

CHAPTER 8 TRANSPORTATION

INTRODUCTION

One of the most important, if not the most crucial, portion of any plan is that of transportation. Not only does the transportation system allow for the movement of people, but also for the movement of goods. Effective transportation systems are essential to the continued economic growth and orderly development of Barren County and its municipalities, as well as the Commonwealth of Kentucky. A basic goal of this Plan is to provide for safe, effective, and efficient transportation movements within Barren County.

The transportation system is often viewed as the streets and highways that allow for automobile and commercial truck travel to, within, and through a community. In reality, roads make up only one component of the transportation system, albeit an important one. Railroad corridors, airports, pedestrian ways, bicycle facilities, and public transportation are also important factors. Even traffic control devices are an essential part of the transportation system of an area.

This Transportation chapter was developed using a process that included:

- Data collection and inventory of the current transportation system of Barren County;
- Forecast of future highway traffic demands; and,
- Discussions with the Glasgow/Barren County Infrastructure Committee, local officials, and citizens of Barren County.

BARREN COUNTY LOCATION

As depicted in Figure 8.1 of this Plan, Barren County is located in south central Kentucky. Major regional connections to Barren County are Interstate 65, located in the northwestern part of the County which provides direct highway access north and south from Park City and Cave City to Louisville, Kentucky and Nashville, Tennessee.

Glasgow is connected to the interstate highway system both east and west via the Louie B. Nunn Parkway. On the Parkway west, Glasgow is connected to Bowling Green via Interstate 65. On the Parkway east, Glasgow is connected to Somerset and London which intersects with Interstate 75. U.S. 31-E south provides Glasgow with access to Barren River Lake and further south to Nashville, Tennessee. KY 90 travels northwest to southeast through Barren County and serves as an alternative for Glasgow to Interstate 65 via Cave City. KY 90 also connects Glasgow to Burkesville and the Cumberland/Dale Hollow lakes area of Kentucky and Tennessee.

Barren County, Park City, and Cave City are also regionally served by the main line of the CSX railroad that connects Louisville in the north and Nashville in the south. Glasgow is connected to CSX via spur line from Park City.

TRANSPORTATION SYSTEM

The current transportation system for Barren County is composed of the following elements:

- Federal, state, and local roadways, with their associated traffic control devices;
- CSX railroad with its associated traffic control devices;
- A pedestrian system comprised almost exclusively of sidewalks;
- Moore Field Airport; and,
- Glasgow public transportation system and para-transit services.

The most important means of travel in Barren County is via highways. The principal highways running through Barren County are Interstate 65, Louie B. Nunn Parkway, U.S. 31-E, U.S. 31-W, U.S. 68 - KY 80, and KY 90. Major highways serving Glasgow are the Louie B. Nunn Parkway, U.S. 31-E, U.S. 31-E By-Pass, U.S. 68 - KY 80 and KY 90. Both Cave City and Park City are served by Interstate 65 and U.S. 31-W. KY 90 serves Cave City directly and provides access to Park City via U.S. 31-W one mile north. KY 70 serves Hiseville and Cave City, located in the northern part of the County.

Barren County has a general aviation airport, Moore Field, located in northern Glasgow along KY 90. CSX Transportation provides rail service to the community via its main line, Nashville to Louisville, in the northwestern part of the County. There is also a branch rail line from Park City to Glasgow. Glasgow maintains a fixed route public transit system and has on demand para-transit service. Barren County does not have access to commercially navigable rivers.

COUNTY GATEWAYS

Gateways are a term used to describe the entry points to an area, such as a county or its major urban areas or cities. Gateways are important because they provide visitors with a first impression of Barren County. There are currently four major and three minor gateways into Barren County as shown in Map 8.1. These gateways are:

Barren County

- Major: Interstate 65 north and south.
Louie B. Nunn Parkway east and west.
- Minor: KY 90 northwest and southeast.
U.S. 31-E south.

Every effort should be made to make these locations as attractive and informative as possible.

Within Barren County there are three urban areas. Each of these urban areas also has gateways to their respective areas. In addition to providing visitors with first impressions of each city, city gateways indicate the transition from rural to urban land uses. The gateways to each City include:

Cave City

- Major: Interstate 65 via KY 90 exit, north and south.
- Minor: U.S. 31-W north and south.

Park City

- Major: Interstate 65 at KY 255 exit, north and south.
- Minor: U.S. 31-W north and south.

Glasgow

- Major: Louie B. Nunn Parkway west via exits 8, 11, 14 & 15.
- Minor: U.S. 31-E south, U.S. 68 - KY 80 west, and Louie B. Nunn Parkway east via exits 8, 11, 14 & 15.

Two additional areas of the County need to be recognized as having gateway status because of their tourism destination standing. The first is Mammoth Cave National Park. Major access to the National Park is via KY 70 north at the Interstate 65 exit at Cave City and minor access from KY 255 at Park City. The other significant area is Barren River Lake State Resort Park. Major gateway access to the state resort park is via Louie B. Nunn Parkway to the U.S. 31-E interchange (exit 11) and then on U.S. 31-E south to the Park. The minor gateway access is via KY 234 east to KY 1533, then KY 252 south to U.S. 31-E and then to the Park.

Each of the gateways identified above offers their own unique characteristics. Some are still relatively rural in character and care should be taken to preserve the character that Barren County and its Cities wish to project. Indiscriminate urban sprawl should be avoided along these important corridors.

REGIONAL HIGHWAY SYSTEM

The Intermodal Surface Transportation Efficiency Act (ISTEA) established the National Highway System. This system includes the interstate highway system and other significant principal arterial roads important to the nation's economy, defense, and mobility. The National Highway System within Barren County consists of Interstate 65 and Louie B. Nunn Parkway.

In addition to the National Highway System, Barren County is linked to surrounding counties by a series of state maintained minor arterial and major collector highways, see Figure 8.1 Barren County Regional Access. These road systems include:

- U.S. 31-E south of Glasgow and KY 90 from Cave City through the County into Metcalf County are the rural minor arterial.
- U.S. 31-W, U.S. 31-E north of Glasgow, U.S. 68 - KY 80, KY 63, KY 249, and KY 70 are major collector routes.

LOCAL

The primary function of local streets is to provide access between abutting land and to the other roads. Local streets have the smallest right-of-way, provide the lowest level of mobility, have the lowest speed limits, and generally have the lowest traffic volumes. Local streets comprise the largest portion of the total mileage of the street system in either an urban or rural area but carry only a small portion of the total vehicle-miles traveled. Through traffic should be eliminated between local and other streets. Within this Chapter, all roads not designated as either arterial or collector are considered local.

MINOR COLLECTOR

A road used for movement of vehicles from local streets, providing access to adjacent properties, and serving smaller rural communities which do not have access to other collector or arterial roads. Minor collector roads carry more traffic than local streets but still have only low volumes of traffic. The minor collector road may penetrate a residential neighborhood for the purpose of distributing trips from the major collector or arterial into to the local street system and properties adjoining its right-of-way.

MAJOR COLLECTOR

A major collector street typically links local or minor collector streets and the arterial street system or other traffic generators of inter-county importance. They also serve larger communities not directly served by an arterial highway. A major collector carries moderate traffic volumes and provides a balance between access to abutting land and traffic circulation with residential, commercial, and industrial areas. In smaller urban areas, such as Glasgow, collector streets may include the street grid, which forms a logical scheme for traffic circulation in the downtown area.

MINOR ARTERIAL

Minor arterial streets typically interconnect with principal arterials, larger towns, and other major traffic generators while providing service to trips of moderate length at a lower level of mobility. The primary emphasis is the movement of traffic. Minor arterials, spaced at intervals consistent with population density; ensure that all developed urban areas are within a reasonable distance of an arterial highway. Within the larger urban area, the minor

arterial interconnects with and augments the principal arterial system and provides service to trips of moderate length and a somewhat lower level of travel mobility than a principal arterial. Land access is still more prominent.

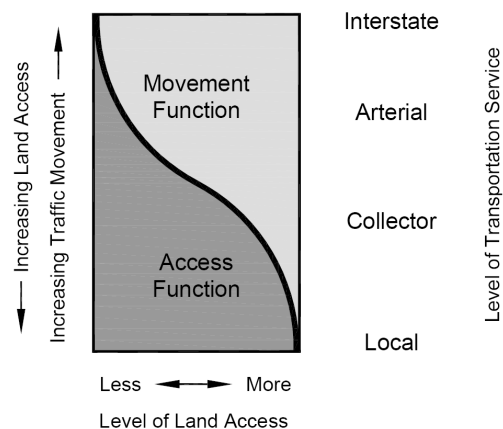
PRINCIPAL ARTERIAL

Roads that serve longer interregional trips or major centers of activity in large urban areas. It serves virtually all urban areas with populations of 20,000 and above. Ideally, a principal arterial should be used only for traffic movement and should not provide for vehicle access to adjacent properties. Interruption of traffic flow should be permitted only at street intersections.

INTERSTATE AND PARKWAY

A type of principal arterial but with controlled access. These roads have four or more lanes that move large volumes of traffic. Interchange of traffic between an interstate or parkway and other streets is accomplished by grade separated interchanges. Figure 8.2 illustrates the traffic movement and access function of the classification system.

Figure 8.2:
Functional Class Hierarchy



URBAN OR RURAL FUNCTIONAL CLASSIFICATION SYSTEMS

Because urban and rural areas have fundamentally different characteristics pertaining to street density, highway network, and travel patterns it is necessary to further divide each of these functional classifications. Presented below is a brief description of the urban and rural functional classes:

For the purpose of functional classification, urban areas are defined as census-designated urban areas containing a population of 5,000 or more. Glasgow is the only urban area within Barren County. Roadways within an urban area are classified as urban roads or streets. Roads or streets outside of urban areas are classified as rural. The functional classifications are described similar whether in urban or rural areas. However, the differences in the nature and intensity of development between rural and urban areas cause the rural system to have characteristics that are somewhat different from the correspondingly named urban systems. Those distinctions have been noted in the functional classifications.

BASIC STREET NETWORK

Table 8.1 summarizes the existing miles of roadway in Barren County by functional classes. Glasgow's roads are classified as urban. All other roads in Barren County are classified as rural. Table 8.2 lists the street maintained by the various jurisdictions. Barren County government is responsible for just over 52% of the total road system of Barren County. Map 8.2 graphically shows the location of the functional classified roads in Barren County.

Table 8.1:

Barren County Road Miles by Functional Classification

Functional Classification	Barren County Road Miles (mi)	% of County System
Interstate	16.9	4.27
Urban Freeway	13.3	3.36
Rural Principal Arterial	31.4	7.93
Urban Minor Arterial	34.2	8.63
Rural Minor Arterial	38.9	9.82
Rural Major Collector	71.9	18.15
Urban Collector	20.4	5.15
Rural Minor Collector	152.5	38.50
Local	16.6	4.19
Total	396.1	100%

* Total Combined with above figure

Source: KY Transportation Cabinet, Functional Classification Report 2019.

Table 8.2:

Existing Roadway Mileage Maintained by Jurisdiction in Barren County

Agency	Mileage	Percentage
State	396.1	33.3
County	620.0	52.1
City Municipalities	139.1	11.7
Glasgow	112.0	9.4
Cave City	20.0	1.7
Park City	7.1	0.6
Private	26.8	2.2
State Park	7.6	0.6
National Park	1.2	0.1
Total	1,190.8	100%

Source: Kentucky Transportation Cabinet, Highway Information System, 2018.

The importance of the functional classification system for the Planning Commission is two fold. First, the designation of each road in Barren County will permit the Planning Commission to evaluate future land use proposals in relation to the hierarchical function of each road and more broadly on the road system as a whole. Secondly, the classification system enables the Planning Commission to determine which class of roadways needs improved access management regulations.

TRAFFIC VOLUME DATA

Perhaps the best indicator of the importance of a road and how it fits into the transportation network is the count showing the volume of traffic flowing on a given roadway. The Average Daily Traffic Volume (ADT) is an automatic count of the number of vehicles passing a given spot on the road during a twenty-four hour period. According to the Kentucky Transportation Cabinet's updated 2009 data, ADT volumes for highways within Barren County are shown on Map 8.3. Map 8.4 presents historic traffic volumes for the heaviest traveled roads in Barren County. Only roadways with 1,000 or more ADT volumes have been graphically shown.

An examination of ADT volumes reveals traffic on roadways within Barren County are strongly influenced by interurban or through traffic. Interstate 65 and Louie B. Nunn Parkway are the primary routes for through traffic. KY 90 also carries a

recognizable volume of through traffic. The primary gravitational pull of intra-county or local traffic volumes is Glasgow and secondary for Barren River Lake and Cave City. Thus, the highest traffic volumes on major routes of local interest are highest as they approach Glasgow and to a lesser extent U.S. 31-E between Glasgow and Barren River Lake and KY 90 from Cave City to Glasgow.

Traffic volumes on the nation's roadways have decreased between 2009 and 2014. During this 5-year period the nation's population has grown 9.7 percent while vehicle trips on our nation's highways have decreased 10 percent. This is most likely a result of the economic downturn which has led to fewer trips involving both work and recreation. This same trend is present in Barren County. With the county, Interstate 65 and the Louie B. Nunn Parkway has experienced approximately a 33 percent decrease since 2007. The section of KY 90 between Cave City and Glasgow has decreased nearly 36 percent since 2008 and southeast of Glasgow KY 90 has decreased slightly over 15 percent since 2006. U.S. 31-E, northeast of Glasgow, has decreased 40 percent since 2006, while between Glasgow and Barren River Lake annual traffic has decreased about 18 percent for the same period.

MEANS OF TRANSPORTATION TO WORK

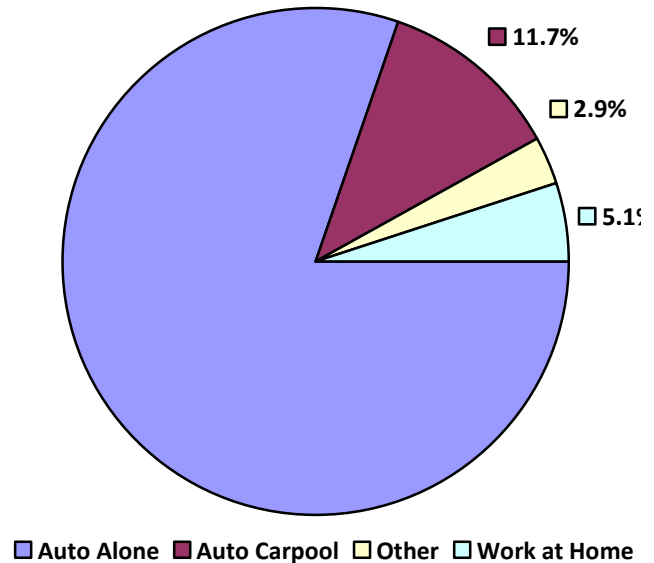
Private vehicles, especially driven alone to work, are the mode of choice in Barren County. According to the 2017 Census Bureau, 92 percent of Barren County residents traveled to work by automobile, truck or van, and 80.3 percent of those workers traveled alone. While there were minor variations, residents in Cave City, Glasgow and Park City also rely heavily on their personal vehicle as a means of transportation to work. The percentage of workers driving alone from each of the cities mirrored the County numbers.

The number of Barren County workers who drove alone to the workplace decreased by 400 persons from 2013 to 2017, 83 percent to 81 percent. During the same period, carpooling has seen gains in both popularity and share, from 1,870 (10%) in 2013 to 2,100 (12%) in 2017, see Figure 8.3.

Public transportation and walking were the other forms of transportation to work. However, these forms of transportation account for only a very small percentage of work trips for Barren County and its municipalities. Transit trips are limited to Glasgow and cater to the elderly and disabled persons who

desire to travel from home for medical care or personal reasons such as shopping.

Figure 8.3:
Work Trips by Mode in Barren County



Source: U.S. Census Bureau, 2017

Barren County workers are spending more time than ever getting to work. In 2010, the average travel time to work for residents of Barren County was 20.3 minutes. This is an increase of 0.4 minutes compared to 2000 figures. Two thirds of the workers in Barren County leave their residence to go to work between the hours of 5:00 A.M. and 8:00 A.M. Of these travelers the majority, 36.1 percent, leave their homes for work between the hours of 5:00 A.M. and 6:59 A.M. 24.1 percent leave home for work between 7:00 A.M. and 7:59 A.M. This pattern is also consistent for each of the County's municipalities.

VEHICLE OWNERSHIP AND REGISTRATION

Vehicle ownership is one of the strongest factors in determining travel habits. According to the 2010 Census, there were 1.5 vehicles per household in Barren County. Vehicle registrations for Kentucky and Barren County are presented in Table 8.3 for 2018 and arranged by vehicle type. In 2018 there were 36,313 vehicles registered in Barren County, of these 29,113 (80.2%) were gasoline powered.

Table 8.3:
Barren County Vehicle Registration

	Gasoline	Diesel	Hybrid	Electric	Flex Fuel	Natural Gas
Kentucky	2,796,288	200,684	32,846	898	296,292	1,499
Barren Co.	29,113	2,170	215	5	3,336	20

Source: Kentucky Division of Motor Vehicles, 2018

COMMUTING PATTERNS

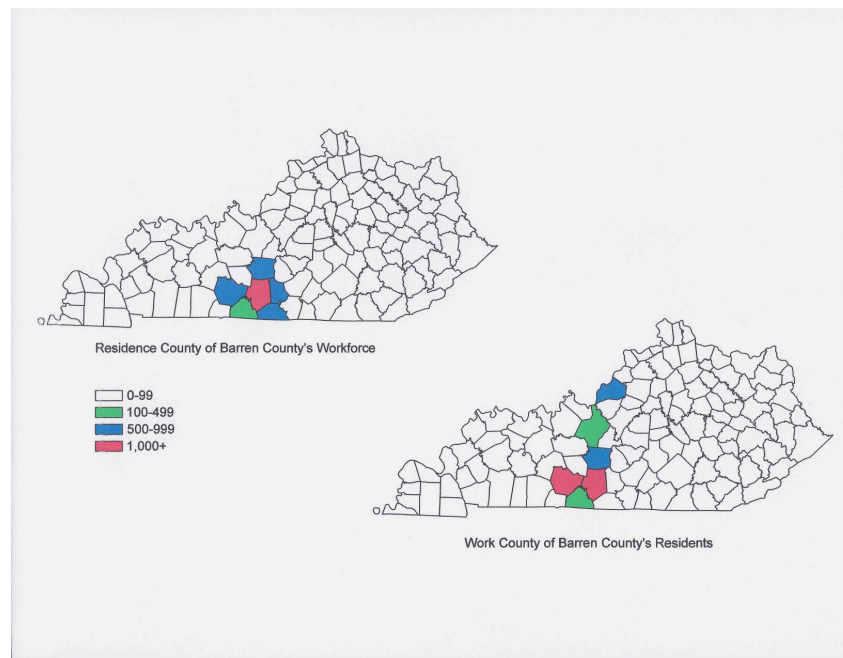
According to 2017 Civilian Labor Force Data, Barren County had 18,862 persons working in the County. Of these, 8,529 or 52.6% lived and worked within the County. Barren County attracted 7,685 persons who live elsewhere but commuted into the County to work. In addition, 8,080 County residents commuted to other counties for work. Barren County continues

to be a strong attractor for workers. This indicates the community's strength as a regional economic development center.

Barren County attracts workers from 37 counties, but there are two counties, which provide the majority of out of county workers for jobs in Barren County, Metcalfe County and Warren County. There are three other counties from which Barren attracts over 100 workers. In order of magnitude, the three counties are Hart, Monroe and Allen. This trend also shows the strength of the local economy.

Barren County residents commute to work in 34 counties. One of these counties, Warren provided over two thousand Barren County residents with jobs. Four other counties attract over one hundred Barren County residents. In order of magnitude, the four counties are: Hart, Jefferson, Hardin and Allen, see Figure 8.4.

Figure 8.4:
Barren County Commuting Patterns 2017



Source: Community and Economic Development Initiative of Kentucky

CRASH PATTERNS

Traffic crash summaries for 2018 were obtained from the Kentucky State Police for Barren County and each of its Cities. In 2018 there were seven collisions within Barren County resulting in eight deaths. Map 8.5 shows the approximate locations of those crashes.

Data was also gathered from the Kentucky State Police that compared the number of collisions on Kentucky roadways by roadway type for 2018. As indicated in Table 8.4 below, relatively few collisions were reported on interstate highways (10.3%). Approximately 29% of all collisions occurred on Kentucky's "State Numbered" roads, with 46% of all fatal collisions occurring on this type of roadway. Although 19% percent of all collisions occurred on city streets, only about five percent (5%) of the fatal collisions occurred on these types of roadways. Additionally, while the overall percentage of collisions (4.4%) occurred on county roadways, their fatality rate was slightly higher, 6.7%, than city streets at 4.6%.

Table 8.4:
Kentucky Collisions by Roadway Type 2018

Type of Roadway	Fatal Collisions	Nonfatal Injury	Property Damage	Total	% of Total
Federal	179	5,878	25,759	31,816	20.1
Interstate	71	2,472	13,686	16,229	10.3
State Route	309	9,109	36,983	46,401	29.3
Parkway	25	328	1,596	1,949	1.2
County Road	45	1,236	5,699	6,980	4.4
City Street	31	3,597	27,206	30,834	19.5
Other	11	996	22,950	23,957	15.2
Total	671	23,616	133,879	158,166	100.0

Source: KY State Police Collision Report, 2018

Table 8.5:
Barren County Roadway Collisions 2012-2018

Year	Collisions				Persons	
	Total	Fatal	Non-Fatal Injury	Property Damage	Killed	Injured
2012	1,028	8	213	807	9	314
2018	1,732	7	247	1,478	8	369

Source: KY State Police Collision Report, 2018

Table 8.6:
Barren County Parking Lots/Private Property Collisions 2012-2018

Year	Collisions				Persons	
	Total	Fatal	Non-Fatal Injury	Property Damage	Killed	Injured
2012	306	1	11	294	1	14
2018	344	0	3	341	0	3

Source: KY State Police Collision Report, 2018

Information obtained from the Kentucky State Police indicates that there were 1,478 vehicle crash locations within Barren County during 2018. Map 8.6 displays the spatial location of each reported crash location in 2018. It is important to note that the data represents crash locations along roadways, parking lots and on private property.

BRIDGES AND OTHER STRUCTURES

Bridges comprise an important element of the roadway network. Various safety problems and capacity issues arise from inadequate bridge facilities. The Kentucky Transportation Cabinet (KYTC) regularly inspects bridges on public roads and evaluates their condition and computes load limits and sufficiency rates for them. Bridges with low sufficiency ratings are inspected more often than those with higher sufficiency ratings. The legal minimum load limits for bridges is 18 tons. Sufficiency ratings are based on the bridge's age,

type structure, condition, and traffic. The ratings are ranked from 0-100.

Within Barren County there are 107 State maintained bridges. Of these bridges, 82 are located within the County, 21 are located within Glasgow, 3 are located within Park City and Cave City has 1 bridge.

Of the state maintained bridges in Barren County only one bridge, inside the City limits of Glasgow on North Race over Water Street, is considered structurally deficient. A structurally deficient bridge as defined by the Kentucky Transportation Cabinet is any bridge that has elements that need repaired or monitored. A structurally deficient bridge is not necessarily unsafe.

Compared to nationwide bridges, Kentucky tends to have a slightly higher percentage of obsolete bridges. In 2011, Kentucky had 21.56% deficient bridges as compared to the national percentage of 20.69. The definitions used by the Federal Highway Administration (FHWA) for functionally obsolete bridges is defined as a bridge that has acceptable load carrying capacity, but impose physical restrictions (narrow width, restricted vertical clearance, limited sight distances, speed reducing curves, or insufficient waterway adequacy).

TRUCK NETWORK

The Kentucky Revised Statute requires weight limits on the state maintained highway system. There are three weight classification limits: (1) AAA – 80,000 lbs. gross vehicle weight; (2) AA – 62,000 lbs. gross vehicle weight; and (3) A – 44,000 lbs. gross vehicle weight. Major truck routes in Barren County designated as “AAA” include Interstate 65, Louie B. Nunn Parkway, U.S. 31-E, U.S. 31-W, U.S. 68 - KY 80, KY 90, Veterans Outer Loop (KY 3160) and parts of KY 70, see Map 8.9. One other road, KY 839 is designated as “AA” 62,000 lb. gross load limit. Several other state roads are designated as “A”, see Map 8.8.

The National Truck Network (NN) includes roads that have been specifically designed for use by commercial trucks with increased dimensions (102 inches wide; 13 feet 6 inches high; semi-trailers up to 53 feet long; and trailers 28 feet long – not to exceed two trailers per truck). Trucks meeting the National Truck Network standards are permitted to travel 5 miles from the NN designated routes. Within Barren

County, Interstate 65, Louie B. Nunn Parkway and part of KY 90 between Cave City and Glasgow are on the National Truck Network. Kentucky has also designated U.S. 31-E from Glasgow to Scottsville as a state authorized route on the National Truck Network. See Map 8.7, Barren County Roadway Truck Traffic Counts.

INTELLIGENT TRANSPORTATION SYSTEM (ITS)

Currently several intelligent transportation system applications are being used in Barren County. Among these are the enhanced 911 network (E-911), Geographic Information System (GIS), rural and urban addressing scheme, and 511 system.

One of the keys to emergency access is rapid connection and dispatch of emergency systems. Use of the countywide GIS system has been instrumental in implementing E-911 and other planning and emergency management programs. With the use of an established urban and rural physical addressing system, Barren County has eliminated duplicate street names, set uniform house numbering standards and established directional indications. The community has an advanced system which is quite effective in meeting the emergency dispatch needs of the Cities and rural areas of the County. Currently Barren County is working to establish a wireless E-911 system, which will be a key to post-crash injury control through rapid access to emergency services and response by emergency personnel. The Kentucky Transportation Cabinet has recently activated the 511 system, which is an easy-to-remember telephone number for traveler information. This system will provide weather and road conditions, road closures as well as major delay information.

RAIL

Rail service is an important element in the movement of freight due to its capability to carry large and bulky loads which trucks are unable to carry economically. The CSX Transportation provides rail service to Barren County and the cities of Cave City, Glasgow and Park City. The main line of the CSX Transportation system between Indianapolis and the Gulf Coast area runs in the northwest corner of Barren County and serves Cave City and Park City. There is 8.5 miles of CSX mail line in Barren

County. There is a branch line between Park City and Glasgow which serves the Glasgow area. The overall length of this Branch is 9.1 miles. The major commodities hauled by this railroad include aluminum can stock, grain, fertilizer, steel, lumber, paper, chemicals, wallboard, and zinc.

The crossing of railroad lines with streets at grade is a major transportation safety issue. Currently there are numerous railroad/highway crossings within Barren County. These crossings range from private crossings with appropriate signage to public crossings with flashers and flashers with traffic gates. As traffic increases there will be greater risk of collisions.

PUBLIC TRANSPORTATION

Public transportation is provided by the Glasgow Transit System, a division of the Public Works Department. Glasgow transit runs a fixed scheduled route, with deviation for handicap residents. The Glasgow Transit travels approximately 32,000 miles annually with 22 bus stops and 7 rounds per day. During 2013 Glasgow Transit served 8,067 residents, with 400 being wheel chair passengers. Scheduling wheel chair riders requires 24-hour advance notice. There are also para-transit services provided to the residents of Glasgow and Barren County by private providers. In 2013 the City of Glasgow received a grant to construct 8 covered bus shelters.

AIR TRANSPORTATION

Barren County and Glasgow support a general aviation airport. The Municipal Airport, Moore Field, is located in the northern part of Glasgow along KY 90. The airport encompasses 300+ acres. Access to the airport is off KY 90 via Airport Road. Currently there are 35 aircraft based at the Municipal Airport. The airport is currently used primarily as a mixture of recreational, industrial and medical purposes. See Map 8.9.

SCHEDULED COMMERCIAL AIRLINE SERVICE

Nashville International Airport provides the closest commercial air service. This facility is located 6

miles southeast of Nashville, Tennessee and is 85 miles south of Glasgow. Nashville International Airport offers a wide variety of commercial airline services.

FACILITIES

The Municipal Airport has one paved runway (Runway 07/25) 5,301 feet long by 100 feet wide with a connecting parallel taxiway 5,000 feet long by 35 feet wide which connects to the aircraft parking apron. The runway is equipped with medium intensity runway lights (MIRL), runway end identifier lights (REIL) and visual approach slope indicators (VASI). The facility also has non-directional radio beacon (NDB) and other visual navigational aids. There are currently 37 aircraft and two helicopter based at this facility. There is a 2,500 square foot administration building, with pilot lounge, conference room, and an airport administrative office. The administrative building is currently in excellent condition. A Fixed Base Operator is located at the airport which offers the following services: Fuel sales (Avgas and Jet A); aircraft repair and service; aircraft rental; automobile rental, flight instructions; and tie downs and hanger rental. Recent improvements include a new apron, currently under construction.

The airport has seven covered hangers that can house a total of 34 aircraft. Currently there is effectively little apron area. The automobile parking lot is large enough to provide parking for 20 vehicles and is free to the public and employees. There is a helicopter landing pad on the airport property where the Statcare medivac helicopter is stationed. Statcare has also constructed a new building which facilitates a full time staff on the airport property.

VEHICLE ACCESS

The administration building, hangar and other land side facilities have access by way of KY 90, a two lane blacktop facility. The typical section for KY 90 is a 10 feet wide lane with 10 foot shoulders in the vicinity of the airport. KY 90 in the stretch adjacent to the airport also has both center and edge striped but doesn't have left hand turning lanes.

EVALUATION OF CURRENT AIRPORT FACILITIES

Table A.1, located in the Appendix of this document, presents a summary of the findings of a review of the Municipal Airport facilities. Glasgow Municipal

Airport is classified as a Level III Business Airport of Regional Impact. The Kentucky Aviation System Plan defines this level of airport as:

“The foundation of Kentucky’s aviation system’s utility and service to local communities across the state will be provided by airports, which are capable of accommodating business use. Since business usage is an important consideration in the development of Kentucky’s airport system, the next level of development will allow access by a large percentage of the general aviation fleet. While aircraft of all types are utilized for business purposes, many of those commonly used for business are the higher end of the general aviation fleet.”

Level III standards call for a minimum runway length of 5,000 feet, in conjunction with a non-precision instrument approach and other facilities as are described on Table A.1. This level of service will consider a ground accessibility goal of 30 minutes.

FUTURE LAND USE TRENDS AFFECTING TRAFFIC CONDITIONS

2010 Census figures indicate that Barren County and the three municipalities have increased in population and it is projected that Barren County’s population will increase 26.1 percent by the year 2040. Population, employment and household trends will dramatically affect future traffic conditions. In reviewing past and projected trends, it is estimated that moderate traffic growth will occur because of population and household formation growth.

The number of workers residing in Barren County has steadily increased since 1980. It is projected that the workforce will continue to grow at a modest rate throughout the planning period. In addition, the number of registered motor vehicles has been increasing and it is expected that this trend will continue as well. A comparison between the 2014 and the 2019 land use maps indicates that new developments have been locating in the suburbs of Glasgow and scattered along the major highways throughout the County. This dispersed land use pattern, coupled with limited job opportunities in Barren County, limited public transportation and increased automobile registrations, indicates that the automobile will remain the predominant means of transportation well through the year 2040.

FUTURE TRAFFIC CONDITIONS

This section provides an analysis of future traffic growth for Barren County. Historic travel data was analyzed to provide a baseline forecast of future traffic growth trends. This forecast excludes any additional development in Barren County above the level experienced during the past ten years. The future traffic volumes are based on the assumption of growth rates of 1.5 percent per year increase in Average Daily Traffic (ADT) between 2008 and 2020 on all roads except the federal designated highways. For U.S. 68 - KY 80 west of Glasgow, U.S. 31-E and U.S. 31-W the assumed growth rate was 2.0 percent per year and on U.S. 68 - KY 80 east of Glasgow, 4.5 percent per year was used.

Map 8.10 and 8.11 show the projected future traffic volumes for major highways in Barren County. Historic traffic growth analysis indicates moderate increases in traffic on Barren County’s major roads during the planning period. The only exception to this trend occurred along a section of U.S. 68 - KY 80 east of Glasgow. The causes of these increased ADT will vary, but the primary contributors will be more frequent local vehicle trips, which will be longer and include multiple purposes. Through traffic will continue to increase at a moderate rate, particularly on U.S. 68 - KY 80 and U.S. 31-E southwest from Glasgow. U.S. 68 – KY 80 west of Glasgow is expected to grow because of the economic development of the Bowling Green urban area and the availability of good highway access to this region.

Based upon the highway improvement needs identified in this chapter it is recommended that the Planning Commission and local elected officials garner support for the recommended projects and continue to push for their completion. Local governments should also begin to focus on access control and corridor planning now.

ACCESS MANAGEMENT

Access management provides tools to deal with land use abutting or otherwise served by a roadway, while still preserving the roadway’s capacity to operate safely and efficiently. It is a way of determining when and where access should be located, how it should be designed, and the procedures needed to administer the program. In other words, it properly manages the competing needs of traffic movements

and the demands for access to different adjoining land uses.

Symptoms of poor access management:

- High crash areas.
- Poor traffic flow and congestion.
- Strip development.
- Pressures to widen an existing street or build a bypass.
- Neighborhood disruption by cut-through traffic.

Benefits of access management:

- Safety.
- Fewer and less severe crashes.
- Reduced delays.
- Increased and preserved capacity.
- Preservation of investment in the roadway system.
- Preserves neighborhood integrity.
- Preservation of private investment in abutting properties.

Access management techniques:

- Driveway location and design.
- Corner clearance.
- Driveway spacing.
- Installation of non-traversal medians.

SCHEDULED PROJECTS

Presented in Table A.2 and A.3, located in the Appendix of the Plan, are the recommended future highway improvements for Barren County, Cave City, Park City and Glasgow. Generally, this list represents the initial highway program for the next 20 years. However, it is important to understand that land use and transportation are closely related. Land use decisions will directly influence the decisions the community makes regarding transportation. Conversely, transportation decisions will directly influence the decisions made regarding land use. The projects listed in Tables A.2 and A.3 are not exhaustive in nature. Additional projects will become apparent in the future and should be added to the list.

The best example of the interrelationship of land use and transportation is the recently completed Outer Loop Bypass (KY 3160). While this project was

needed to relieve congestion in downtown Glasgow, there has been a gradual shift in land use as land uses designed to service the motoring public are locating near the newly constructed bypass.

HIGHWAYS

The *Kentucky Statewide Transportation Improvement Program, FY 2019-2022*, lists three highway improvements for Barren County. These projects represent both the short-range and long range highway projects for this plan and are listed in Table A.2 and A.3 shown on Map 8.12. The most significant improvement should be the widening of KY 90 between Cave City and Glasgow. This project will permit through traffic to Glasgow and vice versa to Cave City, improve access to the central industrial area of Glasgow and will improve the functional and operational characteristics of the streets in Glasgow and Cave City with the ability to transfer large freight to Interstate 65.

AIR

Listed below are improvements for the Glasgow Municipal Airport. These projects are not listed in order of importance or given a time frame other than they will be needed within the time frame work of this plan.

Short-range projects:

- Future approach system on end of runways consisting of two more precision approach path indicator (PAPI).
- Create object free area from centerline of runway to 400 feet. Relocate 5 existing enclosed hangars to accommodate this object free area.
- Develop active program to protect the airport from urban land use encroachments.
- Seal coat and re-stripe runway and taxi-way.
- Clear obstructions.

Long range projects:

- Development of left turning lane on KY 90.
- Expand apron parking/storage area to accommodate at least 12 aircraft.
- Expand automobile parking area to accommodate additional 10 parking spaces.
- Build a new terminal building and construct "T" hangars.

RAIL

Because the rail system serving Barren County is privately owned, there is not a list of specific project that local officials and community leaders should pursue. There are several actions that Barren County should be prepared to undertake at the appropriate time. Included among these are:

- Local officials and community leaders should assist in reducing the number of railroad/road crossings within Barren County.
- Community leaders should work closely with CSX Transportation in preserving and enhancing the existing rail service in Barren County.
- In cooperation with CSX Transportation, promote economic opportunities that utilize rail service.
- Examine the feasibility of developing an intermodal transportation facility such as rural rail-highway terminal.
- Participate in rail safety/accident prevention programs jointly with CSX Transportation.

INTERSTATE 66 CORRIDOR

In 1991, the Intermodal Surface Transportation Efficiency Act (ISTEA) established priority corridors of national significance to prepare long-range plans and feasibility studies and to allow the States to give priority to funding the construction of these corridors and to provide increased funding for segments of these corridors that have been identified for construction. The following justifications were used for creating the high priority corridors:

- The construction of the Interstate Highway System connected the major population centers of the Nation and greatly enhanced economic growth in the United States.
- Many Regions of the Nation are not adequately served by the Interstate System or comparable highways and require further highway development in order to serve the travel and economic development needs of the region.
- The development of transportation corridors is the most efficient and effective way of integrating regions and improving efficiency and safety of commercial and travel and further promoting economic development.

In 1995, Section 1105 (c) (3) of ISTEA was amended and in Kentucky listed Interstate 66 as centered on the cities of Pikeville, Hazard, London, Somerset, Columbia, Glasgow, Bowling Green,

Hopkinsville, and Paducah. The Southern Kentucky Corridor (I-66) would connect with the proposed King Coal Highway (also called I-73/74 North-South Corridor) in West Virginia.

A number of studies have been completed on the Southern Kentucky Corridor (I-66) and proposed King Coal Highway. For this corridor, the Trans American Corridor Location Study was completed in 1994, while a Study Approach and Issues, Existing Conditions, Project Estimate, Economic Impact Assessment, Economic Justification and Financial Feasibility Study, and a Corridor and Need Study were also completed. Plans for the local I-66 Project include inducting Louie B. Nunn Parkway (Cumberland Parkway) into the I-66 Corridor.

SUMMARY OF FINDINGS

- ❖ Barren County has a good multi-modal transportation system that includes air, rail, transit and four-lane limited access highways.
- ❖ Barren County has major regional connections via Interstate 65. Located in the northwestern part of the County, Interstate 65 provides direct highway access north and south from Park City and Cave City to Louisville, Kentucky and Nashville, Tennessee.
- ❖ Glasgow is connected to the interstate highway system both east and west via the Louie B. Nunn Parkway. KY 90 travels northwest to southeast through Barren County and serves as a convenient alternative for Glasgow to Interstate 65 at Cave City. KY 90 also connects Glasgow to Burkesville and the Cumberland/Dale Hollow lakes area of Kentucky and Tennessee.
- ❖ Gateways are a term used to describe the entry points to an area, such as a county or its major urban areas or cities. Gateways are important because they provide visitors with a first impression of Barren County. There are currently four major and three minor gateways into Barren County. There are also gateways to each of the cities of Barren County, Barren River State Park and Mammoth Cave National Park. Every effort should be made to make these locations as attractive and informative as possible.

- ❖ An examination of traffic volumes on roads in Barren County reveals that traffic is strongly influenced by interurban or through traffic. Interstate 65 and Louie B. Nunn Parkway are the primary routes for through traffic. KY 90 also carries a recognizable volume of through traffic. The primary gravitational pull of intra-county or local traffic volumes is Glasgow and secondary for Barren River Lake and Cave City. Thus, the highest traffic volumes on major routes of local interest are highest as they approach Glasgow and to a lesser extent U.S. 31-E between Glasgow and Barren River Lake and on KY 90 from Cave City to Glasgow.
 - ❖ In the 2010 Census, Barren County had 18,862 persons working in Barren County. Of these, 8,529 or 52.6% lived and worked within the County. Barren County attracted 7,685 persons who live elsewhere but commute to jobs in the County. Barren County also has 8,080 of its residents who commuted to other counties for work. The larger number of workers commuting into Barren County versus commuting out of the county is an indicator of the County's strength as a regional economic development center.
 - ❖ The trend of Barren County motor vehicle registrations growing faster than its population is expected to continue through the planning period. Population growth is projected to continue through the planning period at about 1% annually. Vehicle registrations are projected to grow at a rate of 6% for the same period.
 - ❖ While Barren County's population has grown modestly between 2013 and 2018, traffic volumes have varied from slight decreases to moderate increases. The trend of traffic volume growing faster than the County's population growth is expected to continue throughout the planning period. This trend coupled with the trend in motor vehicle registrations will have important implications on the County's transportation system.
 - ❖ The dispersed pattern of urban growth documented in the 2014 Barren County Comprehensive Plan has continued to take place through 2019. This pattern of growth is expected to continue throughout the planning period, though at a slightly slower rate.
 - ❖ Despite annexation, urban growth continues to move just beyond Glasgow's corporate limits.
- This trend of suburban development will continue through the planning period.
- ❖ Seven fatal crash site locations are found in Barren County. Glasgow has two. In Glasgow the sites are located at the intersection of North Jackson Highway and Veterans Loop, and at the Intersection of the exit ramp of the Louie B. Nunn Parkway (Cumberland Parkway) and Burkesville Road (KY 90). The remainder of the fatal crash sites are dispersed throughout the County. See Map 8.5 for location of high crash area.
 - ❖ Glasgow's public transit system is an important service to the citizens it serves. The usage of the Glasgow Transit System is focused on elderly and disabled. Without the public transit system these segments of the City's population would have a difficult time reaching medical care and other community services. Every effort should be made to continue, improve and expand this service.
 - ❖ Glasgow's Municipal Airport is a general aviation airport of regional significance. Recent major improvements which included bring the airport's runway to over 5,000 feet was a significant step in meeting the airport's role in economic development and the needs of general aviation community. The recent growth trend in aircraft based at the Municipal Airport is expected to continue throughout the planning period.
 - ❖ Future encroachment of urban land uses from Glasgow will adversely affect the Municipal Airport unless steps are taken to protect the airport and environs.
 - ❖ A functional classification system for roadways within Barren County has been identified. The importance of the functional classification system for the Planning Commission is found in its application of an access management program. The designation of each roadway in Barren County will permit the Planning Commission to evaluate future land use proposals in relation to the function of each road as it relates to the road system overall. The classification system is a major tool in determining which set of roadways need varying levels of access management standards.

- ❖ Barren County has been fortunate to secure a number of new highway projects. However, with tighter state and federal budgets, this may not be the case in the future. A major issue facing Barren County is how can it preserve the integrity of its highway system? A solution which deserves thoughtful consideration is corridor access management. There are no corridor access management plans in place on Barren County's arterial or collector roads other than those measures applied at the State level.
- ❖ Based upon the highway improvement needs identified in this chapter, it is recommended that the Planning Commission and local elected officials garner support for the recommended projects and continue to push for their completion. The Planning Commission should also begin to focus in on access control and corridor planning now.
- ❖ Evaluate the feasibility of including access management tools in the review of development proposals, including minimum spacing between access points, creation of access roads, and neighborhood connections.
- ❖ Identify key interchange areas with good potential for business or commercial use.
- ❖ Notify local school systems and public safety services of road repairs and closing 48 hours prior.
- ❖ Capture the benefits of the planned Interstate System.

RECOMMENDATIONS

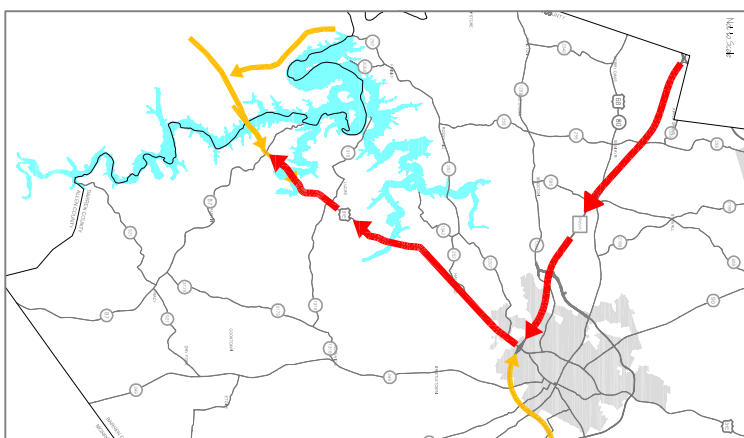
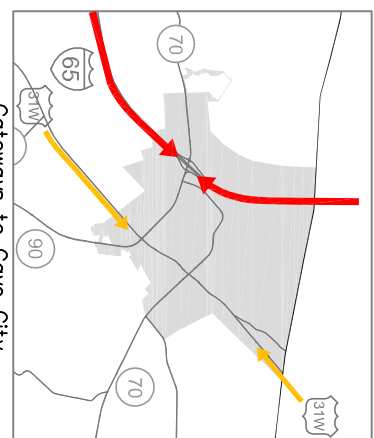
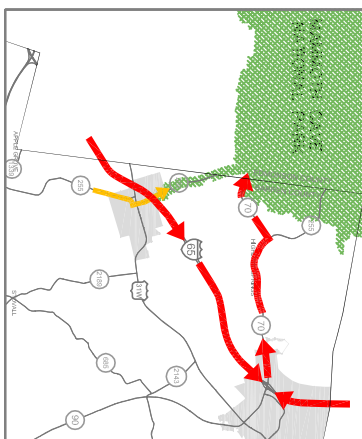
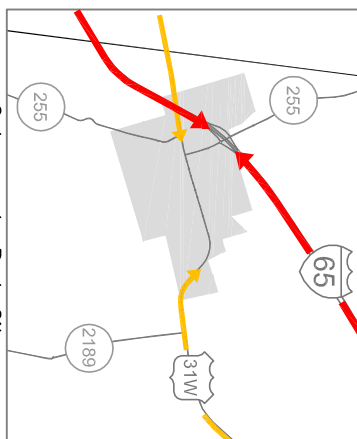
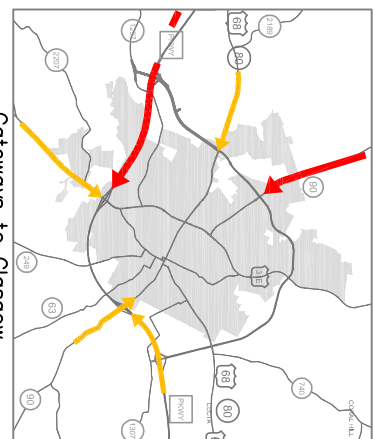
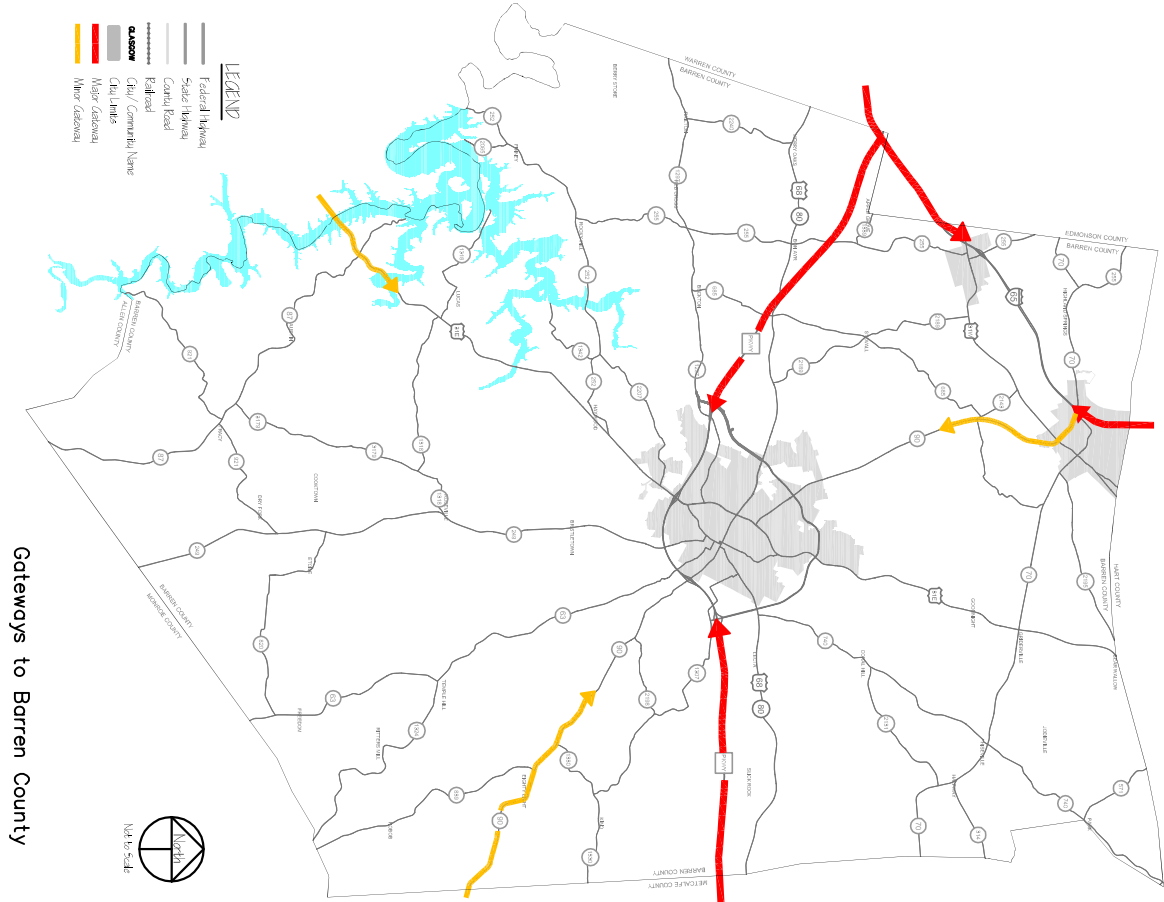
- ❖ Develop an inter-modal transportation system that is economically efficient, environmentally sound, provides the foundation to compete in the global economy, and will move people and goods in an energy efficient manner.
- ❖ Support all projects identified in the Six Year Plan.
- ❖ Support all projects identified in the Unscheduled Needs List.
- ❖ Evaluate proposed transportation improvements for the minimization of cost and the maximization of benefits.
- ❖ Reduce increased traffic congestion on existing streets, roads, and intersections.
- ❖ Require all developments and land use changes to have adequate street facilities to handle anticipated traffic.
- ❖ Strongly promote rail service in Barren County to prospective industries and construct rail lines to industrial parks as needed.
- ❖ Develop an annual program to identify and examine high accident sites throughout the entire County.

TRANSPORTATION STRATEGIES

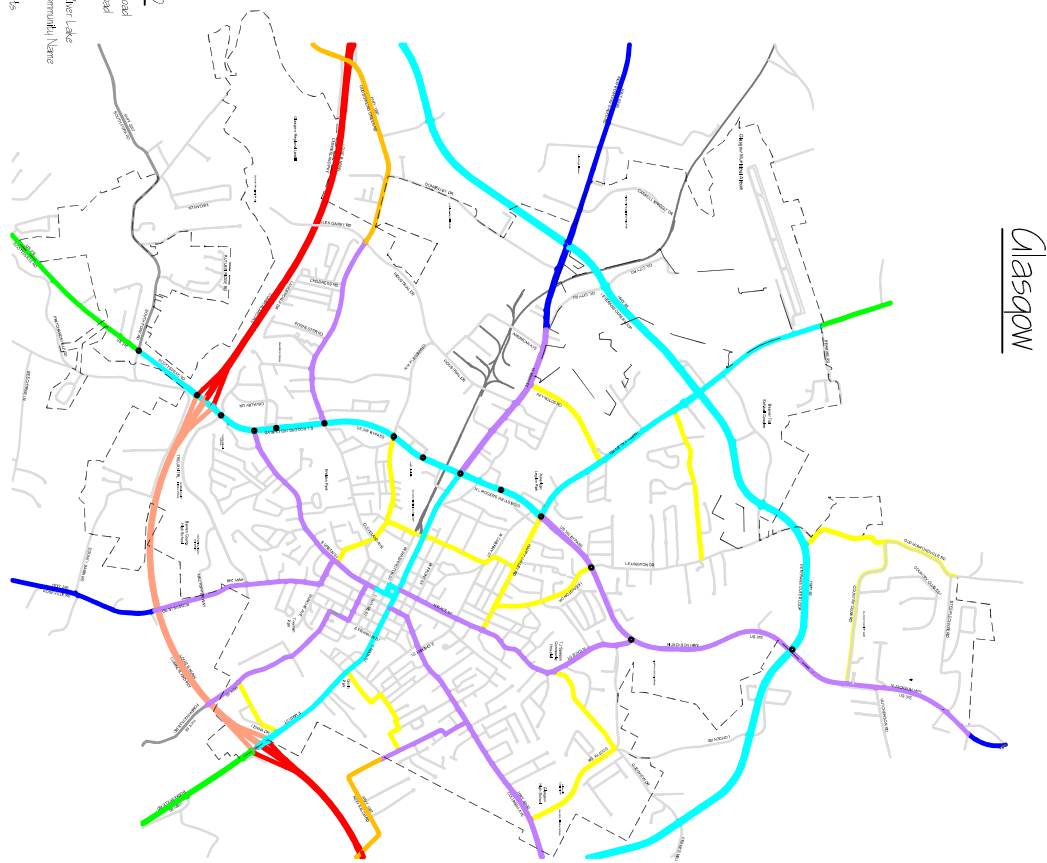
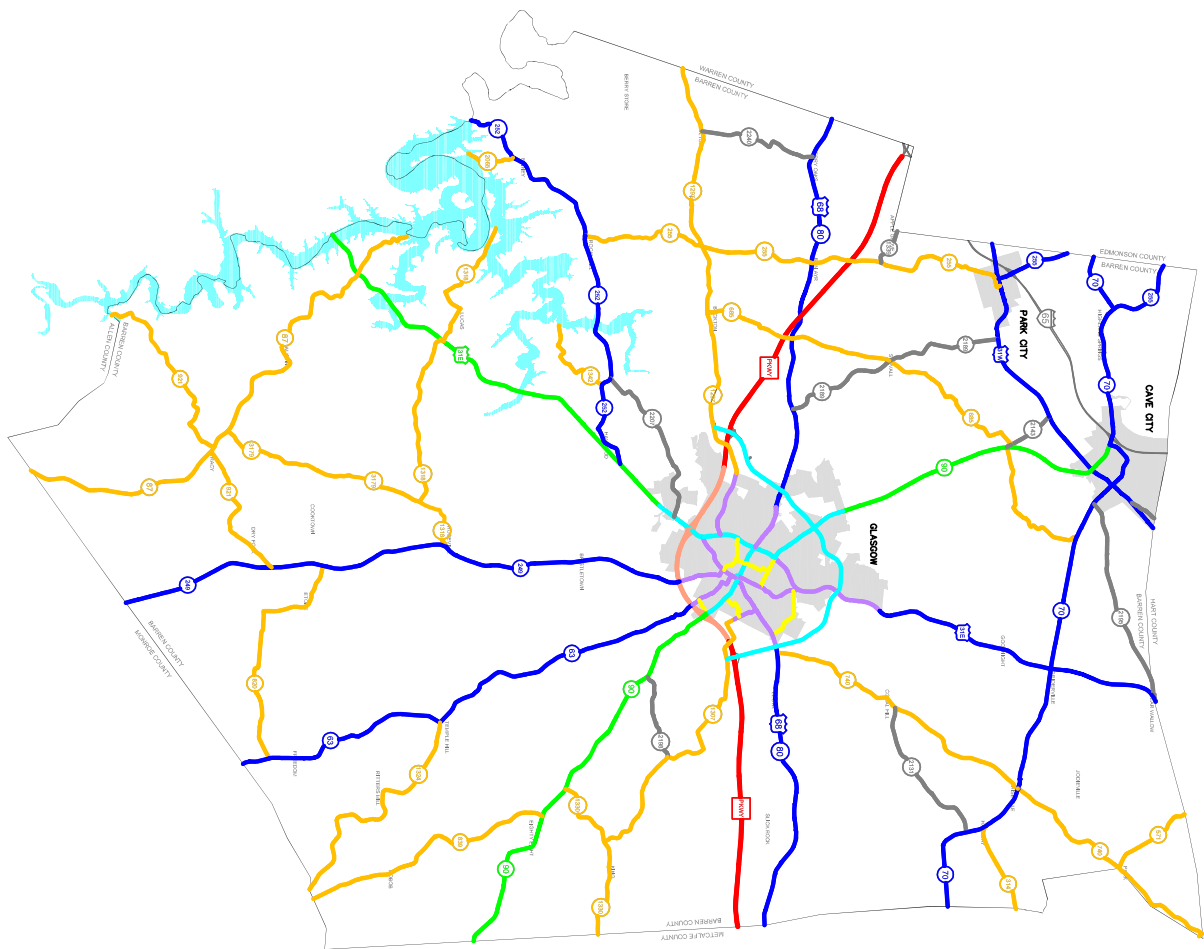
Strategy 1: Develop a Highway Corridor Plan for the Glasgow Outer Loop and other major arterial and collector highway areas that will examine such issues as: access control, pedestrian and bicycle transportation enhancements, streetscape improvements, traffic management, evaluation of existing and future land uses, etc.

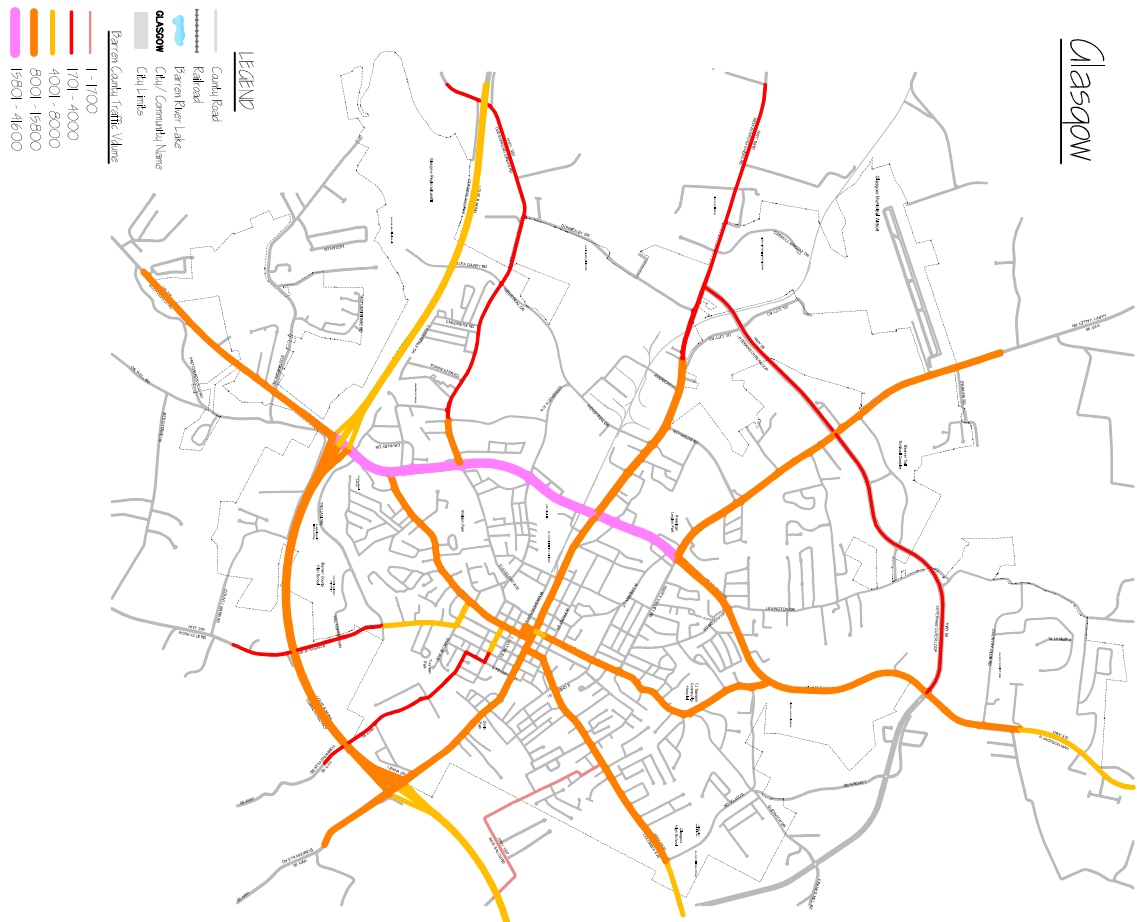
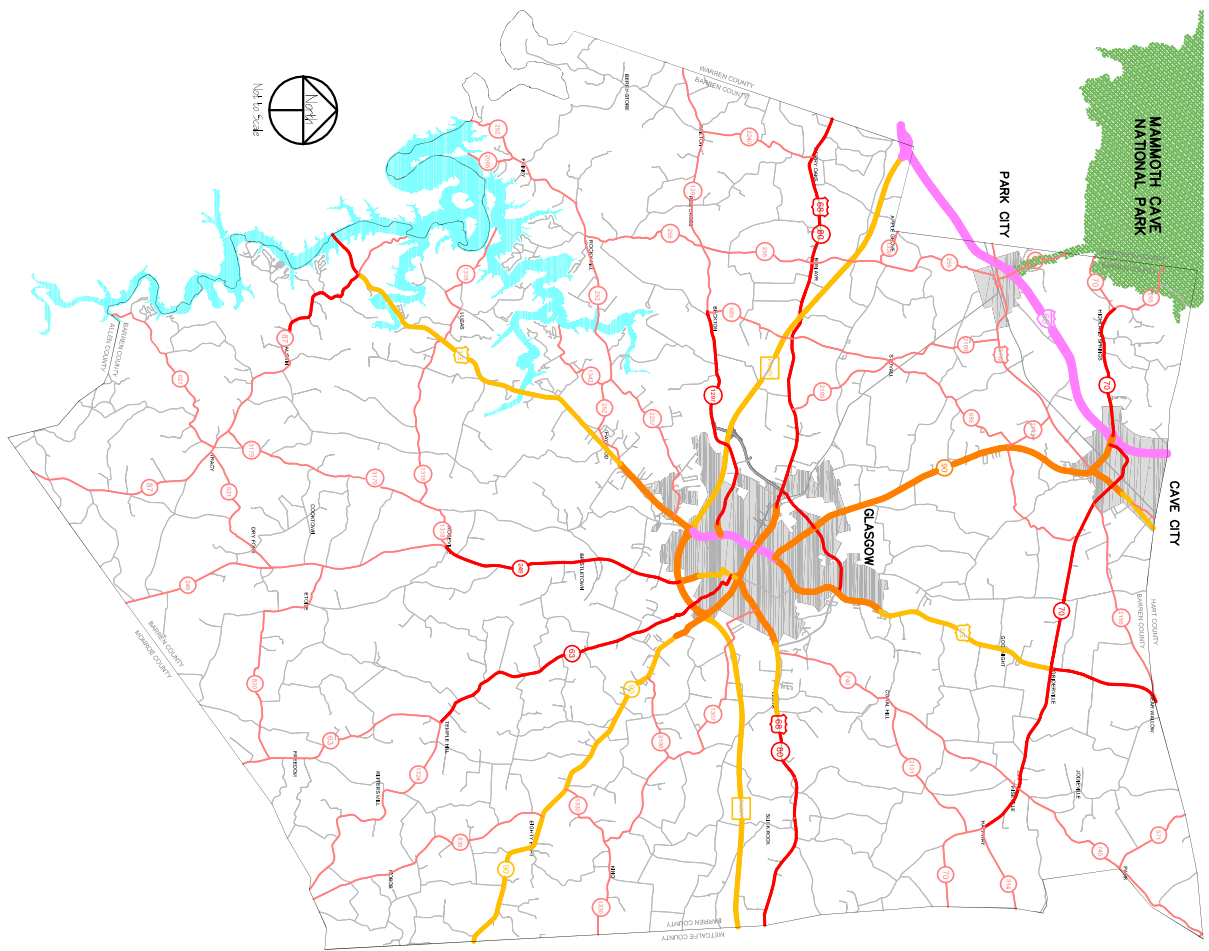
Strategy 2: Develop local access management standards for all levels of service within the roadway classification system.

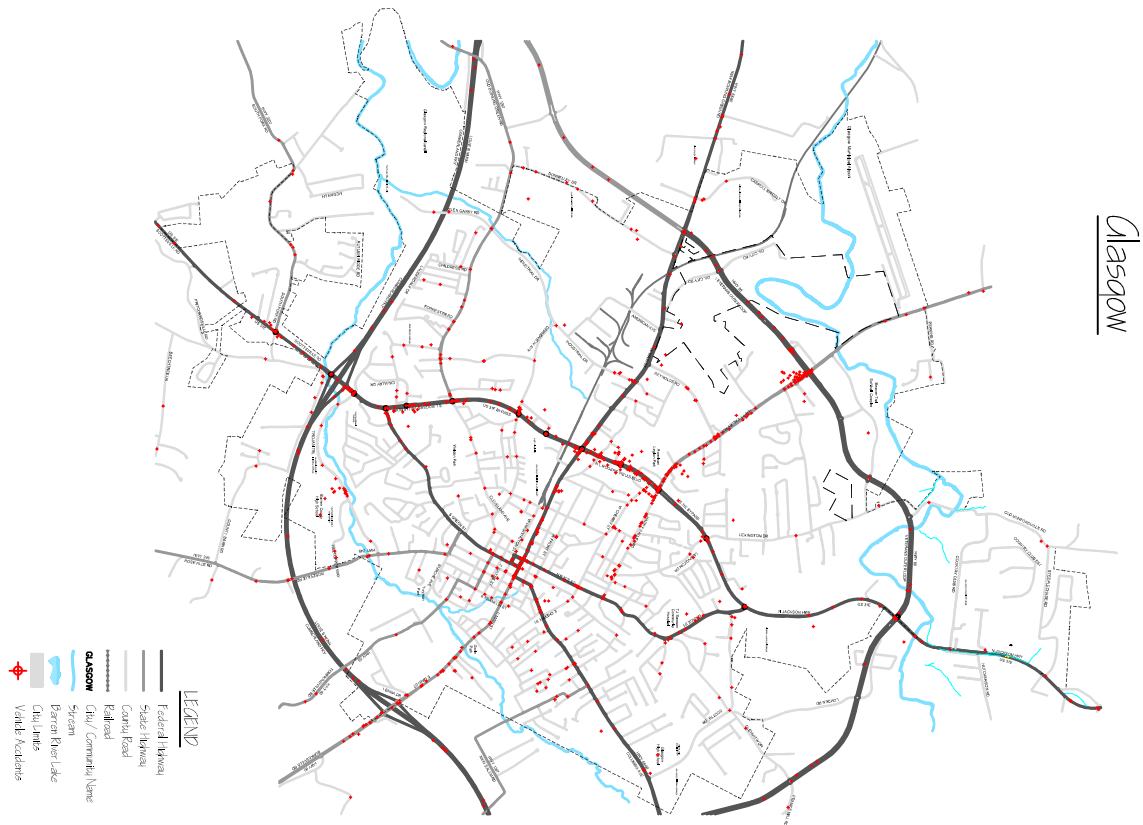
Strategy 3: Develop an Urban Transportation Study for the Glasgow area.



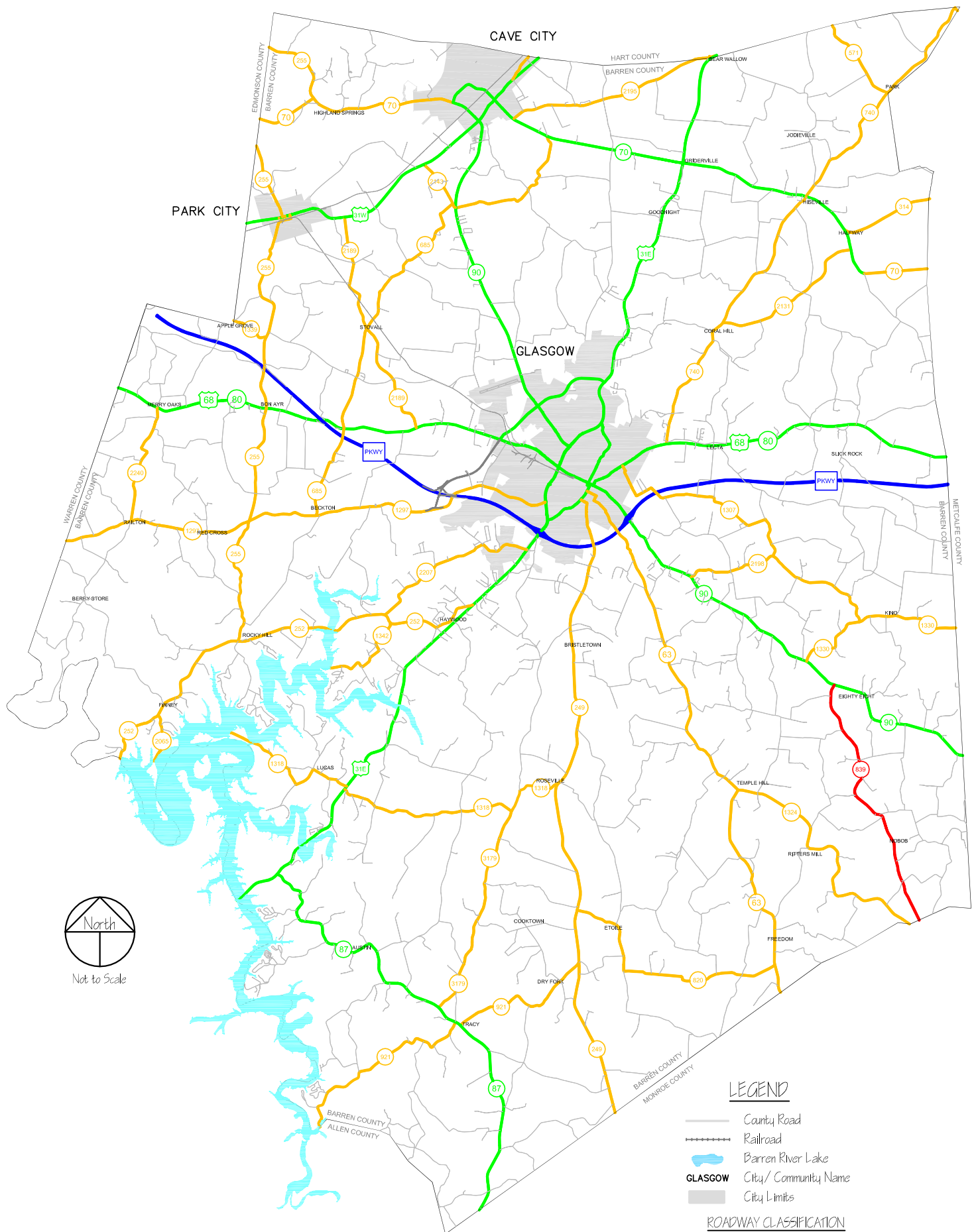
- LEGEND**
- County Road
 - State Road
 - Railroad
 - Barren River Lake
 - City/Community Name
 - Other
 - City Limits
 - Barren County State Route
 - Rural Major Road
 - Rural Principal Arterial
 - Rural Minor Arterial
 - Rural Major Collector
 - Rural Minor Collector
 - Urban Freeway & Expressway
 - Urban Principal Arterial
 - Urban Minor Arterial
 - Urban Collector





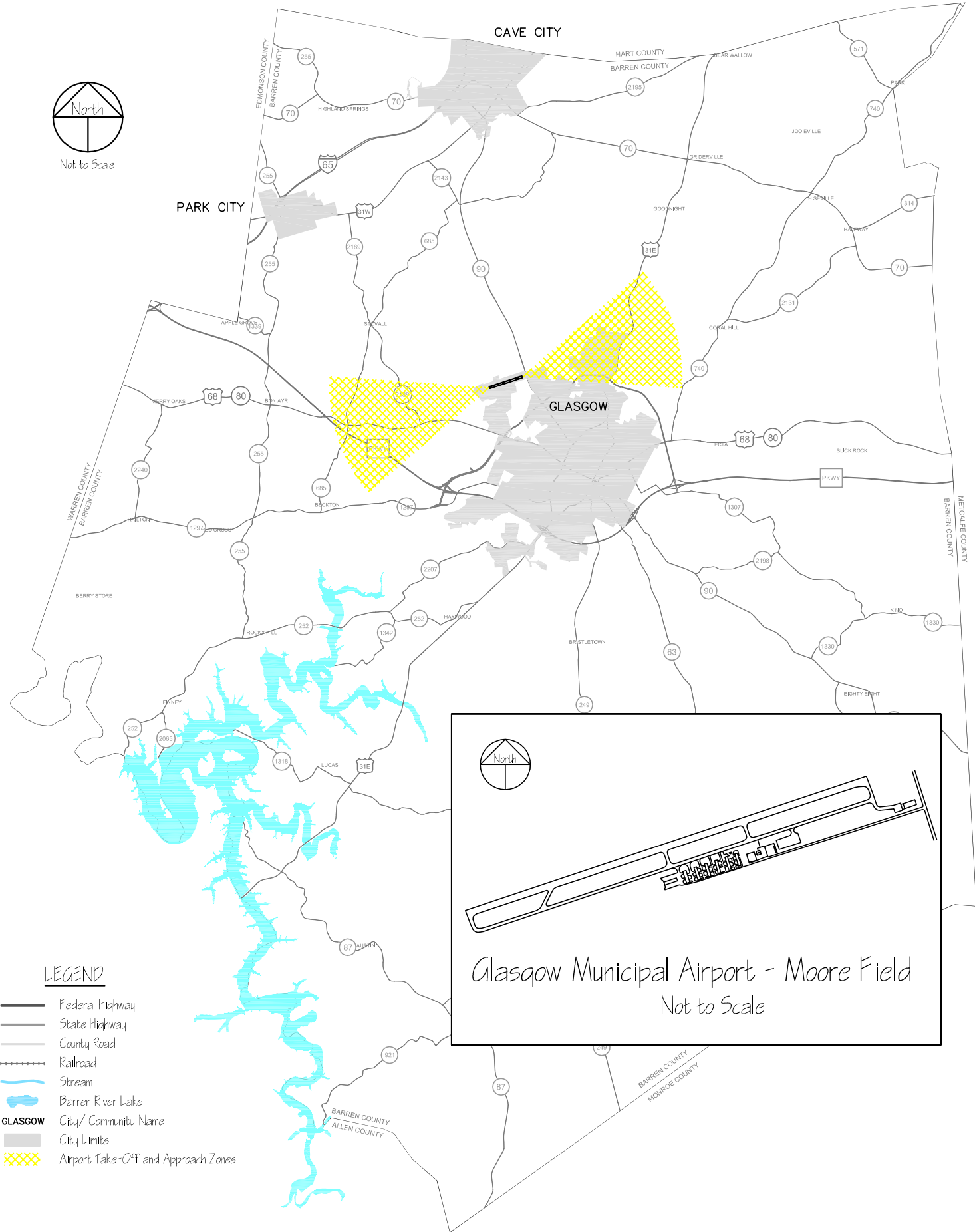


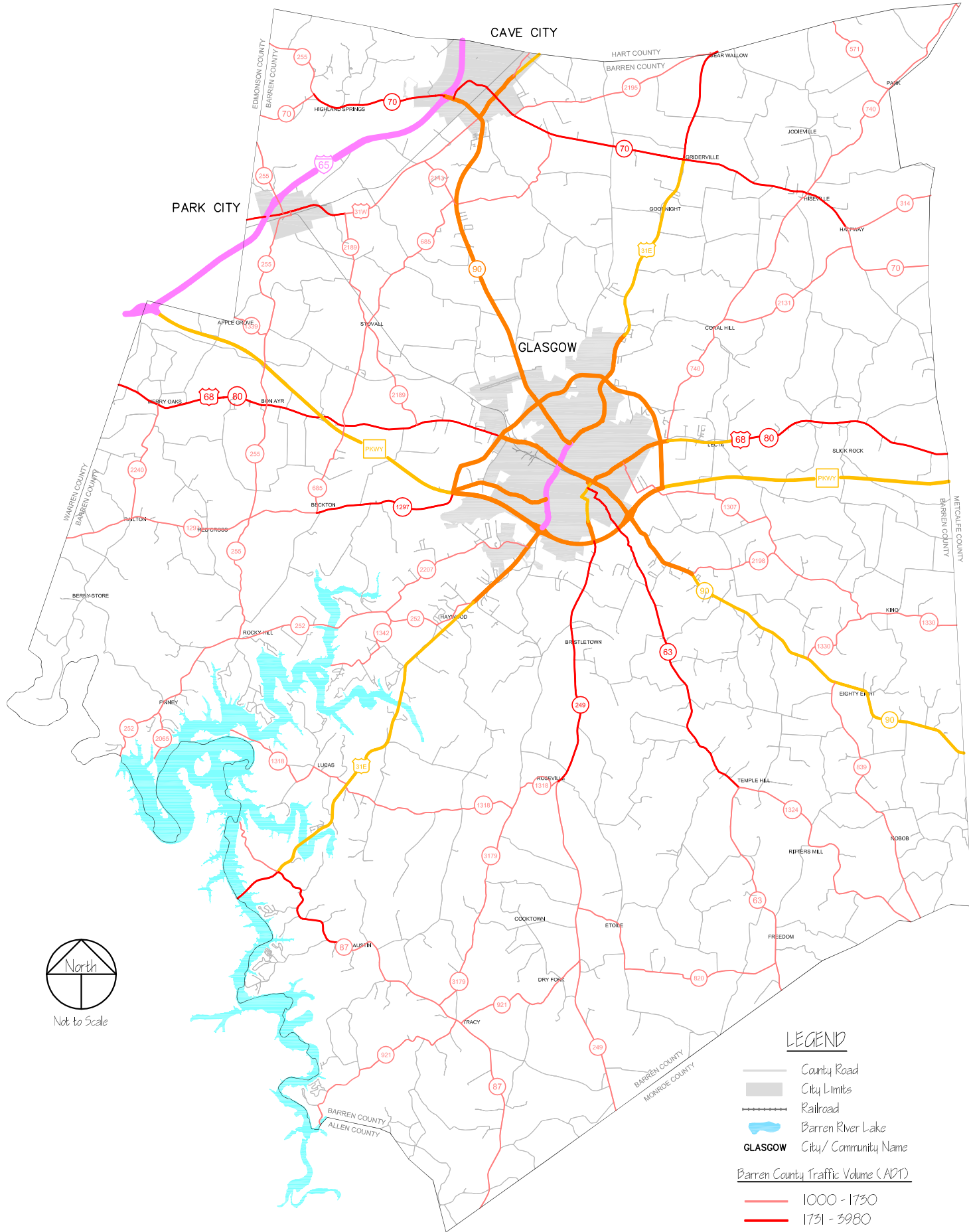
Notes: The vehicle collision locations shown hereon was developed from the Kentucky State Police accident database for Barren County, 2018.

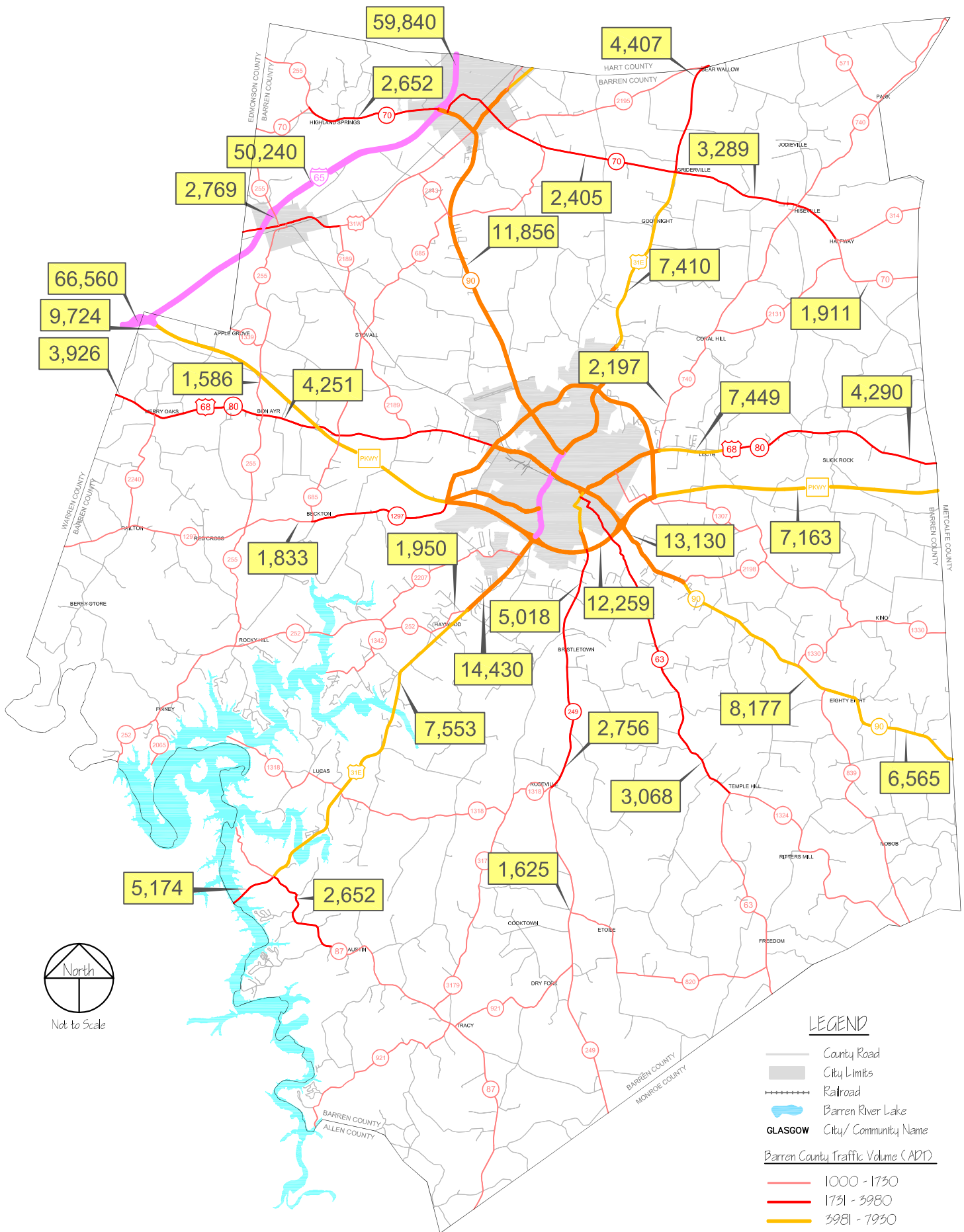


2019 Comprehensive Plan

Map 8.8: Barren County Roadway Classification of Vehicle Weight







2019 Comprehensive Plan

Map 8.11: Barren County Projected Traffic Volume Counts 2024

