Chapter 3
TRAVEL FORECAST: 2045 TRAVEL DEMANDS

The principal function of the year 2045 transportation plan update is to develop forecasts of the 2045 travel demands in the Fort Wayne-New Haven-Allen County region. The travel demands are based upon the projected socioeconomic data representing future activity within the Metropolitan Planning Area. The existing highway system was utilized for the initial evaluation of capacity deficiencies. The existing highway system includes several completed projects that were constructed during the tenure of the 2040 Transportation Plan.

The Congestion Management Process (CMP) (see Appendix A) provided the basis for the initial assessment. The CMP includes a systematic data collection and analysis feature that evaluates highway performance based on hourly volumes and available capacity. The volume to capacity ratios provides sufficient information to assess corridor performance during peak periods and estimate the duration of any congested conditions. Through this series of analyses, future deficiencies were analyzed and evaluated, and project justification was developed.

Travel Forecasting Process

The NIRCC Travel Demand Model (TDM) is a data-driven, trip-based model that predicts short- and long-distance passenger and commercial vehicle flows. The model combines travel demand model techniques with observed flows from passively collected data ("big data") to produce more robust trip tables for the base- and future-year scenarios.

Big data ensures the NIRCC TDM forecasts are grounded in the reality of current travel patterns. Big data also permits more frequent updates as new data becomes available. Data-driven models are growing in popularity in response to the availability of big data. In this modular, data-driven framework, all the forecasts pivot off current actual traffic patterns observed in the big data, with synthetic models only providing growth and changes.

The model was overhauled from an older version of the TransCAD model and calibrated to match observed travel patterns for the base year of 2019. Model outputs from the updated 2019 model include trip flows, traffic volumes, volume-to-capacity ratios, speeds and delays, and vehicle miles traveled by mode, both metropolitan and split out by roadway class and volume groupings.

The Moving Ahead for Progress in the 21st Century Act (MAP-21) and the Fixing America's Surface Transportation Act (FAST) emphasized performance-based planning. This emphasis required a shift to more data-driven development of performance measures and targets and models. Big data is making this increasingly possible. However, it is important to reconcile these new data sources with traditional data sources such as traffic counts. This is because the new data constitutes a convenience sample that is not evenly representative of the whole population.

The shift to data-driven forecasting methods is motivated and rooted in an understanding of and respect for the limits of synthetic modeling. The data-driven method of the NIRCC uses models to predict likely changes in new travel patterns while relying more on the actual data of travel patterns than on models.

The modeling system was implemented using an incremental forecasting process (Figure 3-1). This process applies the forecast and base year models to produce synthetic travel patterns for each year. This growth in travel is then added to the observed travel patterns to produce the forecast travel pattern that is built on the foundation of observed data.

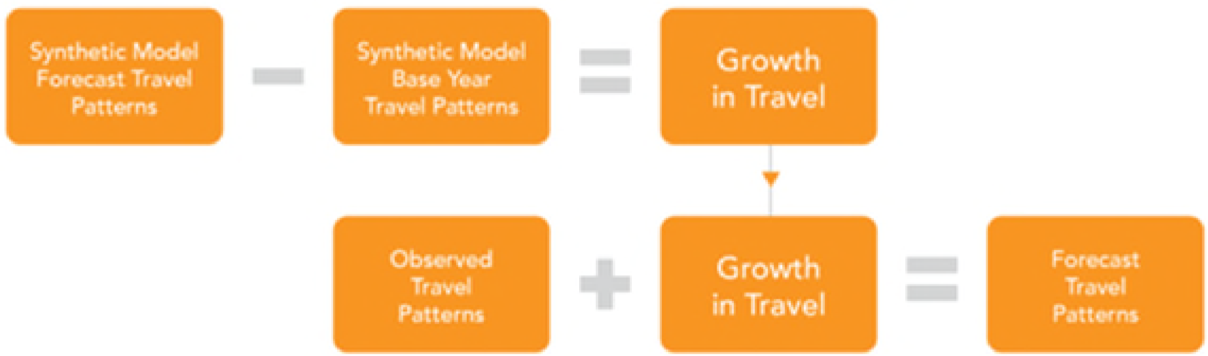

Figure 3-1

Incremental Forecasting Process

The NIRCC TDM represents and predicts the equilibrium between travel demand and network supply. At a high level, the model design has four basic groups of components: an initial data processing stage focused primarily (but not exclusively) on network supply variables, passenger demand models, commercial vehicle demand models, and final processing and network equilibrium models. Figure 3-2 illustrates these basic groupings and model flow and sequence.

At the next level, the passenger demand models comprise short- and long-distance resident daily trip models. The commercial vehicle models comprise single- and multi-unit truck models and a light commercial vehicle model. The NIRCC travel demand model uses a data-driven approach, pivoting off base year travel demand patterns derived from location-based services (LBS) passenger data from Streetlight Data. The pivoting occurs in the assignment preprocessing steps.

The passenger models are of a general trip-based design that predicts demand for a typical weekday (spring/fall) to represent an average annual daily demand for travel. Development of additional models

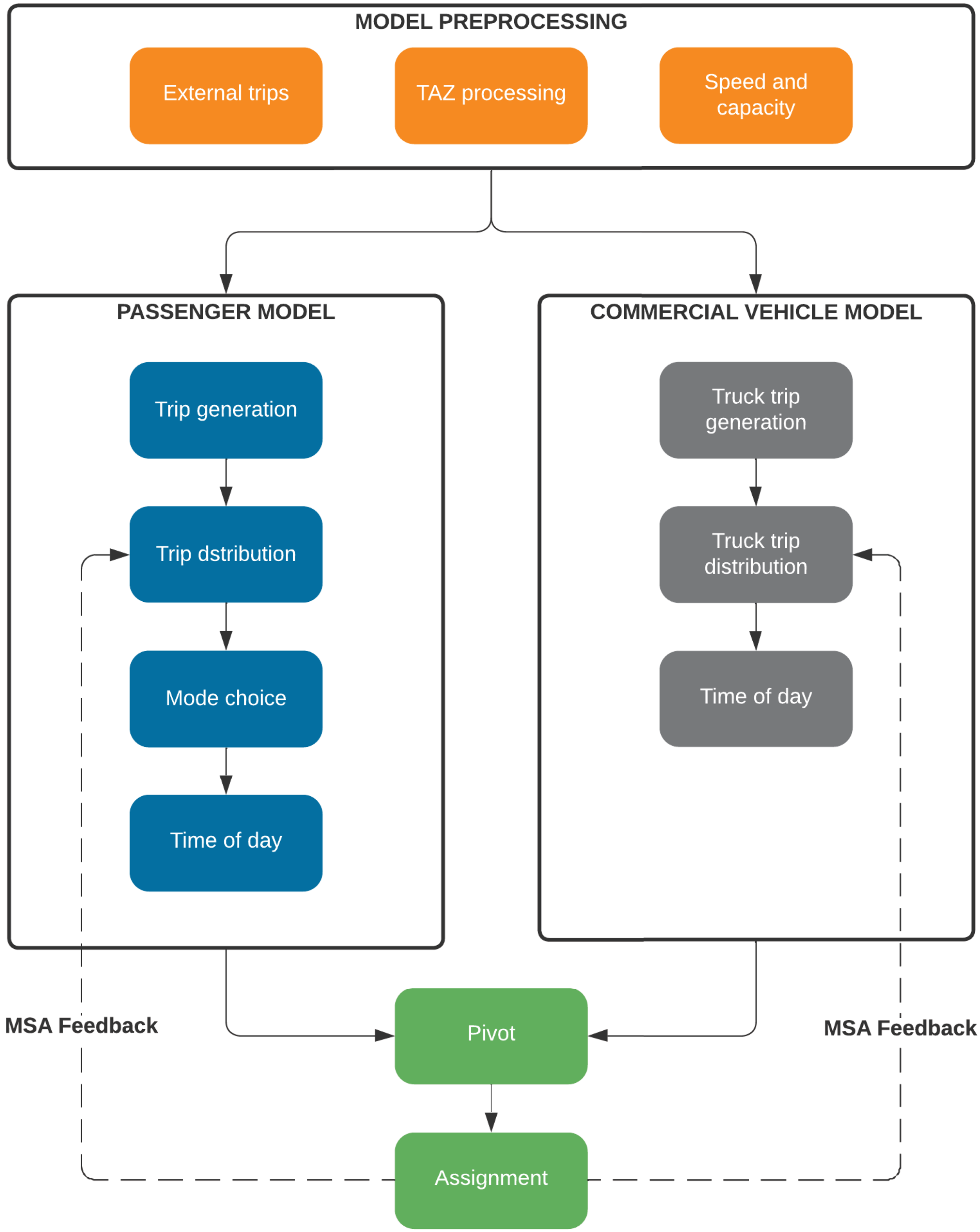

Figure 3-2

Travel Forecasting Procedure

representing weekend or seasonal travel can be considered for future model improvements. Vehicle assignments produce link volumes for autos (passenger vehicles + four tire commercial vehicles) and trucks (single-unit and multi-unit trucks).

Travel Forecasting Procedure

The travel demand-forecasting model used for the Metropolitan Planning Area follows standard guidelines, yet it is specially tailored for this area. The NIRCC model utilizes a GIS-based travel demand modeling software, TransCAD offers sophisticated and robust modeling procedures and powerful customization through its proprietary software language, GISDK, all built on top of a modern Geographic Information System (GIS). The underlying NIRCC TDM models are implemented in the GISDK code and are accessible through a custom-built model user interface. Peak-period modeling capabilities are also embedded in this model through time-of-day (TOD) models. The NHTS Add-On and NIRCC's 2012 household survey together with a Citilink transit on-board survey was fully analyzed to derive key modeling components such as trip generation rates, trip length frequency distributions, mode shares, time-of-day distributions and vehicle occupancy rates. Trips are loaded onto the highway system with a capacity restraint trip assignment procedure. This procedure replicates how drivers choose an alternative route when their preferred route becomes congested. Only the general approach to the modeling process will be described in this section to set the context for discussions regarding results of the travel forecasting procedure.

Major features of the NIRCC TransCAD model are summarized as follows:

Study Area. The model study area previously only covered the NIRCC planning area (portions of Allen and Whitley Counties), the new network and TAZ structure covers the NIRCC planning area, plus it has been expanded to fully cover Allen County. Trips external to this study area (i.e., external-internal or external-external trips) are captured by 31 external stations.

TAZ Development. TAZs were appropriately defined throughout the study area to be bounded by the modeled roadway network with a minimum of network passing through any zone. Each TAZ is populated by demographics and employment attributes not only for the 2020 base year but also for 2045. There are a total of 620 internal TAZs in the MPA.

Network Update and Transit Route Development. The highway network was updated with more roadway data sources and the current traffic count data. The network includes extensive geometric and operational link attributes. Traffic signals were also coded in the network to estimate delays associated with this control device. Consistent with the new TAZs, network details with proper centroid connectors were appropriately added throughout the study area. The transit route component has been developed concurrently with the development of the roadway network and TAZ's, so that any special considerations needed for transit modeling are accommodated in the design of the new TAZ structure and/or road network. The development is done for all fixed bus service routes.

Improved Estimation of Free-Flow Speeds and Link Capacity. Instead of using posted speed limits as a surrogate for free-flow speeds, free-flow speeds were estimated based on a tool developed by Corradino. The new tool was developed from GPS and other speed surveys conducted in the NIRCC and other areas. Based on the speed surveys, the relationship between free-flow speeds and several determining factors such as posted speed, access control and area type were identified for each facility type. This relationship was expressed in various forms of nonlinear regression models. Geometric and operational link data were utilized for improved estimation of link capacities. It calculates the speed and capacities based on the concepts presented in the HCM2010. This methodology derives various capacity adjustment factors from bi-factor nonlinear regression formula. The estimated peak-hour capacities were then converted to peak and off-peak period capacities.

Intersection Delays. Delays associated with traffic signals were estimated to adjust directional link free-flow speeds and capacities. The HCM 2010 method of calculating vehicle delay that takes into consideration green time and progression effect was adopted.

External Trip Estimation. External travel to the model area was estimated by assigning traffic counts to external gates and identifying external to external (X-X) and external to internal/internal (X-I) to external trips. Utilizing the available observed passive data, the traffic counts at external gateways are split into the portion of the traffic count by classification representing X-X and X-I. Once the traffic count is split, then iterative proportional fitting (IPF) is utilized to ensure that the external observed passive data origins and destinations were scaled exactly to match the classified traffic counts at external gateways to the model.

Trip Generation Model. Simply speaking, travel demand modeling is the process of translating different types of trips into vehicular traffic on the network. Trip production and attraction models were developed for each of these trip purposes through various statistical analyses using trip data from the NHTS Add-On and NIRCC's Household Travel Survey data.

Trip Distribution Model. The updated NIRCC travel demand model uses a destination choice modeling process for trip distribution, replacing the previous gravity model approach. The destination choice model takes into consideration the built environment and better accounts for travel by all modes of transportation. Destination choice models belong to the family of discrete choice models and are derived from the principle of utility-maximizing choice. Destination choices of individual travelers are described by a function of the attractiveness of destinations, origin-destination travel conditions, and personal characteristics that influence the response to the attractiveness and travel conditions. Travel conditions between an origin and a destination may be measured by travel time and cost for one or more modes available to the traveler. Personal characteristics that influence the choices may include a variety of socioeconomic variables.

Mode Choice Model. The NIRCC travel demand model mode choice model is a nested logit model implemented entirely within TransCAD. The mode choice model for the 2019 base year is significantly different than one developed for the previous version of the model. Major changes include setting the coefficients to values within the range recommend in current FTA guidance, and application of separate mode choice models by market segments related to auto availability.

Time-of-Day Models. The model consists of four time-of-day (TOD) models: morning peak, midday, evening peak, and night. Modeling factors that are unique to each time period were derived from the NHTS Add-On and NIRCC's Household Travel Survey data. Compared to a single daily model, the TOD modeling generates a more accurate travel model by treating each period uniquely.

Truck Model. Travel patterns of trucks are different from those of passenger cars, thus it is desirable to have a separate truck mode in the model. The Commercial Vehicle Model generates commercial vehicle trips in four-tire commercial vehicles, single-unit trucks, and multi-unit trucks. The model was previously adapted from the Quick Response Freight Manual (QRFM). The trip generation rates were recalibrated based on passive data using the previous models' rates as a starting point. Commercial vehicle trip distribution was calibrated as part of this model update to resemble the passive data.

Pivot Procedure. The travel demand model features a pivot procedure whereby observed passive data passenger vehicle and commercial vehicles are directly integrated into the model workflow. With pivoting enabled the model generates an O-D matrix for the two vehicle classes that is a function of the observed passive data and base and future synthetic matrixes. This method leverages the availability of big data and allow the model to reproduce observed travel more faithfully since the forecasts stem from current traffic conditions.

Vehicle Trip Assignment and Feedback Loop. Link free-flow speeds derive the first phase of the model run, or initial assignment. It is used for network skimming, trip distribution and route choice. Following the first phase, link congested speeds are estimated and used to redistribute trips in subsequent model runs, or feedback assignments. The final assignment results are obtained from the feedback assignment.

Transit Trip Assignment. The link congested speeds and travel time are used to assign the transit passengers onto the transit routes. The assignment rule is to find the shortest path of the general cost for passengers. The generalized costs are a combination of travel time, cost and other factors.

Analysis of Regional Activity Forecasts

Regional control totals were established for each variable as the first step in the projection of year 2045 socioeconomic conditions. Table 3-1 compares base year (2020) and forecast year (2045) regional control totals for each of the key variables influencing travel demands.

Table 3-1. Summary of Regional Socioeconomic Variables

Socioeconomic Variable	2020 Base Year	2045 Forecast Year	Percent Increase	Annual Percent Rate
Population	386,996	439,334	13.52%	0.51
Housing Units	163,096	186,923	14.61%	0.55
Automobiles				
Ownership	304,250	353,501	16.19%	0.60
Per Household	1.87	1.89		
Employment				
Retail	30,541	32,442	6.22%	0.24
Industrial	67,479	72,144	6.91%	0.27
Office	89,248	94,039	5.37%	0.21
Service	61,763	64,986	5.22%	0.20
Total	249,031	263,611	5.85%	0.23

The socioeconomic projections reveal modest increases in all the major socioeconomic variables for the Metropolitan Planning Area. The projections for population and households indicate relatively steady and comparable growth. The projected housing growth slightly out-paces the population growth. This is due primarily to new housing starts growing at a faster rate than the population in the MPA from 2010 to 2020. It is assumed that these growth rates will stabilize.

The overall population and housing assumption reflects a stabilization of average persons per household. Population growth has gradually slowed since 1970 within the Metropolitan Planning Area. Housing growth has remained fairly consistent with some short periods of slow growth during the past twenty years. Since 1985 the area has experienced active housing development. The 2020 Census indicated that the ratio of persons per housing unit was 2.37 for the Metropolitan Planning Area. The 2045 persons per housing unit ratio is 2.35 indicating the stabilization of this value.

In the late seventies and early eighties assumptions concerning auto ownership, based on recent fuel shortages, anticipated that limited energy resources and increasing costs would induce a reduction in automobile ownership. This phenomenon never occurred. Automobiles became more fuel-efficient and their size was reduced. Fuel prices dropped and stabilized. Auto ownership continued to rise. It is anticipated that this trend will stabilize in the near future as we reach saturation levels of vehicles per household and as households decrease in size. The forecasted automobile ownership values for 2045 are consistent with the existing ratio of automobiles per household.

Retail employment has been the fastest growing source of employment in the Fort Wayne area since the 1970's. A steady growth rate in this employment category is expected to continue but will level off and begin to increase more gradually. The employment figures indicate continued growth in retail employment.

Industrial employment has remained consistent over time with a conservative growth pattern. The loss of International Harvester and related industrial employment in the early eighties was partially offset by the new General Motors assembly plant and associated manufacturing facilities built in the mid nineteen-eighties. Warehousing and distribution centers have also contributed to continued growth in this category.

Office employment has remained fairly consistent with respect to its rate of growth over the years. This category is expected to be slightly lower than the retail sector for new growth in upcoming years. The finance, real estate, and health care trades are represented by this category. Service employment has also remained consistent with respect to its rate of growth over the years. This category will see a slightly lower growth rate than the other categories. The accommodation, restaurants, education, and administration trades are represented by this category.

The general growth patterns of the socioeconomic variables indicate that existing travel corridors will remain important to the basic travel patterns of the year 2045. The northern and northwest areas of the region will remain active in terms of socioeconomic growth, especially along the State Road 1 corridors. The areas around major interchanges of Interstates 69 and 469 remain attractive for development.

The new residential and employment centers will intensify the travel demands on existing corridors and create the need for managing congestion through traffic operation improvements, widening facilities, extending new roads, improving transit service, implementing intelligent transportation system strategies, and controlling access more efficiently. There is a resurgence of development within the downtown core, with planned commercial, residential, and recreational areas. These include the Riverfront area, the Landing, and the Electric Works developments. Development is becoming more balanced between the urban and suburban areas.

Trip Generation

The trip generation model used population, employment, household size, workers and vehicles per household, and household income to estimate the number of trips starting and ending (trip ends) in each zone. The socioeconomic data utilized for trip generation is provided in Appendix's B & C. Trip ends were estimated for eight different internal purposes: Home Based Work Low Income, Home Based Work High Income, Home Based Shopping, Home Based Other, Home Based School, Home Based Univ/ College, Non Home Based Work, and Non Home Based Other trips.

Table 3-2 summarizes the regional level results of the application of the trip generation models to the projected socioeconomic characteristics. The productions and attractions by trip purpose are provided for the years 2020 and 2045. The relative proportion of trips by purpose show little change between the forecasted years.

Table 3-2. Travel Demand Forecast Regional Summary

Productions					Attractions				
Trip Purpose	2020 Trips	2020 Percent	2045 Trips	2045 Percent	Trip Purpose	2020 Trips	2020 Percent	2045 Trips	2045 Percent
HBWLO	70,423	5.1%	78,688	5.0%	HBWLO	70,405	5.1%	74,582	5.0%
HBWHI	109,434	7.9%	131,730	8.3%	HBWHI	109,395	7.9%	115,932	7.8%
HBS	173,841	12.6%	199,908	12.6%	HBS	173,822	12.6%	184,623	12.4%
HBO	405,746	29.5%	469,454	29.6%	HBO	405,667	29.5%	447,046	30.0%
HBSCH	150,445	10.9%	174,658	11.0%	HBSCH	150,480	10.9%	165,904	11.1%
HBU	18,191	1.3%	21,437	1.4%	HBU	18,176	1.3%	19,996	1.3%
NHBW	64,989	4.7%	75,498	4.8%	NHBW	64,989	4.7%	68,787	4.6%
NHBO	248669	18.2%	288,445	18.2%	NHBO	248,509	18.2%	271,278	18.1%
TRK	135,429	9.8%	144,300	9.1%	TRK	135,429	9.8%	144,300	9.7%
Total	1,377,167	100.0%	1,584,118	100.0%	Total	1,376,872	100.0%	1,492,448	100.0%

HBWLo= Home-Based Work Low Income Trips
HBWHi= Home-Based Work High Income Trips
HBS= Home-Based Shopping Trips
HBO= Home-Based Other Trips
HBSCH= Home Based School - K12
HBU= Home Based Univ/College
NHBW= Non Home Based Work
NHBO= Non Home Based Other

The number of trip productions and attractions for 2045 are logically higher than those forecasted for 2020. This increase in trips is directly attributed to the increase in socioeconomic variables. The primary variables affecting the increased number of trips include households, automobile ownership, and employment.

Trip Distribution

The shortest path between zones is an input to the logsums for the Destination Choice models. Logsums are commonly used in travel demand modeling as a combined impedance across multiple modes rather than using travel time by a singular mode between an OD pair. The TransCAD pathbuilder utility identifies the shortest route between origin-destination pairs by minimizing a term called impedance. Impedance in the context of travel demand models can be defined as the general cost associated with travel between an origin-destination pair. The general cost (impedance) is a compound function representing travel time, distance, and other travel related costs. Skims provide impedances between zones; and there are skim matrices for specific modes like highways (vehicles), transit (buses), non-motorized (walk and bike). Travel time skims represent the shortest path between each zone pair in the model network. Travel time skims are sensitive to mode and link-based restrictions.

The productions and attractions by trip purpose and auto sufficiency are balanced and organized into separate market segment files. These values are the output of trip generation and market segmentation steps mentioned previously. The destination choice models are used to predict the amount of travel interaction between zones for a given trip purpose. The updated Destination Choice Model was validated against observed spatial travel behavior. One measure of goodness of fit, used the aggregate vehicle flows between different districts in the model and compared to those derived from expanded passive data. The modeled district to district trip interaction is tracking very closely to the expanded passive data OD table.

The results of the 2045 trip distribution of forecasted travel desires indicate an increase over the current distribution. This is expected due to the increase in socioeconomic activity. The general trends appear similar with suburban-to-suburban activity continuing to increase. The attractiveness between suburban areas and the central urban core will remain important and increase proportionately with redevelopment activity.

Evaluation of the Transportation System

The travel demands are based upon the projected socioeconomic data representing future activity within the Metropolitan Planning Area. The existing highway system was utilized for the initial evaluation of capacity deficiencies. The existing highway system includes a number of completed projects that were constructed during the tenure of the 2035 Transportation Plan.

Existing Highway System

The existing highway system was utilized for the initial evaluation of capacity deficiencies. The recently completed projects are displayed in Figure 3-3. The Congestion Management Process (CMP) (see Appendix A) provided the basis for the initial assessment. The CMP includes a systematic data collection and analysis feature that evaluates highway performance based on hourly volumes and available capacity. The volume to capacity ratios provides sufficient information to assess corridor performance during peak periods and estimate the duration of any congested conditions.

The lane capacities utilized in the CMP are designed to represent the practical capacity based on a Level-of-Service D. The basic lane capacities are based on a relationship of facility type (i.e. freeway, arterial,

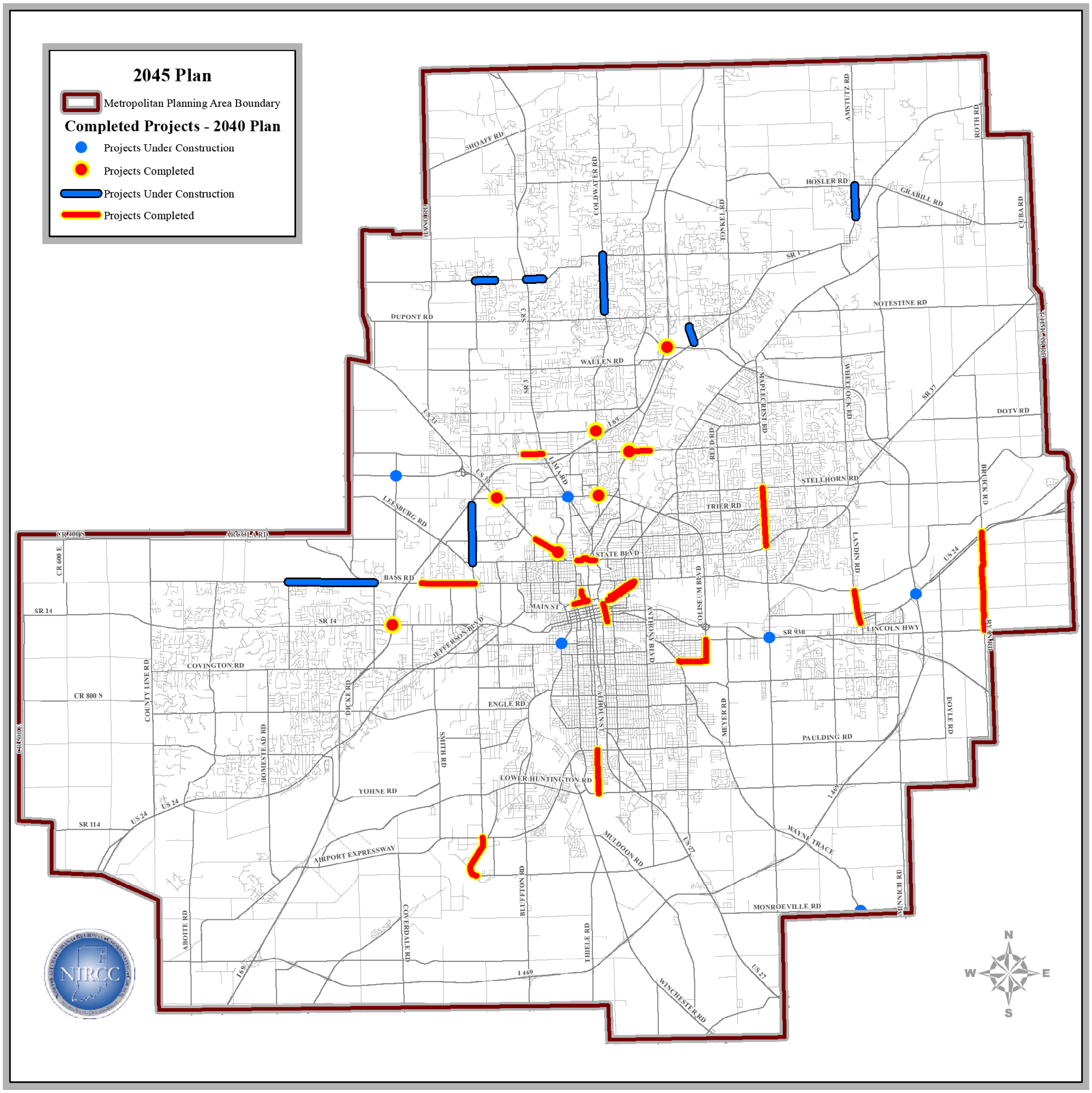

Figure 3-3

Completed Projects from the current 2040 Plan

collector, etc.) and geographic area that reflects the land use and travel characteristics (i.e. central business district, suburban, rural, etc.). These two criteria are important determinates of lane capacity. Table 3-3 displays the basic lane capacities used for the CMP evaluation process. Exceeding the level-of-service D lane capacities (defined as a ratio of volume to capacity greater than 1.0) indicates situations of levels of service "E" or "F" exist on a corridor or section of roadway. Levels of service "E" and "F" represent congested conditions and failure of the system to efficiently meet travel demands.

Table 3-3 Lane Capacities

	Highway Class				
Land Use	**Interstate**	**Expressway**	**Two-Way Arterial**	**One-Way Arterial**	**Collector**
CBD	1800	745	605	650	480
CBD Fringe	1800	790	715	715	575
Suburban	1800	865	715	805	575
Rural	1800	820	590	n/a	540
Outlying CBD	1800	790	715	715	575

The deficient corridors currently operating under congested conditions are displayed in Figure 3-6. These corridors served as the initial assessment for identifying strategies to reduce and eliminate congested conditions. The CMP evaluates a variety of improvement strategies including transit; bicycle and pedestrian; management and operations; and minor roadway improvements before considering added capacity projects. The CMP evaluation is also validated through the travel forecasting process which furthers the evaluation of congested conditions to the horizon year of the plan. This evaluation is based on the projected socio-economic conditions for the region.

The lane capacities utilized for the travel forecasting process represent Initial Vehicles per Lane per Hour Assumption (VPHPL) for the various facility types. The VPHPLs are provided in Table 3-4. These capacities are then adjusted within TransCAD based on operational and geometric characteristics such as the number of lanes, types of shoulders, and location. The use of vehicles in this situation includes a mixture of passenger cars, light-duty trucks, heavy-duty trucks, tractor-trailers, buses, and recreational vehicles. The capacities established represent travel characteristics within and near the urban area and are more sophisticated than the capacities utilized in the CMP. The travel demand forecasting process utilizes a capacity restraint and equilibrium assignment process that adjusts route selection based of congestion and travel time replicating typical human travel behavior. This process allows for the identification of highway corridors where capacity problems will arise in the future. These locations will be referred to as capacity deficient or deficient corridors. Simply stated this translates into congestion and congested corridors. This evaluation is conducted using a link-by-link analysis. The results of this evaluation will be discussed in the conclusion of this chapter.

Table 3-4: ICAP - Initial Vehicles per Lane per Hour Assumption

		Speed						
FACILITY	Decription	<45	45	50	55	60	65	70
1L1W_rur	One lane one way, rural	1900	2000	2100	2200	2200	2200	2200
1L1W_sub	One lane one way, suburban	1900	2000	2000	2250	2250	2250	2250
1L1W_urbcbd	One lane one way, all urban	1900	2000	2000	2250	2250	2250	2250
2d_rur_pa	Principal arterial, two-way, rural	1900	1900	1900	2200	2200	2200	2200
2d_sub_pa	Principal arterial, two-way, subur-ban	1900	1900	1900	2200	2200	2200	2200
2d_urbcbd_pa	Principal arterial, two-way, rural	1900	1900	1900	2200	2200	2200	2200
2xd_rur	Two lane, two direction, rural	1700	1700	1700	1700	1700	1700	1700
2xd_sub	Two lane, two direction, subur-ban	1700	1700	1700	1700	1700	1700	1700
2xd_urbcbd	Two lane, two direction, all urban	1700	1700	1700	1700	1700	1700	1700
ML1W_rur	Multilane, one-way, rural	1900	2000	2100	2200	2275	2350	2400
ML1W_sub	Multilane, one-way, suburban	1900	2000	2100	2100	2250	2350	2400
ML1W_urbcbd	Multilane, one-way, all urban	1900	1900	2100	2100	2250	2350	2400
mld_fa	Multilane, undi-vided, two-way, fringe area	1900	1900	2000	2100	2250	2350	2400
mlxd_rur	Multilane, undi-vided, two-way, rural	1900	2000	2100	2200	2250	2350	2400
mlxd_sub	Multilane, undi-vided, two-way, suburban	1900	1900	2000	2000	2250	2350	2400
mlxd_urbcbd	Multilane, undi-vided, two-way, all urban	1900	1900	2000	2100	2250	2350	2400
connector	Centroid connec-tor	20000	20000	20000	20000	20000	20000	20000

NOTE: Model period capacities are a function of the initial capacity, but then modified for a variety of factors, such as;Lane width, shoulder width, number of lanes, percent heavy vehicles, driver population, and intersection control effects.

Transit System

The public transit system was included as part of the travel forecasting process for this transportation plan update. The public transit system currently carries less than eight thousand trips per day and approximately two million trips per year. This accounts for less than one percent of the total trips within the region. At this performance level, it is difficult for travel forecasting and modeling procedures to accurately replicate transit usage. Meaningful results from the forecasting procedures for transit trips are limited in their value to the decision-making process. However, the forecasting process can assist in determining preferred transit strategies and assess ridership increases.

The evaluation of the public transit system and recommendations for future improvements are primarily based upon historical trends and recent transit studies. The existing transit system and route structure serves as the base for the evaluation process. Recommended improvements are derived from the results of the transit studies and surveys. These studies identify deficiencies of the transit system, assess the level of unmet needs, and include comments and suggestions for transit improvements. This process is documented in the Citilink 2030 Transit Development Plan Final Report completed in January 2020 and the Coordinated Public Transit – Human Services Transportation Plan for Allen County Update completed in Fiscal Year 2017 (update initiated in 2023). The projects identified in the 2030 Transportation Development Plan and the strategies identified in the 2017 Coordinated Plan are included as a component of this plan. As noted, NIRCC initiated an update of the Coordinated Public Transit – Human Services Transportation Plan (CTP) for Allen County in early 2023 with completion anticipated in December 2023. Strategies and recommendations from the CTP that are endorsed and approved by the Urban Transportation Advisory Board (UTAB) will be amended into this plan.

Currently there are urban and rural transit systems operating within the MPA. Fort Wayne Public Transportation Corporation (d.b.a. Citilink) is the urban transit provider, providing fixed route service and complementary demand response paratransit service. Their current service area is the incorporated boundaries of the City of Fort Wayne and the City of New Haven, as well as a very small portion of northern Allen County near Parkview Regional Medical Center. There are two (2) rural transit providers within the MPA. The Whitley County Council on Aging (dba Whitley County Transit (WCT)) is the rural transit provider in Whitley County. Their service area includes all of Whitley County, including a small portion on the western edge of the MPA. The Huntington County Council on Aging (dba Huntington County Transportation (HAT)) is the rural transit provider in Huntington County. Their service area includes all of Huntington County, including a small portion on the southwestern edge of the MPA. Aging and In-Home Services of Northeast Indiana (dba Countilink) ceased operations as the rural transit provider in Allen County at the end of 2013. Between 2009 and 2013, Countilink provided demand response public transit service anywhere within Allen County as long as the trip origin or destination is outside the incorporated boundaries of the Cities of Fort Wayne and New Haven. Allen County no longer has a rural public transit provider. Citilink is the primary transit provider within the MPA.

Citilink currently provides bus service on thirteen (13) fixed routes and two (2) point-deviation routes throughout Fort Wayne and New Haven at thirty (30) and sixty (60) minute frequencies (headways), dependent upon the route and time of day. Buses operate between 5:45 AM and 9:30 PM on weekdays and 7:45 AM and 6:15 PM on Saturdays. Most of the routes utilize the Fort Wayne Central Business District as a hub and transfer point. However, in 2013, a route known as MedLink (Route 15) was established to provide a link between the Parkview North and the Parkview Randallia locations. The two (2) point-deviation routes (Routes 21 and 22) currently operate to provide access to suburban medical and retail facilities. The existing Citilink transit route network is displayed in Figure 3-4. Until the summer of 2008, the majority of the routes ran on thirty (30) minute headways, however funding issues resulted in several of the routes reducing service frequency to headways to sixty (60) minutes. Currently, twelve (12) routes run on sixty (60) minute headways, and three (3) run on thirty (30) minute headways. Citilink intends to restore the thirty (30) minute service as funding is made available to provide more frequent service on heavily used routes.

In addition, Citilink also provides complementary demand response paratransit service, known as ACCESS, for the entire city limits of the City of Fort Wayne and within a ¾ mile radius of Route 10-New Haven and Route 15-MedLink. This is a significant service for the area. Many public transit providers only provide this service within a ¾ mile radius of their fixed routes, as required. Citilink exceeds this requirement by providing paratransit service to a substantial portion of the urban population. This significantly reduces the burden on other specialized transportation providers and ensures a high degree of mobility to area residents.

Citilink's service area (incorporated boundaries of the City of Fort Wayne and the City of New Haven, as well as a very small portion of northern Allen County near Parkview Regional Medical Center) currently contains approximately 71% of all households, 69% of the population, and 87% of the employment opportunities within the Metropolitan Planning Area. If the service area does not expand, by 2045 it is estimated that these numbers will decrease to account for approximately 73% of all households, 61% of the population, and 82% of the employment opportunities within the MPA. Citilink transit routes do not fully serve their entire service area. Portions in the northeast, southwest, and surrounding the Fort Wayne International Airport do not currently receive transit service. An analysis of Citilink service indicates that approximately 52% of the households, 50% of the population, and 75% of employment opportunities are currently within a ½ mile of a transit route. Utilizing the current route network, a similar analysis for socioeconomic conditions projected for 2045 indicates approximately 46% of the households, 44% of the population, and 71% of the employment opportunities will be located within ½ mile of a transit route. Recommended expansion of the Citilink service area will help to address this service reduction.

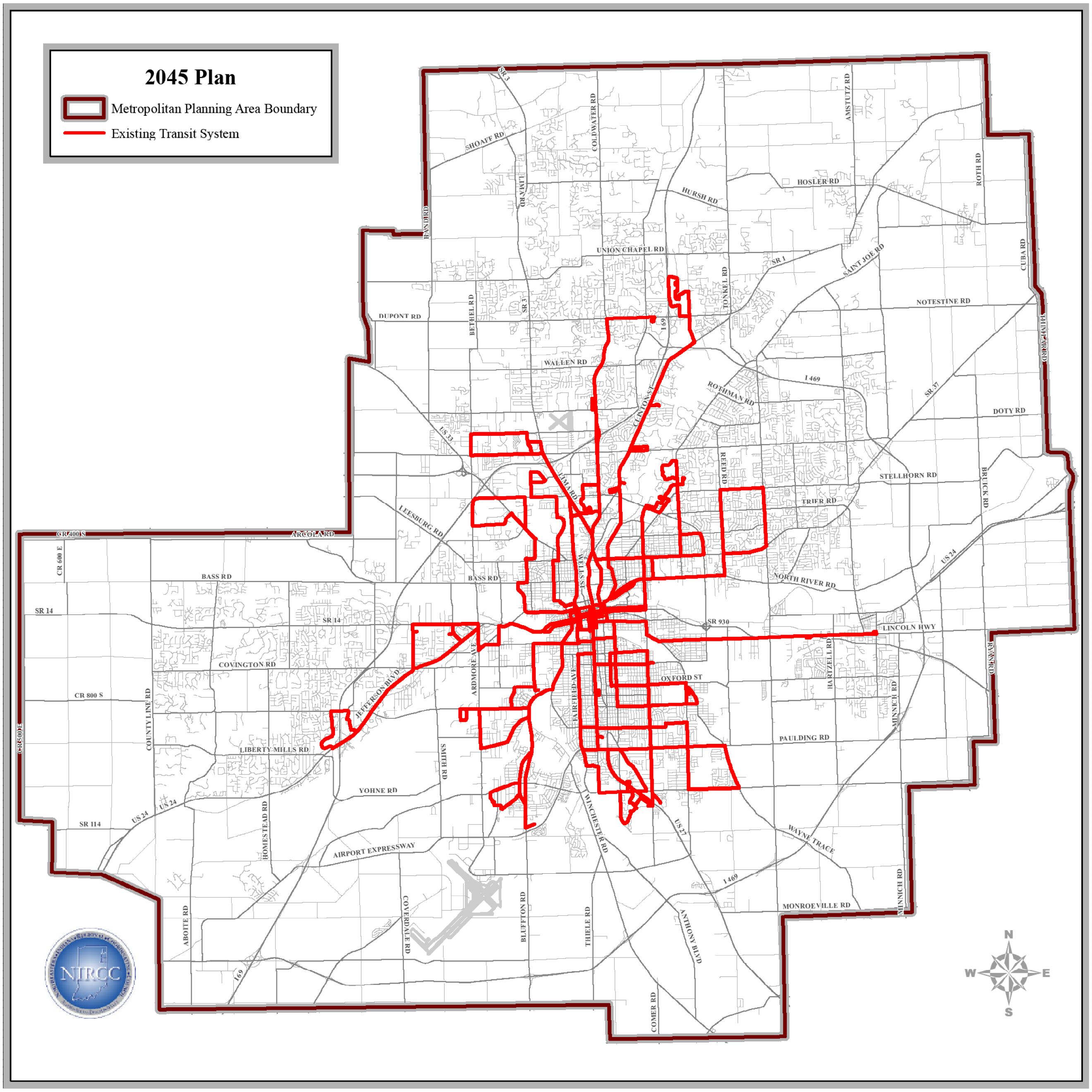

Figure 3-4

Existing Transit System

The service area of the rural transit providers within the MPA currently contains approximately .5% of all households, .5% of the population, and .2% of the employment opportunities within the MPA. By 2045 it is estimated that these numbers will increase to approximately 1.1% of the households, 1% of the population, and .3% of the employment opportunities. Since WCT and HAT both operate demand response systems, transit service is available to 100% of their service area including those portions within the MPA.

Collectively, the three (3) transit providers currently provide transit service to approximately 56% of all households, 54% of the population, and 73% of the employment opportunities within the MPA. These numbers are projected to remain relatively constant for the projected 2040 socioeconomic conditions with transit reaching approximately 50% of all households, 47% of the population, and 70% of the employment opportunities. The coverage area of transit service within the MPA is displayed in Figure 3-5.

Conclusion

The evaluation of the existing highway system was utilized for the initial evaluation of capacity deficiencies when burdened with the 2045 travel demands. The CMP includes a systematic data collection and analysis feature that evaluates highway performance based on hourly volumes and available capacity. The volume to capacity ratios provides sufficient information to assess corridor performance during peak periods and estimate the duration of any congested conditions. The deficient corridors currently operating under congested conditions are displayed in Figure 3-6.

The analysis of the travel demand forecast indicates that additional improvements are necessary to meet the projected 2045 travel demands. Highway and transit system improvements will need to be implemented to mitigate congestion and maintain desirable traveling conditions. This analysis sets the stage for developing and analyzing alternative strategies for improving the deficient corridors. The evaluation of the existing plus committed transportation system establishes the foundation for developing alternative scenarios of highway and transit improvements designed to maintain acceptable levels-of-service and meet the projected year 2045 travel desires.

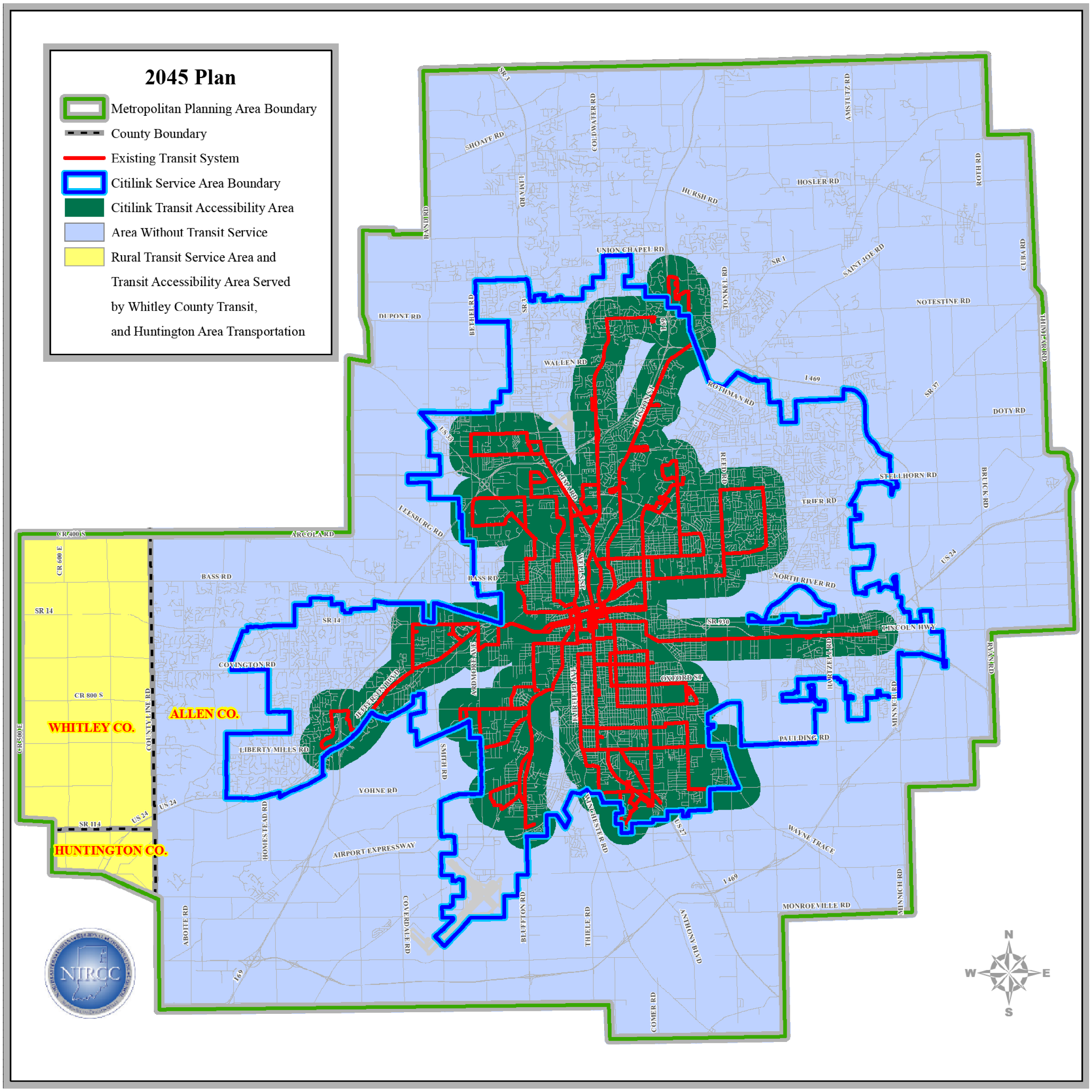

Figure 3-5

Transit System Accessibility

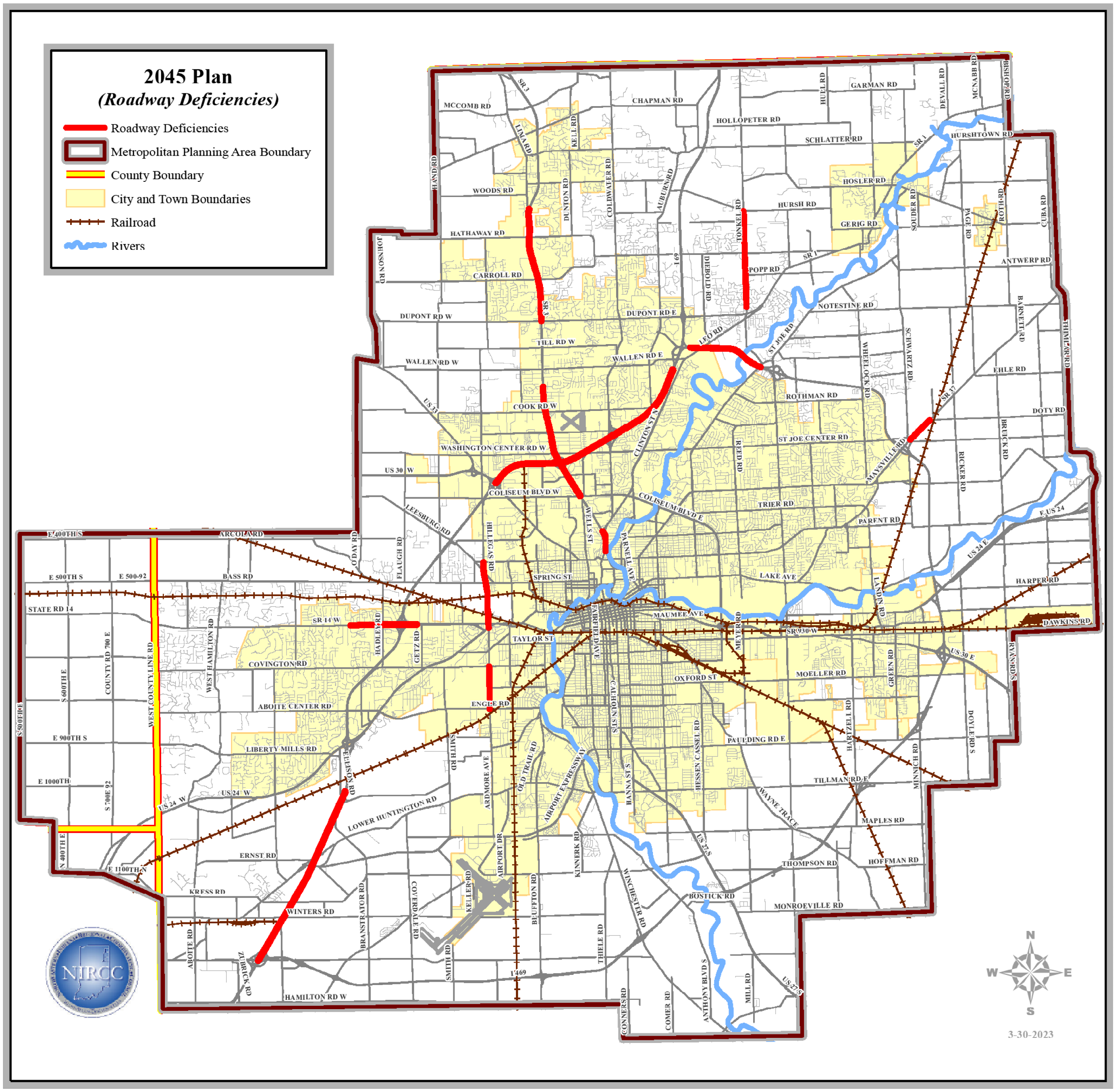

Figure 3-6

Network Deficiencies if no Projects were completed