

City of Logansport

Thoroughfare Plan

February 2002

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- EXECUTIVE SUMMARY -

The City of Logansport will be in the midst of a significant change as the result of the opening of the Hoosier Heartland Industrial Corridor (HHIC) on the city's south side. The traffic that currently travels through the city will ultimately bypass the downtown central business district, and the residential communities of the city resulting in a decrease in traffic due to a lower volume of through-traffic. The question remains; what can be done to overcome the potential loss of economic development and growth. Presently, it is difficult to accurately determine what sectors of the community will feel the greatest effect by the opening of the Corridor. The question to be answered is what can be done to redirect a portion of that Corridor traffic back into the community to perpetuate moderate growth like that currently underway on the city's east side. The barriers within the city are not actual barriers, but opportunities to re-group and redefine a new path for the future. The goal is to develop and illuminate a new path into the twenty-first century for Logansport's transportation network.

The City is dealing with the impact of the relinquishment from INDOT to the City of US 24 through the City and portions of Burlington Avenue and Main Street, East Market Street from 24th Street to Grandview Drive and West Market Street from Cicott Street to Bates Street is currently scheduled for complete reconstruction.

Bonar Group was retained by the City of Logansport for the purpose of preparing a study and engineering evaluation of the current transportation network system throughout the entire city and surrounding communities. The study consisted of traffic counts to assess local street and roadway volumes, identify current areas generating the most activity, and congestion throughout the entire community. Average daily traffic counts (A.D.T.) and the peak hourly volume (P.H.V.) were compiled from the placement of over 280 individual traffic car counters at numerous locations throughout the city and county. The placement of some counters was the same as those from a previous study for the City of Logansport. The A.D.T.'s and P.H.V.'s were then used to determine a level of service (L.O.S.) for each street or road. This information was used to create a 5-year, and a 20-year forecast of the traffic conditions should they remain unchanged retaining their present condition. A growth projection of 1.5% for the city, and 4.0% for the surrounding rural areas per year was distributed over those time parameters. The result was a decline in the L.O.S. for nearly every street and road in the study area. The present traffic conditions are visibly evident from one area of the city to the next. Curb and gutter, storm drainage, striping, signalization, and overall pavement conditions have shown the deterioration of a transportation system that

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has physically out-grown itself. The congestion and slow traffic conditions once prevalent to the downtown area has surfaced predominantly on the city's east side. As a result of the congestion throughout the area, safety has deteriorated throughout the network. An accident evaluation exposed 3rd, 4th, 5th and 6th Streets on Broadway and East Market, and the corridor from 24th Street on East Market Street to Yorktown Road as having a high frequency of accidents. These results could be attributed to numerous causes such as the increase in vehicular and truck traffic throughout the community, improper striping or lane delineation, inadequate road width or geometry, insufficient signalization or timing cycles, or the lack of traffic enforcement for moving violations. Roadway and pavement integrity has severely deteriorated throughout the city.

The Immediate Plan consists of resolving traffic safety issues first, then focus on reconstruction of primary roads that are deteriorating due to high traffic volume conditions. The primary areas where traffic safety are a concern can be seen at: George Street and East Roselawn Drive at East Market Street, 3rd, 4th, 5th and 6th Street on Broadway and East Market Streets, the intersections of Mall Road and US 24 East, Cass Plaza and East Market, the Logansport Mall and East Market, and Yorktown Road at East Market. The entire length of East Market from 24th Street to Yorktown Road is under-sized for the traffic it currently bears. Future designs should incorporate roadway widening and new geometry, new signalization and striping, street lighting, and a substantial pavement redesign to facilitate larger volumes of traffic and heavier loads. Throughout the city, secondary and collector roads have similar characteristics needing significant attention. The first phase of the High Street reconstruction has been completed for nearly a year now and the results speak for themselves. Traffic is traveling smoothly and efficiently as a result of total reconstruction. The second phase of High Street should continue with same results as before. In a study compiled by the Bonar Group in May of 1992, twelve streets through the community were prioritized for full reconstruction and High Street was one of them.

The 10-year and 20-year plan consists of reconstruction of primary and secondary roads throughout the community: 17th and 18th Street from High Street to Jefferson Street, Cicott Street from West Clinton Street to West Market Street (US 24), 3rd Street from East Melbourne to Northern Avenue, and North Street from 3rd to 24th Street. These streets have been subject to significantly high traffic volumes with wear and deterioration visibly apparent. Pavement reconstruction, storm drainage, curb and gutter, signalization, and striping are the necessities for complete reconstruction of these streets.

In addition to existing street and roadway reconstruction, designated or expanded routes for pedestrian and cyclist are needed for the community. Currently, the

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margin of safe separation for pedestrian and cyclists near recreational areas and existing traffic corridors are minimal. These designated or expanded routes should be considered when compiling a comprehensive traffic plan for the future.

The area to the south of the city is the subject of great concern. With the HHIC in Logansport's back yard, the question comes about; what will develop in this area and when? It is apparent that growth will come like that of the east side of the city. The actual time may be difficult to assess, but the probability remains high. Depending on the availability of city resources, and utilities to this area, business growth should follow within a 5- year period of time. Any area south of the Wabash River to CR 400 South could be subject to sporadic growth on either side of the corridor. Currently, the Logansport-Cass Industrial Park is growing at a substantial rate. In addition, the Logansport Municipal Airport has planned for further growth with the potential expansion of the runway. With the potential expansion of the Airport, and the Industrial Park further developing, these two facilities promote promise and attractive characteristics to potential businesses evaluating the area. The city needs to enhance the chances to bring new business back into the older established communities in conjunction with future expansion of those areas to the south.

A proposal for a North-South Corridor beginning north of the Eel River on Perrysburg Road at CR 300 East then southward crossing the Eel River and intersecting at Mall Road or further east, and then to East Market Street. The corridor would then proceed southward to and crossing the Wabash River and ending at South River Road and CR 325 East. The proposed corridor would open up the north and east sides to future traffic from the newly expanding south side (HHIC) and spur growth along its path. The availability of right-of-way and property at the beginning of this phase along East Market is questionable. It is suggested the city should investigate the availability of all property that falls within proximity of any future corridor especially on the east side of the city.

The forecast of growth throughout Logansport may be determined by numerous factors. Availability of utilities and resources in any given area will have a significant impact to the rate of growth allowed. The condition of the city's overall infrastructure, transportation, utilities (water, sewer, and electric) are determining the outcome of Logansport's growth potential. Presently, the system works well within its present state, but for the city to expand beyond the current boundaries, all of these elements need to be incorporated into a plan to work together to expand their availability in all four directions of the city, and not to one specific area. The entire purpose of an effective transportation network's survival depends on the integrity of those elements that comprise the current system. This community, like others, has its advantages and disadvantages. Those

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disadvantages, relative to the transportation network, are defined in this study and can be rectified over time using a 5- year plan, 10- year plan and 20- year plan. The advantage is at Logansport's front door (the HHIC). This city has the opportunity to redefine itself. This Corridor should be seen as an opportunity to open new doors from the south, to the growing north and east sides of the city and regenerate growth throughout the entire community. By updating the current roadway deficiencies and expanding utilities in all four directions of the city, the transportation network will gradually develop through need and availability determined by business interest. The availability and expansion of the community's infrastructure beyond the present limits will entice business development. The City of Logansport's present goal should be to identify any deficiencies, then work to overcome them. This study will assist the City of Logansport by identifying deficiencies for elimination or rectification and to further enhance business and community development into the twenty-first century.

Study Area / Jurisdictional Fringe

It was determined that the logical study area for the Thoroughfare Plan includes the City of Logansport and the jurisdictional fringe. It is recognized that while the Logansport Plan Commission exercises planning, zoning and subdivision control in the jurisdictional fringe. This plan recognizes the Cass County Commissioners as the controlling authority for roads in the jurisdictional fringe. The Study Area limits include the Jurisdictional Fringe of the Logansport Plan Commission as shown on the attached Figure 1. No additional study would be required for the Comprehensive Plan as a result of incorporating this fringe area as data in critical areas of the jurisdictional fringe were collected.

City of Logansport – Thoroughfare Plan – 1994

This plan supports and continues many elements originally found in the original Thoroughfare Plan last amended in 1994. This document provides additional data and suggested improvements but is considered an amendment of the original Plan. This Thoroughfare Plan is intended to be an element of Logansport's Comprehensive Master Plan.

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- INTRODUCTION –

The City of Logansport is being confronted with a major change to the “core” of the business and residential neighborhoods due to the opening of the Hoosier Heartland Industrial Corridor (HHIC) on the southernmost portion of the city and the relinquishment of the current U.S. Route 24 (US 24).

Figure 12 illustrates the route the expressway is taking in relationship to the city and the possible alienating affect it could potentially have on the entire business community. With the plans for relinquishment of US 24 by the Indiana Department of Transportation (INDOT), traffic could be directed around the city reducing the potential for future growth within the community. The city is showing great concern regarding the potential loss of exposure as a result of the expressway opening. This study will focus on the transportation system infrastructure, the advantages and the deficiencies of the current system, the potential of expanding existing corridors to provide new avenues for future business development, and growth for the entire community.

The Goal:

To develop a safe and efficient transportation network that provides effective flow in and around the residential and business communities of the city with less congestion.

To protect against economic losses for existing businesses and enhance the potential of business development throughout the community.

To reduce the amount of accidents and enhance public safety to users of the existing traffic system in areas where pedestrian and vehicular interaction presently exists

The Objective:

An evaluation of present deficiencies of the transportation system in Logansport and throughout the community, including measures needed to correct those deficiencies.

A determination of the functional classification of the present transportation network and to propose modifications to the network to accommodate new development accordingly.

A plan to enhance and stimulate areas of potential economic growth throughout the community as a result of a modified transportation network.

An evaluation of the impact the Hoosier Heartland Industrial Corridor (HHIC) will have on the business, and residential community, then propose a network that works in harmony for the future growth of Logansport.

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- DERIVATION OF THE PLAN -

The purpose of this chapter is to provide a written account of the accumulated data, and the consolidation of this information for the evaluation of the current transportation network as shown in **Figures 2 and 3**. The following section is comprised of all the data retrieved in the field, in addition to data supplied by the City of Logansport Police Department, Cass County Road Department, and the Indiana Department of Transportation (INDOT). The data consists of current and future land use and zoning, roadway and street classifications, accident history, traffic volumes and current roadway geometry. With this data, an evaluation was completed for both current and projected future travel demands to identify deficiencies in the roadway infrastructure within and around the community.

After identifying the areas of deficiencies and determining the future network demands, areas of improvement are recommended and categorized as part of an immediate plan, a near-term plan (5-year), or a long-term plan (20-year).

- MINIMUM DESIGN STANDARDS AND FUNDING –

It is anticipated the improvements recommended from this study will be accomplished with the utilization of State or Federal Highway Administration funds administered through the State of Indiana. Hence, the analysis and development for the proposed improvements are based upon the adherence to the Indiana Department of Transportation (INDOT) roadway and bridge standards, and the City of Logansport's road development standards.

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-STUDY INVENTORY-

Functional Classification of Current Roadway System

The most important factor in determining the basis for a roadway design is the functional classification. This provides a framework for determining design geometry for each individual roadway that makes up a network. The factors in determining each roadway or street classification is the mobility and various levels of access based upon its intended service. With an accumulation of each individual roadway and street classification, an overall scheme can be formed to view the transportation network in its entirety producing an optimum balance between access and mobility purposes:

Arterial roadways are characterized by a capacity to quickly move large volumes of traffic and should often restrict the function to serve abutting properties. An arterial roadway typically should provide for high travel speeds with long trip movements and serve both intra-area and through movements.

Collector roadways are characterized by an approximate even distribution of access and mobility functions and act as intermediate links between arterial roadways and points of origin and destination. Traffic volumes and speeds will typically be somewhat lower than those of arterials. Collector roadways typically penetrate residential neighborhoods and commercial /industrial areas.

All public roadways that are not classified as arterials or collectors are classified as *local* roadways. Local roadways are characterized by their many points of direct access to adjacent properties and their minor value in accommodating mobility. Speeds and volumes are usually low and trip distances short. Through traffic is often deliberately discouraged.

Current Land Use and Area Economy

Due to Logansport's geographic location, its history stems back to the 1830's and has been determined by the confluence of the Eel and Wabash Rivers. The birth of the community was the result of the Wabash River, the Erie Canal, and the Old Michigan Road. During the city's infancy, the Wabash and Pennsylvania Railroad came to town opening the doors to world markets and creating Logansport into a transportation hub by the 1850's. Over time, by the late 1950's and 1960's, other

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modes of transportation took their toll on this railroad community. As a result of the community's dependence on the railroad being the predominant generating source for business, the city suffered a decrease in population by nearly 15%. Since that time, Logansport's population has remained steadfast and continues that way to this day.

In past times, communities throughout Indiana evolved from the usage of local waterways, to the development of vast railroads systems, and to the current highway systems that thread our cities together. Through the illustration in **Figure 7**, the current land usage within the city and surrounding area show a community that is within the throw of both rivers. The oldest area of the city is considered the downtown business district and remains predominantly commercial and saturated with office space. At the perimeter of this business district are the residential communities to the east and along the banks of the Eel and Wabash Rivers. To date, the residential communities have traversed across the city predominantly in the west central and north to northeast areas of the city just west of the Eel River. To the south of the city, south of Erie Avenue, the industrial community developed along a corridor that was once a hub for major railroads lines and railroad service yards that once resided in Logansport. On the southwest and northwest areas of the city, industry developed due to the access to highways and state routes. Currently, these areas of industry exist, but growth has been slow.

Business Trends

Logansport's business community has enjoyed significant growth at one end of the spectrum on the east side, a decline in growth in the old downtown business district, on the south side, and far west side of the city. The old downtown business district, to date, remains to be the core of city and county with government offices, utilities, police, fire and social services within this central area. The overall climate for businesses on those streets between East Broadway, Market Street, and North Street eastward to 14th Street reflect a trend that represents a significant decrease in growth for nearly the past fifteen years.

The development of the Logansport Mall on the east side of the city fueled tremendous growth at the expense of the older established downtown business district. Commercial business moved to the suburbs, and the downtown business community could not compete. As a result, new business growth has been marginal within the downtown business district.

Over the past ten years, with the loss of several major employers, Wilson's Meat Corporation, Cole Hardwoods and the reduction of railroad lines through

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Logansport, growth was slow and the future appeared bleak. Most recently, within the past five years, the replacement of Wilson's with IBP Inc., the rebuilding of Cole Hardwoods, and the development of the Logan-Cass Industrial Park on SR 29 on the city's southwest side, a trend appears to be underway within the industrial sector of the community. Past revitalization can be seen northwest of the Airport along SR 25 south. Wilson's Meat Processing has been replaced by another equivalent processing facility, IBP Inc. To the north of SR 29, opposite IBP Inc., the State Hospital resides with a new expanded Health, Family and Social Services facility. Further to the northeast, the business of T.M. Morris Manufacturing resides. Therefore, it appears, the southwest area has been subject to a business and industrial expansion trend, and the potential for more could exist after the Hoosier Heartland Industrial Corridor is released. **Figure 31** reflects those areas having a potential of a one- to five-year period of growth as a result of the corridor opening. This is only subject to the availability of city resources and utilities to these areas.

Further to the south of the city and on SR 29 South, the Logan-Cass Industrial Park and the Logansport Airport are helping to revitalize the city and Cass County with a recent influx of significant business development. Companies such as Federal Mogul, the Nelson Group, Cass County By-Products, Rocky Mountain Pet Products and Ameri-Tek Manufacturing have found a new home in what appears to be the area for light to medium manufacturing industries.

On the east side of the Industrial Park, expansion is strongly underway, and it appears more growth is to come. Recently, the Industrial Park Board purchased property east of their present location for additional road expansion through the Park, and intersecting to the east at CR 50 East (Kokomo Pike) (See **Figure 31**). This will create another point of access to the Airport and Industrial Park from the downtown area via Kokomo Pike (County Road CR 50 East).

The Airport is bordered on the north by the Industrial Park and shares a common property line. County Road 400 South borders the Airport on its south side. The Airport is in the midst of its own expansion (See **Figure 31**). Plans are currently underway to extend the runway further to the east by possibly closing CR 50 East along the Airport's current east property line.

At the current rate of expansion, the Airport, the Industrial Park and the opening of the Hoosier Heartland Industrial Corridor may be the catalysts necessary to spark a potential growth trend that could eventually merge the existing southern region of the city further south to adjoin surrounding communities to the Airport. As shown in **Figure 12**, we expect a growth corridor along either side of the Expressway from County Road 115 West (Wilson Road) along the US 35 bypass, further

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extending to the east, and ending near CR 400 East and US 35. This corridor includes all areas extending south from US 35 to CR 325 East and CR 400 South and includes the Airport and Industrial Park area.

In referring to **Figure 12**, we depict an area of primary growth (within 1 to 5 years) and a secondary phase (within 5 to 10 years) of growth to eventually occur. The primary phase is expected; the secondary will be more difficult to predict.

With the potential expansion of the runway and other Airport facilities, the combination of the Airport and an adjoining business park could be an asset to the entire community. Should expansion continue south of the city and around the perimeter of the Airport, utilities to the area would need expansion, likewise, the existing county roads would require significant reconstruction and widening to handle any influx of additional business growth or vehicular traffic (**Refer to Table 27**).

Further to the north of Morgan Hill Road on 18th Street, north of SR 435 (Main Street), are the remnants of the railroad consolidations over the past 15 years. What once was the largest railroad service and loading facility for the area, now is dormant with very little expectation for future railway traffic or activity. The absence of the railroads from Logansport can be strongly seen by the vacancy of a massive railway service facility once serving the business community. The potential for future railway growth, as it once was, is practically non-existent. Eventually, this facility may become an obstacle for the potential growth of this area.

To the north of West Market Street (US 24 West) along either side of SR 17 North and SR 25 North, the area remains nearly the same with only a moderate increase in business growth and residential expansion. To the east of SR 25 North and north of the Eel River, professional/medical offices have developed mainly due to the location of the Memorial Hospital and retirement facilities. A trend shows residential development on the increase with the construction of low to medium volume apartment construction along the south side of Chase Road between Michigan Avenue and Davis Road.

Further to the east, north of the Logansport Mall and along High Street to the city limits, new residential dwellings are being built. This growth represents a potential trend possibly due to the availability of the virgin land on the perimeter of agricultural areas. In addition, the convenience and accessibility of new retail, restaurant, and professional business establishments residing a short distance away is convenient and very appealing. These areas also give residents the access to a major route (US 24 East) should they desire to venture to the nearby community of

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Peru only 15 miles away. In addition, the community's educational heart resides on the new east side just south of George Street and bordered to the east by Lafayette Road. As a result, children and parents have their educational and recreational base close at hand.

With the trend of new residential development extending further to the east of the city limits, it is slowly becoming apparent that this is another new corridor of growth. As a result, traffic within the east, northeast and southeast areas of the city could justify the usage of a new north-south corridor to extend from the far north side of the city and extend to the far south and eventually intersect at or near the Hoosier Heartland Industrial Corridor. This area will be a significant focus later in this report (Refer to Figures 26 and 30).

Existing Traffic Corridors

With Logansport being situated between the Eel and Wabash Rivers, local traffic patterns are currently governed by a network of seven bridges. The Market Street bridge, 3rd Street bridge, 6th Street bridge, and the Davis Street bridge cross the Eel River beginning on the west central portion of the city to the north respectively. Cicott Street bridge, Biddle's Island bridge, and the 18th Street/Morgan Hill bridge convey traffic across the Wabash River from west to east on the southernmost side of the city. As a result, traffic is channeled from the west side through a linear corridor directly through the central business district to a major activity center on the city's east side.

For traffic traveling from the west or northwest extremes of the city, people must cross either the Market Street, 3rd Street, or 6th Street bridge. At this point, the corridor of travel diminishes to one of two eastbound routes either Market Street (US 24 East one-way) or High Street (two-way). Traveling to the east on Market Street requires passage through the heart of the old business district with traffic signals from Third Street to Fifth Street. Broadway (US 24 West one-way) shares the same signalization per street (Refer to Figure 9). Along either route, congestion is evident due to the flow of left and right turns to and from minor collector north/south streets. Beyond this, travel continues at a reasonable posted rate along one-way/eastbound Market Street until 24th Street where two-way traffic is once again encountered. Proceeding easterly for nearly one mile, the congestion is nearly constant due to businesses on either side of US 24 East. Major businesses and secondary driveways (residential) are encountered along the way. The roadway is two-lane/two-way traffic with two 12-foot wide travel lanes with two 10-foot paved auxiliary lanes or shoulders. These auxiliary lanes (shoulders) have become through lanes for traffic making left or right turns to business and residential areas on either side of the roadway. These outer lanes were originally

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intended as shoulders. However, due to the commercial development and increase in corresponding traffic volumes, these now act as turning and passing lanes. The installation of signals at Eastgate Plaza, Cass Plaza, and the Logansport Mall/Walmart tend to control left and right turns but result in disruption of the constant flow of east and westbound traffic on East Market Street (US 24 East) in this area (**Refer to Table 18** for existing roadway and pavement condition).

Access for traffic from the northernmost portion of the city to the east can only be achieved by utilizing the Davis Street bridge at the Eel River. From the Davis Street bridge, on the newly upgraded High Street, traffic can make the journey over to East Market Street (US 24) while bisecting residential areas via the north/south collector routes of West and East Roselawn Drive, Mall Road, or Cass Plaza Drive.

Traffic from the southernmost region of the city remains difficult and confusing for efficient travel to the old downtown business district, or to the new east side of the city. Traffic from the southwest typically travels on the current US 35 bypass to Morgan Hill Road, to 18th Street, to George Street, to Market Street (US 24 East), or Cicott Street to Market. In addition, access to the old business district downtown can be reached from SR 29/329 on Burlington Avenue (3rd Street/SR 29) across the Wabash River via the Biddle's Island bridge crossing to West Market Street. From the south or southeast, traffic must take Morgan Hill Road to 18th Street to George Street and finally to East Market. To travel from the US 35 By-pass (new US 24/Hoosier Heartland Industrial Corridor), Morgan Hill Road to 18th Street is the only north/south bound access over the Wabash River. After crossing the river on 18th Street, two principal routes exist to the east side. Continuing on 18th Street, travel becomes one-way northbound from Jefferson Street, through medium residential to East Market, to Broadway, North Street and High Street. East Market Street would be the desired route to the east side from 18th Street. The most complex alternative to the east side from 18th Street is Jefferson Street to Sunset Drive to Usher Street to Lafayette Drive to George Street thence to East Market US 24 East. Another secondary and effective route is Jefferson to Sunset Drive, on Sunset Drive crossing over George Street to the intersection of East Market/24th Street thence right (east) on US 24 East. But the best alternative is Jefferson Street to Sunset to George Street, then east on George to East Market (US 24 East/East Roselawn). This particular route (**Refer to Figure 17**) requires significant modifications to George Street at the intersection of East Market (US 24 East/East Roselawn) due to westbound traffic on US 24 making signalized left turns on a curve on to George Street. Regardless of the route chosen for travel, the complexities of these routes for travel to the east side from the south side, need to be drastically minimized. In reference to **Figures 18 through 21**, attention has been given to new geometric configurations of this

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intersection that could diminish accident conditions considerably. Alternate future routes need to be determined for travel between the far north region of the city to the east and south side. (See Transportation Network Improvement Plan and **Figures 25 through 30**).

Primarily, US 24 West is two 12-foot asphalt driving lanes with variable 3 to 4 foot gravel shoulders that lead into the western most part of the city up to the intersection of Holland Street. At this point, asphalt paved shoulders appear ranging in width from 4 to 6 feet. From the abandoned Conrail railroad crossing at Cole Lumber Company, to Bates Street, commercial driveways merge into a single paved area from the edge of pavement of US 24, leading up to, and including, numerous business frontages. Existing sidewalks and green space are non-existent throughout this area.

In addition to localized area traffic, US 24 West carries both east and west bound traffic to and from the city's old downtown business district. This section primarily consists of two 12-foot paved driving lanes with aggregate shoulders (**Refer to Table 18** for pavement and roadway statistics). From US 35 North, US 24 West primarily the surrounding areas are industrial, commercial and medium residential. Traffic leading into the downtown area via US 24 West (West Market Street) consists of automobiles and large truck traffic.

Traffic on US 24 West into the downtown area consists of two minor arterial routes. Predominantly traffic is westbound on Broadway, and eastbound on Market Street, with minor collectors radiating north and south. Both routes, including the collectors, act primarily as minor arterial routes for traffic through and away from the central downtown business district, to principal arterial routes to the west (via US 24 West), and east sides (via US 24 East) of the city (**See Figure 2**). In addition, heavy truck traffic is common and contributes to significant congestion in the downtown district. This traffic originates from US 24 east and west, SR 25 north and south, US 35 and SR 17. Truck traffic can commonly be seen throughout any day or evening hour. Truck operators are utilizing these routes simply to get around the city as short cuts to their destinations. These short cuts are encroaching on residential areas on the west and southwest side of the city.

Signalized Intersections

On old US 24 there are currently 12 signalized intersections. **Figure 9** depicts the locations of these signalized intersections. Four signalized intersections exist east of 24th Street, one at 24th Street, at West Roselawn, at the Cass Plaza, and at Wal-Mart. Westbound traffic on East Market encounters both right and left turning

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movements at Wal-Mart – left to enter Wal-Mart on the south side of the road, and a right turning movement to enter the Logansport Mall. Eastbound traffic encounters the same movements. Auxiliary lanes or shoulders act as left and right turn lanes along East Market east and westbound. At Cass Plaza, westbound traffic encounters one lane for through movements and right turns into Cass Plaza. Yet, this auxiliary lane or shoulder is being used as a right turn lane frequently.

Eastbound traffic has a similar lane configuration with one lane for left turn movements and a shoulder used as a passing element. On approach of West Roselawn, two lanes exist for three movements – one for left turn movements into the Eastgate Plaza, one for through traffic, and one for right movements on to West Roselawn. The 24th Street westbound approach has a right turn lane and left turn lane. The eastbound lanes are designated for left turns, right turns and through traffic. In the downtown business district, four remaining signals exist on Broadway at 3rd, 4th, 5th, and 6th Streets. Other signals found in the downtown business district include those on North Street at 4th, 5th, and 6th Streets.

Highway Capacity Software Release 2.1 was used to evaluate these existing signalized intersections under current traffic demands and to determine whether significant delays are being encountered based on the existing traffic. Through the analysis, Cicott Street and West Market reflected an average daily traffic count (A.D.T.) of 28,303 vehicles per day (v.p.d.) entering and leaving the downtown area (Refer to Table 4 and Current Traffic Volumes for definitions). This was apparently one intersection experiencing the greatest level of congestion. Presently, INDOT has developed plans to improve this intersection based upon their own evaluation. By utilizing traffic data, signal phasing, and timing information from INDOT, the level of service (LOS) for traffic entering and leaving the community (Refer to Table 1) for the remaining three signalized intersections east of 24th Street at Wal-Mart (15,021 v.p.d.), at West Roselawn and East Market Street (23,700 v.p.d.), and at 24th Street and East Market Street (24,738 v.p.d.) was determined. Based on the levels of through and local traffic, all were functioning at a LOS of “E”. When the estimated volume of through traffic was removed, the LOS of “E” became “D” at 24th Street, and at West Roselawn, and at Wal-Mart the LOS increased from “D” to a “B”. (Refer to Table 4). Upon evaluation of high density areas downtown, the area of 3rd Street and West Market Street produced a LOS of “D” including through traffic, and became a “B” at a nearby signalized intersection. Intersection delay factors are not utilized in determining LOS classifications for a given area, the LOS for urban collectors and arterials are driven by the volumes at all intersections along that route. This same area of East Market Street (one-way eastbound) produced results two levels higher than expected. Between 1st and 2nd Streets the LOS, again, increased from “E” to “D”, and “D” to “B” on West Market and East Broadway in

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the opposing locations, respectively. Regardless of the volume, the existing signalized intersections in the central downtown area and on the perimeter of these areas indicate traffic moving adequately without significant delays. Cycle times downtown and at other locations appear effective and move traffic sufficiently at off peak hours. In areas where flashers currently exist, the results were nearly the same.

Signalized areas to the east, along East Market near the Logansport Mall, have proven to be a deterrent to uninterrupted traffic flow. These signals have improved safe left turn maneuvers, but have proven to increase the likelihood of rear-end collisions. In reference to the accidents on US 24 East and East Market Street were found to be significantly high. We can only assume the signal placement, current lane striping and layout, and roadway geometry contributed to the causes. Poor planning and random placement of commercial driveways, and the frequency of three-way intersections (**Refer to Figure 10**) in high density traffic areas have perpetuated the current problem. **Table 15 and Figure 10** reflect an uncommonly high placement of these intersection configurations in areas most recently developed over the past twenty years. The city should refrain from approving future developments that incorporate this geometric configuration due to the traffic problems it creates. The older downtown district is not designated as a part of this recent configuration because the city's orientation was determined by the natural barriers of the area. Therefore, these intersections in the older established downtown area are not a contributing factor or a significant dilemma needing attention at this time.

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Natural and Man-made Barriers

The eastern half of the city is surrounded on the north and south sides by two natural barriers: the Eel and Wabash Rivers. Both rivers converge west of the downtown business district imposing a 100-year flood plain throughout downtown and portions of 1st, 2nd, 3rd, and 4th Streets between the rivers including all of Eel River Avenue. In turn the geographic location of Logansport falls within the Wabash River Valley topography, thus significantly affecting the feasibility of additional north/south right-of-way traffic corridors intended to reduce constraints imposed by the rivers.

Traffic flowing to the north and south, or east and west requires at least one of seven river bridge crossings (man-made barriers). Eastbound traffic flowing from the western third of the city can utilize any of four of the seven bridges funneling traffic through the central downtown business district eventually onto US 24 East resulting in considerable traffic delays. The problem is further magnified by traffic from the north and south via the 18th Street/Morgan Hill and Davis Street bridges. The result is a primary eastbound arterial corridor being overloaded due to the traffic influx from the north/south collectors having the same objective of reaching the east-side activity area.

In addition, an unconventional street layout is characteristic of those streets bordering the rivers in the central downtown business district. A consistent north to south, east to west street grid configuration does not exist anywhere throughout the city due to the constraints of the rivers.

Additional man-made barriers encompass three railroads: Norfolk Southern, Conrail and the Logansport Eel River Railroad. The Logansport Eel River Railroad (L.E.R.R.) is a localized short line system headquartered on East Miami Avenue north of downtown. L.E.R.R. has very limited activity and does not impose itself as a traffic barrier for the city. Conrail has a mainline that traverses from the western most part of the city with a railroad river bridge crossing at the Eel River proceeding easterly along the north side of the Wabash River with another railroad river bridge crossing at the Wabash River. At this point, the line proceeds to another at-grade crossing with multiple tracks at 18th Street just south of the 18th Street bridge into a nearly non-existent serving yard. It should be further noted that the condition of the roadway at this crossing requires considerable attention and could significantly impact on any modifications of 18th Street. Due to Conrail's rail line system acquisition, activity has drastically decreased. Conrail does not anticipate any growth in the future to their existing lines or yard in Logansport. The Norfolk Southern Railroad still maintains a mainline entering from the west side of the city along SR 25 West crossing the Wabash River via an elevated bridge overpass at Burlington Avenue and Cicott Street at Biddles Island; thence, continuing easterly with an at-grade crossing north of the 18th Street bridge running parallel along the north side of the Wabash River

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and out of the city towards Peru. It is anticipated that traffic on the Norfolk line will remain constant without any significant future increase in volume that will directly affect vehicular traffic in this study. These barriers can influence a long-term plan, so consideration of these items is critical.

System Safety

In the evaluation of the present traffic system, the city has made a strong effort to create a system incorporating safety issues for vehicular and pedestrian traffic. Pedestrian safety and convenience has been adhered to throughout the current system. Pedestrian walkways, placement of stop bars, handicap ramps, and signage is apparent in the downtown and central corridor areas. Sidewalk replacement is highly recommended throughout the city. West Market Street from Kiesling Avenue to Wilkinson Street is a typical area where sidewalk is non-existent. Pedestrians maneuver between the edge of pavement and buildings in an unlimited array of open, undesignated commercial driveways. Pedestrian safety and protection is marginal within this area. The same conditions exist in other areas of the city: on East Market Street between 24th Street and 26th Street (both sides), on Burlington Avenue between Lux Street and Mildred Street, North Michigan Avenue and Johns Street, SR 25 South and Cicott Street to Cliff Drive, between 17th Street and 18th Street on Jefferson Street (south side), between Water Street, 3rd Street and Richardville Street, and East Market between George Street and Mall Road (south side). These areas are in need of designated sidewalks, striping, ramps, signage, pedestrian barriers or guardrails, and automated pedestrian crosswalk signalization. Separation from vehicular traffic needs to be maintained in any design scheme incorporated to the system. On the east side, it appears new business developments have made efforts to incorporate sidewalks into each new site, yet some developments are behind and do not comply with standards for pedestrian safety. The city should incorporate a program to fully replace, modernize, or construct new sidewalks throughout the entire city, with full enforcement through the building code enforcement division of the city.

With the relinquishment of US 24 through the community, the resurfacing of West and East Market Streets has incorporated the appropriate striping items into the plans based on INDOT standards. The City Street Department and INDOT have sufficiently maintained their designated routes. Some local streets are requiring moderate striping rehabilitation to comply with standards. Areas near school zones: Columbia Middle School on North 3rd Street, Fairview Scholl on South Cicott, Franklin School on Bates Streets, and All Saints School on Wheatland Avenue require more attention and should take precedence at the present time. Parks and recreational areas: Logansport's Municipal Pool between Smead and Wright Streets, Spencer Park on High Street, Fairview Park on Burlington Avenue and Riverside Park require only moderate refurbishment of striping.

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In parks and recreation areas, the separation of bicycle and vehicular traffic is lacking throughout the city. Designating shoulders areas with striping for cyclists on existing roadways and sidewalks should be implemented for public safety. With the location of parks scattered at all corners of the community, reaching these destinations by bicycle could prove risky when encountering vehicular corridors throughout the community. The city should devise plans to exclusively create bicycle paths and pedestrian walkways to minimize vehicular encounters as much as possible. These areas of recreation and other areas of primary activity should be linked and merged together not only for safety concerns but to enhance and provide additional routes for alternative modes of transportation.

Accident Evaluation

In reference to **Tables 7 through 13**, and **Figures 14, 15, and 16**, an evaluation of documentation provided by Logansport Police Department and the Indiana State Police reflects the highest concentration of accidents is located in two principal areas of the city. The highest frequency of right turn maneuvers resulting in rear impact accidents occurred during daylight peak travel hours at 3rd Street, on both Broadway and East Market Streets. The downtown corridor has long been subject to this accident scenario during peak travel times (noon to mid-afternoon). In evaluating of reasons for accidents at this location, it can only be estimated the following are the contributing factors:

- 1) The volume of traffic producing right or left turn maneuvers is uncommonly high for the area.
- 2) Encounters with pedestrians in cross walks.
- 3) The lack of an appropriately designated turning maneuver lane.
- 4) Inadequate signage and striping warning traffic of potentially hazardous traffic maneuvers ahead.
- 5) Inappropriate speed designation for that area.
- 6) Driver error and negligence.

Other areas with a high concentration of vehicle accidents are East Market Street (US 24 East) and Mall Road, East Market Street and Plaza Drive, East Market and 24th Street, West Market and Cicott Street. In nearly all of these areas, left turn maneuvers with front or rear impacts were the predominant reason for numerous accidents. The intersection of West Market and Cicott Street has seen a combination of rear end collisions, right angle maneuvers, left turn maneuvers into oncoming traffic and frequent side impacts. Truck traffic in the area is very common, and maneuverability is marginal for large rigs. In most cases, truck traffic is forced to swing wide into oncoming traffic to effectively clear the turn. This intersection is uncommonly narrow, based on the volume of traffic it currently experiences. INDOT currently has plans in the near future for total reconstruction of this intersection incorporating numerous safety design standards by incorporating safety

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standards for pedestrian and vehicular separation, designating specific turn lanes, increasing lane widths, new signalization and lighting, and additional striping. This should effect a reduction of accidents in this area.

Areas to the east of the city on East Market Street (US 24 East) between George Street and Yorktown Road reflect a high frequency of accidents. We assume the following could be contributing factors:

- 1) Inadequate lane width to handle the volume of traffic at peak hours.
- 2) Improper usage of striping throughout the area.
- 3) Improper usage or designation of shoulders as auxiliary through-lanes
- 4) An uncommonly high number of commercial driveways and turn-outs (Refer to **Table 16**).
- 5) Posted speed limit appears high and/or the posed speed is not sufficiently enforced.
- 6) The high number of three-way intersections in the area creates hazards for people entering the corridor or simply traveling through the area.
- 7) Improper turn maneuvers by drivers and lack of police enforcement.
- 8) Driver error and negligence.

Any combination of these elements can account for the high accident rates now common to this area. Overall geometry is insufficient and needs redesigned to effectively enhance the entire traffic system leading to and from the city. The apparent traffic of this area is continually on the rise, therefore, it is crucial these elements of cause be addressed in the near future. With the relinquishment of US 24 to the City of Logansport from INDOT (**Figure 13**), the modifications to the existing roadway will only incorporate safer striping configurations, better signal timing cycles, and a comfortable ride for travel to and from the city. The overall geometry will remain nearly the same and the volume traffic will remain nearly constant until the Hoosier Heartland Industrial Corridor is opened to the area. With the decrease of vehicular and truck traffic through traffic, wear and tear should diminish, and safety should increase. **Tables 3, 4, and 5 and Figure 12** represent current volumes of traffic in this area.

The data provided in **Tables 7 through 13**, can be utilized by the Street Department, Planning Department, Building Code Enforcement and the Police Department as a reference for evaluating daily operations, standard enforcement code practices, or as a strategic planning tool for other daily operations between departments of the city.

Current Traffic Volumes

Traffic volumes and the time of day the maximum number of vehicles travel through a given area are critical in determining and understanding the functional performance of a

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roadway or traffic network. The parameters for this study were **ADT**: Average Daily Traffic; **PHV**: Peak Hourly Volume; and **LOS**: Level of Service.

The **ADT** (Average Daily Traffic) is the cumulative total of vehicles using a defined section of roadway during a 24-hour time period expressed in vehicles per day.

The **PHV** (Peak Hourly Volume) represents the highest traffic density hour for a given section of roadway. This is a controlling factor in determining the total number of lanes for a new section of roadway and to determining the LOS (Level of Service) for existing roadways (**Refer to Table 32**).

The **LOS** (Level of Service) represents the classification of the serviceability and drive comfort for a defined section of roadway and is a direct function of PHV (Peak Hourly Volume). Roadway conditions are classified by levels A through F. (**Refer to Table 32**). Level A represents no physical restrictions or delays to operating speeds. Level F represents low speed, stop and go driving conditions incorporating poor maneuverability and safety conditions. **Table 1** defines the different levels used to express LOS. A desired condition level is between level A and level F. Initially, INDOT attempts to create roadway designs to establish levels B and levels C as a standard, and level D is the minimum level of acceptance.

Traffic counts from INDOT from 1991 through 1996 were used in the analysis of those areas at the farthest limits of the city for this report. INDOT updates traffic counts per county on the basis of every four to five years. New traffic counts are being made in numerous counties, and Cass County should be fully updated by the year 2000.

This report is comprised of over 285 individual traffic counts throughout the city and county. Over 240 counters were placed in locations approximately 100- to 200-foot distances back from all intersections' stop zones to eliminate false readings or perpetual count results. The placement location for counters duplicated those of a past study by the city in 1991 and 1994. Readings were taken during the school year, for a duration of 24 hours and during a regular week with the exceptions of Monday, Friday, Saturday, and Sunday. The data was downloaded into software to generate only vehicle counts per day per area based on a 24-hour time frame. The results provided data to define the ADT and PHV for each location as reflected in those found in **Tables 2, 3, 4, 5, and 6**. With these results, the LOS was determined using HCM 2.1 Traffic Data software. As the LOS was established per area of roadway, we determined a new LOS over a period for the next five and twenty years. Major and minor arterials were evaluated for traffic leading to and from the city, in addition to traffic entering the network from other counties. Using the primary corridor (US 24) as the central focus, the evaluation was based on "through traffic" and "city traffic" counts by proportioning that traffic entering and leaving the

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study corridor on an average daily basis. **Table 4** represents the assessment of the estimated traffic remaining within the city on an average daily basis. Thence, the potential growth over a period of five to twenty years can be approximated. An average factor of 1.5% growth was used for areas already established (downtown), and 4.0% for those areas on the perimeter of the city. In nearly all situations over time, the data provides a LOS that continually diminishes to a lower level per year as forecasted based on roadway conditions remaining unchanged in the study area. For the next 20 years, it appears the LOS forecast will continue on the decline if roadway and traffic conditions are not modified within that time frame.

Graphs 1 through 34 represent the average daily traffic (ADT) and peak hour volume (PVH) of traffic entering and leaving the city at primary locations throughout the community. Each line on the graph represents the average traffic flow per day entering and leaving the city during the morning, noon and evening drive times. The graphs reflect the traffic leaving or entering the network on a day for day basis. The plotted results do not reflect the traffic final destinations, but, in knowing the approximate location the count was taken, one can assume a specific business or activity center is the primary cause for this daily occurrence. In some instances, that activity center or source could be located in another community out side of the study area. The highest traveled corridor leaving and entering the city can also be determined during any given average middle of the week work day. **Graphs 27 through 34** represent activity around the Logansport Municipal Airport and the Logan-Cass Industrial Park south of the city. It appears activity is high between 7 AM and 8 AM in the morning for traffic going out to that area, and mid- to late- afternoon for traffic coming back into the city. It is assumed that the Industrial Park labor force is responsible for some activity as reflected on the graph. By comparing the same line between two graphs (**Graphs 2 and 3**) within proximity of one another, a consistent pattern appears. This tool reflects areas of repeated activities that occur nearly every day within a designated area at a specific time.

An evaluation of the community reveals traffic counts on the increase over a period of nearly ten years. Traffic counts from INDOT's 1992 Highway Traffic Statistics manual reveals an average growth of 0.5% to 1.0% per year. The high volume of traffic produced by the traffic counts justify the deteriorating pavement conditions of the roadways so commonly visible throughout the community. The areas showing significant deterioration and producing the highest counts were the following locations:

- 1) East Market Street (US 24 East) and East Roselawn Drive (30,862 v.p.d.)
- 2) West Market Street (US 24 West) and Cicott Street (28,303 v.p.d.)
- 3) Broadway (US 24 westbound) and 4th Street (Downtown) (25,029 v.p.d.)
- 4) East Market Street (US 24 East) and 24th Street (24,738 v.p.d.)
- 5) East Market Street (US 24 East) and West Roselawn Drive (23,700 v.p.d.)

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As a result of these counts in these areas, the LOS is usually a level “E” or “F” (Refer to **Table 1** for LOS definitions). Areas on the perimeter or close to these areas reflect levels on the average of a “C”. To further evaluate the existing roadway conditions of these areas, refer to **Tables 15 through 31**. **Figure 5** illustrates traffic counts, and the LOS for traffic remaining close or within the downtown corridor.

With the individual counts, traffic volumes, and graphs, a level of service (LOS) for any specified facility can be determined, and then later used to create a specific design tailored for each area's need. East component of the entire network should ultimately utilize this approach in designing future roadways.

Current Levels of Service

Tables 3, 4, 5, and 6 reflect the results of LOS calculations for the entire community and Cass County. As previously discussed, it is apparent that the present LOS will deteriorate over time should conditions remain the same. Areas currently of a level of “E” and “F” require immediate attention, and should take precedence above other areas. Regardless of the fact that the Hoosier Heartland Industrial Corridor will be opening within the near future, and through traffic to the city could diminish, the rate of roadway deterioration will continue, and traffic safety will soon become a predominant issue. The assessment stipulates concern not only for the central artery to and from downtown, but for numerous collector and local streets radiating outward in all directions. Roadway conditions on 17th and 18th Streets are examples of a transportation system that appears to be failing in respect to time. The 18th Street minor collector (**Figure 2**) is further described in this report under section: Summary of Current Transportation Deficiencies. This collector could provide sufficient access to and from the central portion of the primary corridor of the city. The recent renovation of High Street has a LOS of “B” and “C”. Ideally, the following primary collectors, should be at and maintain a level “C” or greater for the system to work effectively.

- 1) Burlington Avenue to 3rd Street (C)
- 2) 3rd Street north to SR 17 North (C)
- 3) 17th Street from High Street to Jefferson Street (B)
- 4) Main Street to 18th Street (C)
- 5) US 24 West (West Market Street) from Holland Street to Cicott Street (E)
- 6) Bates Street to West Miami to 3rd Street (C to A)

The above levels of service (LOS) reflect a characteristic worth noting. The current volume in any given area strongly reflects the LOS value generated. The higher the density (volume) in one area usually reflects a lower LOS. As the density (volume) increases in one given area at one given time, the distance between vehicles diminishes

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greatly, decreasing the response time for maneuvers, decreasing the stopping distances between vehicles, thus producing unstable traffic flow, and forcing traffic to travel at very low speeds to maintain any margin of safety. In some situations, an area adjacent to high volume areas can produce optimum LOS results. In **Table 4**, counter 3E-Cicott-1N/S produced a LOS of “D” while counter 4E-Cicott-1N/S reflected a LOS of “B” approximately four blocks to the north (135 feet north of West Market Street).

The results of the traffic counts for this area reveals the second highest volume of traffic in any one given area of the city. Regardless of the locations of either counter to the intersection, and the discrepancy of the LOS per location, the LOS reflects the beginning and the end of two separate corridors or study areas. The proximity of the intersection is of little regard in determining the LOS for any area or corridor. Therefore, depending upon the location of the counter and the amount of usage of that roadway during any one given time, the results between two counters in a close proximity can reflect higher or lower than expected results. In general, the results of the levels of service on the far west side of the city on US 24 West (West Market Street), the downtown area at 3rd, 4th, and 6th Streets on East Market Street and East Broadway, the fastest growing area of the city; the far east side on East Market Street between 24th Street, and Yorktown Road were what was anticipated. The levels of service produced were predominantly from “D” to “F”. As a result, those areas reflecting a LOS of “D” are considered sufficient for immediate concern. Those areas showing a lesser value should be considered for further evaluation.

Roadway and Pavement Conditions

In reference to **Tables 17 through 31**, each roadway and its condition was evaluated and tabulated within given areas of the city where traffic counts were taken. With these evaluated conditions, each roadway can be prioritized and categorized into an immediate, 5-year, and a 20-year plan of action. Numerous areas reflected “shoving” characteristics, alligator cracking, transverse and longitudinal cracks, rutting, edge deterioration and raveling. It appears the road surfaces are failing and breaking down in numerous places (i.e., East Broadway (US 24 East) from 24th Street to Eel River Bridge at West Market Street) due to excessive loading. Truck traffic can be a large factor producing shoving and rutting of pavement due to stopping, starting, and braking. With the eventual opening of the Hoosier Heartland Industrial Corridor, a large number of trucks could potentially find other routes resulting less wear and tear on a vast array of streets and roads.

The roads reflecting considerable wear and requiring attention are the following:

- 1) East Market Street (US 24 East) from 24th Street to Yorktown Road
- 2) East Broadway (US 24 East) from 24th Street to the Eel River Bridge
- 3) East Market Street from Eel River Bridge to 24th Street

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- 4) US 24 West (West Market Street) at Cicott Street to Eel River Bridge
- 5) US 24 West from Kiesling Road to Linden Avenue
- 6) 17th Street from High Street to Jefferson Street
- 7) 18th Street from Jefferson Street to High Street
- 8) George Street Intersection at East Market and East Roselawn Drive
- 9) 3rd Street from Broadway to Water Street
- 10) High Street from between 23rd and 24th Streets to 3rd Street

It should be noted that the relinquishment of US 24 will rectify most of those listed above through the city, but only on a phase-per-phase basis. This list reflects the evaluation of those streets and roadways needing attention involving factors as roadway surface and base, striping, sidewalks, lighting, drainage, and overall geometric configurations.

Right-of-way

The existing right-of-way for US 24 and streets throughout the City of Logansport varies in width. On Broadway and Market Street from Eel River Avenue to 24th Street, the right-of-way is from 65 feet to 75 feet wide. East of 24th Street to the east corporate limits, the right-of-way width for US 24 is 60 feet. This 60-foot right-of-way was purchased in 1927 when the State of Indiana State Highway Commission reconstructed the gravel Logansport-Peru Road, now the present-day US Route 24. Since then, US 24 and the surrounding area has changed drastically. The roadway was widened and paved shoulders were added. These shoulders are currently being used as passing lanes. The surrounding local streets and roads throughout the city reflect a varying width from 60 feet to 75 feet in width. What was once rural farmland with dense thickets throughout this area is now an urban area with multiple commercial developments, hotels, malls, and restaurants. As the result of the development coupled with limited right-of-way, the US 24 corridor, in addition to most north and south minor arteries of the city, has become a narrow and congested area. The city should be fully aware that most right-of-way to the east of the city near the Logansport Mall is nearly acquired, making the availability of additional right-of-way for a potential north-south corridor nearly impossible. The city needs to investigate any land availability within the eastern US 24 corridor as soon as possible before this area becomes land-locked for roadway development to the south.

Bridge Structures

Table 17 is an evaluation of the existing bridges in the city and surrounding community. The structural integrity of each bridge was not determined for this study. An evaluation of each bridge shows that most of the structures have been reconstructed or refurbished within approximately the last twenty years or so. Roadway width for each structure was sufficient, yet width to potentially accommodate bicycle throughways was questionable.

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Therefore, interaction with pedestrians could become a problem. Barrier protection separating pedestrians and vehicles was very good. Guardrail and end treatments appear to be in good condition and up to current standards. The pavement surfaces required some to be in good condition and up to current standards. The pavement surfaces required some resurfacing, but nothing of a severe condition existed. Pavement on approaches needs resurfacing or patching possibly due to standing or excessive water not entering drainage devices. Stripping and using pavement reflectors could be enhanced on each bridge.

Drainage devices should be cleaned and maintained, especially during the fall and winter season to promote positive drainage off each structure to prevent pavement deterioration, and as a safety precaution during the seasons of rain and snow. Overall condition of each bridge appeared quite satisfactory.

INDOT Relinquishment Plan

INDOT is currently negotiating with the City of Logansport the final relinquishment cost for a project that would mill and resurface the current US 24 corridor which extends from the far west side of the city through downtown, to the far east side of the city. INDOT is scheduled to mill 1 ½ inches of existing asphalt pavement from curb to curb or shoulder to shoulder and then resurface US 24 with 1 ½ inches of new asphalt surface. New pavement markings will be placed after resurface is applied. Areas with existing wide paved shoulders currently being used for turning, acceleration, deceleration and passing lanes will not be included for major modification in this relinquishment plan. (Refer to **Figure 13**).

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- SUMMARY OF CURRENT TRANSPORTATION NETWORK DEFICIENCIES AND SUGGESTED DESIGN ALTERNATIVES -

Traffic Deficiencies

As mentioned earlier, the roadway system on the city's far east side is at a crucial point where traffic safety is becoming severely restricted throughout and along East Market Street from 24th Street to Yorktown Road. The overall geometry and lane configurations are out-dated: significant redesign and reconstruction should be considered. All aspects of highway design (pavement design, signalization, striping, pedestrian and bicycle travel ways, lighting and geometry) need total consideration to produce a transportation system to safely and effectively move vehicles and pedestrians from one area to another.

The following represent those areas of congestion and deficiencies that require corrective measures and strong considerations by City representatives for incorporation into a final comprehensive plan for the future:

1) **6th Street at East Market Street** This intersection contributes to a significant amount of congestion for those vehicles traveling east on East Market Street and attempting to travel northbound on 6th Street. Likewise, vehicles attempting to turn left from 6th Street to East Market Street are encountering delays due to congestion of traffic performing left-hand turns onto 6th Street. This area is a favorite route for trucks; and, therefore, impacts the situation. The intersection is sufficient in width and geometry, but signalization and striping is definitely questionable. Trucks attempting left-turn maneuvers usually overshoot or swing uncommonly wide to negotiate an effective turn. In addition, the intersection is uphill and on an incline, making trucks carrying loads a slower than normal maneuver. It is suggested to remark and stripe 6th Street further back and to the north, and possibly restripe the left-lane of eastbound East Market Street as a left turn lane only, or install an automatic signal timed to the existing signal at the bottom of the hill at 5th Street with the hopes of releasing and reducing traffic on 6th Street at a more frequent rate.

2) **3rd, 4th, and 5th Street between East Market Street to High Street**

These areas are subject to high volume of traffic on a daily basis. Accidents frequently occur due to the traffic density in this area. (Refer to Figures 14, 15, and 16). The problems appear to be a combination of insufficient signal time for all movements, striping and lane designations, intersections geometry and turning radii, pedestrian interaction, and improper driving maneuvers, driver error or negligence. These areas could utilize geometric reconfiguration (radii adjustments), but space is marginal to totally redesign each intersection to

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accommodate more efficient turning maneuvers. All three intersections could benefit from striping and designating specific turn-only lanes, in addition to re-sequencing signals or increasing the timing cycles for the main thoroughfare traffic. All areas within the community, including the downtown area, will see a decrease in through-traffic volume when the Hoosier Heartland Industrial Corridor is opened to the public. The result should reduce some congestion for the area.

3) **West Market Street and Cicott Street** This intersection was discussed in an earlier section as one being scheduled for total refurbishment in the near future by INDOT. This intersection has numerous issues that the design should compensate for. As a result of the heavy volume of vehicular traffic per day, this intersection will require significant geometry and radii modifications for any future design. Re-striping and re-configuration turning lanes, signalization, and street lighting should be included in the new design and construction. Truck traffic has contributed to the present rutting, shoving, and overall deterioration of pavement in this area. INDOT's new pavement and base construction should resolve the current traffic-loading problem.

4) **18th Street from Pottawatomie Road to Jefferson Street** This section of roadway has numerous deficiencies that could be hampering the potential for an effective north-south corridor to and from the city's south side. An observation of 18th Street reveals that growth along 18th Street is nearly non-existent. To provide a traffic corridor that would accommodate sufficient through traffic to enhance a growth trend in this area would require the following obstacles to be overcome:

- a. The existing 18th Street bridge crossing the Wabash River has travel lanes on either side with an average width of only 20 to 22 feet and no evidence of existing shoulders. Lane width expansion could prove costly and may require a new bridge structure.
- b. To the north, the Norfolk Southern railroad has a crossing with undesirable approach grades on either side of the tracks. This would require substantial reconstruction to achieve the required and desirable results.
- c. To the south on 18th Street between Pottawatomie Road and the intersection of SR 435, the abandoned railroad service yard occupies substantial property. For road development to occur, additional right-of-way would be essential, thus requiring substantial negotiations with the railroad for the relinquishment of that additional right-of-way.

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d. Available right-of-way is severely restricted on the west and east sides of the roadway due to a commercial railroad “rail-car” service facility on the west side, private businesses, and a residential (Panhandle Addition) community on the east side.

e. On the north side of the Norfolk Southern crossing between Jefferson Street and the crossing, significant road widening, approach reconstruction and utility relocation would be required along this section of 18th Street. Again, any additional right-of-way required would encroach and severely affect private businesses and residents in that area.

f. Due to the existing geotechnical conditions of heavy limestone deposits throughout and along the area of 18th Street, the cost for any new or relocated utilities could be directly effected as a result of these existing geotechnical conditions of the area.

Eventually, due to the right-of-way limitations and encroachment into the surrounding community, the attributes of the existing bridge, the undesirable approach grades at the Norfolk Southern railroad crossing, and the extensive right-of-way the railroad occupies along 18th Street, this area has severe limitations that need to be overcome before development could occur in this area. Therefore, due to these limitations, the feasibility to accommodate future road widening to cultivate significant growth could be substantially high and not cost effective.

Truck Routes

The Hoosier Heartland Industrial Corridor has helped reduce truck traffic through the City of Logansport, however, truck traffic remains a problem. SR 25, SR 17, and SR 29 still enter the city. Businesses receiving and shipping products via truck are located throughout the city. Truck traffic on residential streets and other thoroughfares with poor geometry are a recognized problem. Establishing new exclusive truck routes or a bypass in a few locations throughout the city has been discussed. An old abandoned railroad right-of-way to the north and east of Cole Hardwood extending to Michigan Avenue would help reroute traffic from downtown to SR 17 North and SR 25 North, eliminating intrusion to the downtown area. This plan has had wide support from some businesses located along the proposed corridor. In the alternative the city should consider more actively restricting trucks on certain routes or exploring other dedicated truck routes.

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Three-way Intersections

The current transportation system is plagued with an unusually high amount of 3-way and skewed intersections. **Figure 10** represents the location of those in commercial and residential developments throughout the city. The existence of these is now very hard to overcome, but future developments should refrain from using this configuration due to the potential traffic hazards that usually develop. At the current level of placement, continual rehabilitation of striping, signage and signalization can reduce or restrict some potential hazards in these areas. A frequently used corrective measure would be to utilize a common frontage road, drive or lane for multiple businesses and other developments. This practice is most effective and common to group areas having fast food or other commercial businesses together with one specified point of ingress and egress. Businesses like those residing on the far east side along East Market Street, and those on either side of West Market Street near Linden Avenue would be prime candidates for this configuration. The strongest objection from business owners is property and right-of-way acquisition, and the desire to have individual freedom of access to and from their establishment. In the future, building and code enforcement should be strictly upheld for any new development.

One-way Streets

Figure 11 illustrates the one-way streets throughout the community at the present time. Currently, these streets appear to be working throughout the community and an accepted characteristic of the traffic system in Logansport. The sporadic or random placement of one-way streets could be impeding effective and free flowing traffic throughout the city. The Hoosier Heartland Industrial Corridor should decrease traffic throughout the community. The number of one-way streets could be reduced significantly by redesigning current streets to two-way traffic. The following roadways are capable to safely carry traffic in opposing directions: 18th Street, George Street, (the entire length), North Street, 5th Street, Bates Street, Wheatland Avenue, Front Street, and Linden Avenue. As a result, traffic flow would greatly increase in all directions for easier access to the primary corridors throughout the city.

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- FUTURE DEMANDS ON THE TRANSPORTATION NETWORK -

Through the effort of this report, existing corridors within the central district and the city limits could be revitalized to ultimately stimulate and generate new business development. A determining factor in the success of numerous communities can stem from an efficient road infrastructure. Presently, the congestive nature of downtown could be a deterrent to stimulate growth. By referring to **Figure 8**, the two primary activity districts for the community are illustrated. To effectively revitalize Logansport, both areas need to work as one unit. The congestive nature of streets in between both areas restrict the necessary interaction. With the relinquishment of US 24, a third activity region should arise on the south and southeast quadrant of the city, and ultimately cultivate business and residential development. Therefore, existing roadway traffic conditions and other infrastructure barriers need to be eliminated for these areas to effectively interact together.

Zoning Maps and the Future

In reference to **Figures 7 and 8**, after opening of the Hoosier Heartland Industrial Corridor, the strongest potential for growth in Logansport and central Cass County primarily exists in that area south of and along the Hoosier Heartland Industrial Corridor. The resources needed to encourage growth (utilities and other city services) beyond the limits shown in **Figure 7 and 8** have been stretched beyond current demand. Areas to the south and west are currently in need of expansion beyond the present limits. On US 24 West near Cole Hardwoods and further west, utilities required for potential growth have exceeded the system's demand. Forest Hill Home Park and The Boulders are within a short distance but have fallen victim to being outside the system's limits. To the north, east and northeast, in areas zoned predominantly as residential, the pace of development in these areas is exceeding the city's ability to annex these areas for utility expansion; yet growth continues on. Davis Road, Chase Road, and Perrysburg Road could be potential candidates for utility and other city services expansion as a result of the current demand of real estate in these areas. To the south, these resources have again been pushed to their limits. Construction currently underway along the US 35 bypass has incorporated some new utilities for the southern area of the city. These will prove to be essential for any additional growth to move further southward. Those areas bordering 18th Street, the Wabash River, and South River Road or Panhandle Addition are prime candidates for revitalization to the community. In referring to the existing land use map (**Figure 7**), this area is predominantly zoned agricultural and industrial. The shortcomings, (as earlier described in the section "Summary of Current Transportation Network Deficiencies") of right-of-way availability, the geotechnical conditions, and the low assessed valuation for the area could prove unfeasible for utility expansion beyond their current limits. With the opening of the Hoosier Heartland Industrial Corridor, the potential for land values to

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grow is very high. The area bordering the Wabash River, and along South River Road could prove to be attractive to some developers. As a result, should development occur, the utilities and other essential services could make annexation more feasible to the city, and eventually pay for themselves.

Therefore, for growth to occur beyond the existing limits as shown in **Figure 7**, a significant base of the city's resources, and utilities will be essential to further stimulate the rate of growth. As more infrastructure becomes available, so will the growth. The city should continue all efforts through the process of utility annexation or special funding to achieve those resources necessary to further stimulate community growth.

Potential Business and Residential Growth

It is anticipated with the opening of the Hoosier Heartland Industrial Corridor (**Figure 12**), the volume of traffic leading to and from the city should be somewhat lower than the current levels. In referring **Tables 3 and 4**, over a 5- to 20-year period of time, we can only assume the volume of inbound (city) traffic on the central corridor to the city will be only 40% of its current capacity. Growth could exceed 1.5% for areas within the downtown urban area and 4.0% growth per year for areas bordering and outside the present city limits. This growth is reflected in our forecast over a 5- and 20-year time period. The results should be visible in the eastern, western and downtown areas of the city. Areas commonly subject to congestion due to through-traffic may see a decrease in volume and the level of service (LOS) per street or road should increase to a higher level.

This evaluation reaffirms the assumption that residential and business growth in the community will remain nearly the same at the current levels and continue for the next few years. The potential for new business coming to the area, and fueling expansion of every sector of the community still remains in question. The south side of the city has the greatest potential for business and industrial expansion. As mentioned earlier, the Industrial Park and the Municipal Airport to the south are currently expanding at a healthy rate. The opening of the Hoosier Heartland Industrial Corridor should stimulate new business development along and on either side of the new corridor. The only dilemma could be availability of utilities and other services to the area. The city is making every effort to extend utilities further outside their present limits to make this area more attractive to potential commercial clients.

The community needs to consider eliminating as many obstacles as possible in the transportation infrastructure for access to the potentially high growth south side from the north and east sides of the city. Included are some scenarios for capturing as much traffic from the north and east side of the city (**Refer to Figures 26 through 30**). Preferably, **Option "A"** in **Figures 26** or **Figure 30** could prove to be the most effective approach to

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opening up a new North/South corridor. The construction of a new route through the east and southeast side of the city from the north has the potential for residential and small business development around its path. Access to the city's east side from the south for truck and delivery traffic would be effortless, should such a route exist. As a result, communities with business and residential developments with proximity to limited access expressways have prospered significantly by resource planning and foreseeing potential areas for development into the future. Should Logansport elect to establish a north/south corridor, traffic from the Hoosier Heartland Industrial Corridor could open new avenues of development from the south to the north further fueling growth on the city's north, east, and south sides. Hotel developments prove to be potential clients near expressways as seen in the nearby community of Peru at the intersection of US 31 and US 31 Business Route on the city's far southwest side. The L & K Motor Lodge and a new Best Western Motel now occupy opposing sides of US 31 leading into downtown. Therefore, it is strongly recommended that a new arterial route be developed to further enhance development from the north to the south sides of the city. (Refer to Figures 26 and 30).

The proposed corridor would begin north of the city at Perrysburg Road and CR 300 East extending south with a bridge crossing over the Eel River and intersecting with Mall Road. Mall Road would require widening and pavement reconstruction as a result of this extension. **Figure 30** designates the southern route to be established to the east of Wal-Mart beginning at a parcel and structure once occupied by Ralph David's Electric and Lighting Company. The route would extend in a southward direction along an existing service easement leading to and around the east side of an existing radio tower, thence proceeding south over unoccupied undulating terrain, thence continuing further south eventually crossing over the Norfolk Southern Railroad Lines and Pottawatomie Road. The route would continue southward crossing the Wabash River terminating at CR 325 East just north of the Hoosier Heartland Industrial Corridor. The selected route was determined based on the potential availability of right-of-way and utilizing what is considered undevelopable terrain. The availability of accessible right-of-way from US 24 East is becoming very limited and a critical issue. Should commercial development continue at the current rate of expansion on US 24 East, all points of access for the southern extension of this route will be non-existent in the near future. It is strongly suggested that the city's planner investigates and analyzes any options for the availability of this parcel or an equivalent parcel if at all available.

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- IMPACTS OF RECOMMENDED IMPROVEMENTS -

With the recommendations given for those areas defined as deficient, the entire transportation network will be enhanced, and will produce a system that is safer, less congested, moving people more efficiently than in the past. The current system jeopardizes safety and accessibility by forcing traffic to utilize inadequate alternate routes and short cuts. These suggestions should provide a system that the city, and the entire community can work with, and not against.

The construction of curb and gutter, storm drainage, and pavement reconstruction will provide a roadway system with positive drainage. During the winter and spring seasons, it is essential that roadways drain efficiently to prevent future deterioration of pavement and base construction. Sidewalks, bicycle paths, street lighting, pavement striping and signalization will introduce a greater margin of safety and accessibility for those choosing alternate modes of transportation.

The increased widening, better lane delineation, pavement striping, enhanced signalization, and traffic enforcement of existing streets within the current system will reduce the frequency of accidents that occur in the those areas where the potential is currently uncommonly high.

If the recommendations in this report are instituted within the given time parameters, the current system will be transformed to represent an effective means of moving throughout the community without delays, or congestion, and with safety. The city will be paving an avenue of economic growth in all directions that will ultimately effect all sectors of the entire community.

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- TRANSPORTATION NETWORK IMPROVEMENT PLAN -

This section of the plan provides recommendations for transportation system improvements. Recommendations are prioritized in terms of five-year, ten-year, or twenty-year time frames. The five-year category indicates areas that have conditions warranting urgent attention for the community's transportation network to function effectively. The ten-year category represents areas of concern that should be addressed after the five-year and may become critical approaching a ten-year time horizon. The twenty-year category is an assumption and is based upon actions taken by the city and county to address all areas having deficiencies of the transportation network and issues of pedestrian safety established earlier in the report.

Some of the recommendations in this report, especially those dealing with streets and roads intersecting the Hoosier Heartland Industrial Corridor (HHIC) from Holland Street/Kokomo Pike west to CR 125 West, are from a report titled "Logansport/Cass County, Indiana Corridor Area Circulation Study", prepared by DLZ Indiana, LLC.

The recommendations for projects around the SR 25 portion of the Hoosier Heartland Industrial Corridor are dependent upon the schedule of construction for the new highway portion. Those improvements are given a delayed recommendation to attempt to factor in the anticipated delay in construction. See the actual DLZ report for a more detailed explanation of projects around the HHIC. Also contained in the DLZ report are explanations for not recommending public expenditure for an alternative entrance to the meat packing plant or improvements to CR 250 South and CR 300 South within the planning horizon at this time.

The back-up data from the DLZ Circulation Study and the Bonar, City of Logansport Thoroughfare Plan are available in the Offices of the Logansport/Cass County Plan Commission, Room 314, 200 Court Park, Logansport, Indiana.

The Bicycle/Pedestrian Trail Plan has its own internal three tiered hierarchy and is listed at the end of the recommendations in the Transportation Network Improvement Plan.

Five-year Plan

1) East Market Street

With the completion of East Market Street from 24th Street to Grandview Drive and West Market Street from Cicott Street to Bates Streets, the city needs to address the middle portion of that which was formerly US 24 and relinquished to the city. US 24 now bypasses the city, but Market Street still functions as a minor

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arterial, as it did before relinquishment. Improvements to Market Street should include the following:

- * Reconstruction of the street with new base and deep strength asphalt.
- * New sidewalk as warranted.
- * New storm sewers to enhance storm water runoff and eliminate future pavement deterioration.
- * New concrete curb and gutter.
- * New and revised signalization at existing locations.
- * Pavement markings.
- * Seeding and sodding.

2) **East Broadway**

With the completion of East Market Street from 24th Street to Grandview Drive and West Market Street from Cicott Street to Bates Streets, the city needs to address the middle portion of that which was formerly US 24 and relinquished to the city. US 24 now bypasses the city, but Broadway still functions as a minor arterial, as it did before relinquishment. Improvements to Broadway should include the following:

- * Reconstruction of the street with new base and deep strength asphalt.
- * New sidewalk as warranted.
- * New storm sewers to enhance storm water runoff and eliminate future pavement deterioration.
- * New concrete curb and gutter.
- * New and revised signalization at existing locations.
- * Pavement markings.
- * Seeding and sodding.

3) **North-South Corridor Expansion**

The city and county should pursue completion of a new north-south corridor. The north-south corridor is an important part of the overall plan. This corridor is intended to carry traffic from the industrially developed south side and the projected commercial/industrial growth area of the Hoosier Heartland Industrial Corridor (HHIC) to the commercial district on the east end of the City of Logansport. The HHIC is expected to bring industry and commercial development along and around the corridor. This, in turn, will cause an increase in vehicular traffic as vehicles travel from the anticipated new areas of development along the HHIC to residential and other areas within the City of Logansport. At this time, access from areas south of the Wabash River to Logansport are attained with bridges at the following locations:

- * 18th Street

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- * 3rd Street
- * Cicott Street
- * SR 35

These bridges are sufficient for carrying traffic from south of Logansport to downtown Logansport. Unfortunately, there is no direct link to the east side of Logansport, which is the city's leading commercial and education centers. The nearest bridge link is at 18th Street, which leads traffic into a high-density residential area before depositing it onto Market Street. With the completion of the Hoosier Heartland Industrial Corridor a significant increase in vehicular traffic along 18th Street is anticipated. The construction of a north-south corridor in the vicinity of Mall Road or Yorktown Road, or as far east as Pottawatomie Road, would improve access and alleviate this through traffic. It is recommended that a corridor study and final alignment of the proposed north-south corridor be completed.

4) Airport Extension/CR 50 East Realignment

The roads around the area of Logansport Municipal Airport, principally CR 50 East (Kokomo Pike) is an element of the Thoroughfare Plan that received much interest. The Airport Board is currently working towards a new Airport Layout Plan that anticipates a higher level of air traffic and service into the county, which should contribute to the overall business growth for the community. The Airport Board has identified on their capital improvement plan an extension of the existing runway to create a 5000-foot length runway that extends further to the east and crossing CR 50 East (Kokomo Pike). As a result, a realignment of CR 50 East (Kokomo Pike) would be necessary to accommodate traffic presently traveling north and south. The proposed extension would interfere with the present right-of-way for CR 50 East. This plan supports the Airport Board's intention to provide a runaround route around the east end of the runway when their plan is formally revised. The rural traffic counts for this area are counters 44 E, 45E, 46E, and 47E as represented in Figure 6 and on Table 3. Based on the traffic currently traveling on CR 50 East (Kokomo Pike), the A.D.T.'s collected reflect an estimated LOS (level of service) to be at a level "A" (which indicates minimal to no delays or disruptions of current traffic flow into this area). At this time, this study does not have enough traffic data or counts to accurately determine and forecast the current impact the Airport has on the community. With the road project incorporated into the airport plans, funding for the road could be done through a procedure that may allow construction to be on a 5% local match basis.

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5) 3rd, 4th, 5th, and 6th Street on East Broadway and East Market Street

To decrease the rate of accidents in the downtown area, the city should rehabilitate and revise striping in designated right and left turn lanes approaching these intersections. East Market and East Broadway from 6th Street to Cicott Street are currently INDOT routes. Therefore, signalization, signage, and striping are their responsibility unless these routes are relinquished. The police department should make all attempts to enforce speeding and moving violations in this area. At the present time, every effort should be made to reduce potential causes for accidents in these areas.

The needed improvements for the intersections of 6th and Market Street and 6th and Broadway are included in the section on Traffic Deficiencies. Improvements are needed at these intersections due to the truck traffic from SR 25 North. The truck traffic has increased downtown traffic delays at each intersection due to the attempted 90 degree turn maneuvers by large vehicles, producing higher than normal incidents of accidents. Restricting truck traffic to and from the downtown area is not possible. Therefore, enhancements such as striping, lane widening, signalization and signage should reduce the accident frequency at these locations. INDOT participation with the city is recommended when the Market Street and Broadway modifications are planned incorporating greater safety standards regarding truck-turning maneuvers at these locations.

INDOT has already planned and scheduled an improved intersection on SR 25 at West Market Street and Cicott Street in Logansport.

6) The Area-wide 1992 Thoroughfare Improvement Plan (Part 1)

Figures 32 and 33 represent those areas that were selected in a study completed in 1992 by Bonar Group that categorized areas where significant modifications to the existing thoroughfare need attention. Two of these areas have been implemented, and the construction, drainage, pavement markings, guardrails, railroad crossings, driveway and approach reconstruction, and utility reconstruction. These projects are subject to funding availability and, therefore, cannot be accomplished all together at the same time. Each will be completed based on priority of importance over the next several years. The following should be implemented at this time: Continue 17th Street reconstruction and begin 18th Street. (Refer to **Appendix: Item 1** for cost breakdown of these areas from the Bonar Group 1992 Thoroughfare Report).

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Ten-year Plan

1) **Continuation of Hoosier Heartland Industrial Corridor, SR 25 Portion**
Engineering and property acquisition for this project should begin within the five-year horizon. Construction should begin within the ten-year plan (5 to 10 years). The current terminus of the Hoosier Heartland Industrial Corridor (HHIC) is at the point where US 24 and US 35 intersect with SR 29. Presnell Associates has been developing the Environmental Impact Study to determine the actual route of the SR 25 portion of the project. As of this writing the final record of decision has not been announced regarding the route. Throughout the process numerous public hearings have been held to generate public awareness and to determine public preference. Many possible routes were considered. A number of routes were subsequently eliminated as being undesirable due to established review criteria. Of the final routes under consideration in the report titled "Presnell Associates Preliminary Analysis Report", the one that is labeled Y-L was generally preferred by the public and also had the support of elected officials. See **Figure 34** for location of the preferred route.

As a result of public hearings and workshops, city and county officials have advocated to the consultant and to the Indiana Department of Transportation seventeen points they would like to see included in the project. These recommendations are based upon the consultants Preliminary Alternatives Analysis Report.

- 1) The Y-L (yellow-line) alternative crossing over the rail line and continuing along the north side of the railroad tracks through Cass County best meets the needs of the community particularly from safety and economic development standpoints.
- 2) Consideration to traffic safety might dictate that a structure over the HHIC with a merging slip-ramp near the easternmost point of the new segment be provided for a free-flow movement of US 24/US 35 eastbound traffic. The currently proposed design provides a 90-degree at-grade intersection forcing the high volume movement of US 24/US 35 eastbound traffic to stop and cross two lanes of fast moving traffic on the HHIC.
- 3) An off-ramp will be required for free-flowing US 24/US 35 westbound traffic near the project terminus.
- 4) CR 50 East (Kokomo Pike) must be grade separated from the HHIC with adequate width to accommodate future expansion.
- 5) A grade separated, compact, urban interchange is required at the intersection of Burlington Avenue and the HHIC with free flow on the HHIC and minimum delay on Burlington Avenue. There are a large number of movements that will be forced through this intersection (please see

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attached table) and minimum delay is mandatory. This interchange will be the main entrance to the City of Logansport and must support proper signage for the area.

- 6) SR 29 and the HHIC must be grade separated with adequate width to accommodate future expansion.
- 7) If possible, the HHIC should travel further southwest from Wilson Road to avoid the proposed reconfiguration of CR 125 West and Wilson Road.
- 8) The proposed cul-de-sac at CR 175 West is acceptable.
- 9) There must be an at-grade 90-degree intersection on the north side of the railroad tracks as the HHIC reconnects to existing SR 25.
- 10) The proposed design with an at-grade crossing at CR 300 South/CR 275 West is acceptable.
- 11) The proposed grade separated crossing at CR 325 West is acceptable.
- 12) The proposed elimination of rail spur servicing the Anderson's is retained for area businesses.
- 13) The proposed cul-de-sac of existing SR 25 at the entrance drive to Emy's Fertilizer/Clymers is acceptable.
- 14) The proposed grade separated crossing at CR 400 West is acceptable.
- 15) The proposed at-grade crossing at CR 400 South is acceptable.
- 16) The proposed at-grade crossing at CR 500 West is acceptable.
- 17) The proposed cul-de-sac at CR 500 is acceptable.

2) High Street between 3rd and 24th Street

The city should proceed forward with the second phase and remaining portion of the High Street roadway reconstruction project from 23rd Street to 3rd Street. Opening of the first phase has proven to be very successful and an effective means of entering the downtown area safely and with comfort. The roadway widening, drainage, and the new curb-mounted safety barrier are typical of items that should be improved throughout the entire community.

3) Mall Road Bridge Extension to CR 300 East and Perrysburg Road

An extension should be developed of a northern corridor from Perrysburg Road at CR 300 East crossing the Eel River and tying directly into Mall Road. With minor reconstruction to Mall Road, this route is the beginning of the first segment of the proposed north/south corridor discussed earlier. This issue has been discussed for sometime within the community, and the city needs to further expand the idea and investigate all avenues to actually create this segment of the corridor. The potential to enhance business and residential development is strong, and the future payback could be substantial.

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Through further analysis it may be determined that this proposed roadway segment is suitable for inclusion in the Five Year Plan, however, it may be moved back to the Twenty Year Plan depending on the growth pattern that develops due to the opening of the HHIC. Further detailed analysis, including collection of traffic counts and land use projections, will be required to better determine exactly when and where the bridge will be required.

The optimum location of the bridge crossing the Eel River may not be at Mall Road. It is recommended that further analysis be conducted to determine the best location for a proper north-south corridor. It is advantageous to have both the connections from the south over the Wabash River and from the north over the Eel River be aligned to receive maximum benefit as a true corridor.

4) East Broadway Extension

The extension of Broadway from Plaza Drive at Broadway to Mall Road to Yorktown Road has been defined as an element of consideration for the Thoroughfare Plan. The inclusion of the Bicycle/Pedestrian Trail merged with the sidewalks along the planned extension of Broadway (from the southwest corner of Spencer Park at Broadway leading to Mall Road and ultimately to Yorktown Road) will enhance funding potential for implementation of a Bicycle/Pedestrian Trail.

Although some opposition exists regarding the extension of East Broadway, the intent is not to establish Broadway as a new major or minor arterial or collector, but to be an extension of a local street. Currently, East Market Street and High Street are the only main access routes to link the commercial east side with much of the rest of the city. The current speed limits and posted regulations for Broadway would remain the same or even lowered to discourage unsafe high-speed traffic conditions. The planned meandering right-of-way between Cass Plaza Drive and Mall Road would further promote slower speeds. The extension of Broadway is only one element of what is to be an integrated system for the city's east side that is intended to include a US 24 Bypass link between Yorktown Road and Mall Road, and the Mall Road Bridge over the Eel River.

Some of the opposition to the Broadway extension should be mitigated with an understanding that a connection between East Broadway at Cass Plaza Drive and Mall Road is being advocated only in conjunction with those other complementary improvements. The Broadway extension to Yorktown Road would have a positive impact on the transportation network throughout the east side. Therefore, this should be another element to be incorporated into the Thoroughfare Plan and

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implemented within the Ten Year Plan of the Transportation Network Improvement Plan.

5) **County Road 50 East (Kokomo Pike)** (DLZ Corridor Area Circulation Study) Significant future industrial and commercial development is expected along CR 50 East between the existing US 24/25 and the future Hoosier Heartland Industrial Corridor. It is recommended that this segment of CR 50 East be reconstructed to accommodate the expected higher volumes and increased truck traffic. Provision of two through traffic lanes is expected to allow sufficient capacity if driveway access can be controlled and auxiliary turn lanes are provided at commercial drives. Reconstruction of this section of SR 50 East could be accomplished in smaller segments as new development occurs, reconstructing from new driveways northward towards US 24/35.

The analyses conducted for this study assumed that Industrial Drive would be extended through the Logan-Cass Industrial Park to CR 50 East and that 10% of the industrial park traffic would use this entrance. It seems unlikely that much more traffic would use this entrance unless there is inadequate capacity on Burlington Avenue and SR 29, as it offers no access advantage except for avoiding these routes. Based on the projected volumes, upgrading CR 50 East south of the Hoosier Heartland Industrial Corridor is not recommended within the next twenty years. If significant development does occur on this segment, it can be upgraded to the same standards as the segment north of the Hoosier Heartland Industrial Corridor. If Industrial Drive is extended to CR 50 East without upgrading CR 50 East, truck prohibitions should be considered to preserve the pavement on CR 50 East.

6) **County Road 125 West** (DLZ Corridor Area Circulation Study) The existing two-lane section of CR 125 West north of CR 250 South has sufficient pavement design and capacity to accommodate expected traffic throughout the twenty-year analysis period. Although capacity analyses showed that this segment is expected to operate at a LOS of "D" during the peak hour, that LOS is acceptable for this segment that only serves as access to the adjacent industries. It is recommended that the access for any development north of the Hoosier Heartland Industrial Corridor and west of CR 125 West (Development Area 12) be to this segment of CR 125 West. If this development is especially large or intensive (similar to IBP), then upgrading CR 125 West may need to be considered because of the additional traffic.

It is expected that the segment of CR 125 West between CR 250 South and the Hoosier Heartland Industrial Corridor will be upgraded by INDOT to

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accommodate vehicle storage and turning movement at the Hoosier Heartland Industrial Corridor intersection. Auxiliary lanes and lane tapers will likely extend the entire 400 feet distance between these two intersections.

As development occurs south of the Hoosier Heartland Industrial Corridor (HHIC), CR 125 West should be reconstructed south from the HHIC to the new development entrances. Access to CR 125 West should be carefully controlled along this segment. No access drives should be constructed closer than 300 feet to the HHIC and road or driveway access to major traffic generators should be no closer than 800 feet to the HHIC. This study only considered CR 125 West as it exists north of CR 300 South, but the road could be extended farther south, depending on development south of CR 300 South.

7) **US 24/35 and County Road 50 East** (DLZ Corridor Area Circulation Study) Signalization of the intersection of US 24/35 and CR 50 East is expected to be warranted in the mid term under even the Low Growth Scenario traffic forecast. A signal may even be warranted in the short term, if any development occurs in the vicinity of the existing Controls Inc. facility. The existing lane configuration on US 24/35 is expected to be sufficient through the mid term, with extension of auxiliary lanes to sufficient to accommodate expected queuing. In the long term, a second westbound left turn lane is likely to be required due to development along CR 50 East to the south of the intersection. This second turn lane can be constructed within the existing median. The northbound and southbound approaches will not require additional through lanes, but will require extension of existing auxiliary lanes or construction of appropriate new auxiliary lanes. Signal installation at this location should account for the possible addition of a southbound right turn lane in the long term.

8) **SR 29 and Burlington Avenue** (DLZ Corridor Area Circulation Study) The intersection of SR 29 and Burlington Avenue currently provides adequate levels of service but is expected to warrant a traffic signal in the mid term. The existing geometric configuration at the intersection is expected to be adequate through the mid term, with only minor improvements. These would include the reconfiguration of the northbound approach to provide a true left turn lane instead of the existing passing blister and possible lengthening of the southbound right turn lane. In the long term, it is expected that the northbound SR 29 and southbound Burlington Avenue approaches will require two through lanes. This is consistent with the recommendation for four through lanes on Burlington Avenue and SR 29. The installation of a traffic signal at this intersection prior to the widening should account for the expected ultimate lane configuration.

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9) County Road 125 West and County Road 250 South (DLZ Corridor Area Circulation Study)

This intersection is expected to have no capacity problems in the short term. In the mid term, traffic control at this intersection will be greatly affected by its proximity to the Hoosier Heartland Industrial Corridor (HHIC)(approximately 400 feet away). Upon completion of the intersection of CR 125 West and the HHIC, stop priority at the intersection of CR 125 West and CR 250 South should be changed to favor CR 125 West in both directions. If this is not done, queuing on the stop-controlled northbound approach could easily spill back 400 feet into the HHIC intersection under peak period traffic demands. Channelized right turn lanes should also be provided for the northbound and westbound approaches. These will help to maintain an acceptable level of service for the stop-controlled westbound left turn movement.

Under the Medium and High Growth scenarios, delays for westbound left turn traffic may eventually become excessive. A traffic signal may provide better overall operation in the long term if this is the case. This would be especially true if a signal is installed at the intersection of CR 125 West with the Hoosier Heartland Industrial Corridor, and the two signals can be coordinated.

Although this study modeled the entrance to Development Area 12 at the intersection of CR 125 West and CR 250 South, it is recommended that any entrance drives to this development area be north of CR 250 South. This would help to maintain acceptable levels of service for westbound traffic and would also for the northbound and westbound approaches. These will help to maintain an acceptable level of service for the stop-controlled westbound left turn movement.

Under the Medium and High Growth scenarios, delays for westbound left turn traffic may eventually become excessive. A traffic signal may provide better overall operation in the long term if this is the case. This would be especially true if a signal is installed at the intersection of CR 125 West with the Hoosier Heartland Industrial Corridor, and the two signals can be coordinated.

10) The Areawide 1992 Thoroughfare Improvement Plan (Part II - Continued)

Again, refer to Figures 32 and Appendix: Item 1 for those areas were selected for reconstruction:

- a) Cicott Street (from Miami to Clinton)
- b) Clifton Street (from 6th Street to Northern Avenue)
- c) 12th Street (from Erie Avenue to High Street)

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d) Waters Street (from Holland Street to 3rd Street)

Twenty-year Plan

The forecast for a twenty-year plan is only an assumption, and based upon the actions taken by the city to rectify or correct all areas having deficiencies of the transportation system network as established earlier in this report. If the city has implemented corrective measures of those deficient areas as stipulated in the Five-year Plan and the Ten-year Plan, and within this report's time parameters, this forecast will produce a transportation network that can benefit by the existence of the Hoosier Heartland Industrial Corridor.

The following are recommendations for the Twenty-year Plan:

1) **Burlington Avenue** (DLZ Corridor Area Circulation Study)

Burlington Avenue will carry increased traffic under any growth scenario. It is expected to serve as the main route for trips between downtown Logansport, the Hoosier Heartland Industrial Corridor and the growing industrial areas near the airport. By 2021, it is likely that the current two-lane roadway will not provide sufficient capacity to serve the traffic demand. Long term widening of Burlington Avenue to provide four through traffic lanes is recommended. The widening should be from the existing four-lane section at Mildred Street on the north end to the intersection with SR 29 on the south end, a distance of approximately 7200 feet. Based on the number of existing driveways and the expectations of commercial development, a five-lane typical section using a center two-way left turn lane would be necessary to preserve through capacity on this segment. However, a four-lane typical section may be sufficient if improved access control can be implemented. If a five-lane section is used, additional right-of-way is likely to be required. The existing right-of-way width appears to be 75 feet in this area. This width is probably sufficient for a four-lane section but probably insufficient for a five-lane section. The cost estimate provided for widening Burlington Avenue is based on a five-lane section.

2) **State Route 29** (DLZ Corridor Area Circulation Study)

Like Burlington Avenue, SR 29 from Burlington Avenue to the Logan-Cass Industrial Park is expected to have insufficient capacity by 2021. It is recommended that INDOT widen this segment of SR 29 to provide four through traffic lanes at the same time that Burlington Avenue is widened. It is recommended that the typical section of this segment be consistent with that on Burlington Avenue.

3) **Hoosier Heartland Industrial Corridor Intersections with Burlington Avenue and CR 125 West** (DLZ Corridor Area Circulation Study)

It was not within the scope of this study to recommend specific lane configurations and traffic control along the proposed Hoosier Heartland Industrial Corridor (HHIC). However, some observations can be made based on projected volumes and the limited analyses that were conducted. Based on projected volumes, it appears likely that the intersection of the HHIC with CR 125 West will require a traffic signal at some point in the next twenty years. Projected volumes for the intersection of the HHIC with Burlington Avenue suggest that consideration should be given to constructing an interchange at this location. Capacity analyses suggest that a traffic signal could accommodate the 2021 Medium Growth scenario traffic with an adequate overall level of service. However, midway between the Medium and High Growth scenario forecasts, traffic volumes become large enough that six through lanes would be required on each facility to provide adequate levels of service with a signal.

It is understood that the Indiana Department of Transportation is currently considering whether an interchange should be provided at the intersection of the proposed Hoosier Heartland Industrial Corridor and Burlington Avenue. This evaluation process is certain to consider not only the projected traffic operation, but also other factors such as cost, social and environmental impacts and local input.

4) **US 24/35 and SR 29** (DLZ Corridor Area Circulation Study)

The intersection of US 24/35 and SR 29 is expected to accommodate short term and mid term traffic demands adequately with the existing lane configuration and traffic control. In the long term, westbound left turn delays will likely become excessive, and a traffic signal is expected to be necessary to accommodate even the Low Growth Scenario traffic forecast for this intersection. Due to the interruption of flow caused by the traffic signal, combined with the increased southbound left turn demand in the long term forecast, a second southbound left turn lane is expected to be required at the time of signalization. Not only will this second left turn lane improve the operation of the signal, it will also prevent excessive southbound left turn queues, which could cause a sight distance problem for southbound traffic if they extend too close to the US 24/35 bridge over SR 25. Widening of the southbound approach, however, is not thought to be necessary to provide an additional left turn lane. Only one of the two existing southbound through lanes is expected to be necessary to provide adequate levels of service. One of the two through lanes is currently dropped shortly downstream of the

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intersection. Instead, the second through lane could be converted to a second turn lane when the traffic signal is installed.

The possible construction of a new connector road between CR 125 West and the west leg of this intersection was evaluated during this study. Construction of this new connector was not recommended, in part because of the detrimental effect that it would be expected to have on traffic operation at the intersection of US 24/35 and SR 29. The CR 250 South recommendation provides further information concerning this recommendation

5) Secondary Routes

Secondary routes, local streets, and collector roads in older areas and downtown will require partial or full restoration: Michigan Avenue, Burlington Avenue, Northern Avenue, Holland Street, Cicott Street, Linden Avenue, and North Street.

Bicycle/Pedestrian Trail Plan

Since the original inclusion of a bicycle/pedestrian trail plan in the Thoroughfare Plan in 1994 much has happened. Little Turtle Waterway Corporation has successfully completed portions of the trails and more are being planned. Memorial Hospital has acquired property known as Hervey Preserve and is actively planning trails. Cass County is considering a park by the Eel River just north of the Cass County Government Campus. All of the above mentioned plans are in the Little Turtle Waterway Master Plan Update 2001. See their Master Plan for specific details and conceptual drawings.

The Bicycle/Pedestrian Trail Plan incorporates existing roads, streets, and alleys to be modified with the appropriate surfaces, markings and revised signage necessary for any interaction between vehicles, bicycles and pedestrians. The Indiana Department of Transportation's 1994 Design Manual Part V, Volume II (Sections: 51-6, and 51-7), and the American Association of State Highway and Transportation Officials (A.A.S.H.T.O.) Policy on Geometric Design of Highways and Streets (1994 or most recent addition), addresses safety issues for all designs of Bicycle and Pedestrian Trail Plan, especially those being inter-linked to vehicular traffic networks. As a result of an integrated plan, the potential for funding sources expands significantly.

The matrix on the following page attempts to assign priorities, indicate surface types and possible funding avenues. There are three types of trails on the matrix and depicted on **Figure 35**.

Multi-use trails are typically hard surface primary trails wide enough to accommodate pedestrian, bicyclists, skaters, etc.

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Nature trails are, as the name implies, rougher trails with natural or semi-improved surfaces and possibly with significant slopes and some natural barriers.

Combination trails are meant to mean those trails that utilize new or existing sidewalks in conjunction with designated bicycle lanes in streets. Designated safewalks may be a part of these combination trails. Safewalks are walkways that are safe, accessible, and aesthetically pleasing.

More trails length is designated combination trail/safewalk than any other type. Combination trail/safewalk trails are located throughout the city and beyond, and as such, appear in all of the three priorities. We would expect that various segments of this type of trail would be completed over a long period of time.

It is a goal of the bicycle/pedestrian plan to provide increased safety, connect people with destinations, connect with other trails and points of interest, and to increase recreational enjoyment. Another goal is to provide connectivity to the larger Wabash River Heritage Corridor, throughout Logansport and Cass County Plan Commission jurisdiction.

Trails Group
 priorities, surfaces, funding
 1/25/02

trail segment	priority			type			possible funding				
	1st priority	2nd priority	3rd priority	multi-use trail hard surface	nature trail dirt or wood chips	combination--designated sidewalk and painted bike lane in street	Land and Water Conservation Fund	Wabash River Heritage Corridor Fund	TEA-21	health related foundations	brownfield
Logan's Point (river confluence and railroad bridge)	*			*			X	X	X		
Stonewall Park (county land on Eel River)	*				*	*	X		X		
Connect Michigan Avenue with Davis Street Bridge through Hervey Preserve	*			*			X		X	X	
Hervey Preserve (hospital land on Eel River)	*				*		X			X	
Combination Trail/Safewalk	*					*			X		
Connect Logan's Point with Ben Long Center		*		*		*	X	X	X		
Connect Stonewall Park with Logan's Point		*			*	*	X		X		
Combination Trail/Safewalk		*				*			X		
Railyard Complex			*	*		*	X	X	X		X
Connect Stonewall Park with Hervey Preserve			*			*	X		X		
Connect Railyard Complex with Plaza			*			*			X		
Cliff drive from Cicott to Burlington			*	*			X	X	X		
Combination Trail/Safewalk			*	*				X			

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- DISCLAIMER -

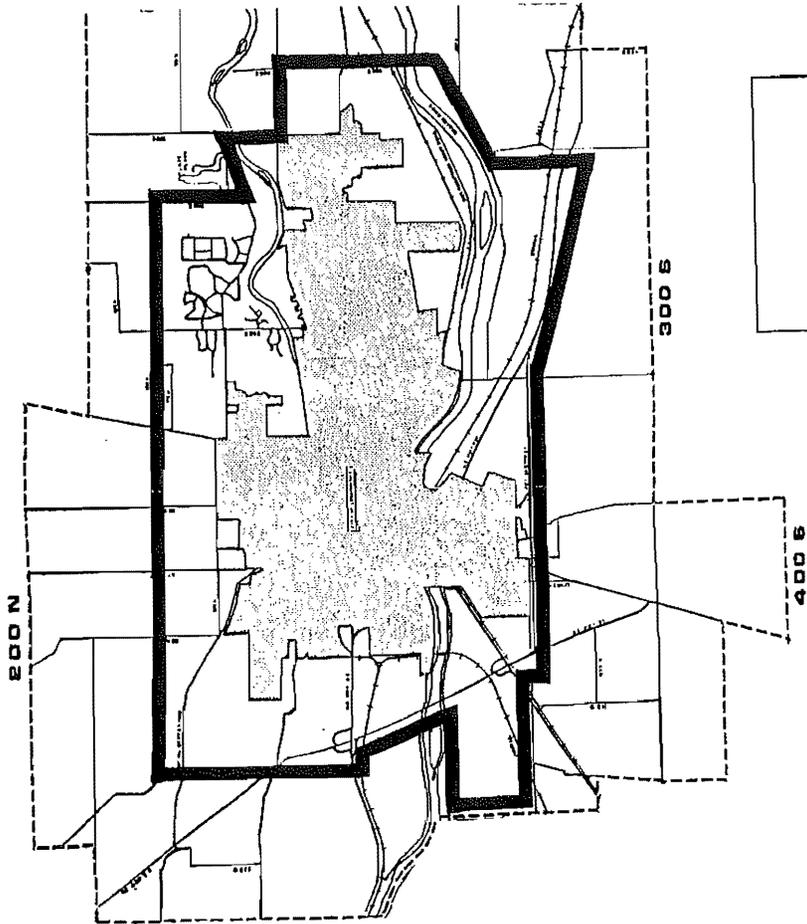
It should be noted that the recommended roadway alternatives depicted in this plan are preliminary and may not reflect the actual final location. No environmental study, survey, data collection or other engineering related studies have been conducted to determine the proposed roadway alternatives with the exception of the Hoosier Heartland Industrial Corridor SR 25 segment for which Presnell Associates is preparing the Environmental Impact Study.

- SUPPLEMENTAL MATERIALS -

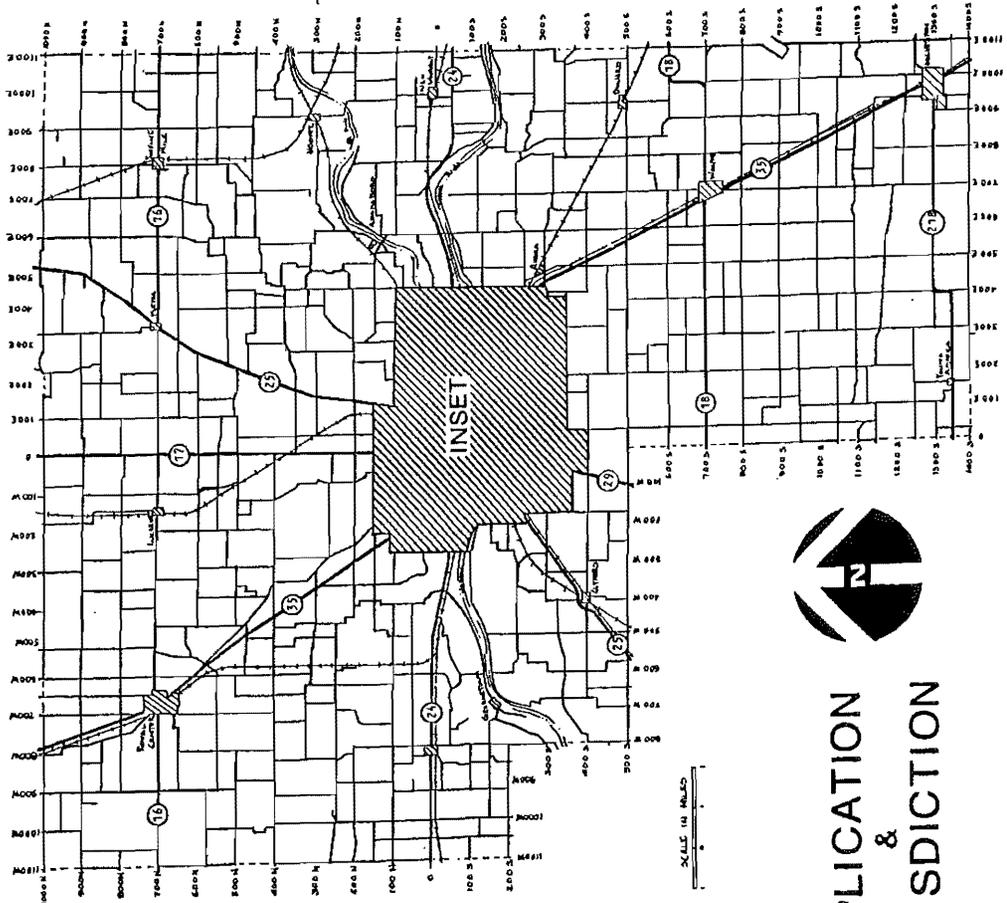
There are materials listed in the Table of Contents as Tables, Graphs, Figures, and Appendices that are considered supporting supplemental materials to this plan. These supplemental materials are not reproduced as part of the plan itself but are support data and conceptual layouts for recommended improvements. This supplemental material will be available to the public at a cost reflective of actual reproduction cost. The supporting material is available for inspection in the following offices, the Logansport/Cass County Plan Commission, Mayor City of Logansport, and the County Engineer.

FIGURE 1

INSET



CASS COUNTY RURAL AREA



APPLICATION
&
JURISDICTION

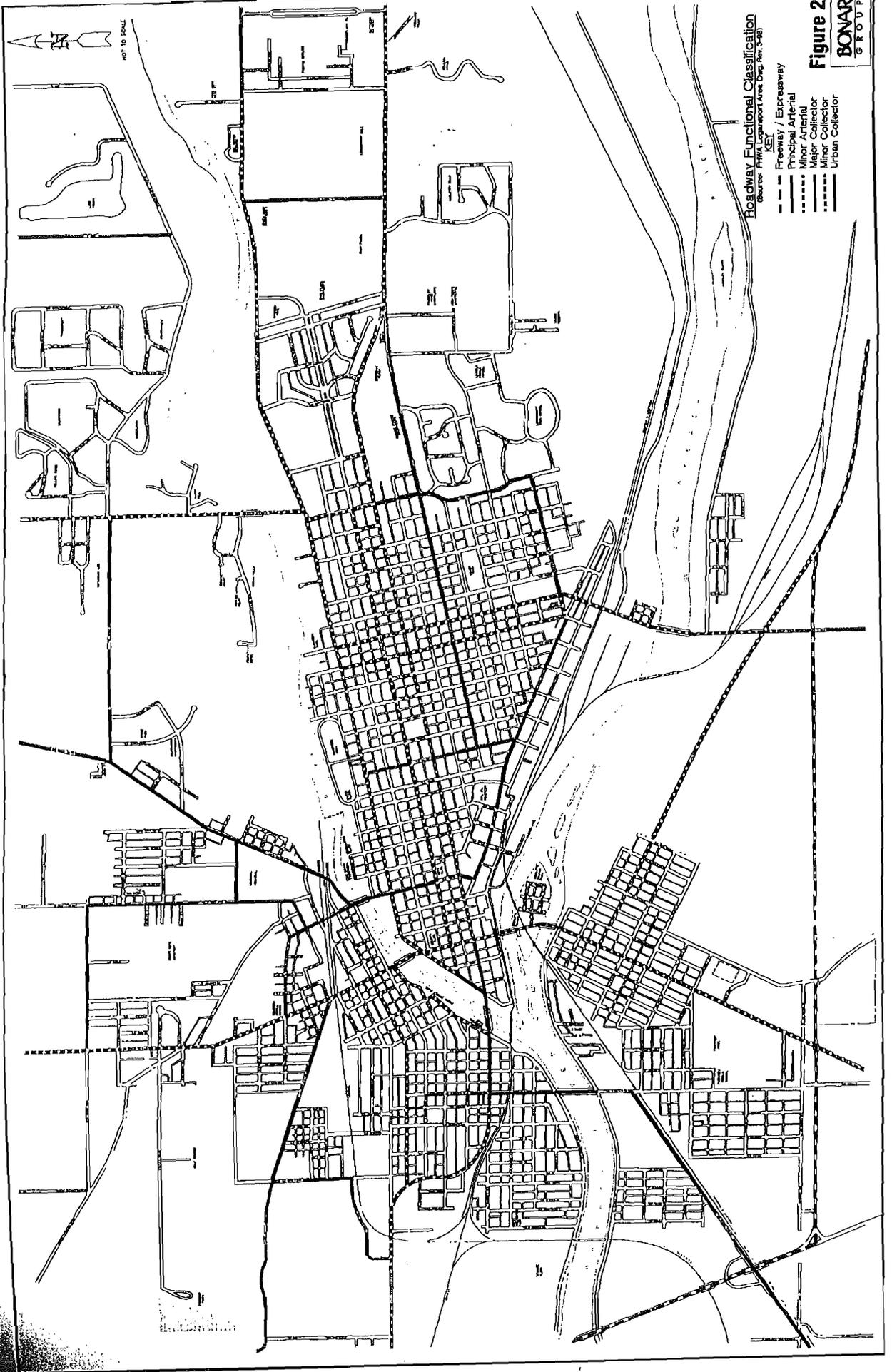


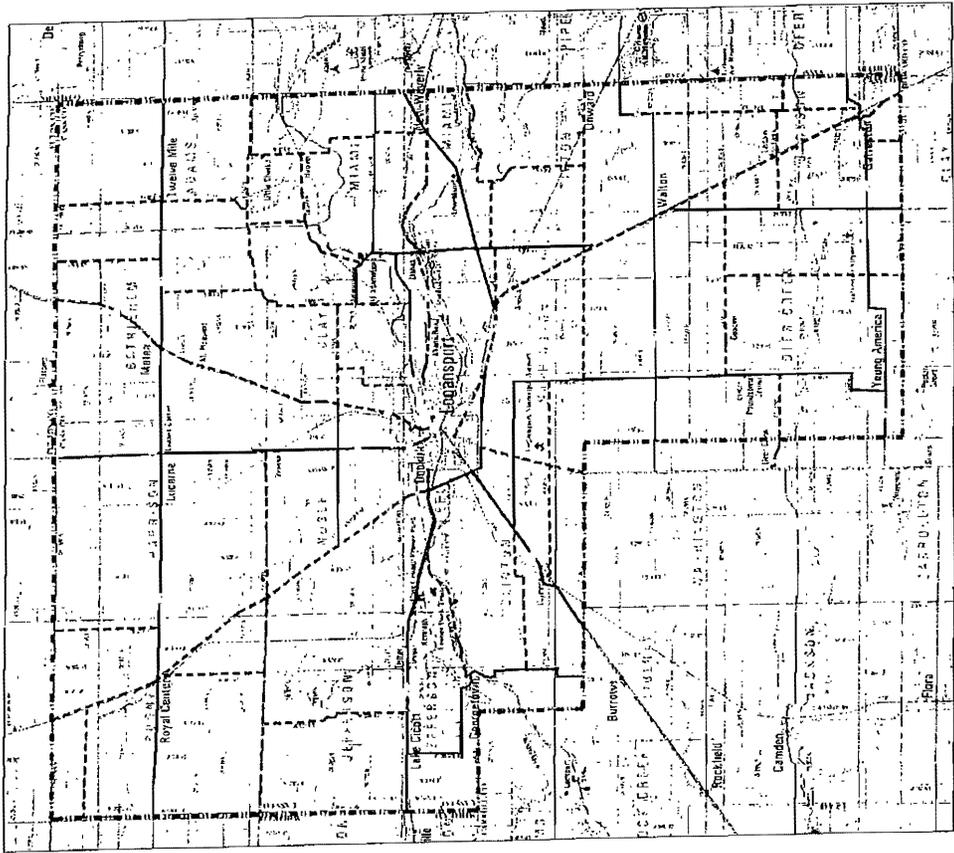
Figure 2
BOVAR
 GROUP

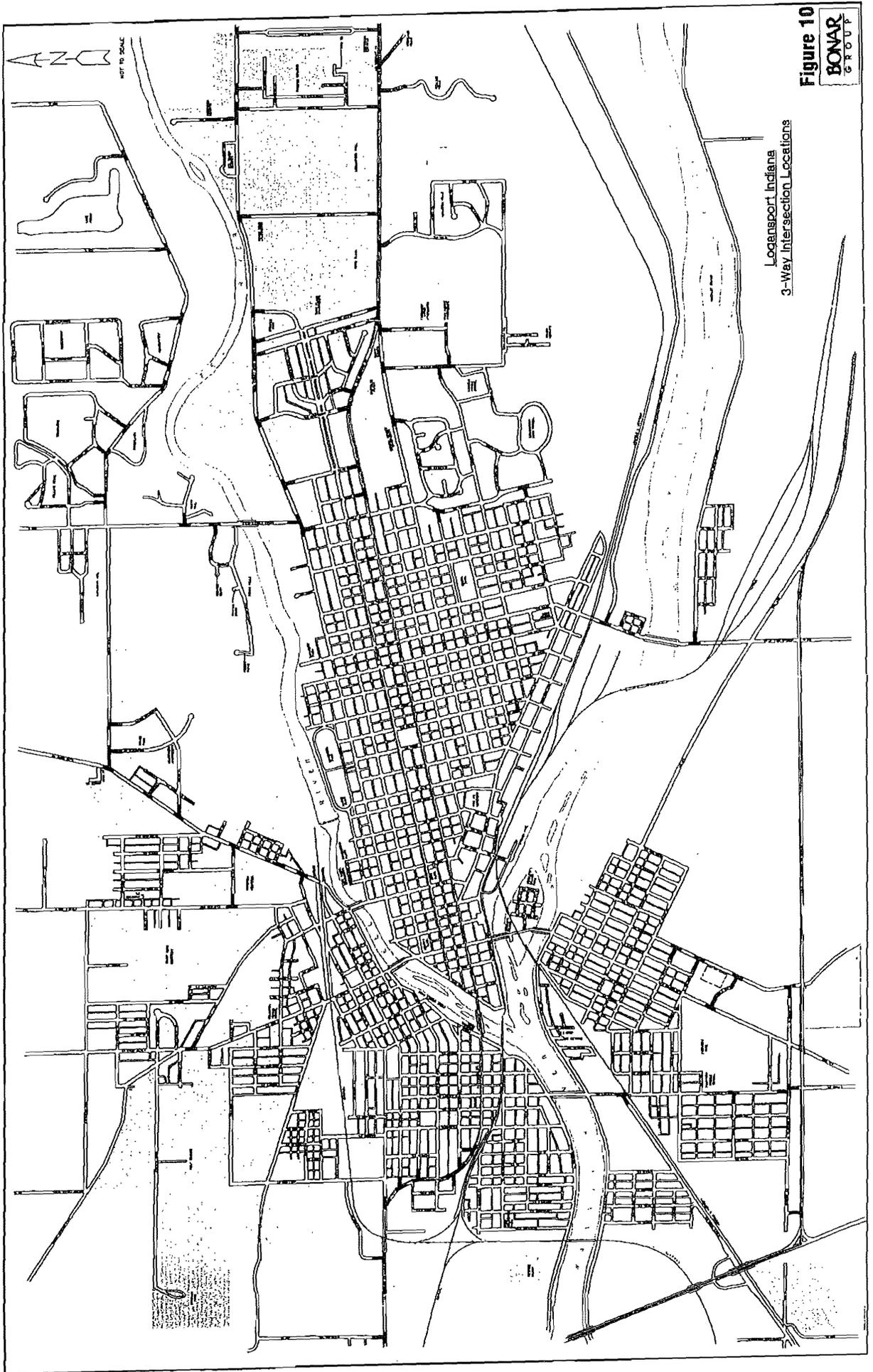
Cass County Rural Area

Roadway Functional Classification

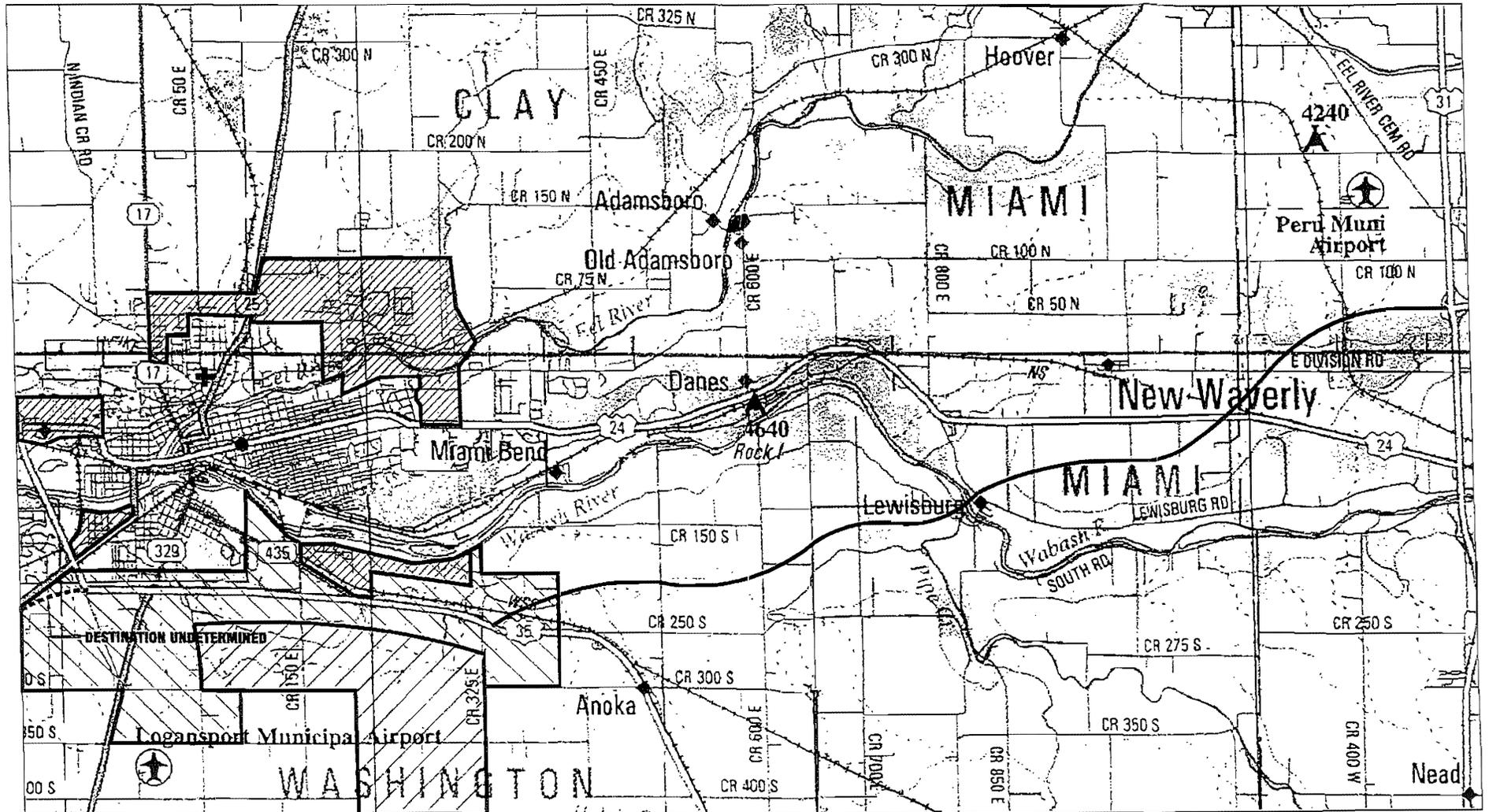
(Source: Ind. Dept. Hwys. Cass County Map Rev. 3-98)

- Principal Arterial
- - - Minor Arterial
- Major Collector
- - - Minor Collector





Logansport, Indiana
3-Way Intersection Locations

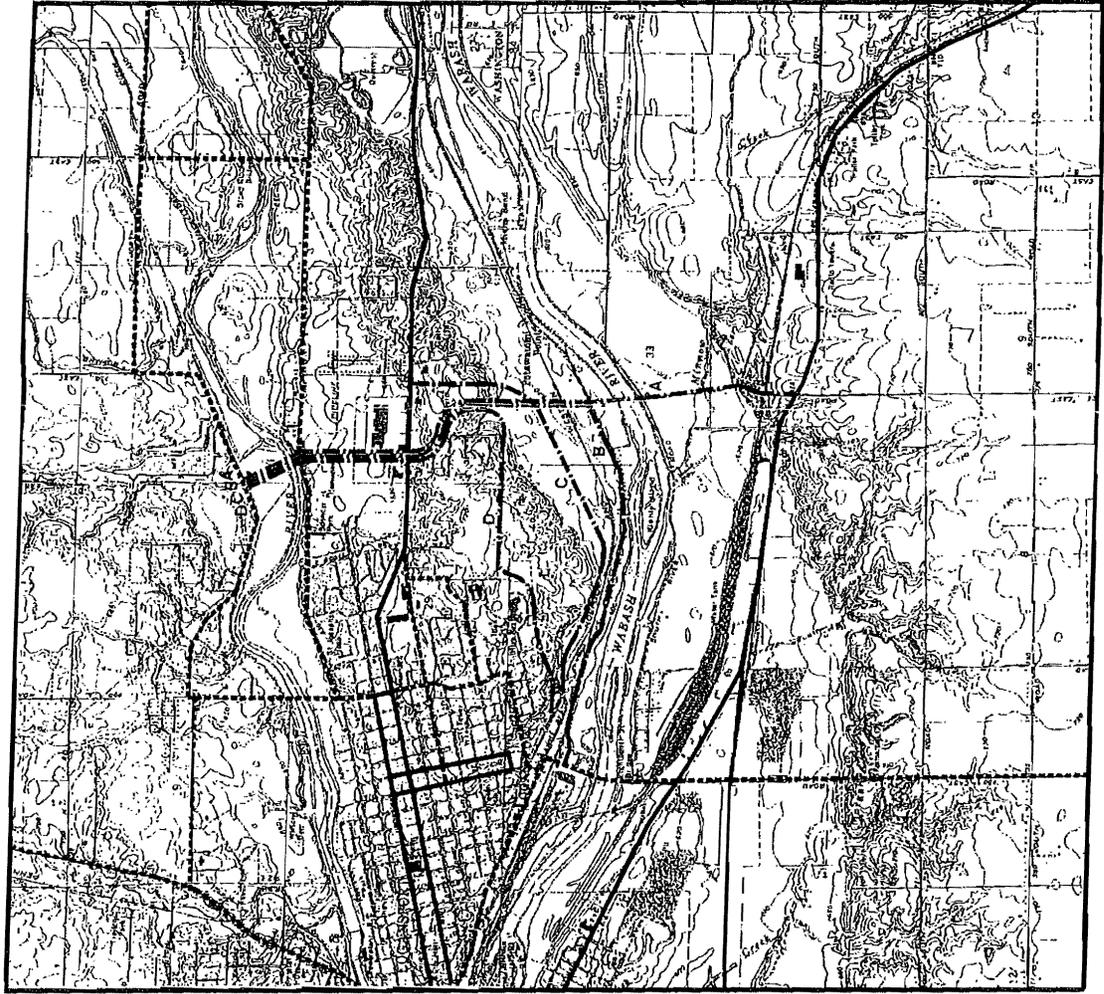


- KEY**
- Present Hoosier Highway Corridor
 - - - Future Hoosier Heartland Extension
 - ▨ Areas Of Expected Annexations
 - Areas Of Expected Growth (1-5 Years)
 - ××× Areas Of Expected Growth (5-10 Years)

**AREAS OF EXPECTED GROWTH AND ANNEXATION
(HOOSIER HEARTLAND - OPEN)**

Figure 12

Logansport, Indiana Road Construction Recommendation Options A-D



- Arterial Traffic Path
- - - - - Feeder Traffic Path
- · · · · Recommended Improvement Path A
- - - - - Recommended Improvement Path B
- · · · · Recommended Improvement Path C
- - - - - Recommended Improvement Path D

Figure 25

SCALE: N.T.S.

KEY

-  New Road Construction
-  Resurface & Reconstruct Shoulders
-  New Bridge Construction
-  New Intersection Improvement

Proposed North-South Corridor
Logansport, Indiana

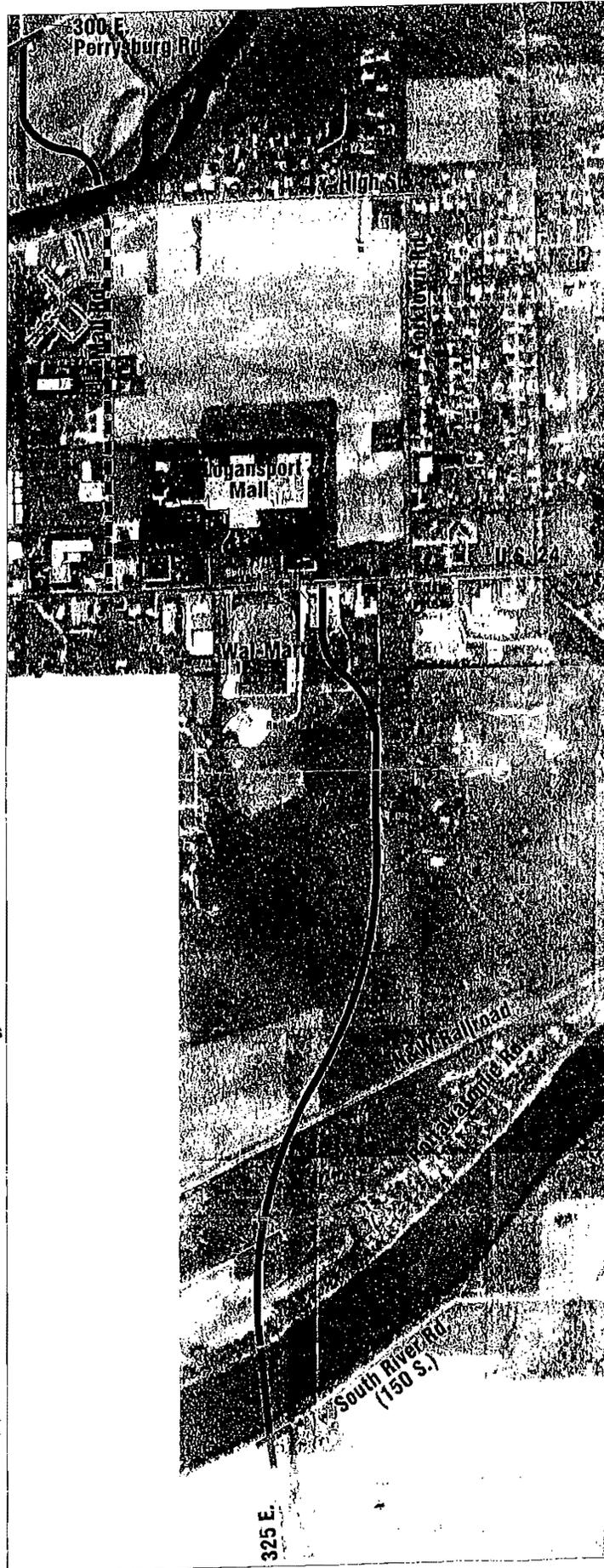
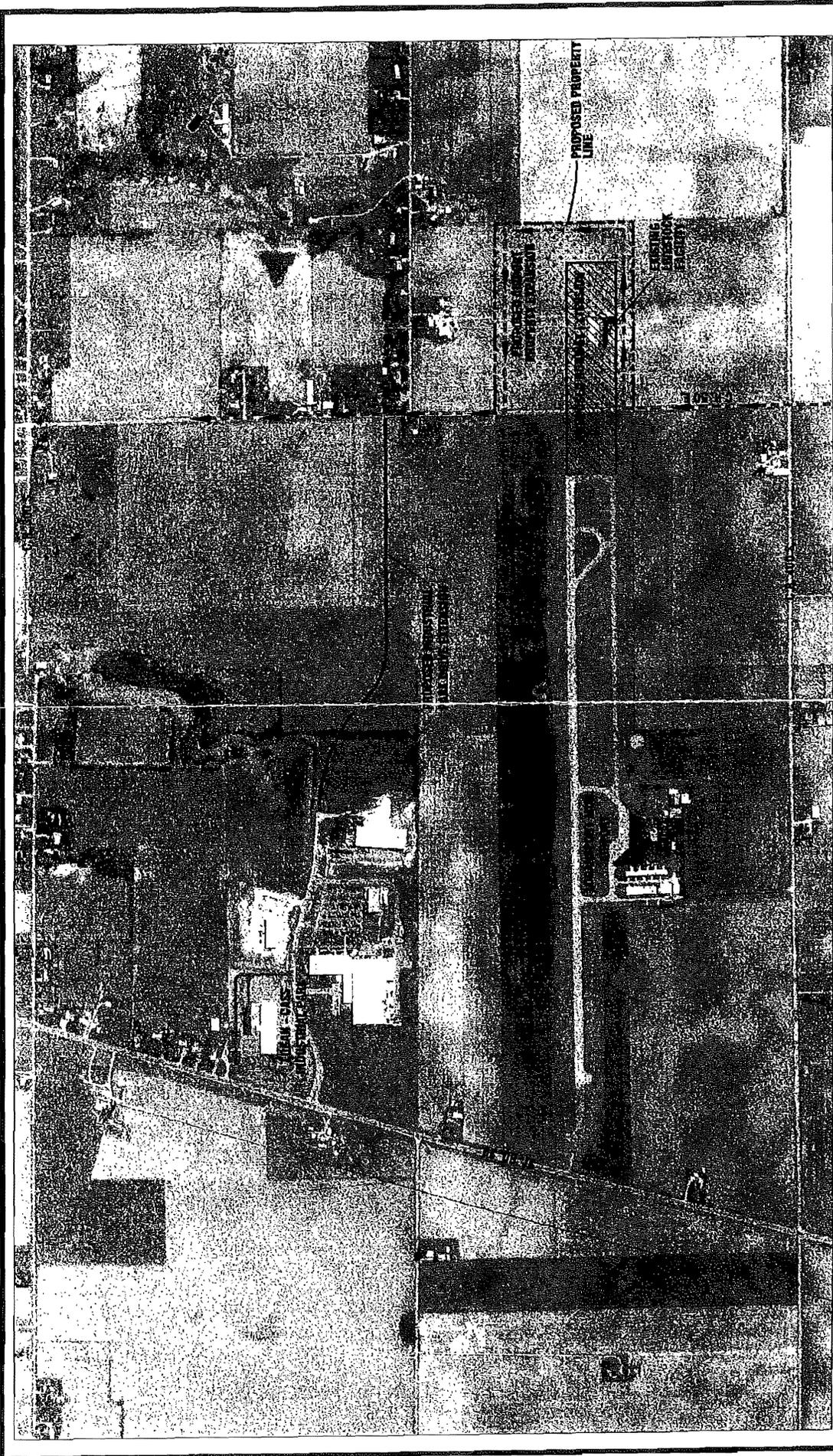


Figure 30



Municipal Airport - Industrial Park, Runway Expansion & C.R. 50 E. (Kokomo Pike) Re-Alignment

Figure 31
BONAR GROUP

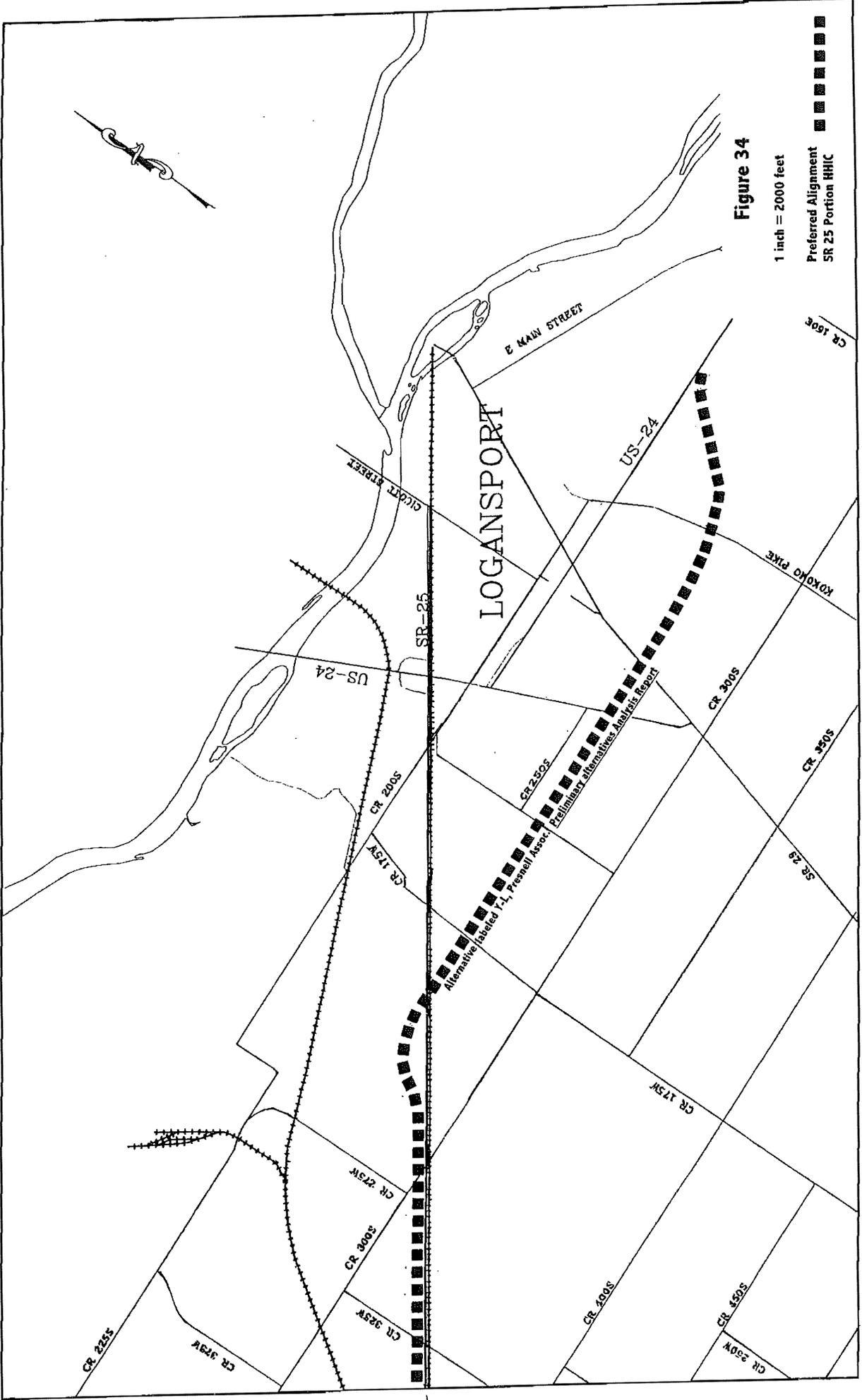


Figure 34

1 inch = 2000 feet

Preferred Alignment
SR 25 Portion HHIC

LOGANSPORT

Alternative labeled Y-1, Presuff Assoc
SR-25
Preliminary Alternatives Analysis Report

CR 225S

CR 390W

CR 365W

CR 300S

CR 275W

CR 175W

CR 200S

US-24

SR-25

GILLET STREET

LAZARUS WAY 2

US-25

CR 340S

KOKOMO PIKE

CR 350W

SR 25

CR 175W

CR 300S

SR 25

CR 250W

CR 160C

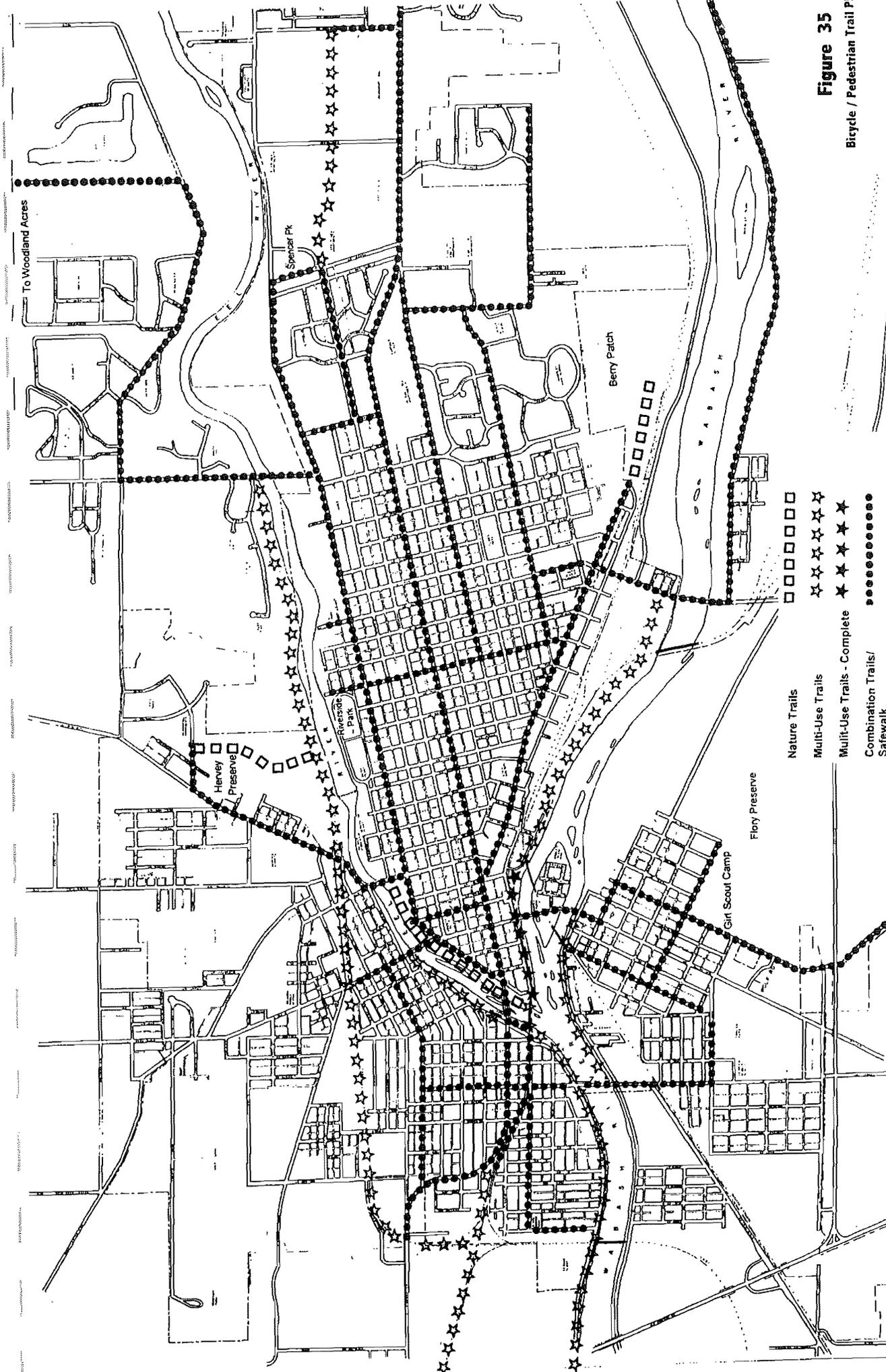


Figure 35
Bicycle / Pedestrian Trail Pl.