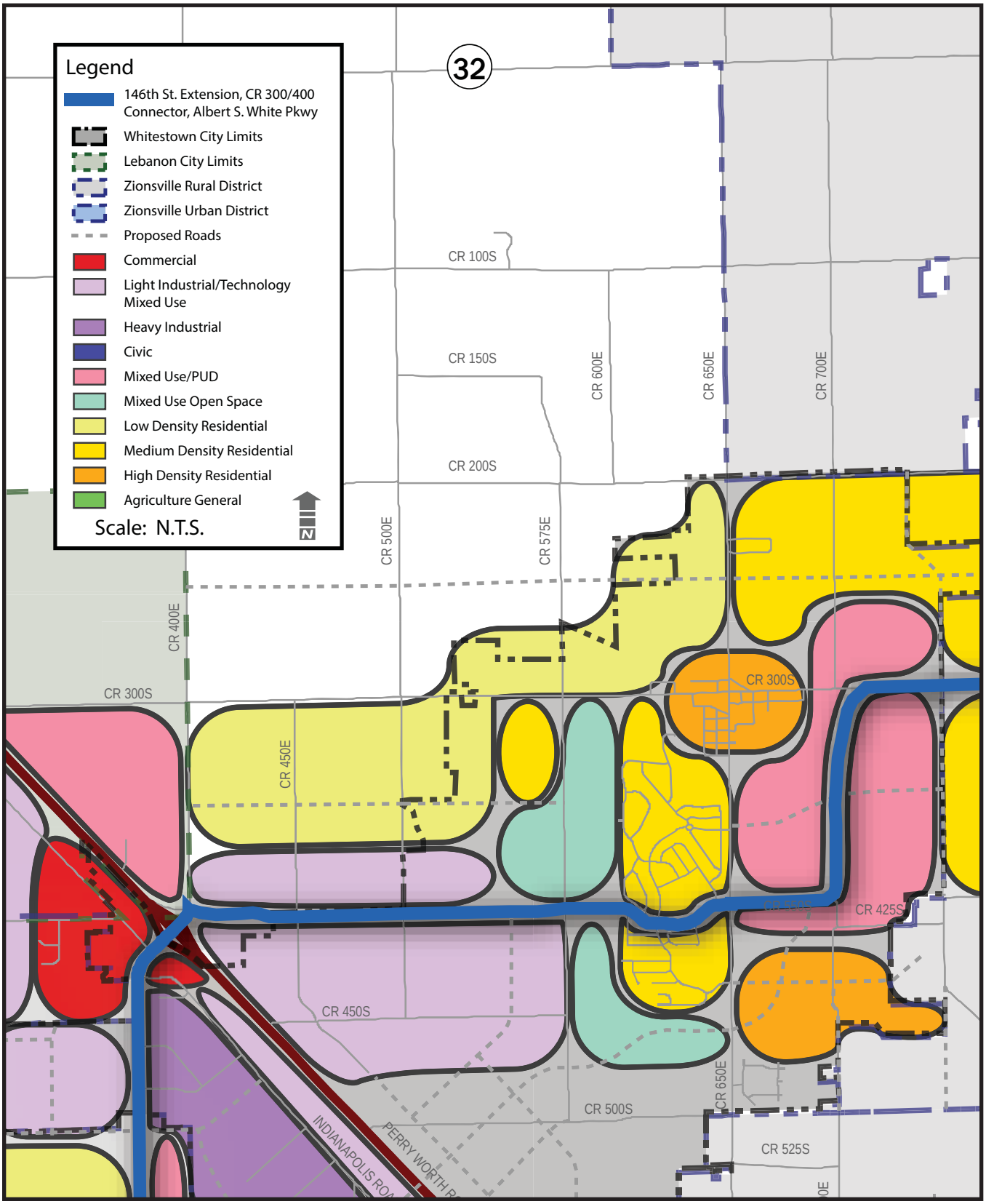
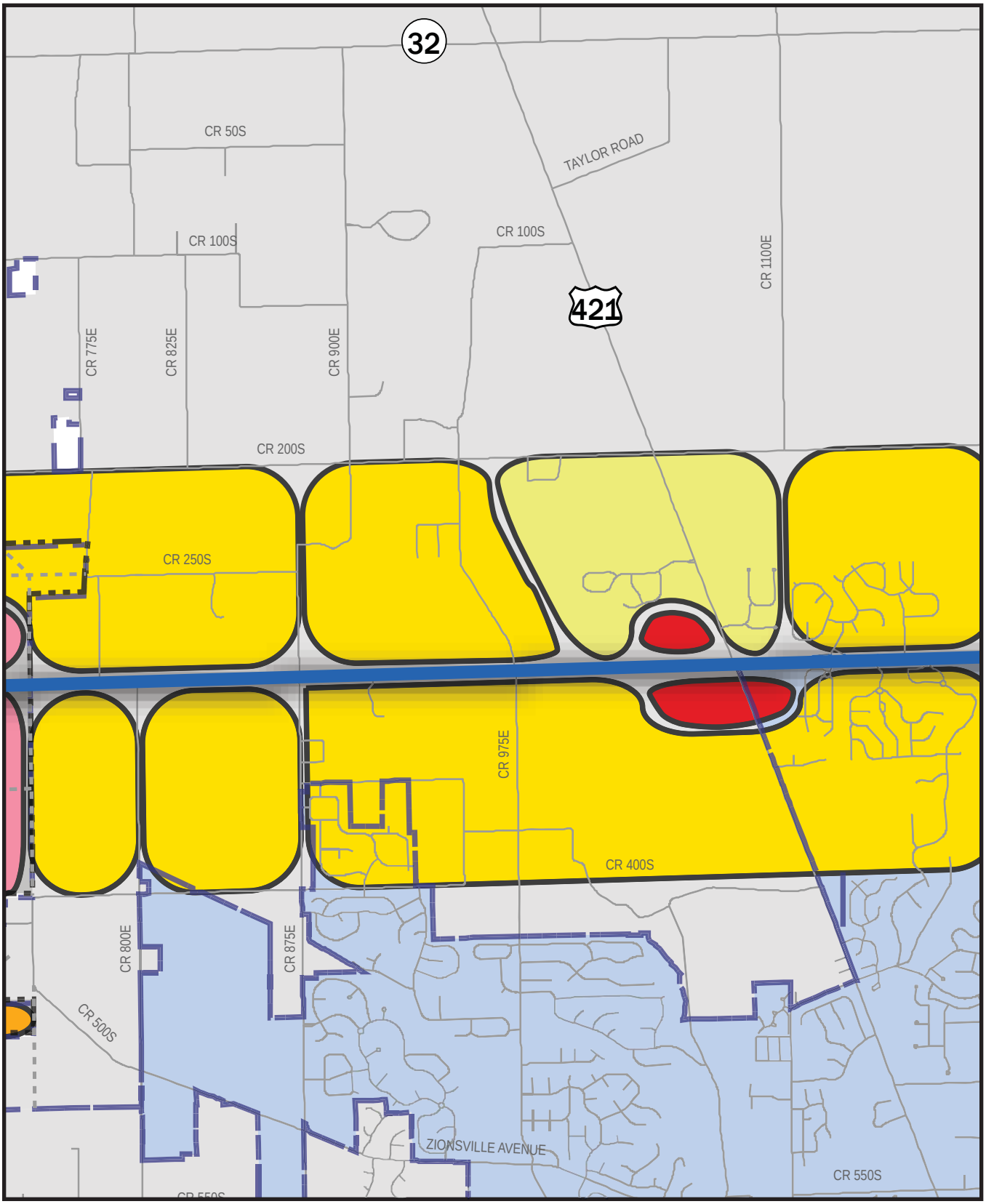


Exhibit T: Future Land Use along 146th Street, 300S/400S Connector and Albert S. White Parkway

Source: 2009 Boone County Comprehensive Plan, the 2007 Center Township Comprehensive Plan and the 2014 Whitestown Comprehensive Plan



Access Management

This corridor is classified as a major arterial on the future thoroughfare plan and is likely to be classified as an other principal arterial on the functional classification map maintained by INDOT once it is constructed.

Due to its importance to regional connectivity and access to commercial and residential uses along the parkway, several access management strategies are recommended, including:

- Access to individual tracts along this corridor should be gained by access and frontage roads if access does not exist.
- Require that shared access drives be provided with contiguous lots.
- Full access intersections should be spaced no closer than one-half mile minimum intervals within commercial and industrial areas and one mile minimum intervals in residential areas. Exhibit S illustrates potential full access intersections along the corridor, mainly at existing county roads.
- Direct access to the this corridor should be considered only where physical limitations and/or traffic impacts studies show there is no other feasible option or where enhancement to traffic flow can be demonstrated. Additional access points may be considered, but in no case should not occur at intervals of less than 600 feet. These access points should be "right turn only" and no median cuts should be allowed.
- While the corridor develops, farm access should be maintained where feasible and appropriate. Preserved farm access should not equal a future development access or intersection.
- All new access and intersection improvements shall be approved by the county and adjacent jurisdiction.

It is recommended that the county adopt an access management ordinance to address access management concerns along the corridor. The Ronald Reagan Corridor Master Plan, developed for Hendricks County, contains a model ordinance, which would make a great template for a Boone County ordinance.

In addition, Westfield has overlay ordinances for US 31 and SR 32, which address access management along the corridors and provide good examples for a future ordinance. Boone County already has an overlay district in place for portions of land along I-65, which also contains some requirements for access management.

Corridor Design Standards

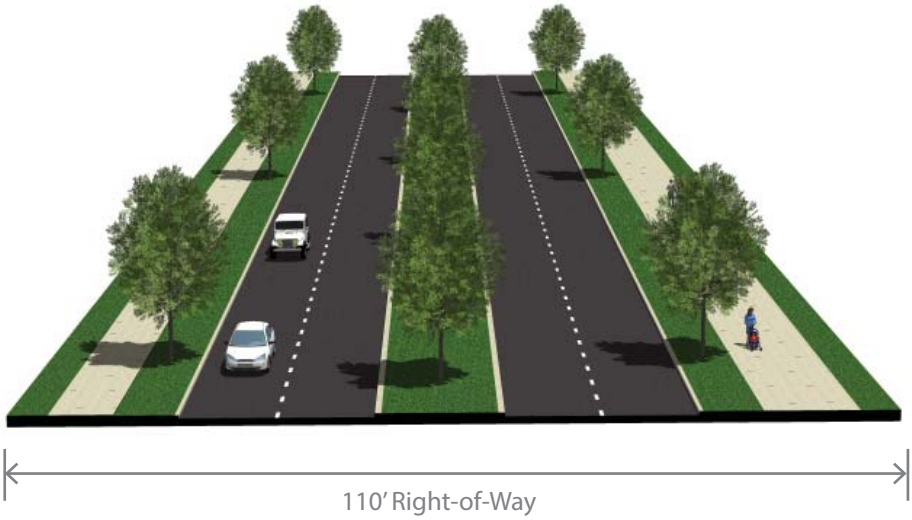
The roadway section along this corridor varies depending on the road segment. For the existing Albert S. White Parkway, the roadway section includes (4) 12 foot travel lanes, divided by a 16 foot median or center turn lane. A multi-use path already exists along this segment.

Along the CR 300S/CR 400S Connector Road, the roadway section includes (4) 12 foot ravel lanes, divided by a 16 foot median or center turn lane. However, the initial construction of the connector will only include construction of two lanes on one side of the median. The remainder of the full construction will occur at a later date, when traffic demands require it. No multi-use path is currently included in the design for this segment.

Finally, along the 146th Street Extension, the roadway section is proposed with (4) 12 foot travel lanes and a 12 foot median. A multi-use path is recommended along this segment.

In all cases, this corridor should feel consistent with the other three sections and exhibit a character which provides a welcome statement into the county and communities within.

ALBERT S. WHITE PROPOSED CROSS SECTION



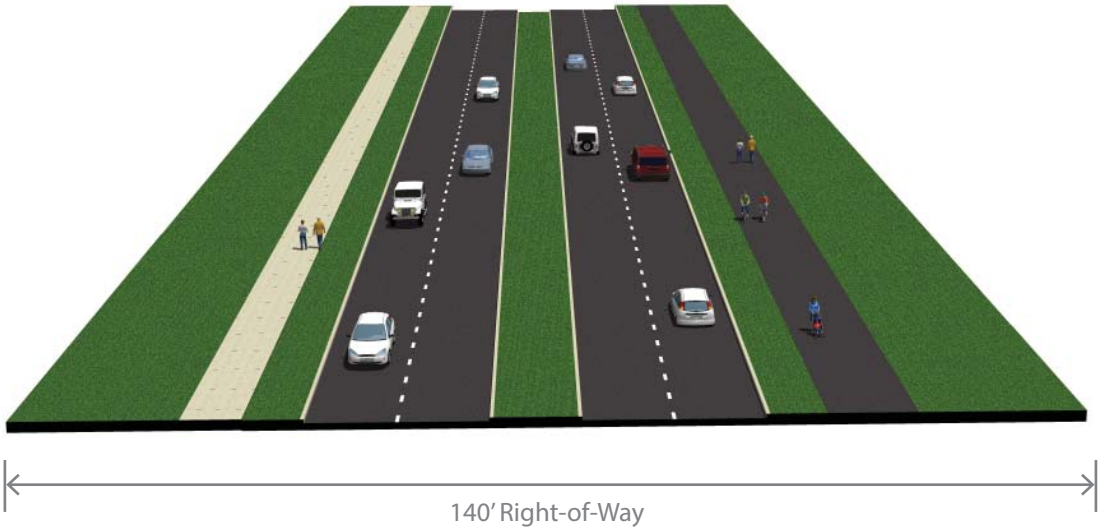
Minimum Standards

- 12' travel lanes
- 4 lanes
- 16' median
- Street trees
- Multi-use trail on one side

Standards to Consider

- Additional street trees and landscaping
- Decorative street lighting
- Decorative banners and signage
- Additional pedestrian facilities
- Expanding width of existing multi-use trail

146TH STREET EXTENSION PROPOSED CROSS SECTION



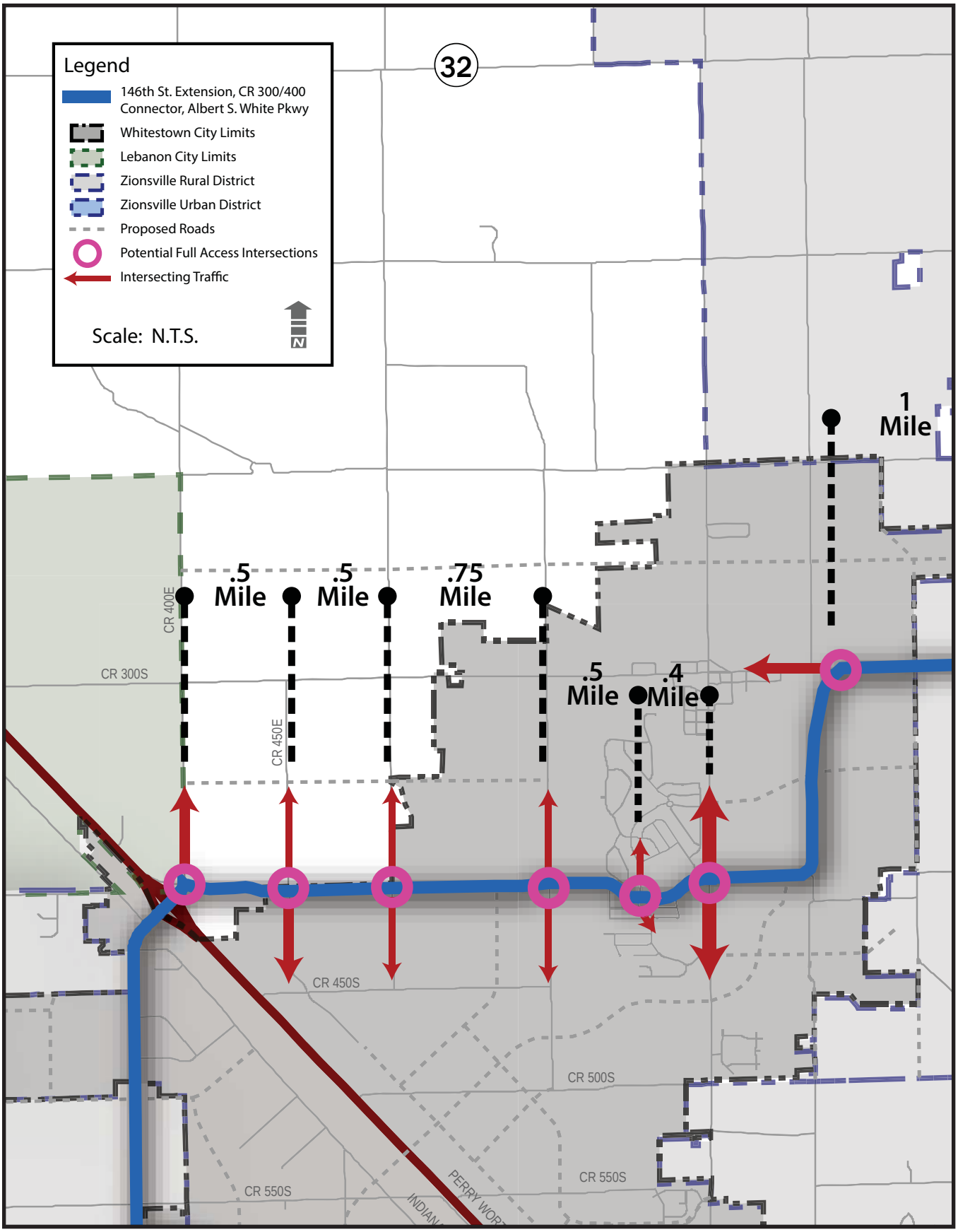
Minimum Standards

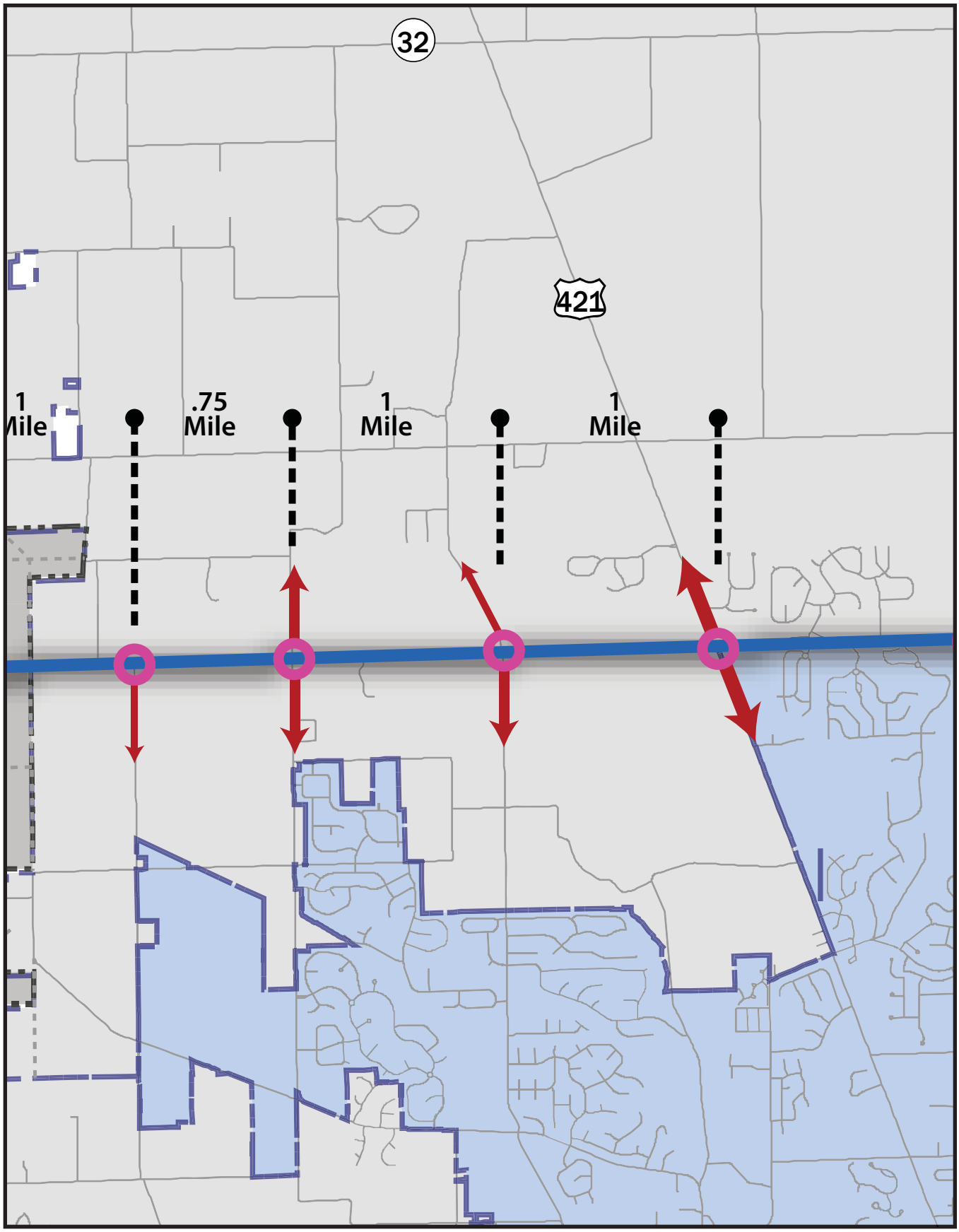
- 12' travel lanes
- 4 lanes
- 12' median
- Multi-use trail on one side

Standards to Consider

- Street trees and landscaping
- Decorative street lighting
- Decorative banners and signage
- Additional pedestrian facilities

Exhibit U: Potential Full Access Intersections along 146th Street, 300S/400S Connector and Albert S. White Parkway

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Site and Architectural Design Standards

Illustration of potential site and design standards along the Albert S. White Parkway

Illustration of potential site and design standards along the 146th Street Corridor

Two separate land use scenarios are present along this corridor. A majority of the 146th Street extension will be through areas designated as residential. The western half of the corridor along the north/south connector and Albert S. Boulevard is generally mixed use and industrial uses.

However, in both cases, site and architectural design standards will be critical to ensure quality development and cohesion.

There is a delicate balance which must be achieved between community desired standards and market supported development standards. The county needs to make extra efforts to clearly define their visual quality and character expectations when it comes to the following key features of new developments along the corridor. These expectations include:

- Architectural styles and standards
- Efficient access
- Business and wayfinding signs
- Lighting standards
- Complete road networks for ease of navigation
- Fit, finish, and durability of exterior building materials
- Landscape and screening treatments, including roadside buffer
- Building setback distances
- Parking lot orientation and circulation patterns
- Pedestrian connectivity and amenities

It is recommended that an overlay district be established by the county and adopted as reference by municipalities along the corridor. The overlay district can provide continuity in addressing the expectations for development along the corridor.

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Implementation Plan

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PRIORITY IMPROVEMENT RECOMMENDATION SUMMARY

- Consider paving CR 450 E between Albert S. White Boulevard and CR 300 S as this creates a north/south connection to CR 300 S in a growing area
- Consider paving CR 200 S between CR 400 E and CR 500 E as this is a break in an otherwise paved roadway
- Improvements to CR 650 S/Whitestown Parkway in anticipation of continue growth along this corridor.
- Address off-set intersections of CR 500 E and CR 800 E along SR 32
- Safety improvements at CR 300 E and CR 75 N
- Safety improvements at CR 500 W and CR 200 S
- Continue Ronald Reagan Parkway progress
- Continue 146th Street extension progress
- Right-of-way procurement
  - CR 400 E from Albert S. White Boulevard to SR 32
  - CR 550 S from CR 200 E to Whitestown Corporate Limits
  - CR 750 S from CR 200 E to Whitestown Corporate Limits

PRIORITY POLICY RECOMMENDATIONS SUMMARY

- Adopt an access management policy for the Ronald Reagan Parkway and the 146th Street Extension corridors
- Develop a policy for gravel road conversions
- Develop traffic impact study requirements
- Update the Boone County Zoning Ordinance and Subdivision Control Ordinance to reflect the recommendations and language of this plan
- Support future interchange locations and modifications as advanced by municipalities within the county.

POLICY RECOMMENDATIONS

Right of Way and Corridor Preservation

- Require right-of-way dedication of new developments according to adopted design standards and thoroughfare plan map.
- Implement a process for the evaluation and acquisition of existing right-of-way to meet future needs according to the adopted design standards and thoroughfare plan map.

Access Management

Develop an access management policy for the arterial street network. An access management policy should achieve the following:

- Provide a specialized roadway system
  - Prioritize collector improvements that promote connectivity by completing gaps in coverage.
  - Encourage separation of high speed and through traffic from neighborhoods and local traffic.
- Limit direct access to state highways and other major roadways
- Promote intersection hierarchy
- Locate signals to favor through movements
- Preserve the functional area of intersections and interchanges
- Limit the number of driveways and other conflict points
- Separate driveways and other conflict points
- Remove turning vehicles through traffic lanes
- Use non-traversable medians to manage left-turn movements
- Provide a supporting local street system and on-site circulation systems

Specific criteria which may be included in such a policy is included below.

- Roads and driveway cuts must be aligned to create four-way intersections. Access points located on opposite sides of the street should be designed to line up the respective left turn lanes, where the road has no center median.
- Curb cuts are not permitted within 350 feet of an intersection on any arterial street, or within 300 feet of an intersection on any collector street.
- Where permitted, outlots in commercial and mixed developments shall only be accessed from internal roadways, and shall share driveways and parking lots wherever feasible.
- In the Ronald Reagan and 146th Street Corridor, direct access from primary arterials to development sites is prohibited, and direct access from secondary arterials is only allowed for sites at least 8 acres in size. Direct access from secondary arterials may not occur more frequently than once every 1,000 feet.
- Parcels containing a minimum of five (5) acres and a minimum parcel width of 450 feet may be granted one (1) additional driveway cut based on the merits of unique and/or unusual circumstances on a case-by-case basis and approval by the Planning Director. The driveway cut may not be permitted in all cases.

Some other examples of management policies include:

- Westfield, which has overlay ordinances for US 31 and SR 32, which address access management along the corridors.
- Existing I-65 overlay district in Boone County, which contains some requirements for access management.

Paving Transition Plan

As recommended in the 2009 Boone County Comprehensive Plan, a paving transition program should be developed that establishes thresholds and criteria for converting gravel roads to paved roads.

It must be recognized that paving a is much more complex that just the asphalt. The Assessment Procedures for Paved and Gravel Roads (2013) made available through Indiana Local Technical Assistance Program (LTAP) Publications discusses several key concepts including:

- Use of a roadway asset management plan
- Establishing minimum traffic volumes before paving
- Meeting engineering design standards
- Considering the life cycle cost analysis, including user costs
- Considering public opinion

Unfortunately a one-size fits all policy for how to decide when to pave a road does not exist. The best approach is to ensure quality data gathering on county roads regarding maintenance costs for paved and gravel roads.

In the end, the decision comes down to a cost-benefit analysis between the costs to maintain a gravel road, and the costs to construct and maintain a paved road. Below is a recommended process by which to determine whether or not to pave a road.

1. Identify the Road Section

- Determine project limits and location
- Determine average daily traffic (ADT) count
  - According to a study done by the Minnesota Local Road Research Board, gravel road maintenance costs per mile appear to increase considerably after 200 vehicles/day.
  - Similarly, according to a study performed by the South Dakota DOT found that gravel roads are most cost effective at ADT levels below 150.

2. Determine Agency Costs

- Determine costs for each surface type
  - Include typical maintenance activities
  - An increase in traffic should lead to an increase in maintenance costs, particularly for gravel roads.
  - If Boone County does not already do so, it should start tracking maintenance and construction costs for differing types of roadways.
- Determine construction requirements
  - Design speed
  - Sight distance
  - Alignment,
  - Lane width
  - Adequate pavement width (a minimum width for roadways should be established to be paved)

3. Determine user costs

- Vehicle operating costs
  - The AASHTO Manual on User Benefit Analysis (AASHTO, 1977), includes conversion factors for gravel, stone and earth relative to the cost of traveling on a paved surface
- Crash costs
  - A paved road will often provide improved safety due to improved winter surfaces, improve road surface for stopping and improved roadway delineation
- Scale the user costs

4. Summarize the total costs

5. Evaluate non-economic factors

- Determine if road is in a high growth area
  - Gravel roads located within urban context zones identified in this plan should be highly considered as paving these roads can help spur further development and growth if desired.
  - Gravel roads can also be used to help limit growth in areas that are undesirable for development.
- Evaluate housing concentration and dust control needs
- Consider mail routes
- Consider industry, agricultural and truck traffic
- Consider political factors
  - Smoother surface increases user satisfaction
  - Increased tax base on adjacent property
  - Whether or not adjacent property owners want a paved road.

6. Make a decision

Future Developments and Traffic Impact Studies

For larger new developments, traffic impact studies should be required to analyze key intersections adjacent to the development or within its area of influence. Boone County should coordinate with Lebanon, Whitestown, and Zionsville regarding the need for traffic impact studies. County roads could be affected even if the proposed development is located within corporate boundaries. Traffic impact studies provide detailed operational analysis of a specific area, while the thoroughfare plan takes a much broader view of the entire county. As such, traffic impact studies are recommended for any developments of a certain size (using INDOT's thresholds or other local criteria) in order to properly account for increased traffic.

The criteria set forth in the INDOT Applicant's Guide to Traffic Impact Studies is recommended as a minimum starting point for requirements of traffic impact studies.

Design Standards

Require that all new streets and street improvements, including non-roadway improvements in the right-of-way, include pedestrian facilities that are designed so that they are accessible to persons with disabilities as defined by the Americans with Disabilities Act (ADA) and the Indiana Accessibility Code. Designs should follow current standards as provided in the INDOT Design Manual and the United States Access Board's Proposed Rights-of-Way Guidelines (PROWAG).

This plan establishes standards for right-of-way preservation and components of the roadway network comprised of arterials, collectors and local streets. However, the county's ordinances provide detailed requirements for roadway design and layout. Below are additional clarifications for roadway design as it relates to the thoroughfare plan.

Maintenance and Funding

- Continue to work with local jurisdictions on maintenance agreements with the county for maintenance control over major corridors which cross multiple jurisdictional boundaries.
- Coordinate roadway improvement projects with utility improvements/installations.
- Use life-cycle costs in the evaluation of proposed projects and transportation alternatives.
- Ensure an appropriate budget for thoroughfare maintenance and repair.
- Keep road widths to the minimum to accommodate anticipated traffic volumes and vehicular types with the least amount of pavement to install and maintain.

Balanced Transportation Network

- Maintain the rural roadway landscape by utilizing measures other than lane expansion to accommodate increased traffic volume.
- Encourage multi-modal transportation options to increase efficiency and reduce need for automobile trips.
- Ensure connectivity of all modes of travel of the transportation system.
- Preserve abandoned right of way for future transportation corridors for all modes.
- Participate in efforts to promote public transit projects to the county.
- Consider adoption of the Indianapolis MPO's Policy on Complete Streets and INDOT's Complete Streets Guideline and Policy. (or develop a similar policy)
- Establish a policy that requires the developer to generally be responsible for costs of new bridges and costs associated with required improvements to existing bridges as part of any new development.
- Establish a policy that new or rehabilitated bridges which occur on streets classified as major collectors or arterials should accommodate pedestrians and cyclists.

Coordination with Other Jurisdictions

- Continue regional participation and coordination on transportation initiatives.
- Partner with state and local jurisdictions to ensure transportation and land use support one another.
- Encourage continued dialogue with private sector entities to coordinate improvements to the transportation network.

Bridges

While bridges have not been evaluated as part of this plan, they do remain the responsibility of the Boone County Highway Department. The highway department is responsible for all bridges in the county which are not on state highways. A bridge is defined a structure with a total span of more than 20 feet which carries traffic over a ditch, river, lake, canal, stream, railroad or other obstruction.

As noted earlier in this plan, some bridges were noted as a significant barrier to freight and agricultural travel on some roadways. As the county implements this thoroughfare plan and dedicates right-of-way on priority corridors, the bridges on those corridors should also be evaluated for their capacity. An analysis of the county bridges, as they relate to the future thoroughfare classifications, is recommended.

Appendix

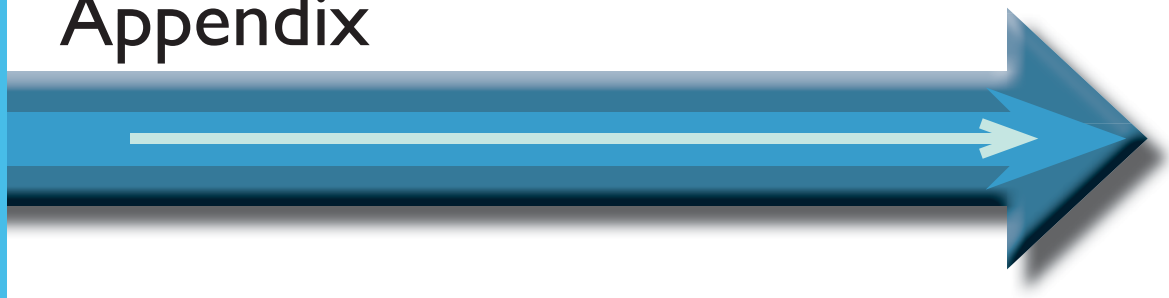

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Exhibit A: Proposed Functional Classification Revisions

Source: Existing Functional Classifications sourced from INDOT.

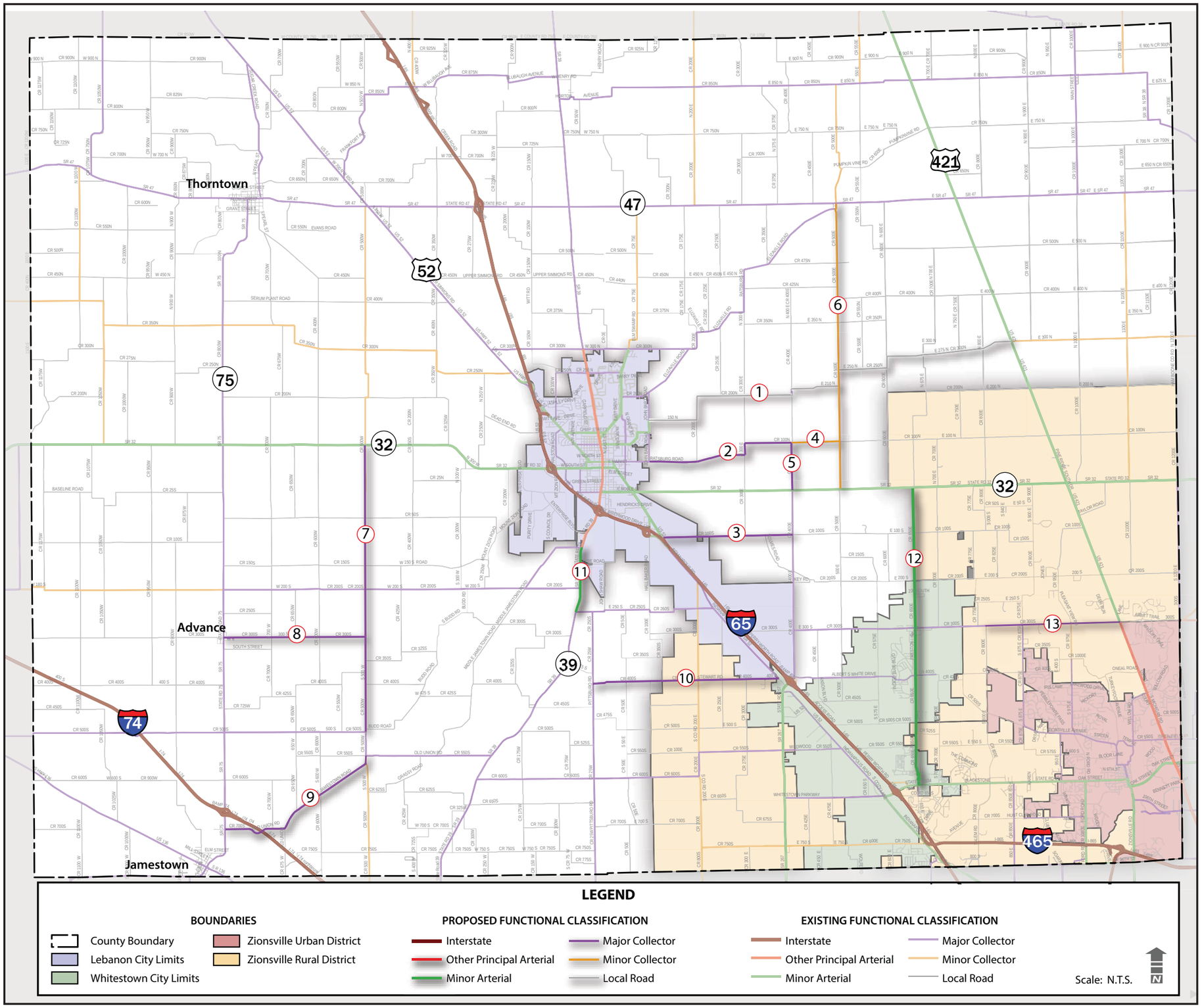

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Exhibit B: Thoroughfare Map

Source: Existing Functional Classifications sourced from INDOT.

- *The above map is a graphic representation only. Detailed surveys and studies will be required for any new right-of-way dedication or new road construction.*
- *If Boone County Thoroughfare Plan Designations differ with those within the jurisdictional limits of a local planning authority, the classification with the higher design standards shall prevail.*

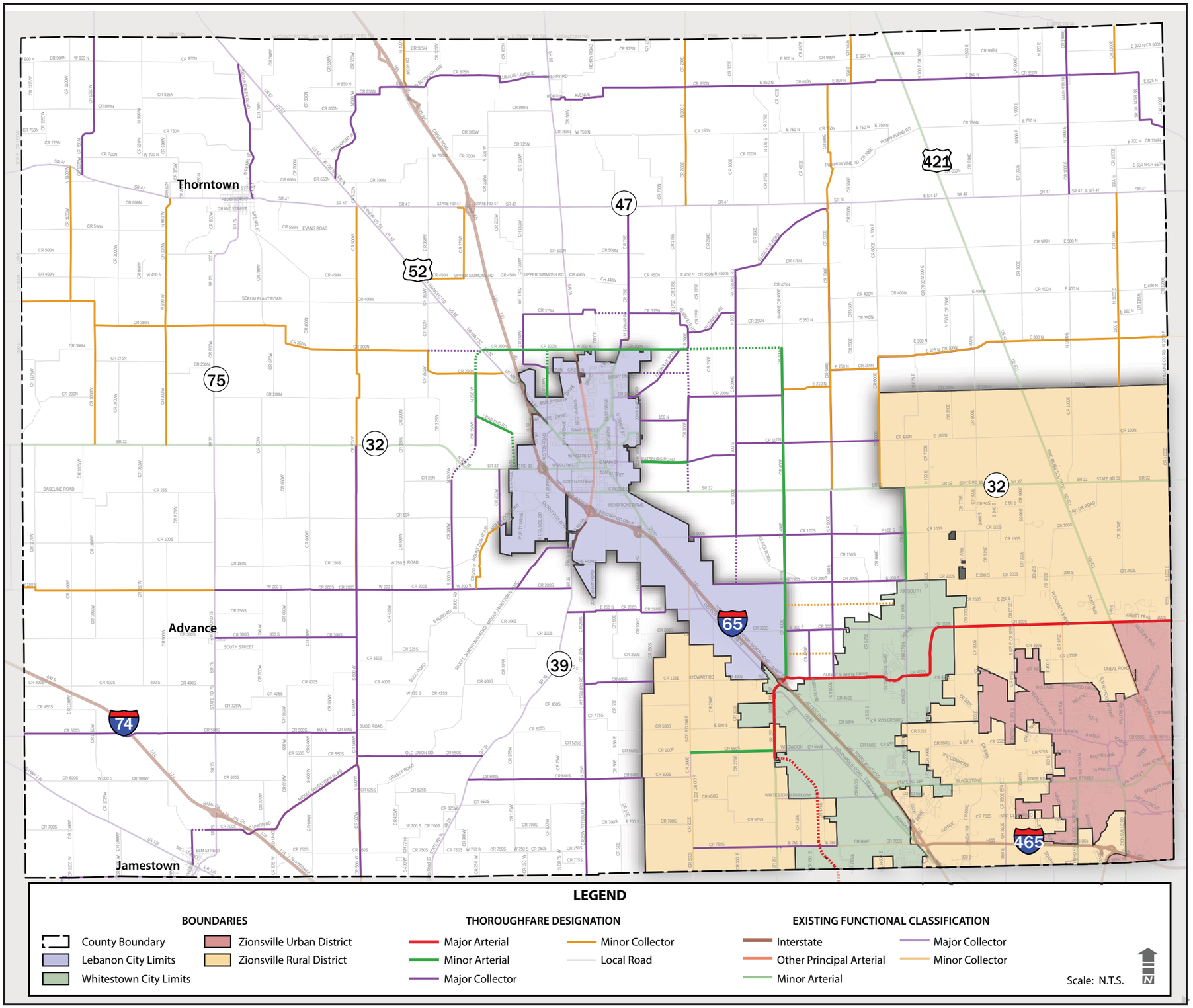

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Exhibit C: 2009 Future Land Use Map and Areas of Change

Source: Future Land Use Map - 2009 Boone County Comprehensive Plan

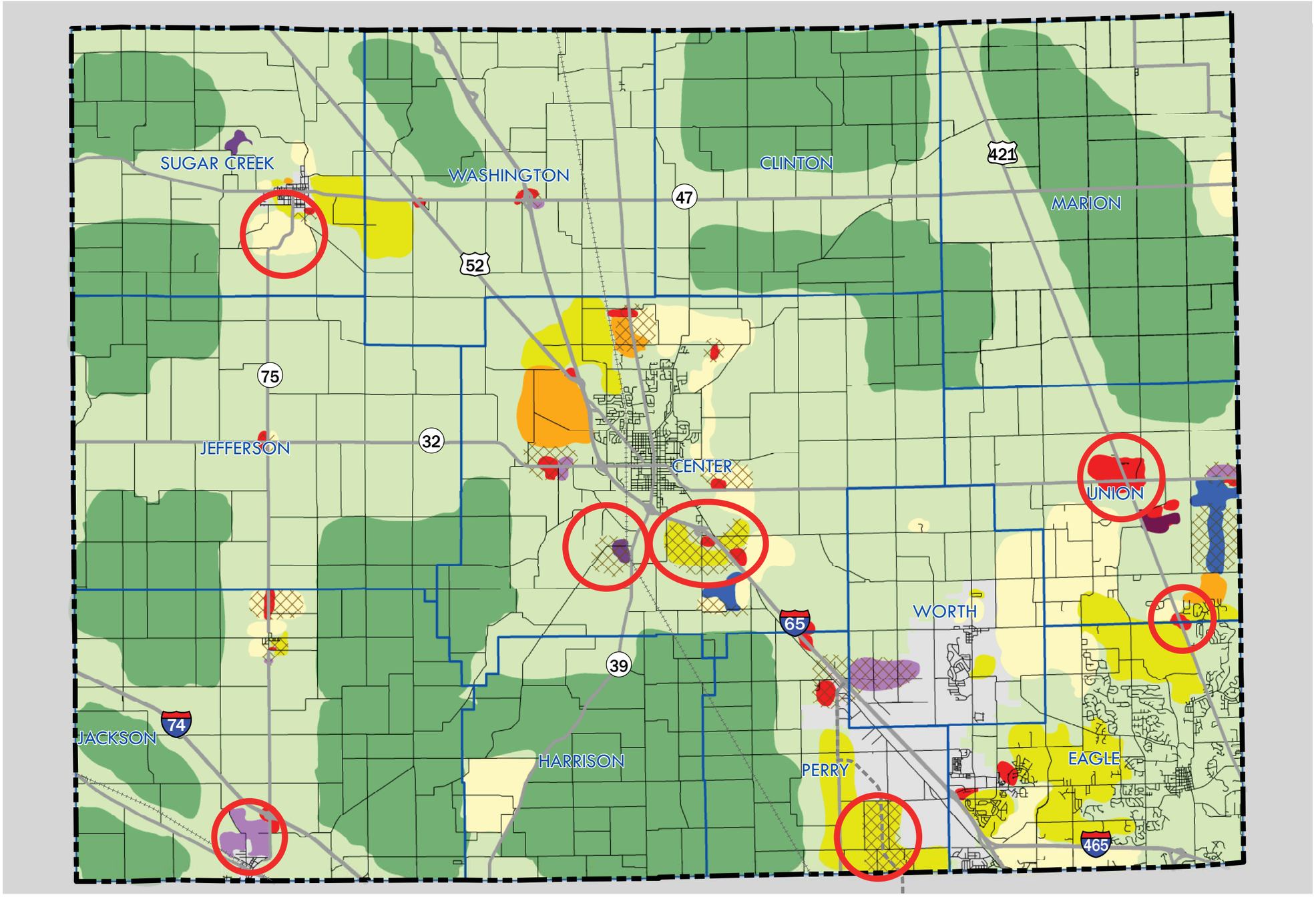

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Exhibit D: Built and Proposed Trails

Source: Indianapolis MPO

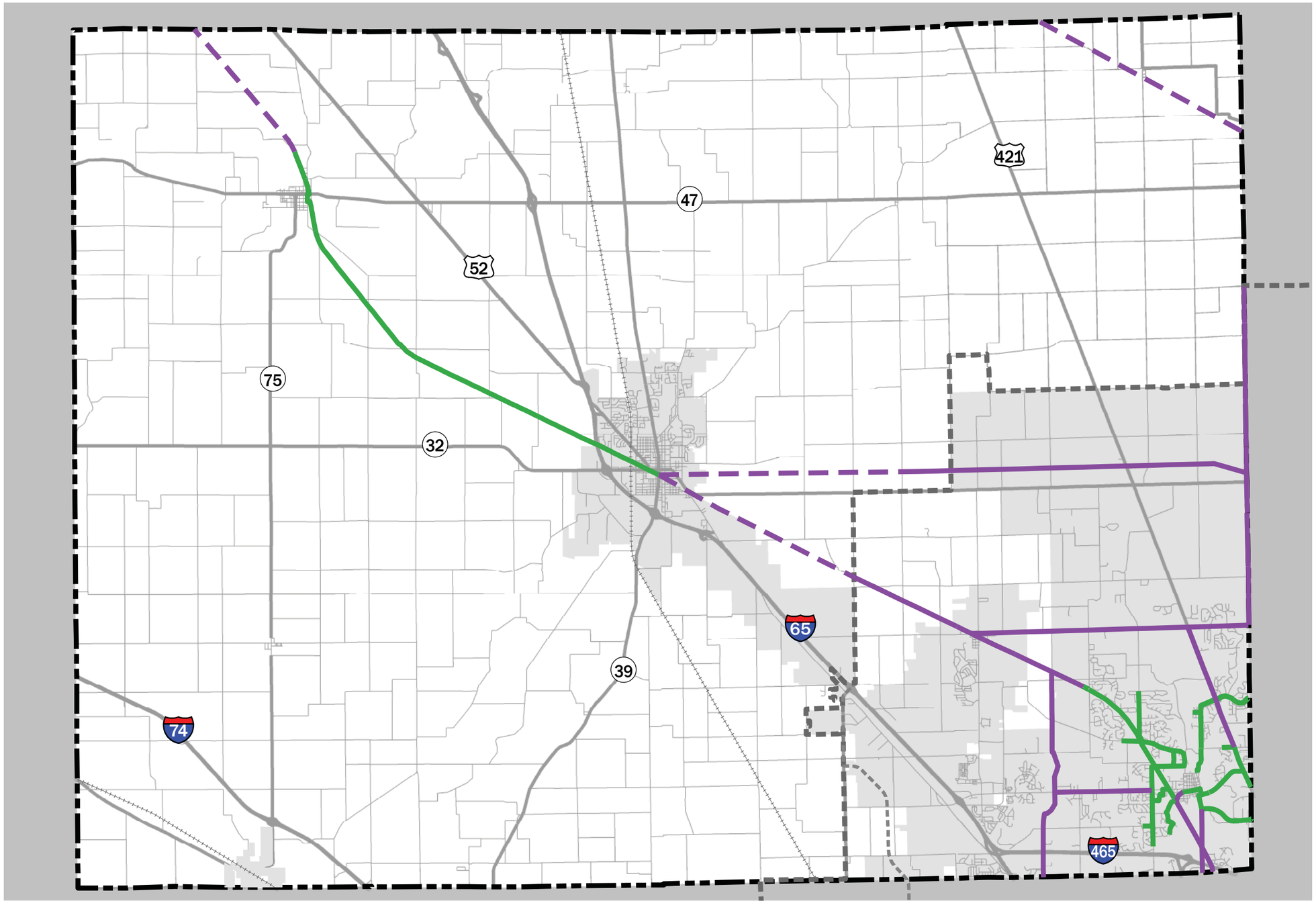

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Exhibit E: State Visionary Trail Network

Source: Indiana Department of Natural Resources

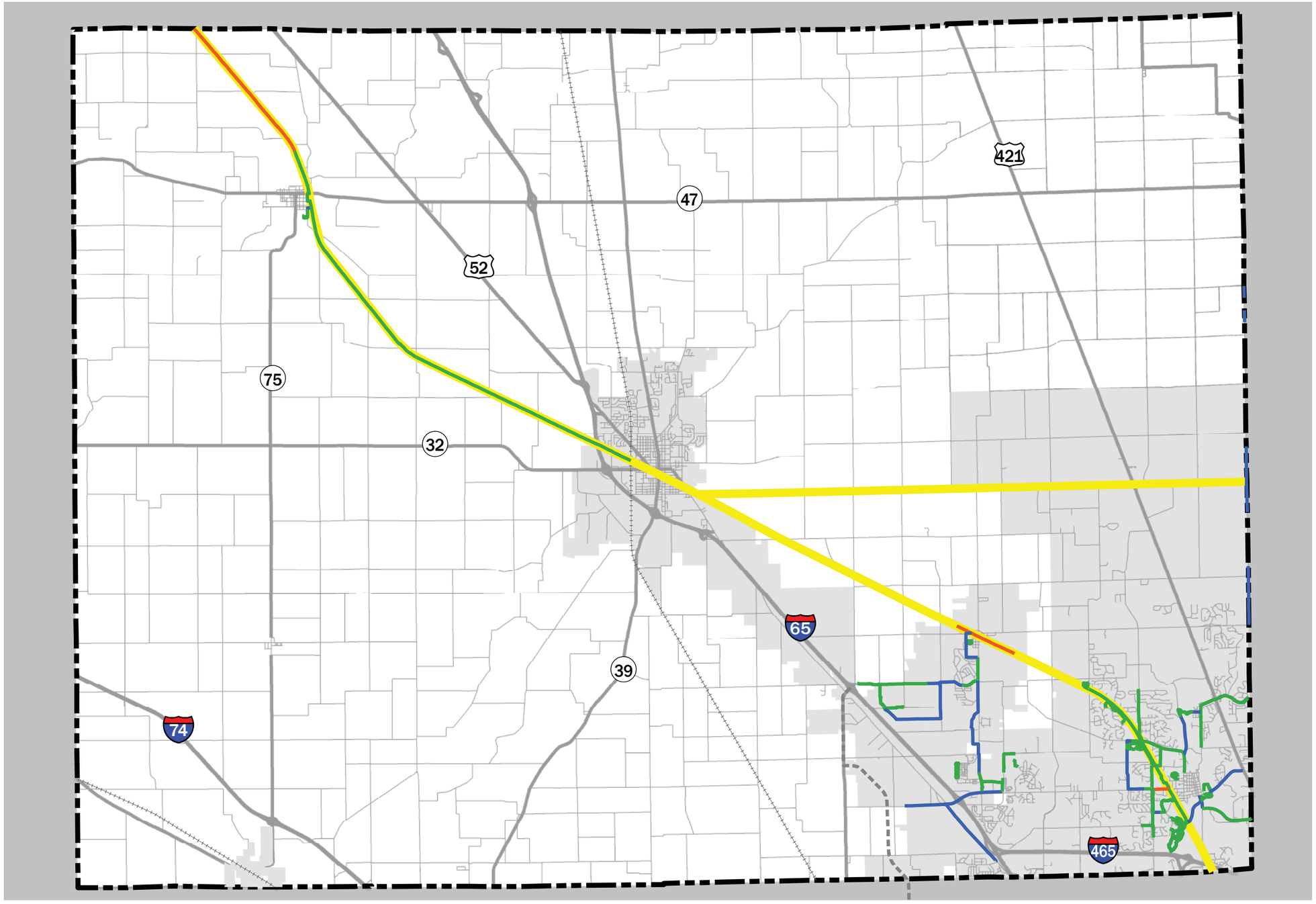

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Exhibit F: Whitestown Connector Public Transit Route

Source: Central Indiana Regional Transportation Authority

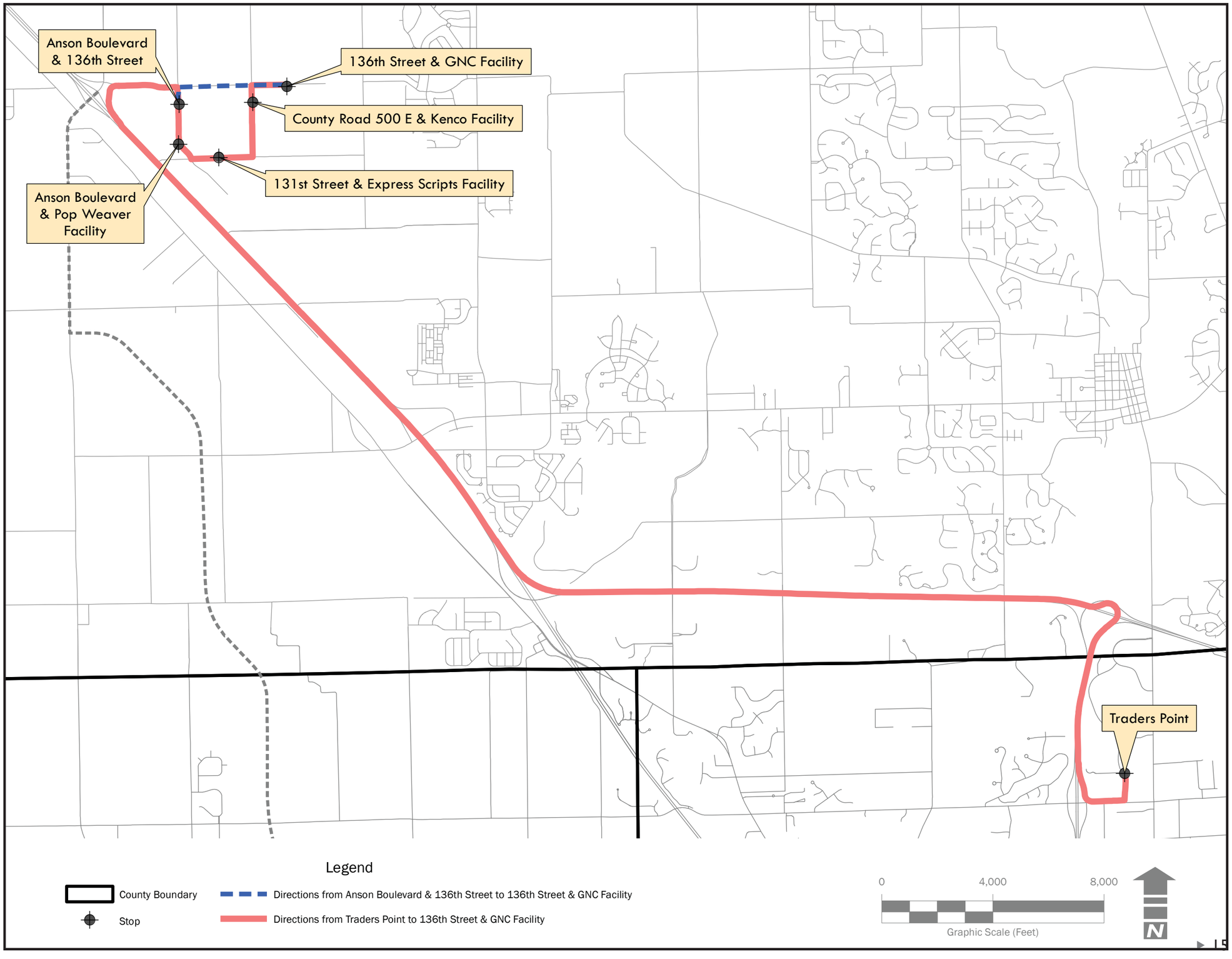

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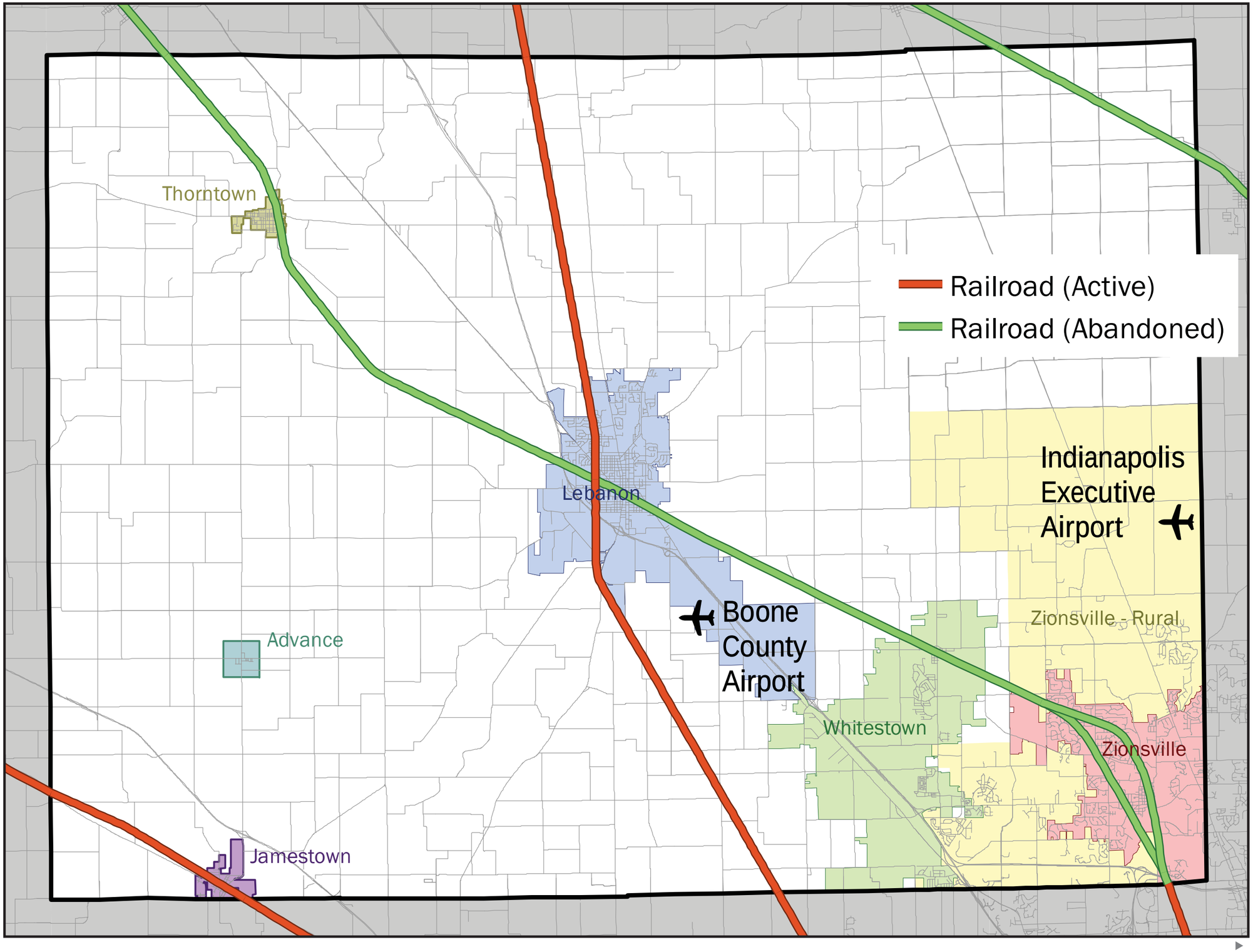
Exhibit G: Railroad and Airport Locations

Source: Boone County



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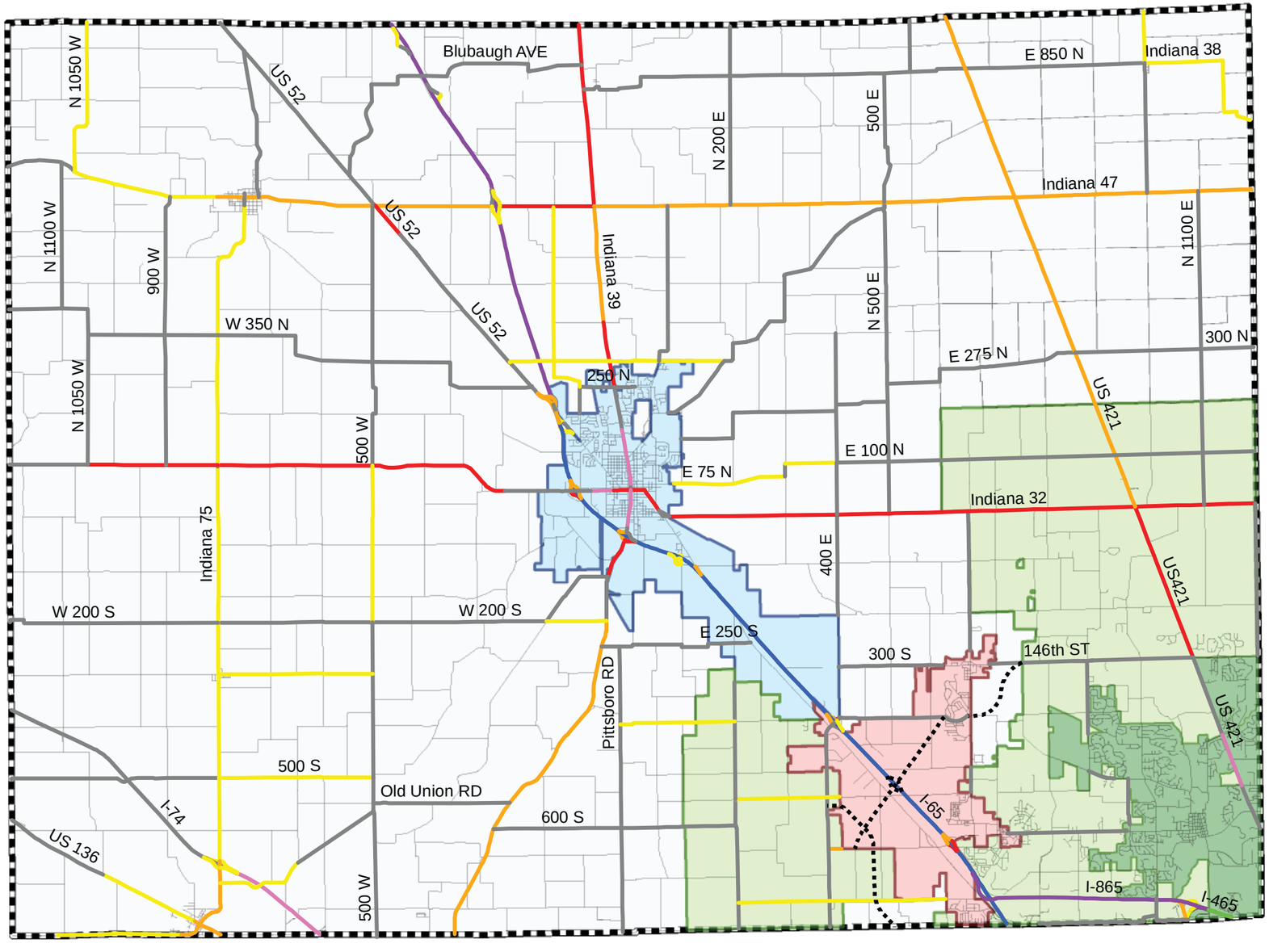
Boone County ADT (Hard Counts)



Legend

- ADT = 0-2,000
- ADT = 2,001-5,000
- ADT = 5,001-10,000
- ADT = 10,001-20,000
- ADT = 20,001-50,000
- ADT = 50,001-100,000
- ADT = 100,000+
- No 2016 ADT
- Future Roadway
- Boone County Roads
- Lebanon
- Whitestown
- Zionsville Rural Service District
- Zionsville Town Service District
- Boone County Limits

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Exhibit H: 2016 Average Daily Traffic (with assumptions)

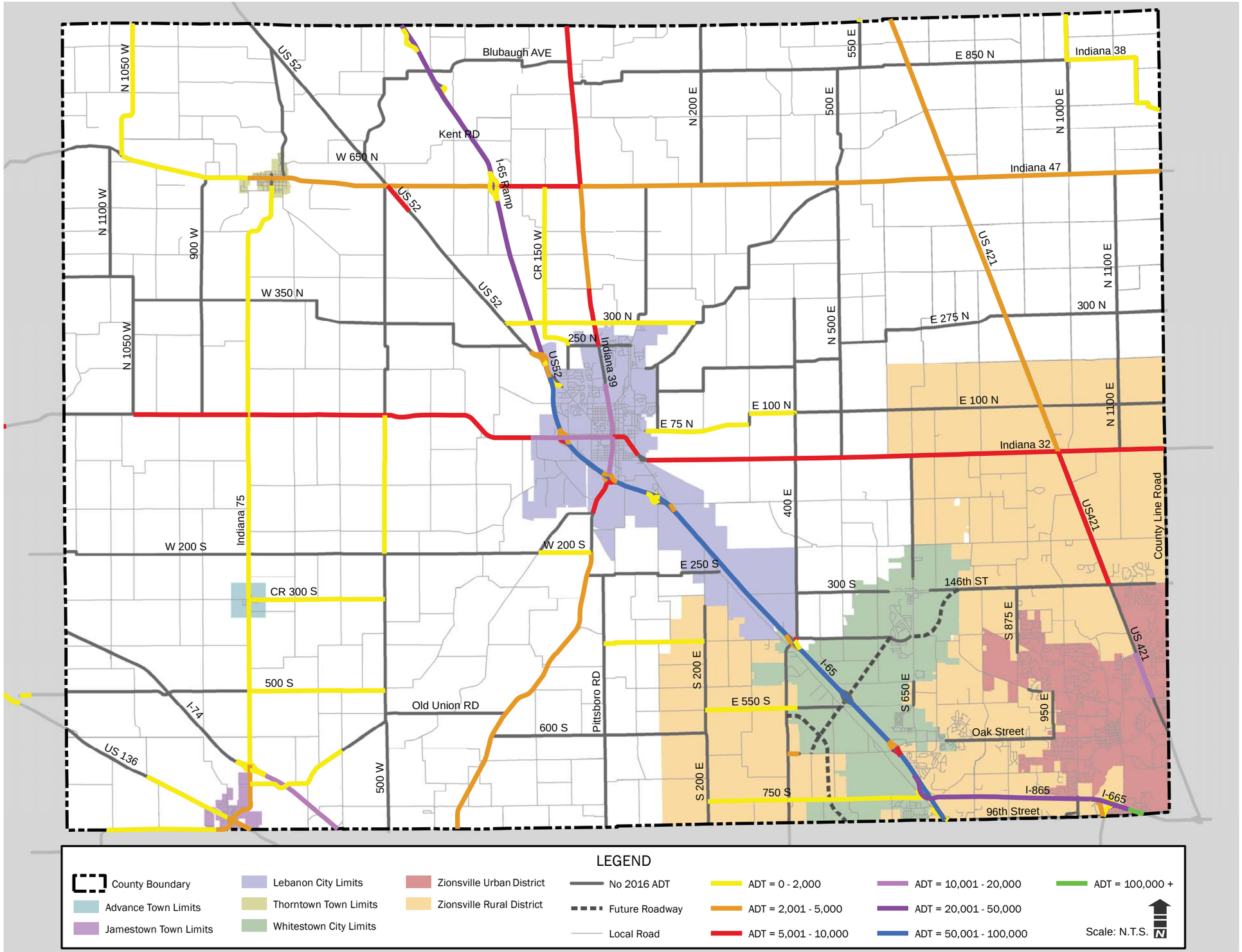

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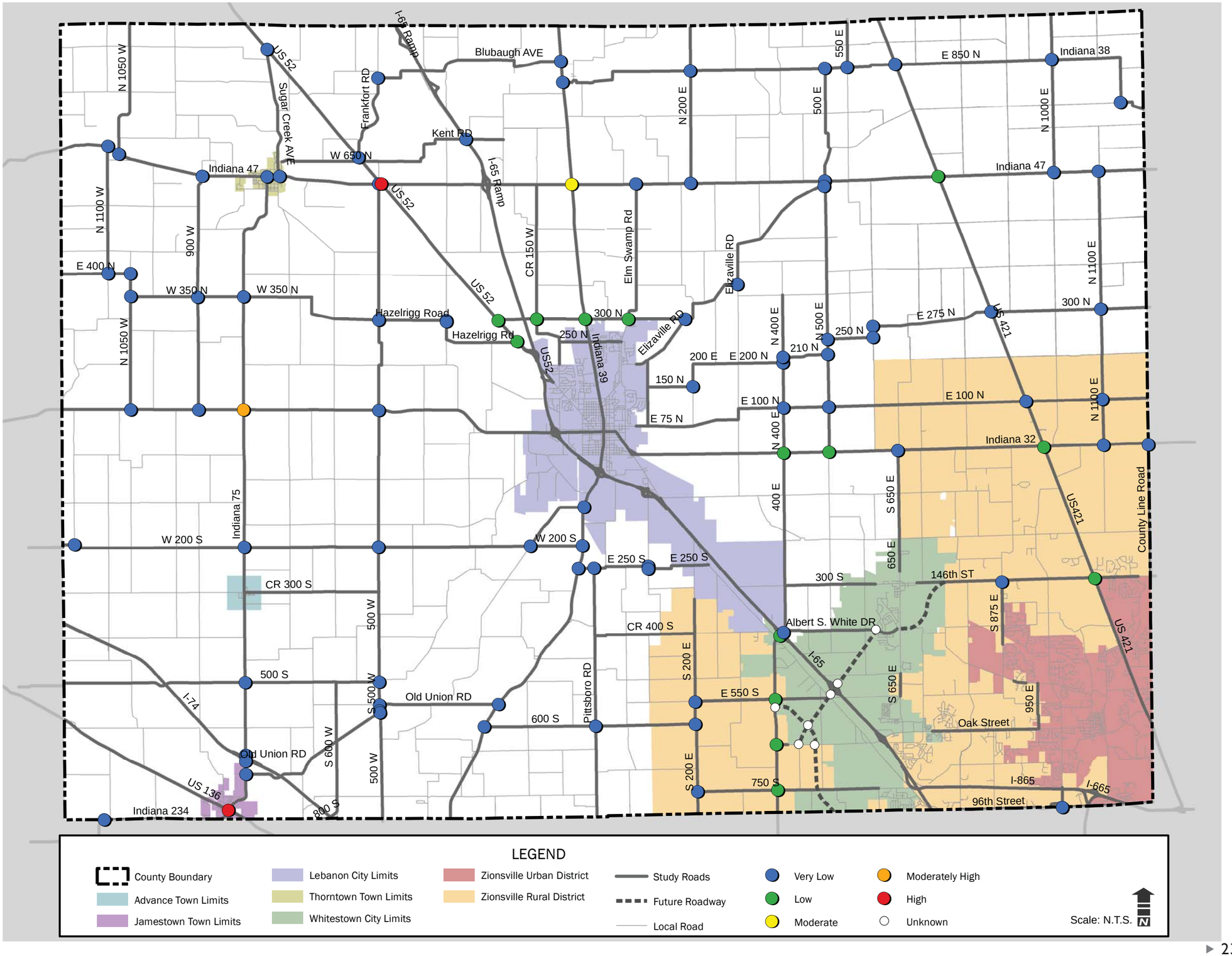
Exhibit I: 2016 Congestion



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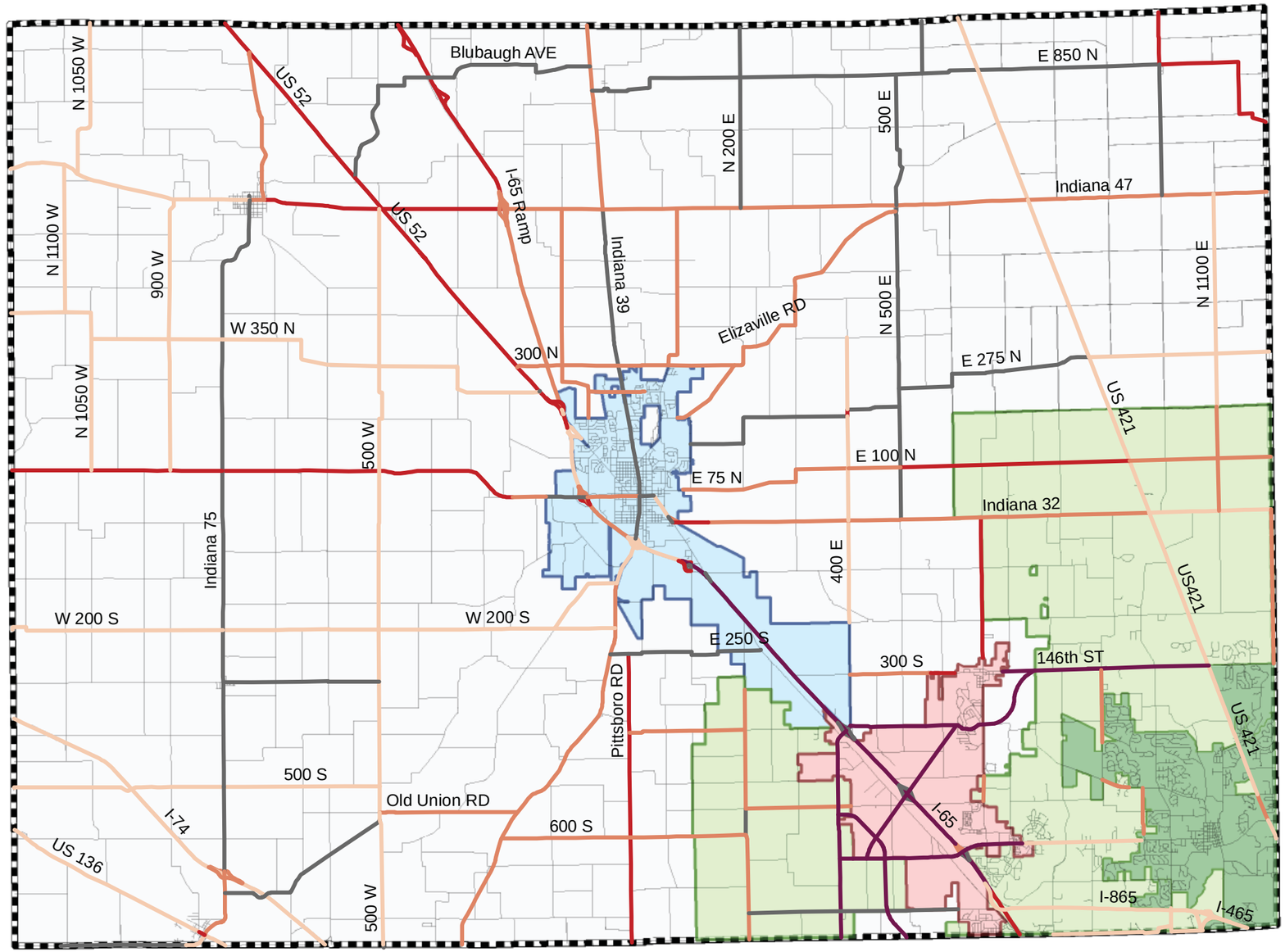
Boone County Average Growth Rates

2036



Legend

- 0.1% - 1.0%
- 1.1% - 2.0%
- 2.1% - 3.0%
- No Growth Rates Assigned
- Custom ADT Assigned
- Boone County Roads
- Lebanon
- Whitestown
- Zionsville Rural Service District
- Zionsville Town Service District
- Boone County Limits

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Exhibit J: 2036 Projected Average Daily Traffic

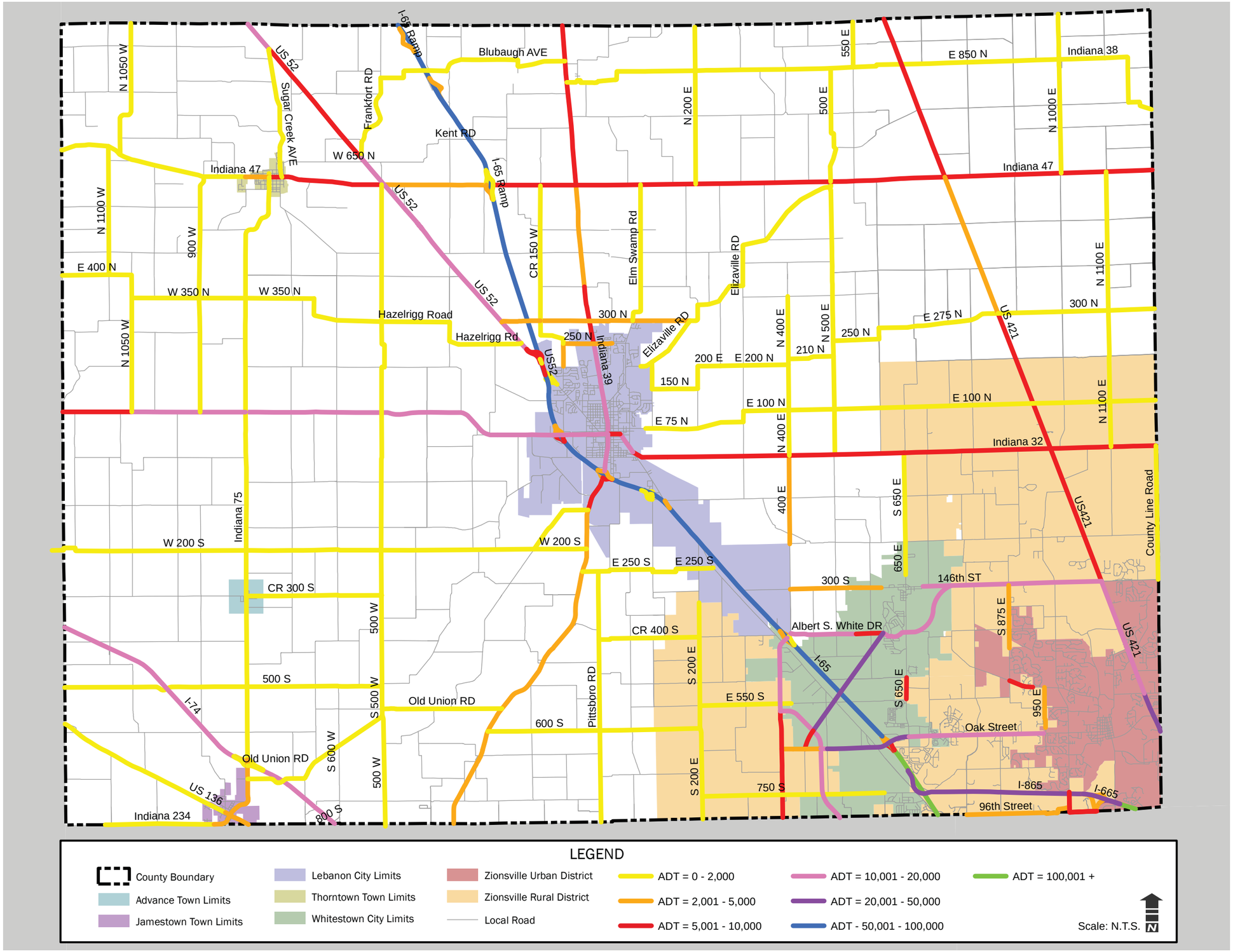

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Exhibit K: 2036 Projected Congestion

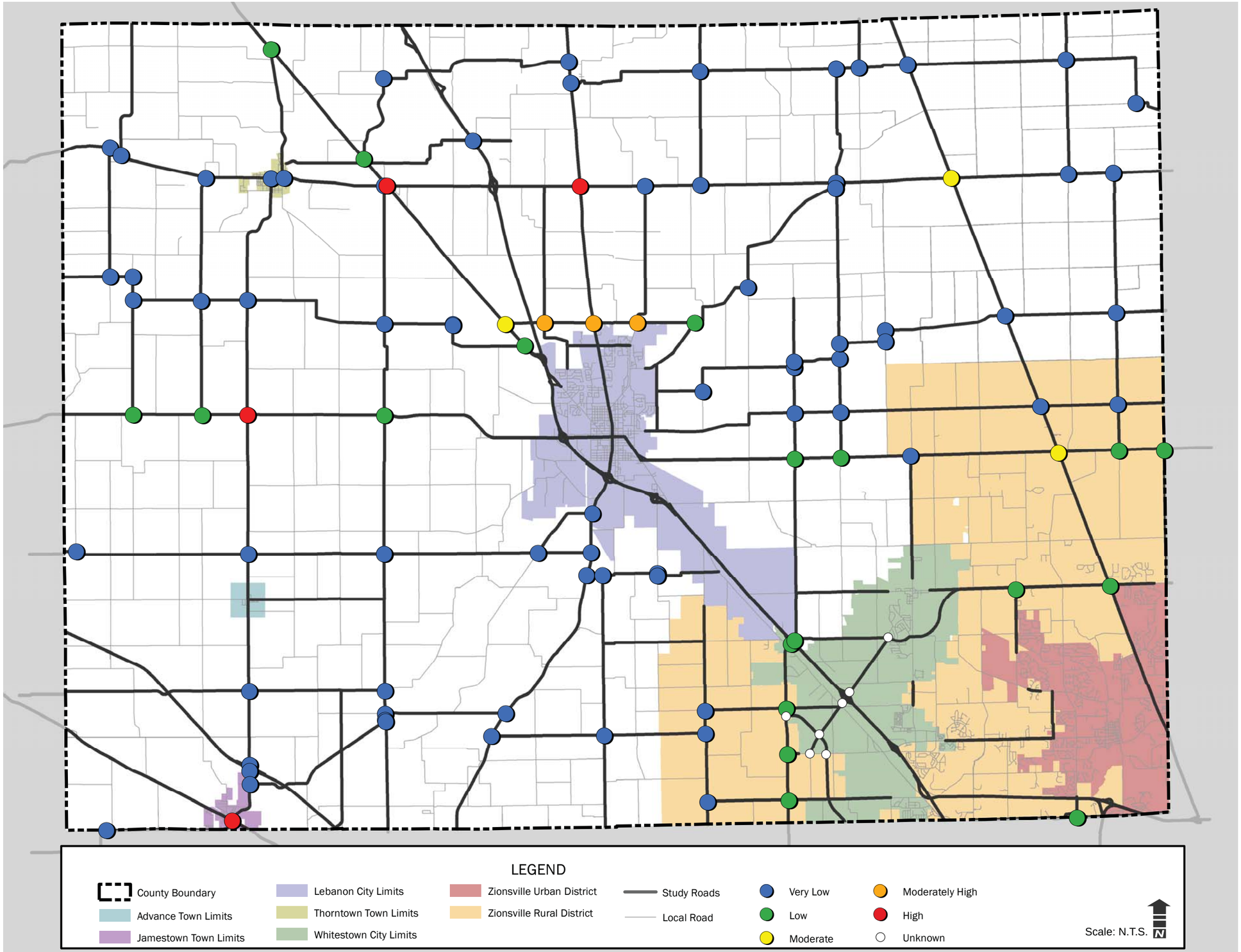

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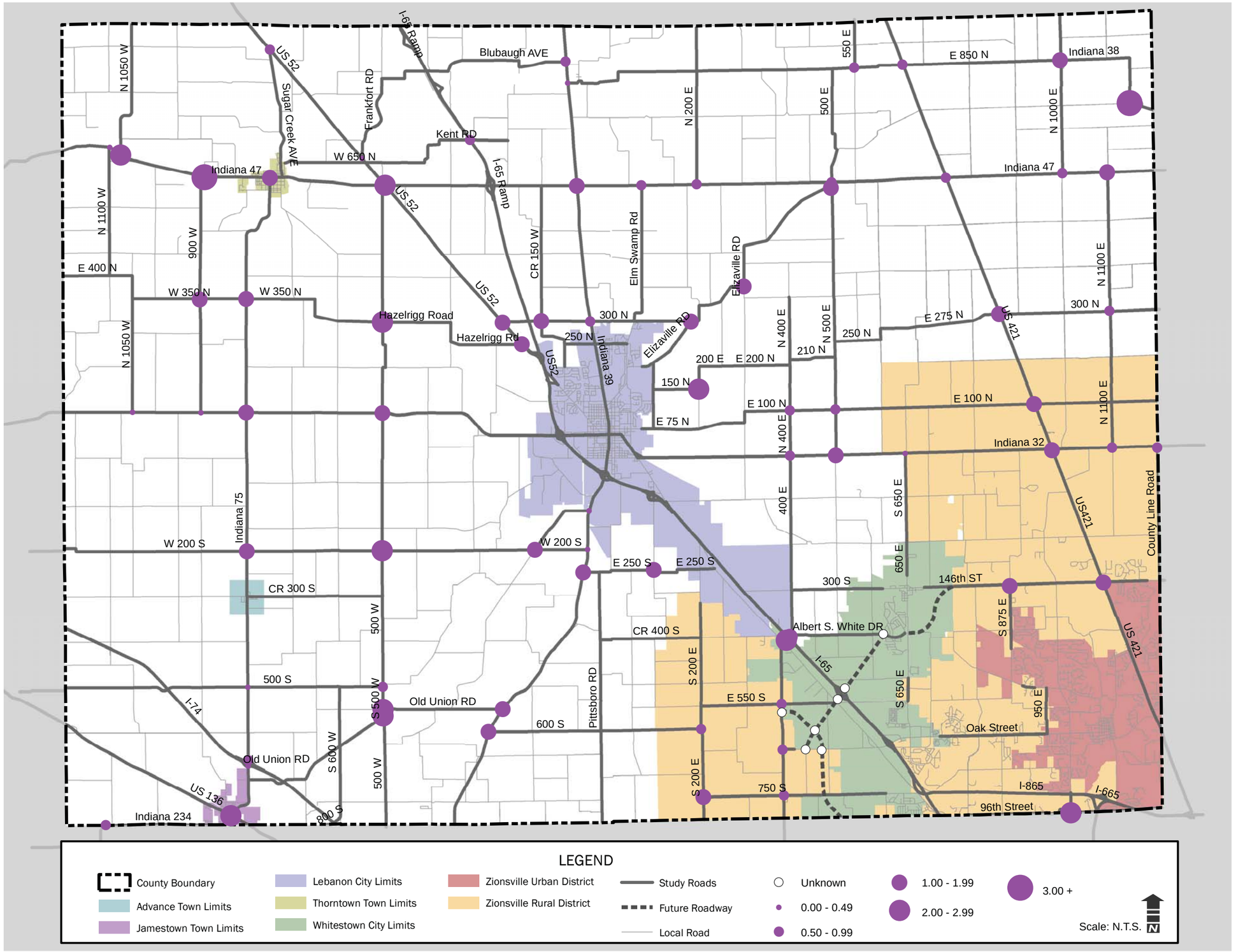
Exhibit L: 2012-2016 Crash Rates



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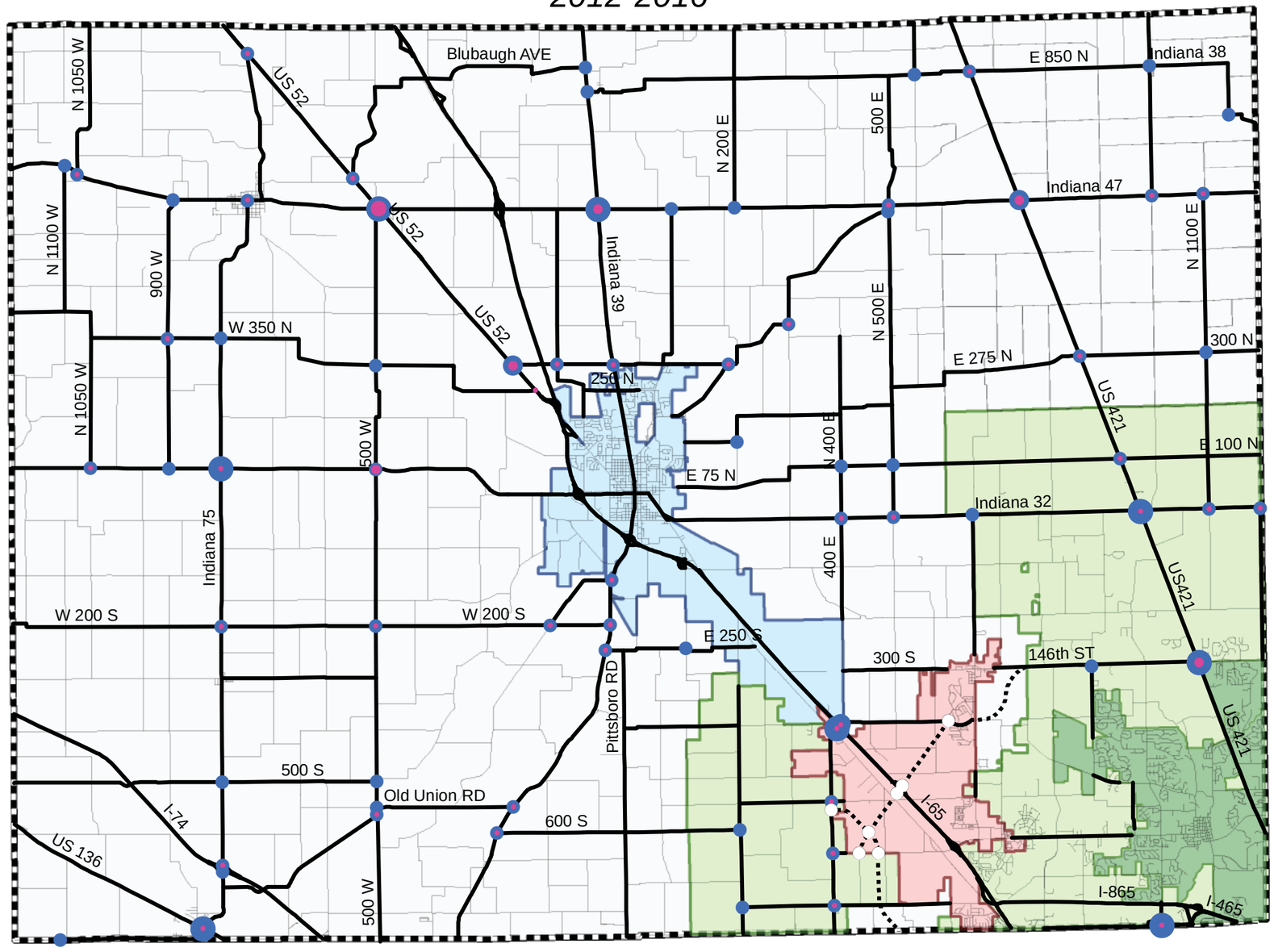
Boone County Crash Severity

2012-2016



Legend

Injury/Fatal Crashes

Unknown · 1-5 · 6-10 · 11+

Property Damage Only Crashes

1-15 · 16-30 · 31+ · Unknown

- Study Roads
- Future Roadway
- Boone County Roads
- Boone County Roads
- Lebanon
- Whitestown
- Zionsville Rural Service District
- Zionsville Town Service District
- Boone County Limits

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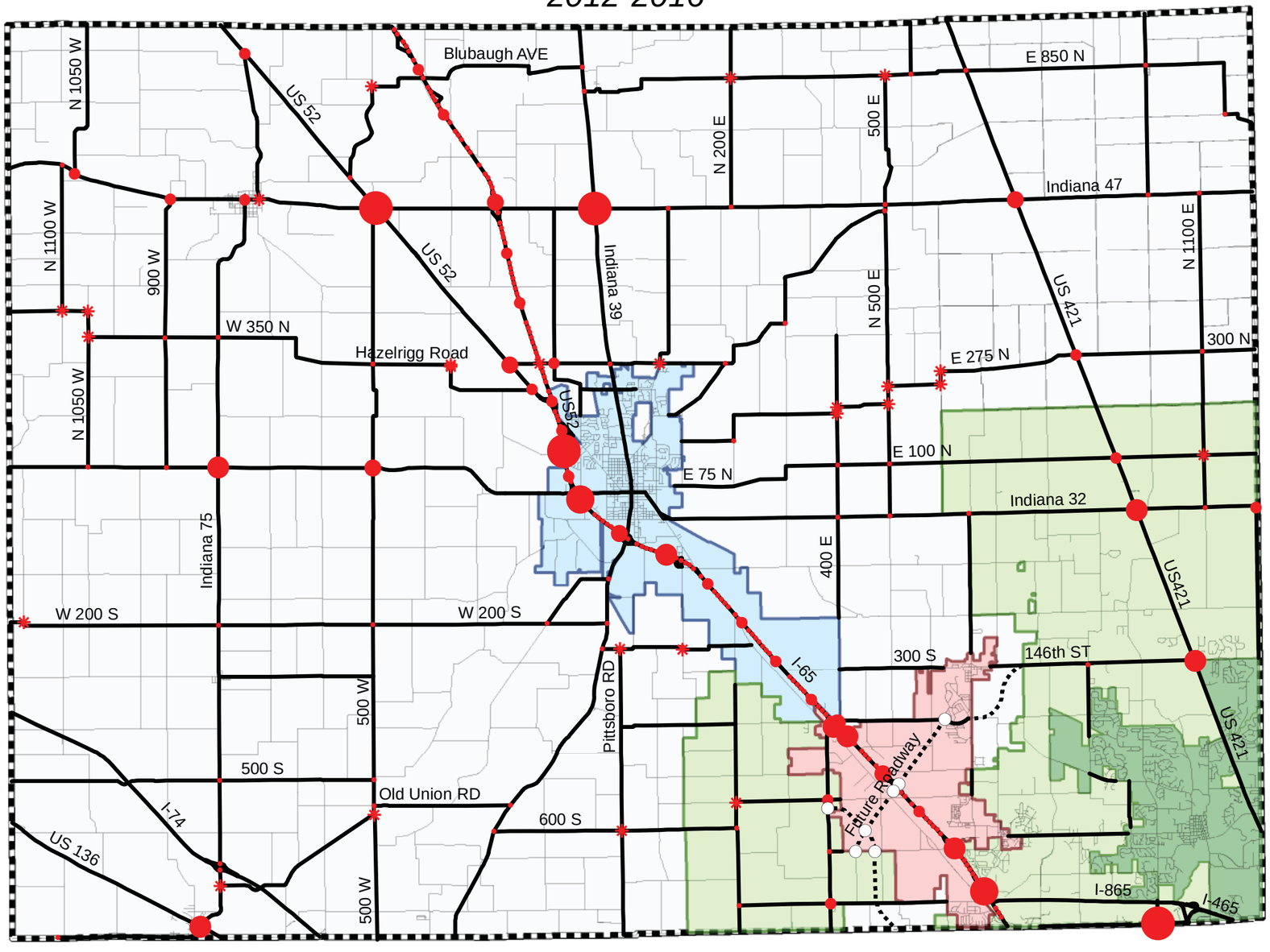
Boone County Crashes per Intersection

2012-2016



Legend

- 0
- 1-10
- 11-20
- 21-30
- 31-40
- 41-50
- 51+; 63, 146.2
- Unknown
- Study Roads
- Future Roadway
- Boone County Roads
- Boone County Roads
- Lebanon
- Whitestown
- Zionsville Rural Service District
- Zionsville Town Service District
- Boone County Limits

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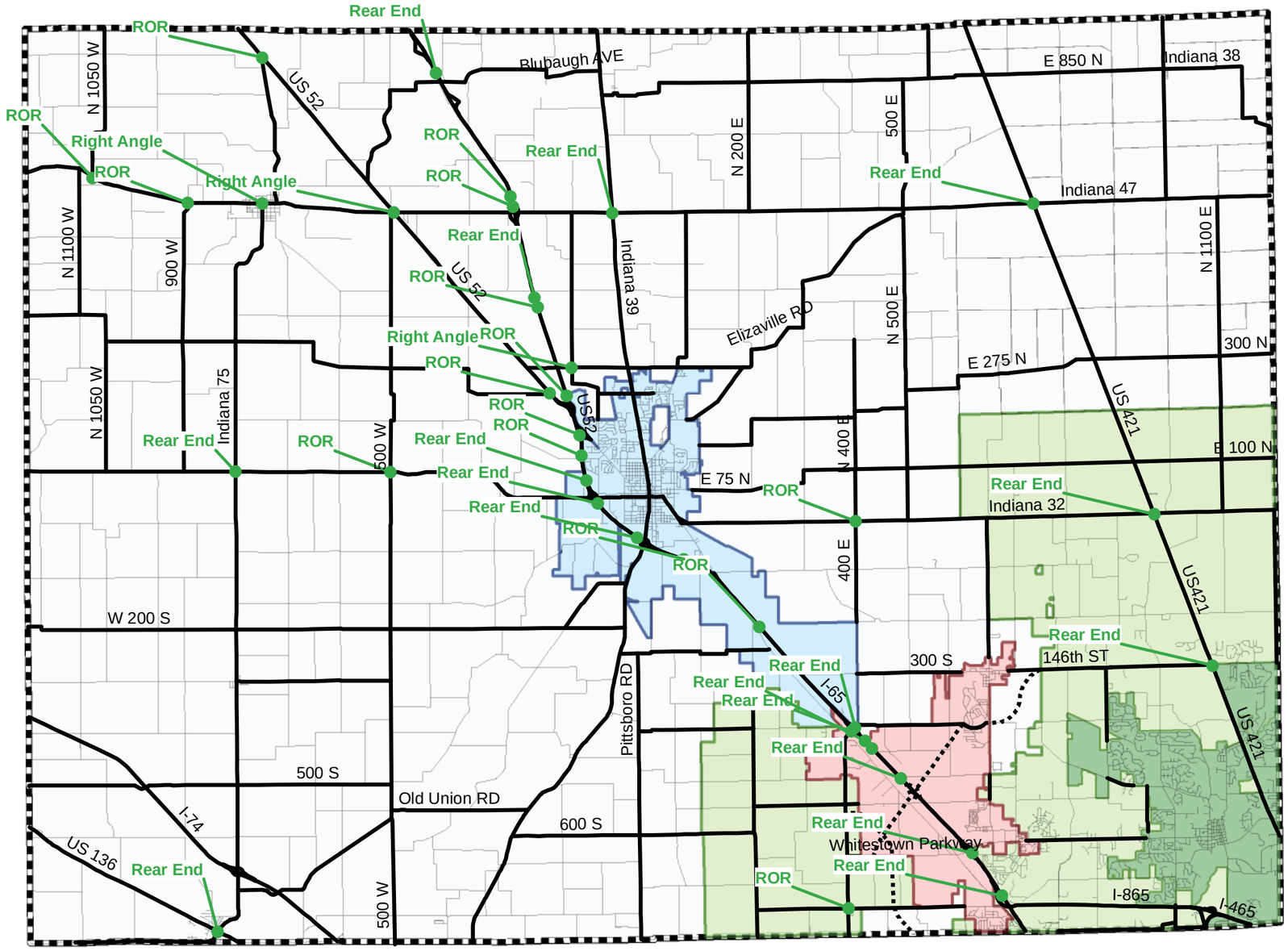
Boone County Manner of Collision

2016



*When greater than 5 crashes of one type occur

Legend

- ROR; Ran off Road
- Rear End
- Right Angle
- Study Roads
- Future Roadway
- Boone County Roads
- Lebanon
- Whitestown
- Zionsville Rural Service District
- Zionsville Town Service District
- Boone County Limits

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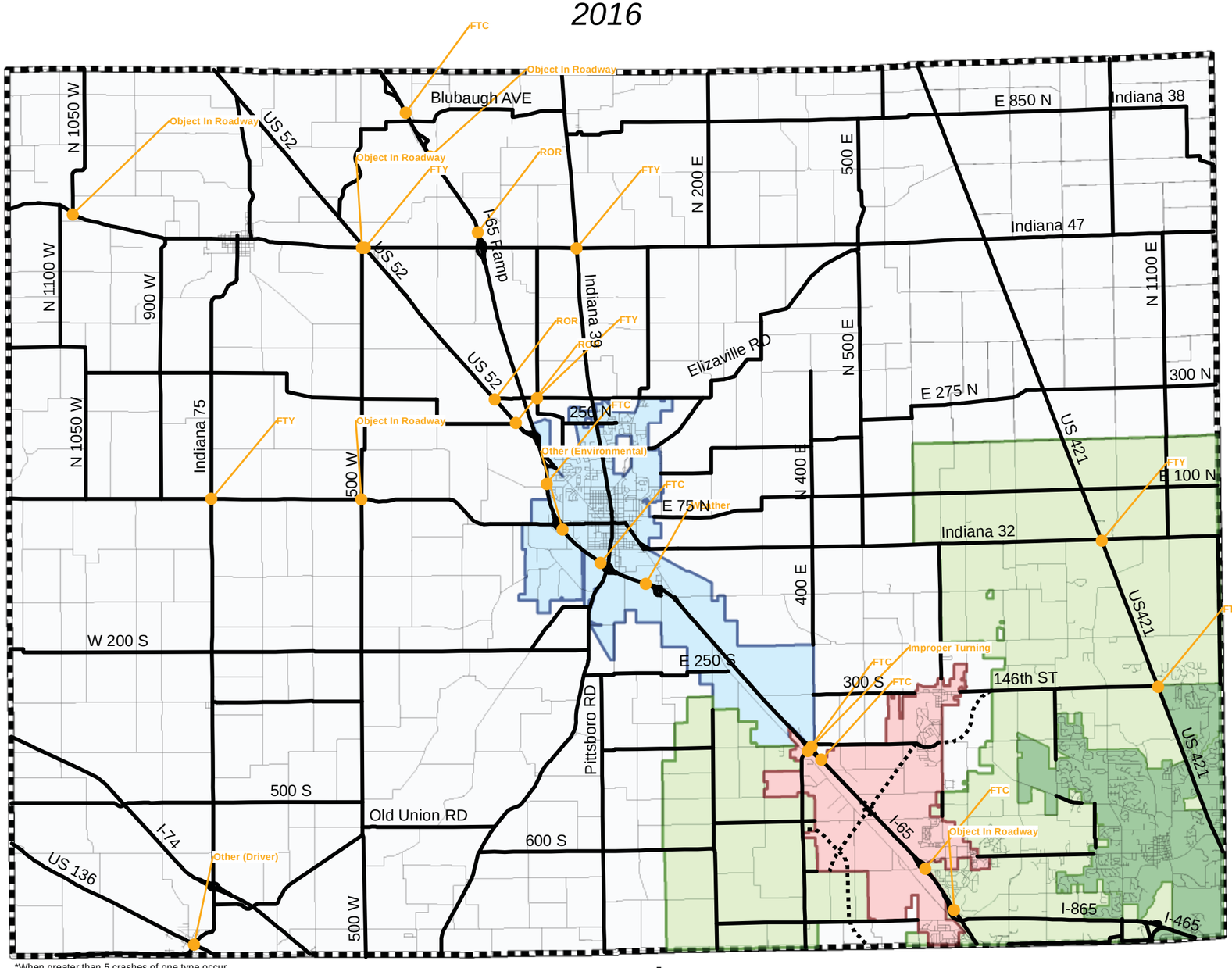
Boone County Primary Factor of Collision

2016



*When greater than 5 crashes of one type occur

Legend

- FTC; Following too Closely
- FTY; Failure to Yield
- Improper Turning
- Object In Roadway
- Other (Driver)
- Other (Environmental)
- ROR; Ran off Road
- Weather
- Study Roads
- Future Roadway
- Boone County Roads
- Lebanon
- Whitestown
- Zionsville Rural Service District
- Zionsville Town Service District
- Boone County Limits

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Exhibit M: Existing INDOT Functional Classification

Source: Indiana Department of Transportation

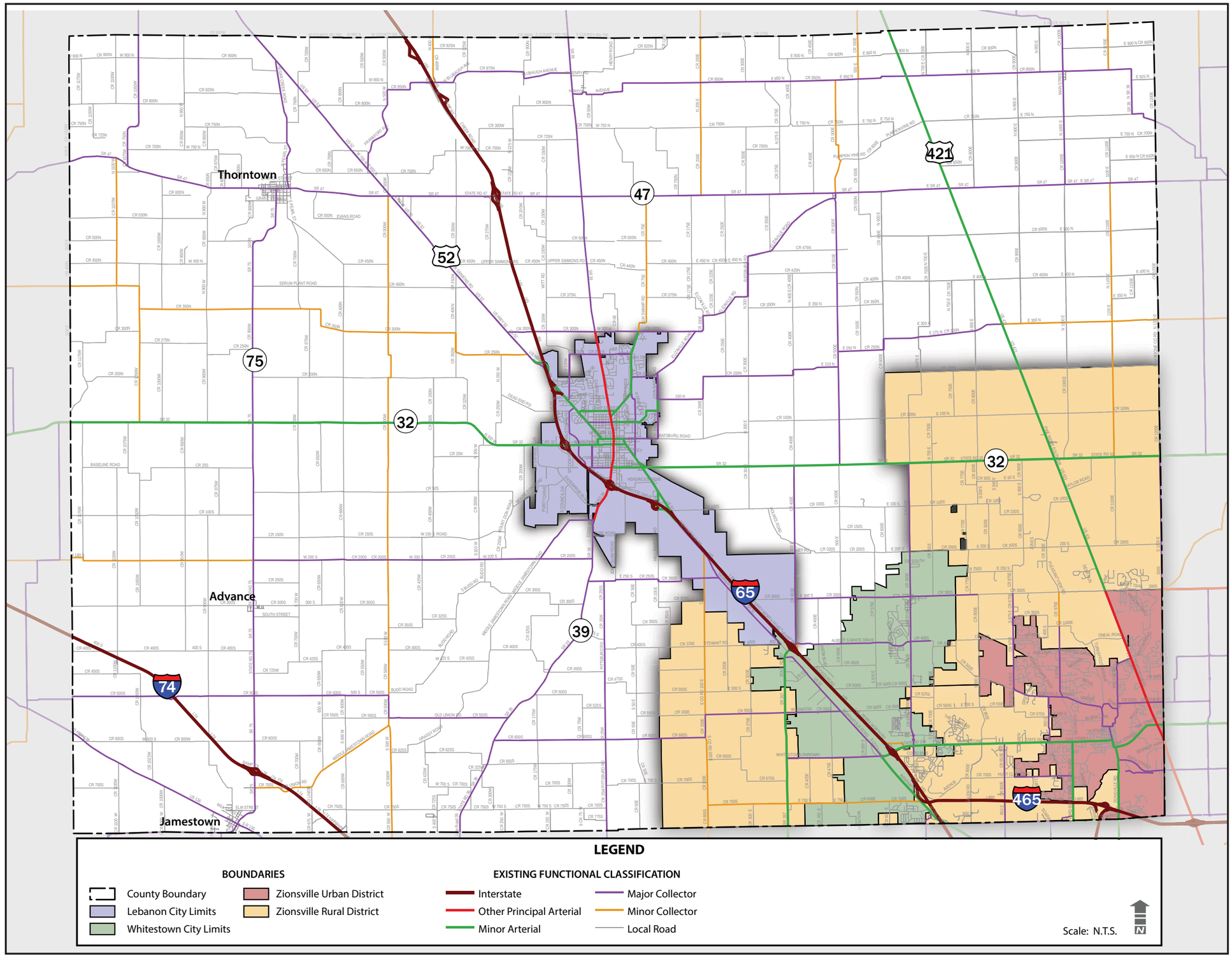

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Exhibit N: Thoroughfare Classifications that Differ from Existing Functional Classifications

Source: Existing Functional Classifications sourced from INDOT.

- *The above map is a graphic representation only. Detailed surveys and studies will be required for any new right-of-way dedication or new road construction.*
- *If Boone County Thoroughfare Plan Designations differ with those within the jurisdictional limits of a local planning authority, the classification with the higher design standards shall prevail.*

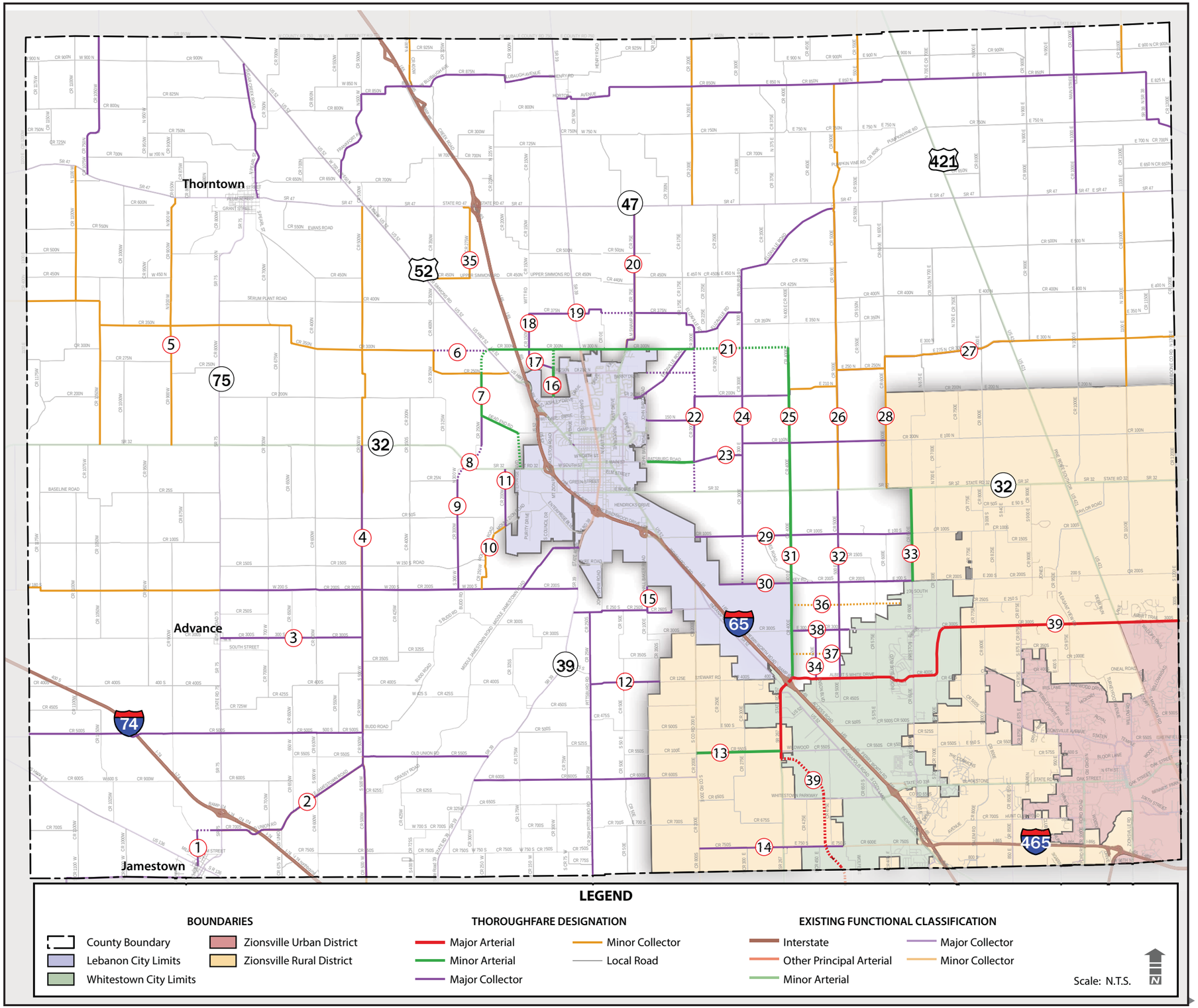

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Exhibit O: Context Zones

Source: Existing Functional Classifications sourced from INDOT.

- *The above map is a graphic representation only. Detailed surveys and studies will be required for any new right-of-way dedication or new road construction.*
- *If Boone County Thoroughfare Plan Designations differ with those within the jurisdictional limits of a local planning authority, the classification with the higher design standards shall prevail.*

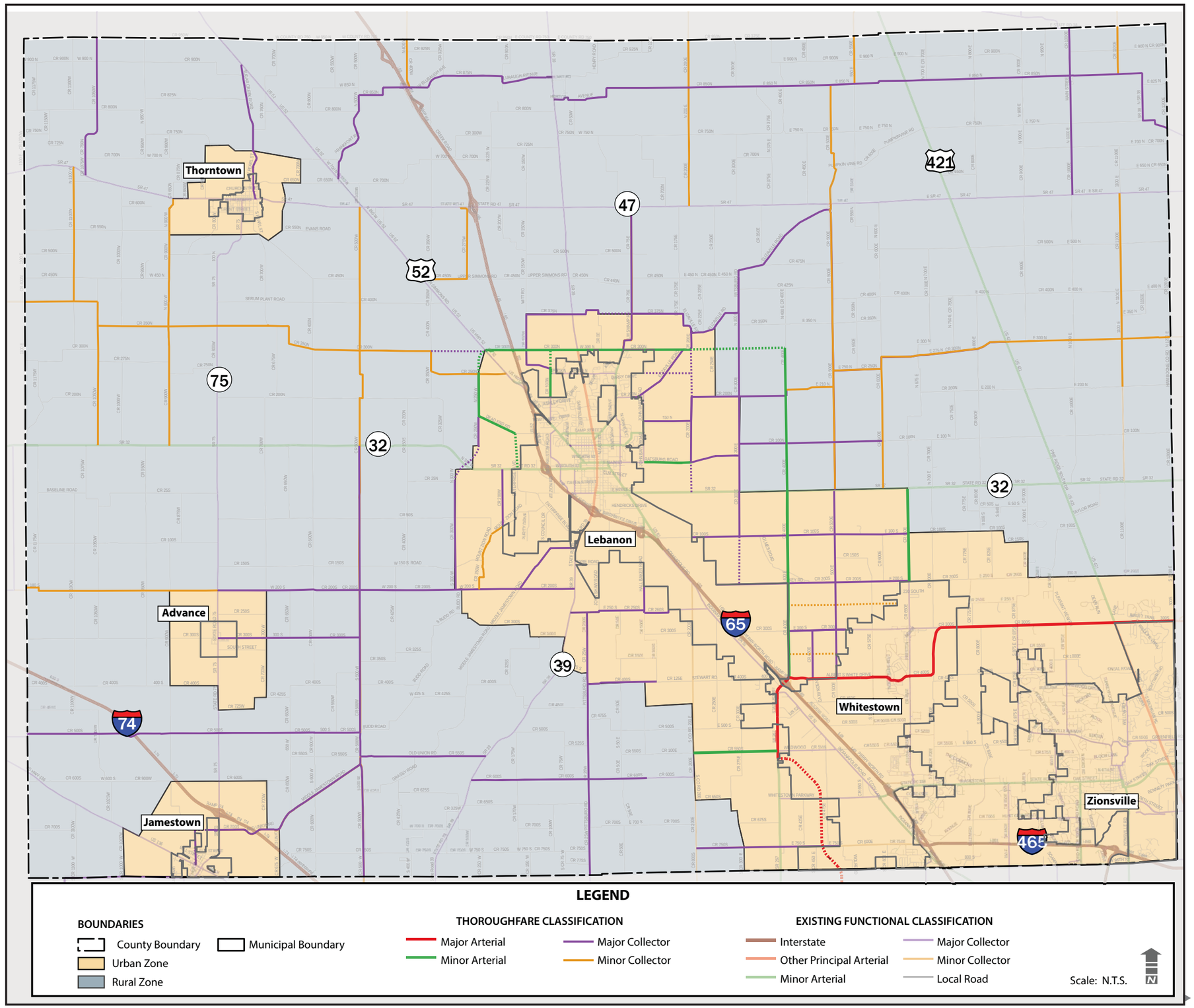

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Exhibit P: Current and Committed Projects

Source: Indianapolis MPO and INDOT Statewide Transportation Improvement Plan

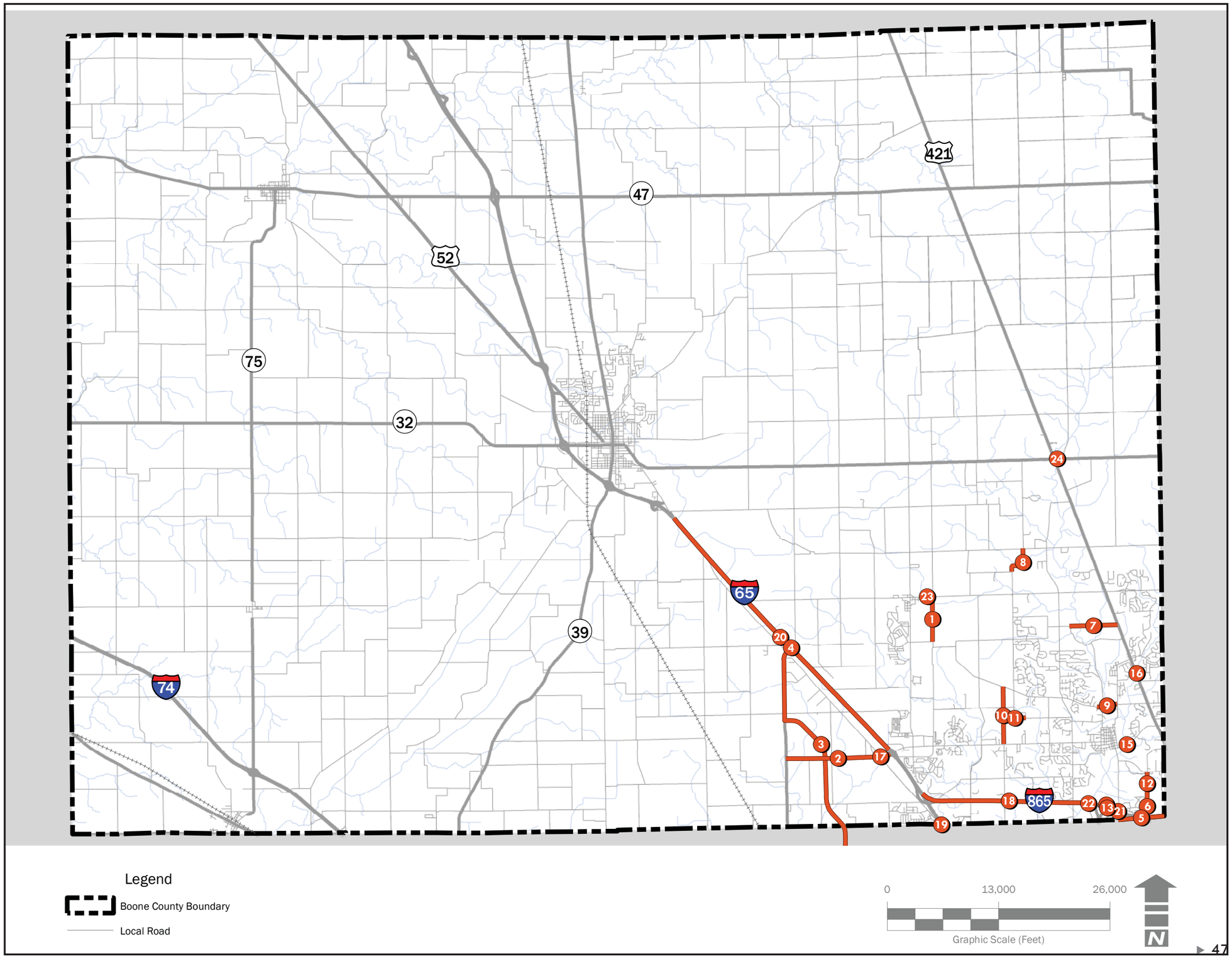

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Exhibit Q: Gravel Roads in Boone County

Source: Boone County Highway Department

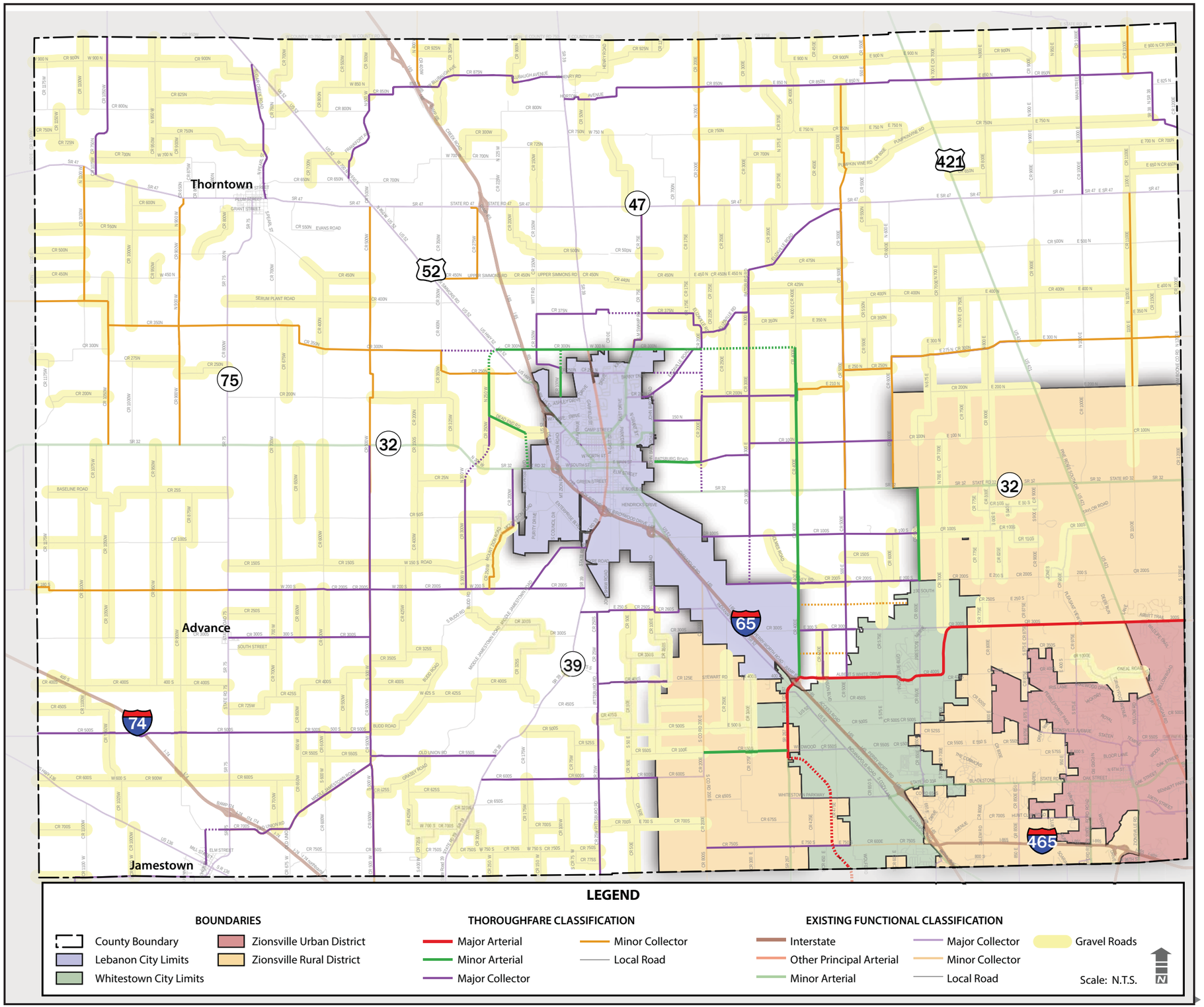

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Exhibit R: Future Land Use along the Ronald Reagan Parkway

Source: 2009 Boone County Comprehensive Plan, the 2007 Center Township Comprehensive Plan and the 2014 Whitestown Comprehensive Plan

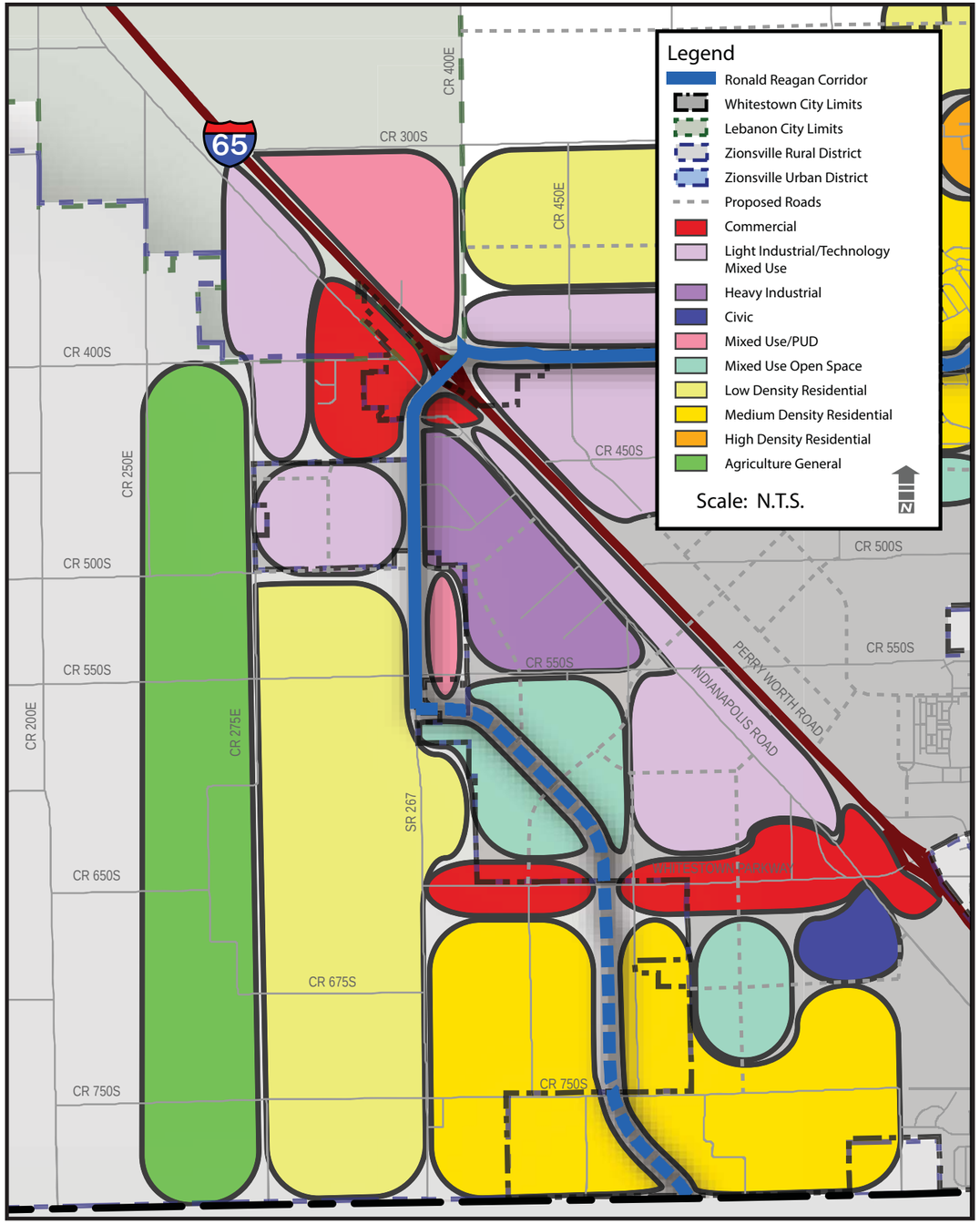

Exhibit S: Potential Full Access Intersections

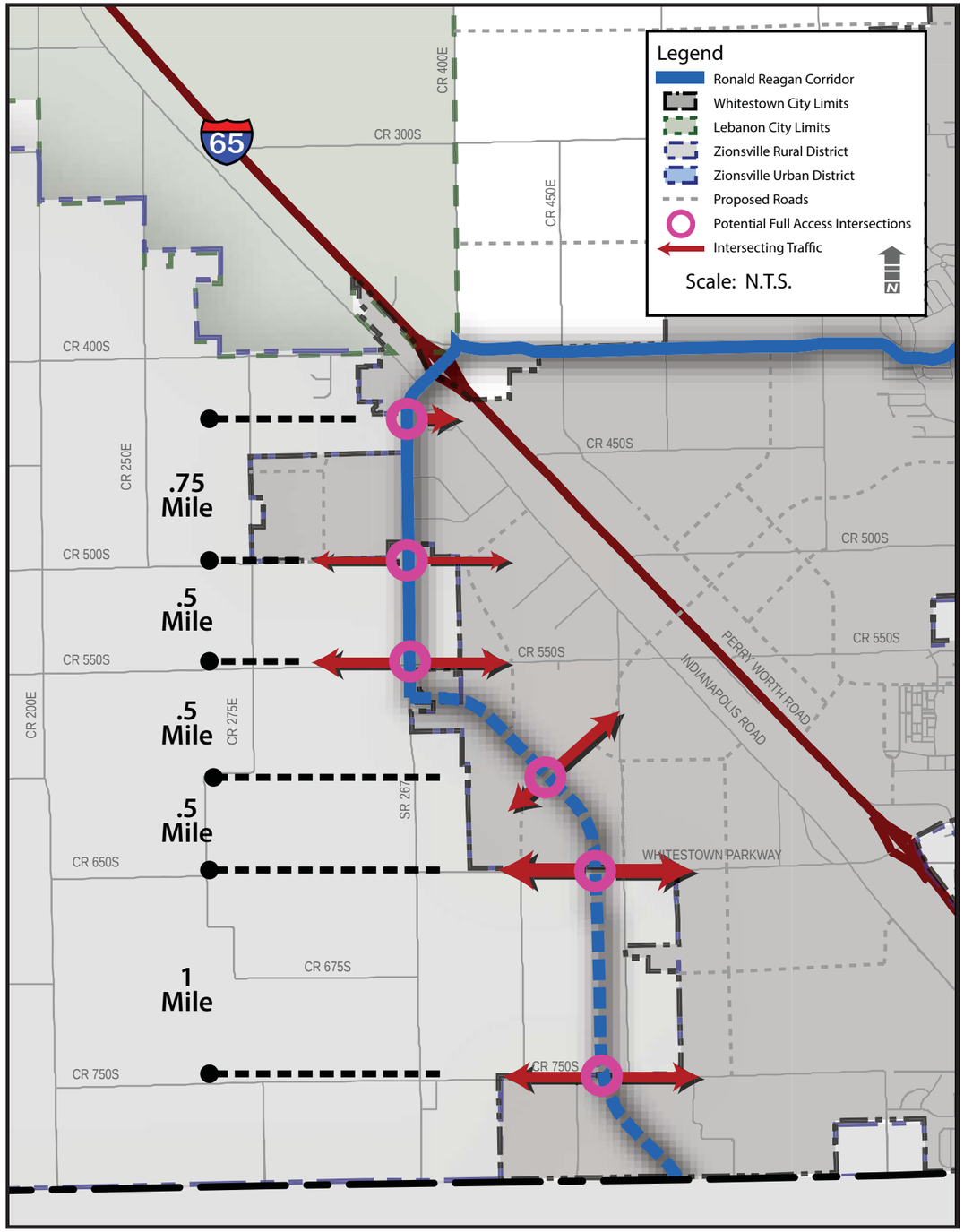

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Exhibit R: Future Land Use along 146th Street, 300S/400S Connector and Albert S. White Parkway

Source: 2009 Boone County Comprehensive Plan, the 2007 Center Township Comprehensive Plan and the 2014 Whitestown Comprehensive Plan

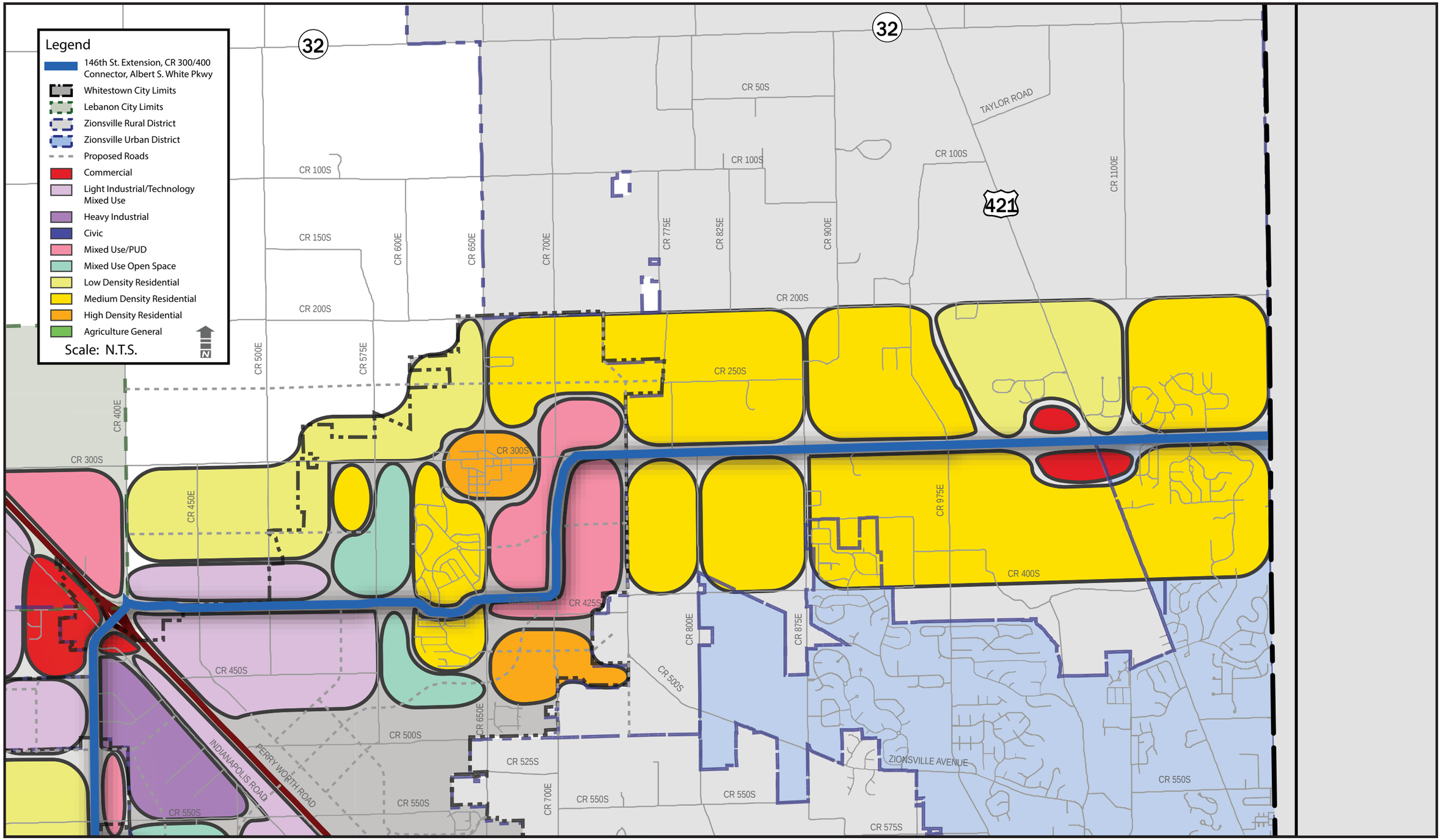

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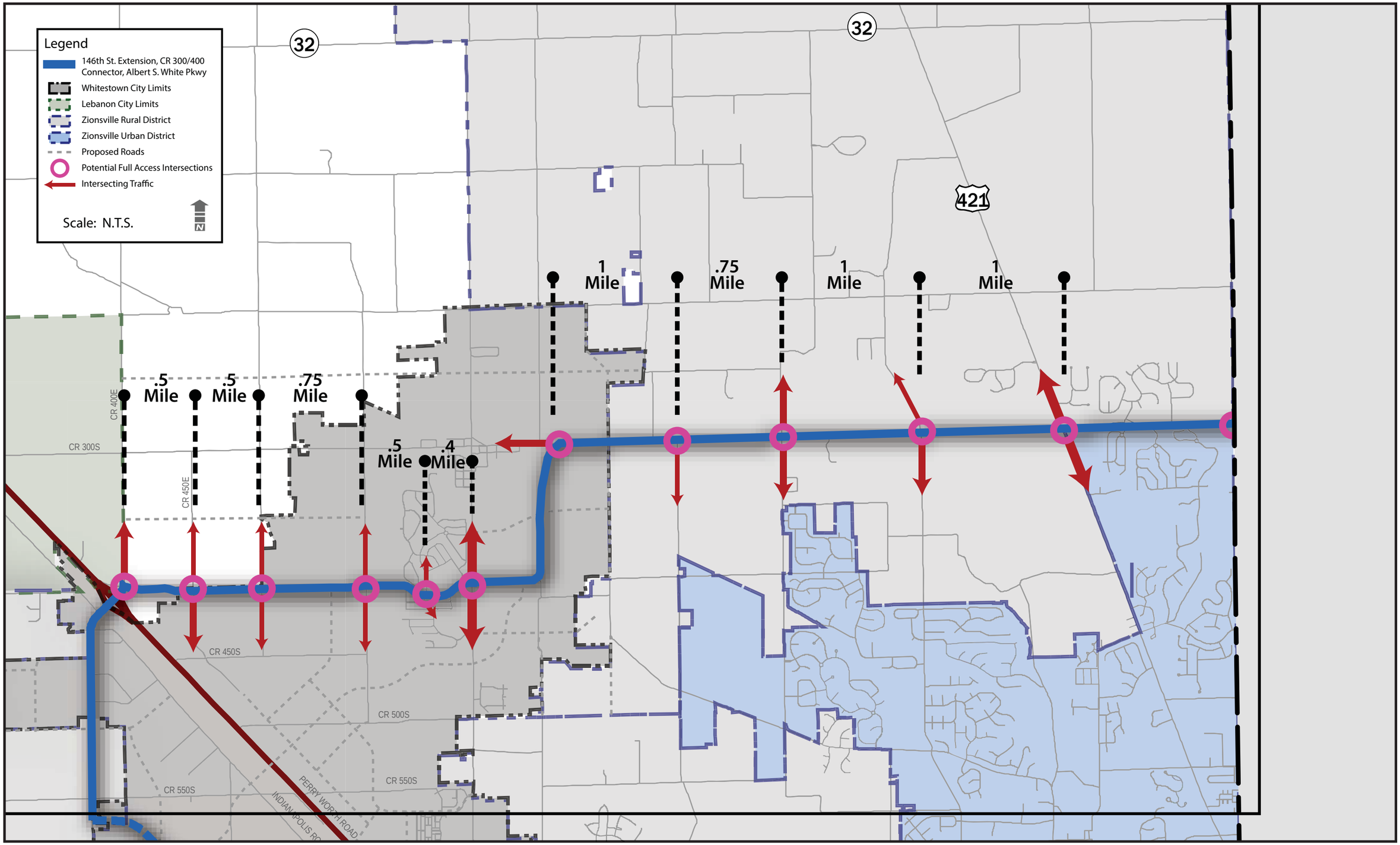
Exhibit U: Potential Full Access Intersections along 146th Street, 300S/400S Connector and Albert S. White Parkway



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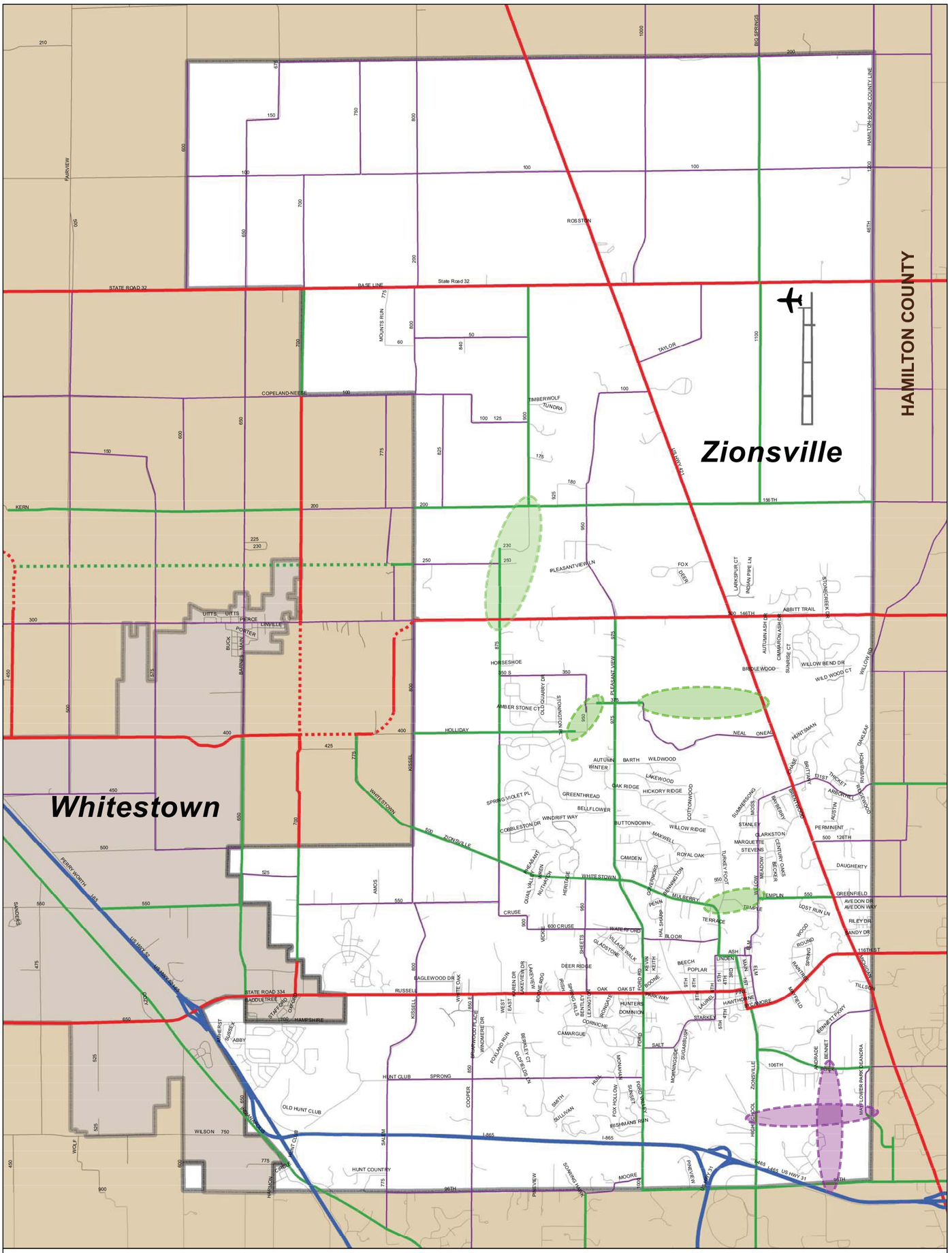

Figure 5-1
Thoroughfare Plan

Zionsville Transportation Plan

Date: 04/12/11

	Existing	Zionsville Proposed (Alignment To Be Determined)	Whitestown Planned (Per Whitestown Thoroughfare Plan)
Interstate			
Primary Arterial			
Secondary Arterial			
Collector			
Minor Collector	As needed for access to new developments; see plan text.		
Local Road			

Indianapolis Executive Airport / Runway

Corporate Limits

Functional classifications shown in adjacent jurisdictions are per their adopted plans

HNTB

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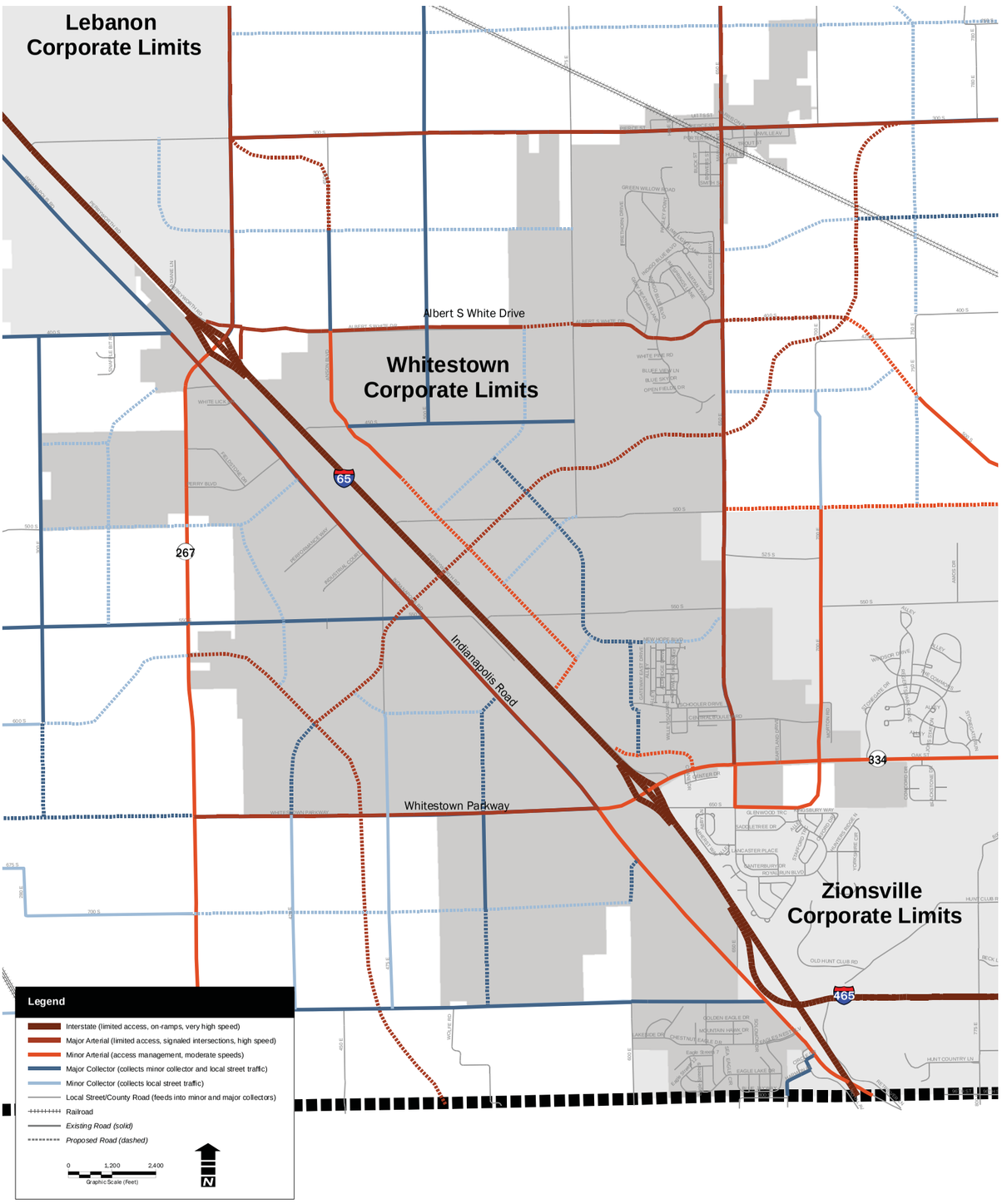
Transportation Map



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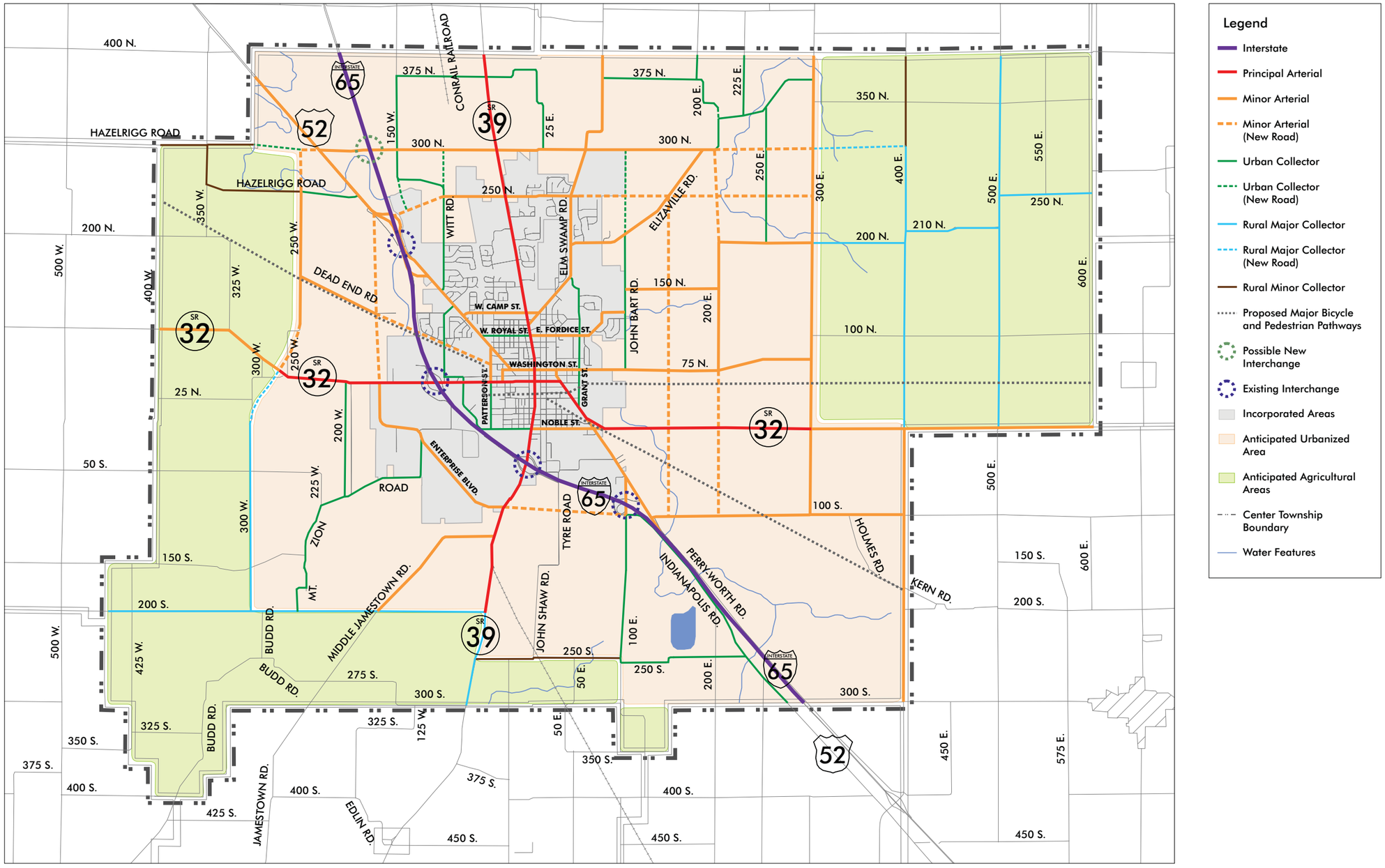
2006 Center Township Thoroughfare Plan (City of Lebanon updating their thoroughfare plan as of the writing of this plan)



Proposed Thoroughfare Map

CENTER TOWNSHIP THOROUGHFARE PLAN

 January 2006

RATIO

DLZ