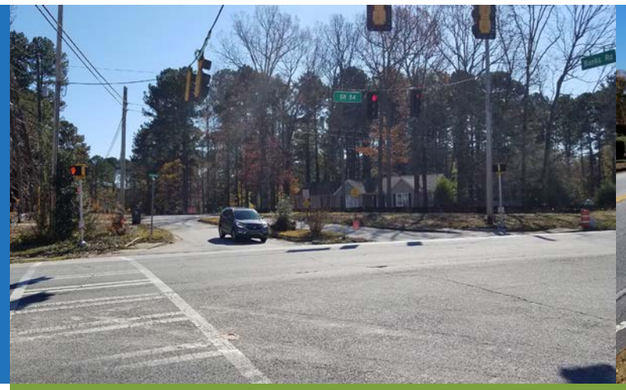

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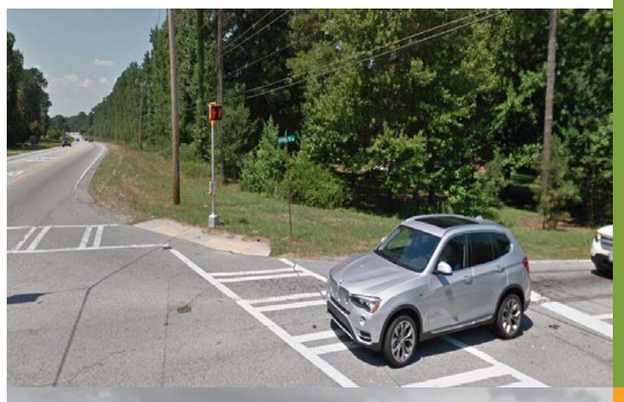
Banks Road
Transportation Corridor Study



Fayette County Public Works
2017 SPLOST No. 17 TAP
December 2019

CROY

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Table of Contents

Mission Statement:

The Banks Road corridor study recognizes the regional and local importance of the corridor. The primary goal of the study is to address, in cooperation with our state, regional and local stakeholders, issues and concerns related to safety, connectivity and capacity; and formulate multi-modal mobility concepts, proposals, recommendations and projects. Additionally, the study will develop proposals and recommendations to protect the human and natural environment as Fayette County and its cities continue to grow. The projects will formulate a complementary infrastructure improvement plan that will improve the corridor aesthetics and enhance the quality of life of the adjoining neighborhoods.

Chapter 1:
Existing Conditions

1.1 Introduction - Page 6
This section of the report introduces the transportation corridor in focus and discusses the location and extents of the corridor.

1.2 Demographics - Page 8
The socio-economic demographics of the corridor are described in this section of the report.

1.3 Land Use & Zoning - Page 12
This segment discusses the land use character within a 1-mile buffer of the corridor and highlights the zoning classes within this limit.

1.4 Roadway Infrastructure & Facilities - Page 13
Existing roadway infrastructure is identified which includes intersections, medians and sidewalks, as well as existing multi-modal facilities along the corridor are presented in this section.

1.5 Existing Traffic Conditions - Page 15
This report component analyses traffic conditions and operations and presents safety considerations along the corridor.

1.6 Environmental Due Diligence - Page 24
This segment of the report identifies sensitive environmental conditions that may provide corridor improvement opportunities and/or constraints.

1.7 Utilities - Page 25
This part of the report presents an inventory of existing utilities along the corridor.

1.8 Summary - Page 27
Highlights of the exisitng conditions and a summary of the chapter is presented in this section.

1.1 Introduction

The Fayette County Transportation Corridor Study is a collaborative project between Fayette County, Atlanta Regional Commission - the metropolitan planning organization, and Croy Engineering, LLC - the consultant firm.

The aim of the study is to identify traffic and transportation solutions from a holistic perspective to:

- Ensure safety
- Provide solutions for congestion & delay
- Identify prospects for multi-modal uses
- Create sustainable infrastructure improvements
- Promote economic development

The four corridors identified for the study are:

- Tyrone Road - Palmetto Road
- Sandy Creek Road
- Banks Road
- State Route 279

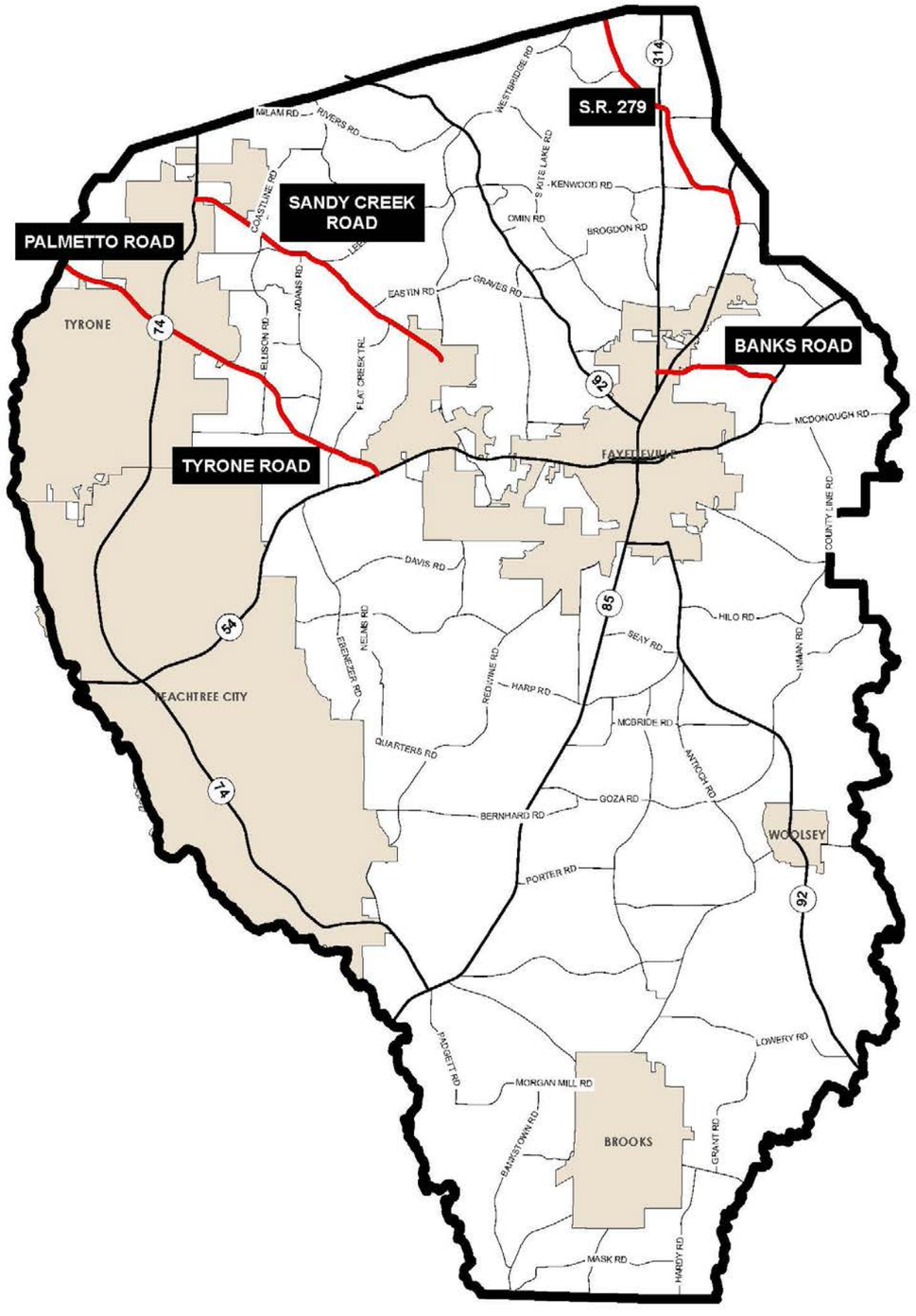
The Timeline for this study is divided into 4 tasks and is spread over a period of 12 months.

Table 1.1 - Project Timeline

TASK	TIMELINE OVER 12 MONTHS											
	1	2	3	4	5	6	7	8	9	10	11	12
Review Of Existing Conditions & Technical Analysis												
Public Involvement												
Conceptual Plan & Draft Concept Plan												
Preparation Of Project Deliverables												

Map 1.1 on the right is a vicinity map of Fayette County, representing the 4 study corridors. This document will look at the Banks Road corridor and describe the existing conditions of the roadway.

Map 1.1 - Vicinity Map



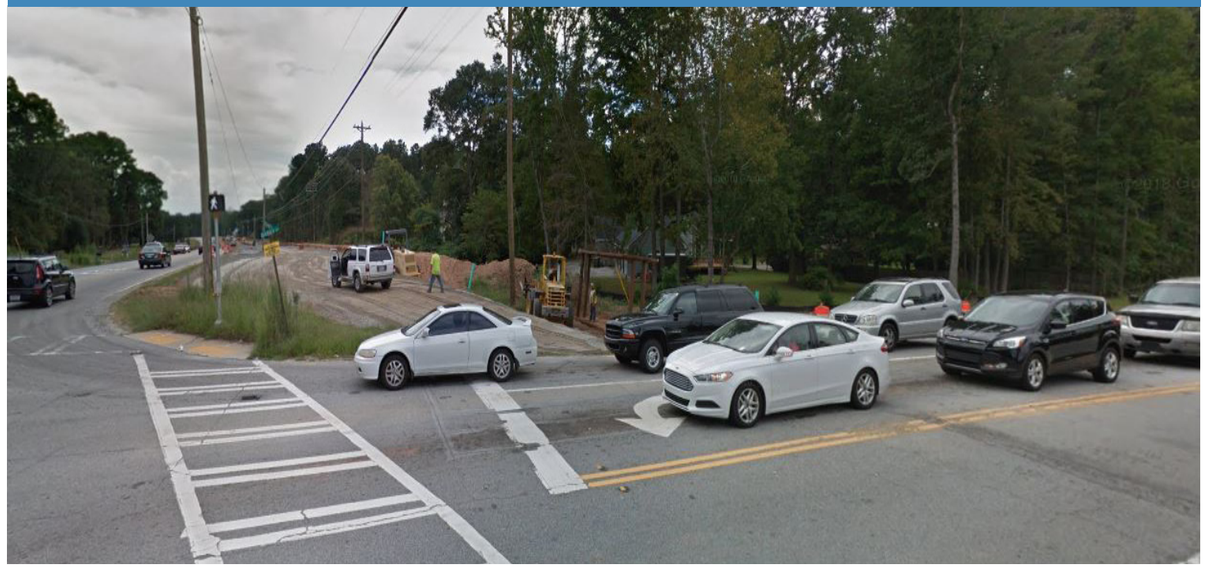
Banks Road is a 1.9-mile major road with the study length extending from State Route 54 to State Route 314. The western end of the corridor encompassing about 0.38 miles lies within the City of Fayetteville. In addition to providing access for abutting neighborhoods, Banks Road is used as a cut-thru between SR 314, SR 85 and SR 54. However, the road lacks adequate design and capacity for current and future traffic volumes and pedestrian demands.

The study is an investigative foundation to implementing improvements that will enable Banks Road to be a well-functioning roadway that accommodates the transportation needs of the residents, adds value to the communities, and enhances mobility and safety in the area.

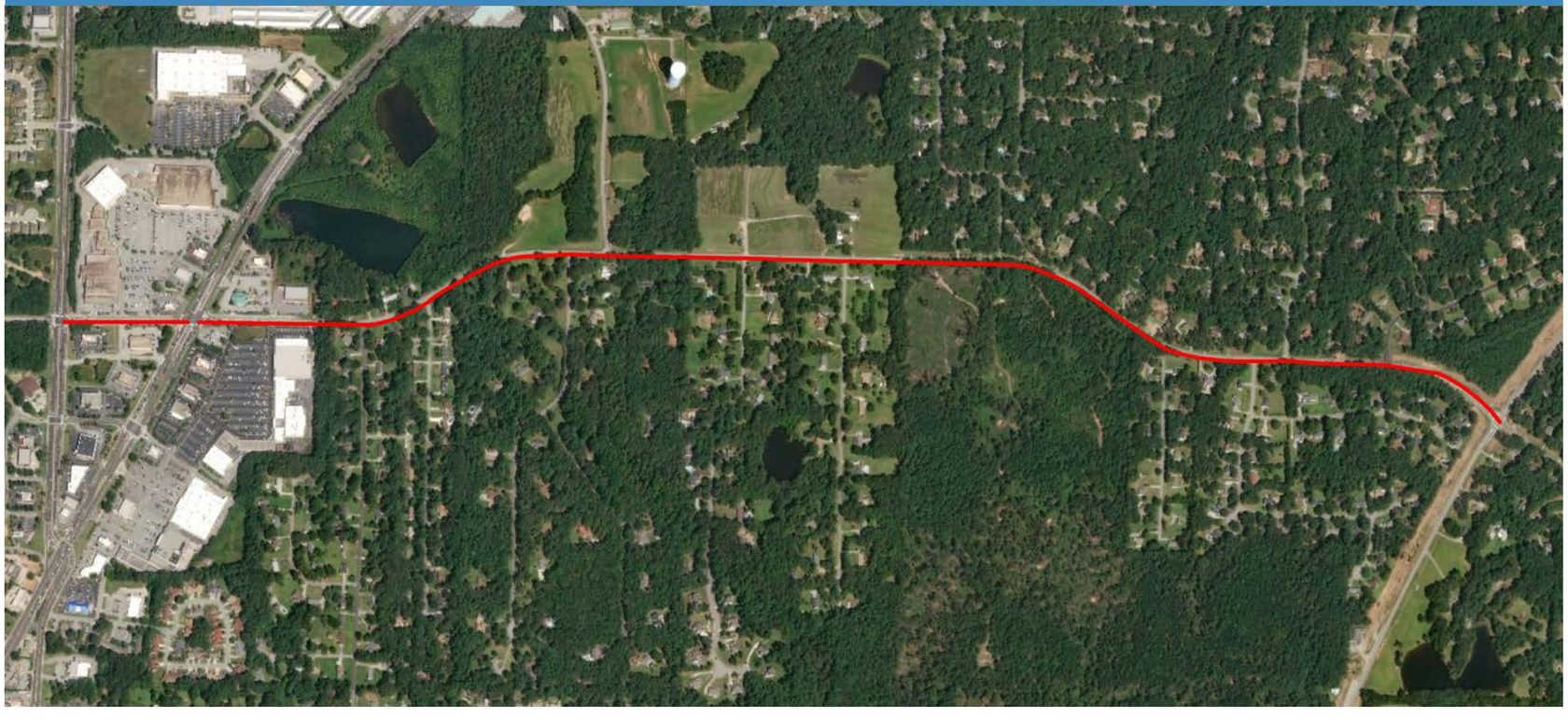
The purpose of the study is to to develop short and long-range projects that improve safety, mobility and access to all roadway users, while also preparing them for full design and implementation, possibly with federal aid.

Figure 1.1 is an image of the Banks Road approaching State Route 54. Map 1.2 depicts the location and extent of the Banks Road corridor study.

Figure 1.1 - Banks Road & State Route 54



Map 1.2 - Banks Road - Location and Extent



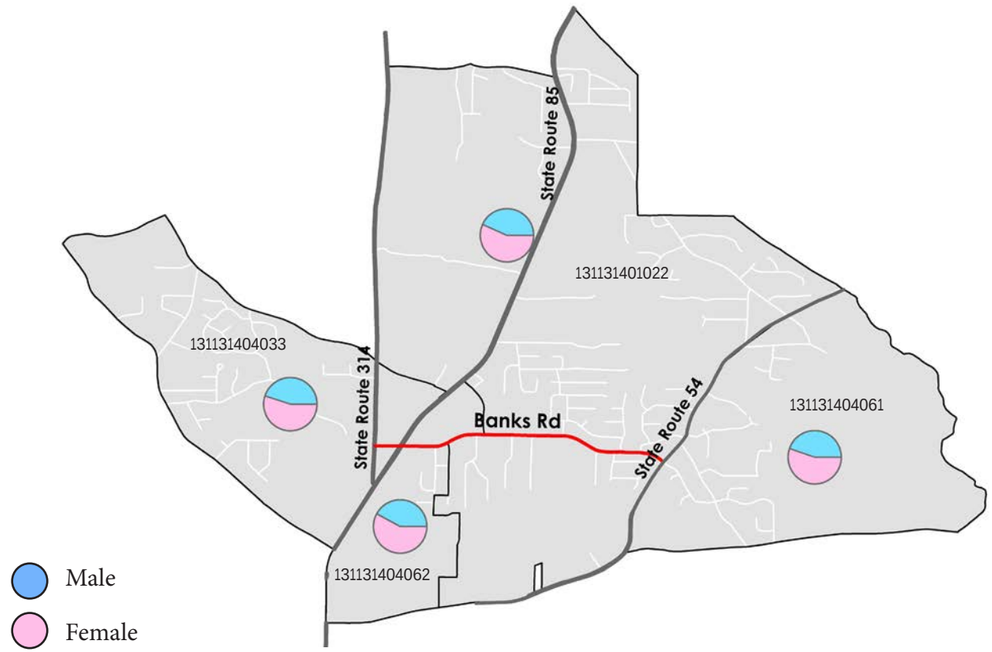
1.2 Demographics

Understanding the demographic character of the corridor is an important factor in identifying the key stakeholders and the influence on their travel demands. This information along with other components will be used when developing alternative transportation improvements.

For this analysis, the 2016 American Community Survey (ACS) – 5 year data were used at the block group level, which is the smallest scale of data availability. ACS[1] is conducted every year and provides the most current information about the social and economic needs of the community. The census is conducted once every 10 years to provide an official population count. All data presented are estimates and have a margin of error value associated with it.

Block groups that abut the corridor were analyzed. The population encompassing the analysis zone around the Banks Road Corridor is approximately 9,202, with 4,059 [44.1 %] being male and 5,143 [55.9%] being female. Map 1.3 represents a male to female distribution in the block groups along the corridor.

Map 1.3 - Banks Road - Gender Distribution



Analyzing the racial composition along the corridor, it is seen that approximately 4,302 citizens [46.7%] are white, 3,837 [41.6%] are African American and 461 [5.0%] are Hispanic or Latino.

Table 1.2 and Map 1.4 represent racial distribution in the four block groups along the corridor.

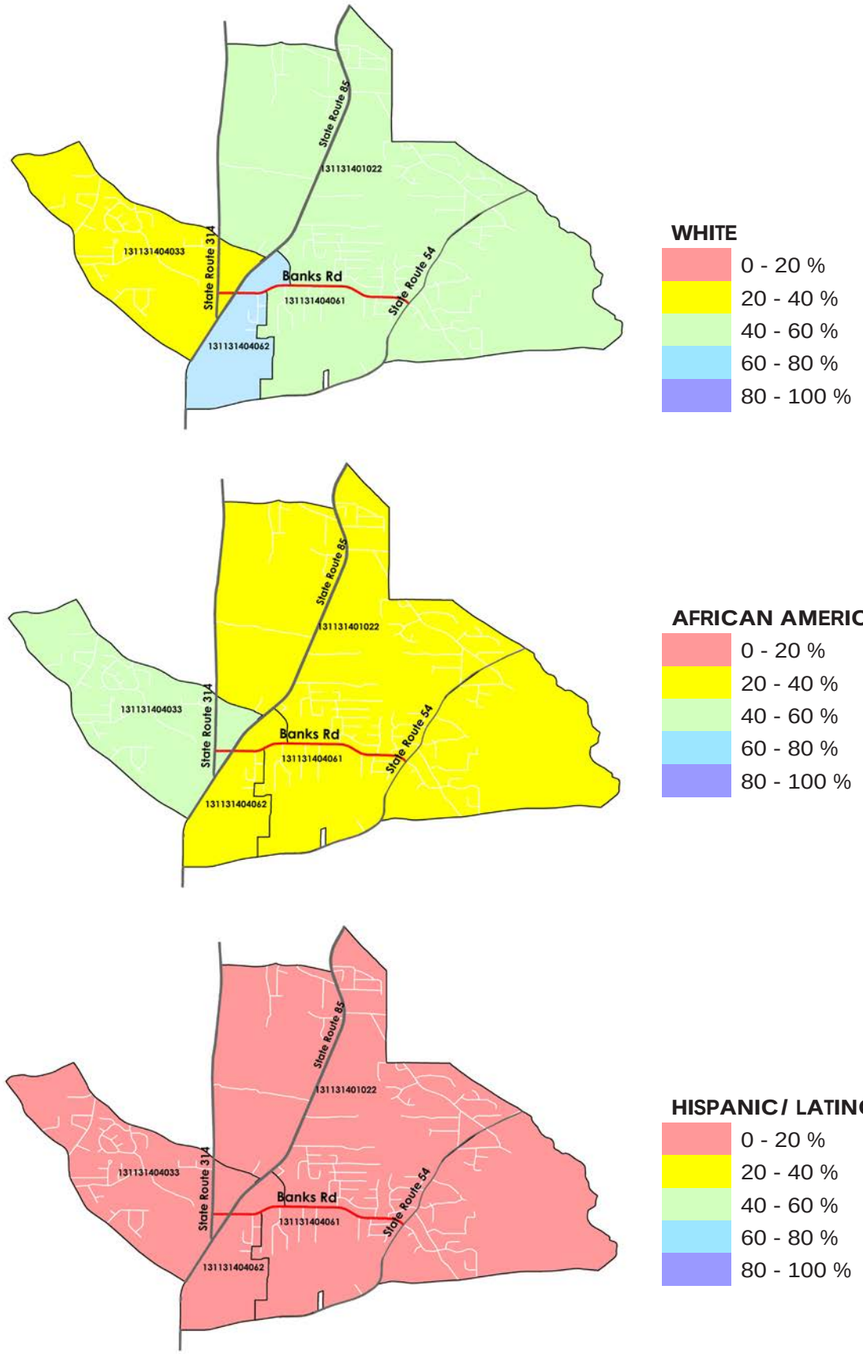
Table 1.2 - Racial Distribution

ID	131131404033	131131404062	131131404061	131131401022	TOTAL
Block Group Population	3,453	1,461	2,242	2,046	9,202
White	1,266	1,049	992	995	4,302
% White	36.6%	71.8%	44.2%	48.6%	46.7%
African American	2,049	319	809	660	3,837
% African American	59.3%	21.8%	36.0%	32.2%	41.6%
Hispanic/ Latino	126	71	219	45	461
% Hispanic/ Latino	3.6%	4.8%	9.7%	2.1%	5.0%
NOTE - All values are estimates and have associated margins of error. Most significant racial groups selected for analysis purposes.					

[1] - ACS is based on the decennial U.S.Census, however, its updates occur annually. Five-year estimates includes 60 months of collected data and is the most reliable when analyzing very small populations.

Note - Percentage values in Table 1.2 are not intended to total 100 percent since not all categories such as 'More Than One Race' or 'More Than Two Races' are listed.

Map 1.4 - Banks Road - Racial Distribution



Education attainment for population aged 25 years and over was analyzed for the block groups along the corridor. Four categories were used –

- No schooling completed
- Regular high school diploma
- Some college, less than a year
- Bachelor's degree

Map 1.5 represents educational attainment for the population in the block groups along the corridor. The scatter plot is a random distribution and does not indicate specific locations of the population.

Map 1.5 - Banks Road - Educational Attainment

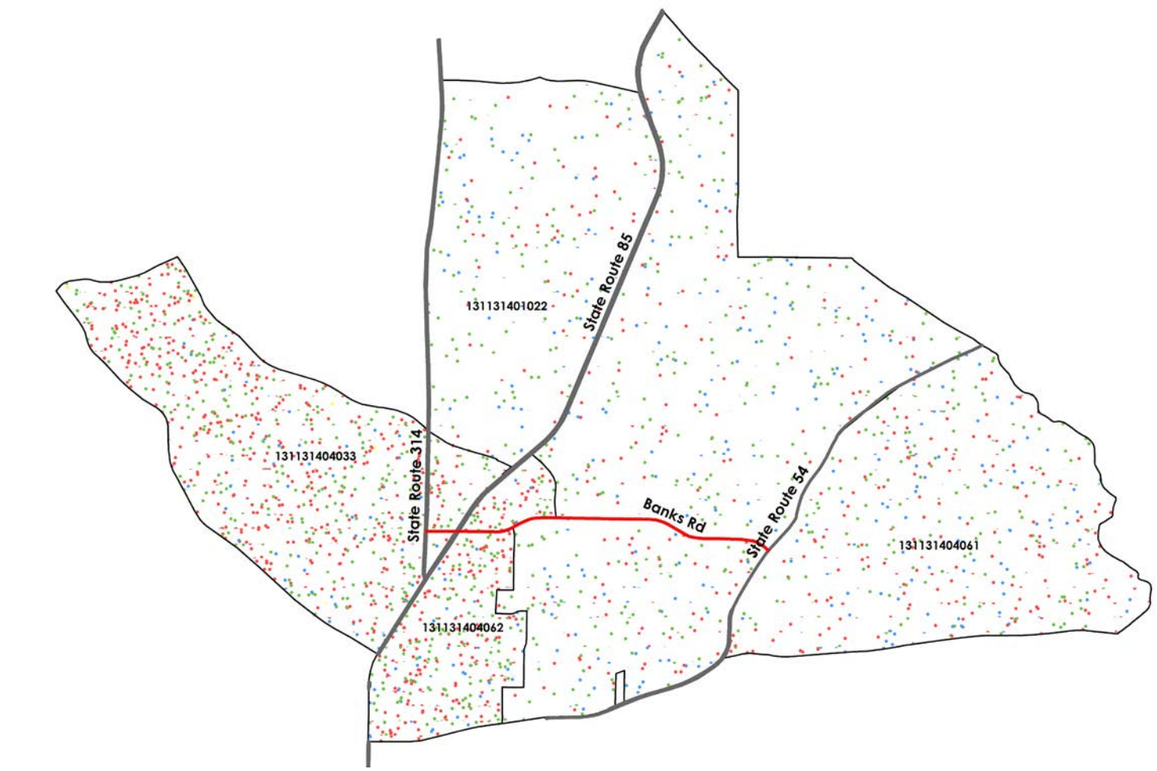


Table 1.3- Educational Attainment Distribution					
ID	131131404033	131131404062	131131404061	131131401022	TOTAL
Block Group Population (25 Years & Older)	2,324	1,084	1,370	1,636	6,414
No School Completed	8	0	0	0	8
% Not Completed School	0.3%	0%	0%	0%	0.1%
Regular High School Diploma	456	239	338	371	1,404
% With Regular High School Diploma	19.6%	22.0%	24.6%	22.6%	21.8%
Some College, Less Than A Year	66	45	166	184	461
% With Some College, Less Than A Year	2.8%	4.1%	12.1%	11.2%	7.1%
Bachelor's Degree	611	285	322	179	1,397
% With Bachelor's Degree	26.2%	0.5%	23.5%	10.9%	21.7%
NOTE - All values are estimates and do have associated margins of error.					

The table above represents the counts and percentages of the population in the block group with a certain level of education. The analyses depicts that 99.9% of the population of the block groups has completed high school. While 21.8% has a regular high school diploma, 7.1% has attended some college for less than a year and 21.7% has a bachelor's degree.

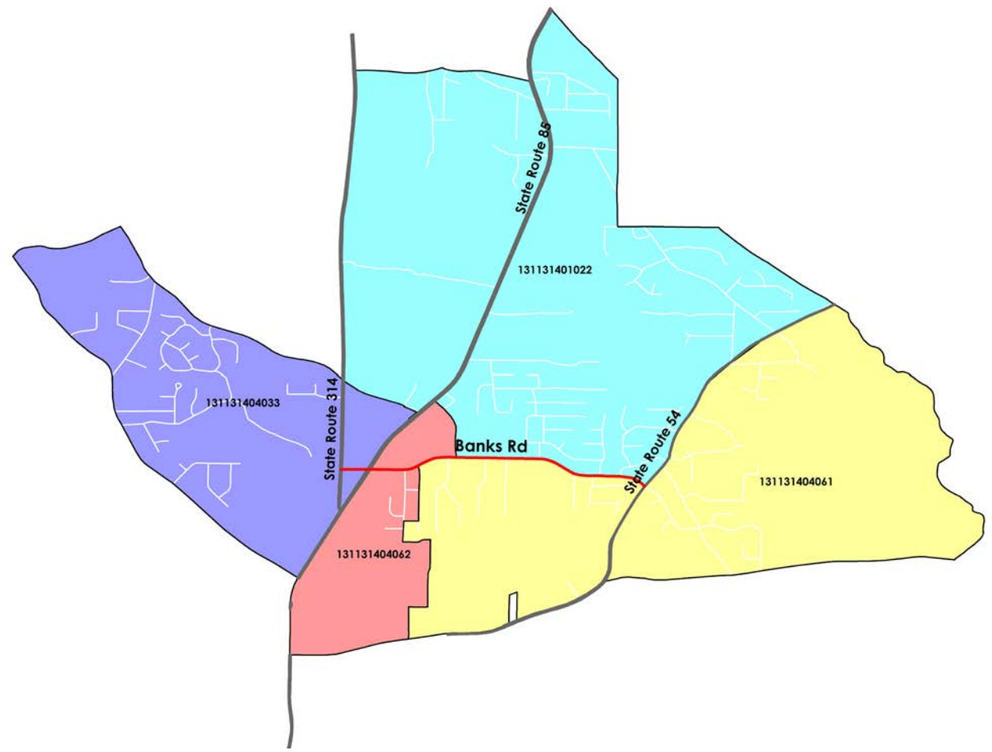
Note - Percentage values in Table 1.3 are not intended to total 100 percent since not all categories such as 'Some College More Than A Year' or 'Masters Degree' are listed.

Household income is a measure of the combined incomes of all people sharing a particular household or place of residence. It includes every form of income. Median Household income for all the block groups abutting Banks Road was analyzed.

The minimum median household income in the area is approximately $36,630, while the maximum median income is approximately $85,036, the mean median household income in the area is $59,903.

Map 1.6 represents the median household income in the block groups along the corridor.

Map 1.6 - Banks Road - Median Household Income



The Protected Classes Model

Title VI of the Civil Rights Act identifies 9 population categories that must be protected. These include Ethnic Minority: Hispanic or Latino Origin by Race, Females, Foreign Born individuals, persons with Limited English Proficiency, Low-Income populations, Older Adults, People with Disabilities, Racial Minority and Youth.

The Protected Classes Model is an analysis index created by Atlanta Regional Commission, to help counties, governments and private organizations ensure inclusion and equity for these 9 population groups.

The model uses American Community Survey 5-Year population estimates for 2012-2016. Percentage of each of the protected population groups is calculated at the census tract level. A cumulative numeric score of 0 to 36 is calculated based on the concentration of a population identified across all nine criteria, 0 being a low score and 36 being a high score.

Racial Minority, Ethnic Minority, and Low-Income Model

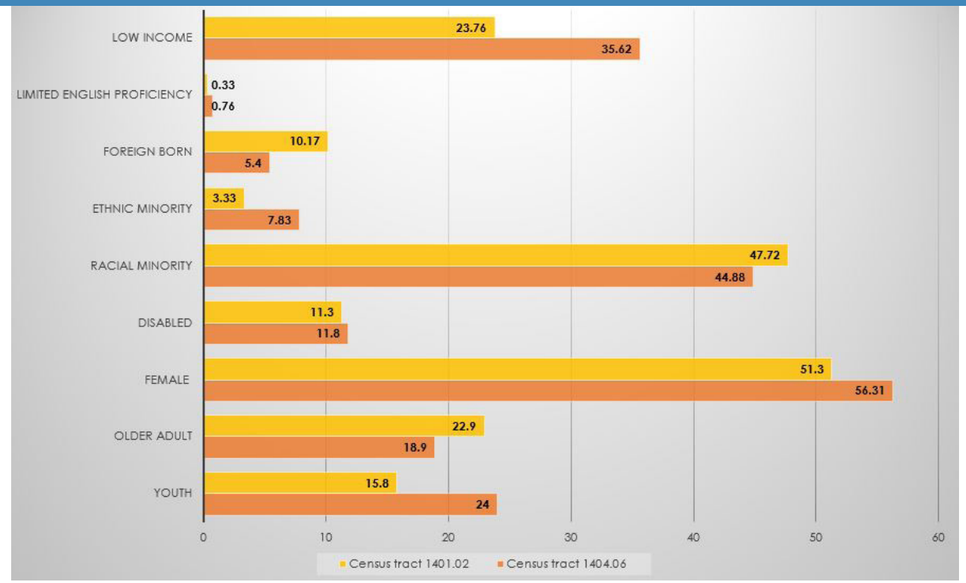
The Racial Minority, Ethnic Minority, and Low-Income Model is an adaptation of the Equitable Target Areas (ETA) model, with an index methodology similar to the Protected Classes Model. ARC considers these 3 inputs to be indicators of the greatest potential inequality in the Atlanta region.

This updated model is used by the ARC Transportation Improvement Program (TIP) Project Evaluation Framework to conduct equity analysis and rank proposed projects. The model also uses American Community Survey 5-Year population estimates for 2012-2016. Percentage of each of the protected population groups is calculated at the census tract level. The cumulative numeric score ranges from 0 to 12, and is calculated based on the three input criterion. A low score is 0 and a high score is 12.

Corridor Analysis

The Banks Road corridor lies on the border of two census tracts. Fayette County's census tract 1404.06 lies on the east and census tract 1401.02 lies on the west. Census tract 1404.06 has an average cumulative score of 18 for the Protected Classes Model and an equity score of 6 for the Racial Minority, Ethnic Minority, and Low-Income Model. Census tract 1401.02 has an average cumulative score of 16 for the Protected Classes Model and an equity score of 4 for the Racial Minority, Ethnic Minority, and Low-Income Model.

Figure 1.2 - Banks Road - Equity Analysis



Census tract 1404.06 –

Residents in the tract under 18 years of age account for 24 % , while residents 65 years or older account for 18.9 %. Female residents account for 56.31 %, residents with disabilities account for 11.8 % of the population in the tract. While 44.88 % of residents identify as one or more racial minority, only 7.83 % of residents identified themselves as being of Hispanic or Spanish origin. The tract has a small population of foreign born nationals, with only 5.4 % of residents being born outside of the United States and 0.76 % of residents report having English proficiency below "very well." Households with an income below $32,920 (200% of the national poverty level) is 35.62 %. The Census defines a household as one or more people occupying a housing unit. The 2019 Federal Poverty Level for a household of 2 individuals is $16,460.

Census tract 1401.02 –

Residents in the tract under 18 years of age is 15.8%, while 22.9% of residents are 65 years or older. 51.3% of residents are female. Residents with disabilities account for 11.3% of the population in the tract. While 47.72% of residents identify as one or more racial minority, only 3.33 % of residents identified themselves as being of Hispanic or Spanish origin. The tract has a small population of foreign born nationals, with 10.17% of residents being born outside of the United States and only 0.33% of residents report having English proficiency below "very well." Households with an income below $32,920 (200% of the national poverty level) is 23.67%. The Census defines a household to be composed of one or more people who occupy a housing unit. The 2019 Federal Poverty Level for a household of 2 individuals is $16,460.

1.3 Land Use & Zoning

Approximately 2,885 parcels, both residential and nonresidential, comprise the study area. Banks Road within the City of Fayetteville limits is a commercial node and transitions to residential from the city limits to SR 54. Map 7 depicts the land use pattern along the corridor.

Residential Usage

Approximately 2,549 parcels or 88.3% of the study area are residential. The four major types of residential uses seen along the corridor are:

Table 1.4 - Residential Zoning

CATEGORY	ZONING ENTITY	NO OF PARCELS
• SINGLE FAMILY RESIDENTIAL	FAYETTE COUNTY / CITY OF FAYETTEVILLE	2023
• MULTI FAMILY RESIDENTIAL	FAYETTE COUNTY / CITY OF FAYETTEVILLE	224
• TOWNHOUSE CONDOMINIUM	FAYETTE COUNTY / CITY OF FAYETTEVILLE	239
• AGRICULTURAL RESIDENTIAL	FAYETTE COUNTY / CITY OF FAYETTEVILLE	63

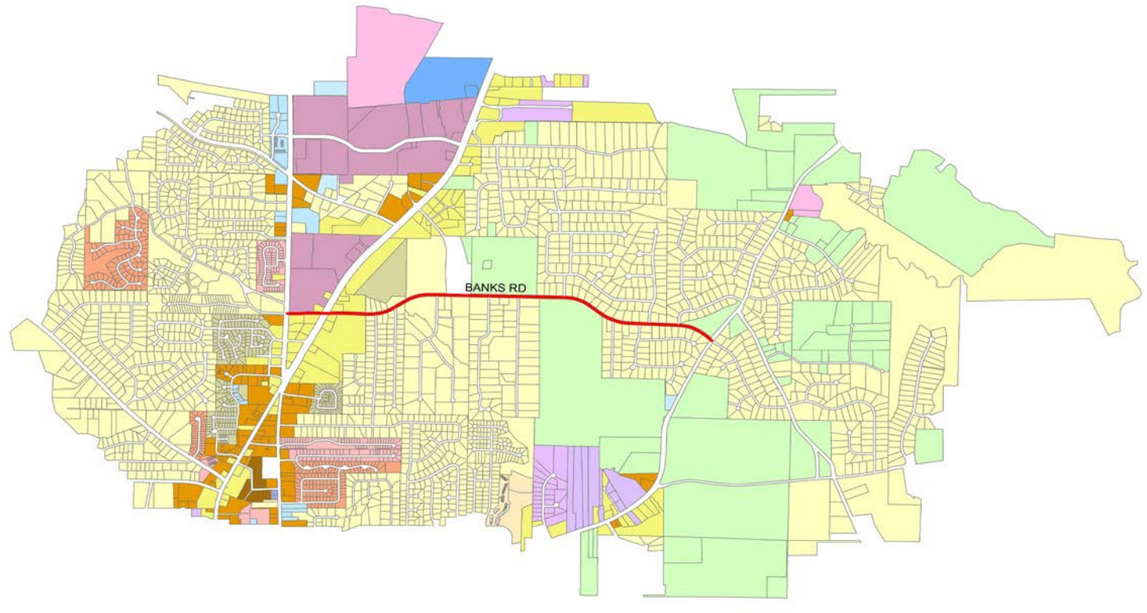
Commercial Usage

There are 336 commercially zoned parcels in the study area and most along SR 85 or SR 314 and located within the city limits.

Table 1.5 - Commercial Zoning

CATEGORY	ZONING ENTITY	NO OF PARCELS
• BUSINESS PARK	CITY OF FAYETTEVILLE	2
• HIGHWAY COMMERCIAL	FAYETTE COUNTY / CITY OF FAYETTEVILLE	107
• COMMUNITY COMMERCIAL	FAYETTE COUNTY / CITY OF FAYETTEVILLE	111
• HEAVY INDUSTRIAL	FAYETTE COUNTY	3
• HIGH INTENSITY COMMERCIAL	CITY OF FAYETTEVILLE	21
• LIGHT INDUSTRIAL	FAYETTE COUNTY / CITY OF FAYETTEVILLE	42
• OFFICE INSTITUTIONAL	FAYETTE COUNTY / CITY OF FAYETTEVILLE	50

Map 1.7 - Banks Road - Zoning



1.4 Roadway Infrastructure and Facilities

Per the Georgia Department of Transportation (GDOT) road classifications, Banks Road is classified as a minor arterial. The Banks Road corridor from its SR 314/W Fayetteville Road to SR 54, is approximately 1.9 miles.

There is one travel lane in each direction, which is generally 11 feet wide, but varies depending on the precise location. There are no turn lanes on Banks Road between SR 85 and SR 54.

The average right-of-way along Banks Road varies. According to Fayette County's Thoroughfare Plan, minor arterials such as Banks Road have a future right-of-way requirement of 100 feet. This information is used by Fayette County to require right-of way donations (typically 50-ft from center) as land is subdivided and/or developed.

Intersections

There are a total of 16 intersections along Banks Road within the limits of this corridor study. There are three signalized intersections along the corridor, at SR 314/W Fayetteville Road, SR 85/S Glynn Street, and SR 54. All other unsignalized intersections are two-way stop controlled (TWSC) with Banks Road being the major road and the side streets being the minor (stopped) roads. The intersections are listed in Table 1.6 and are shown in Map 1.8.

Map 1.8 - Banks Road - Intersections

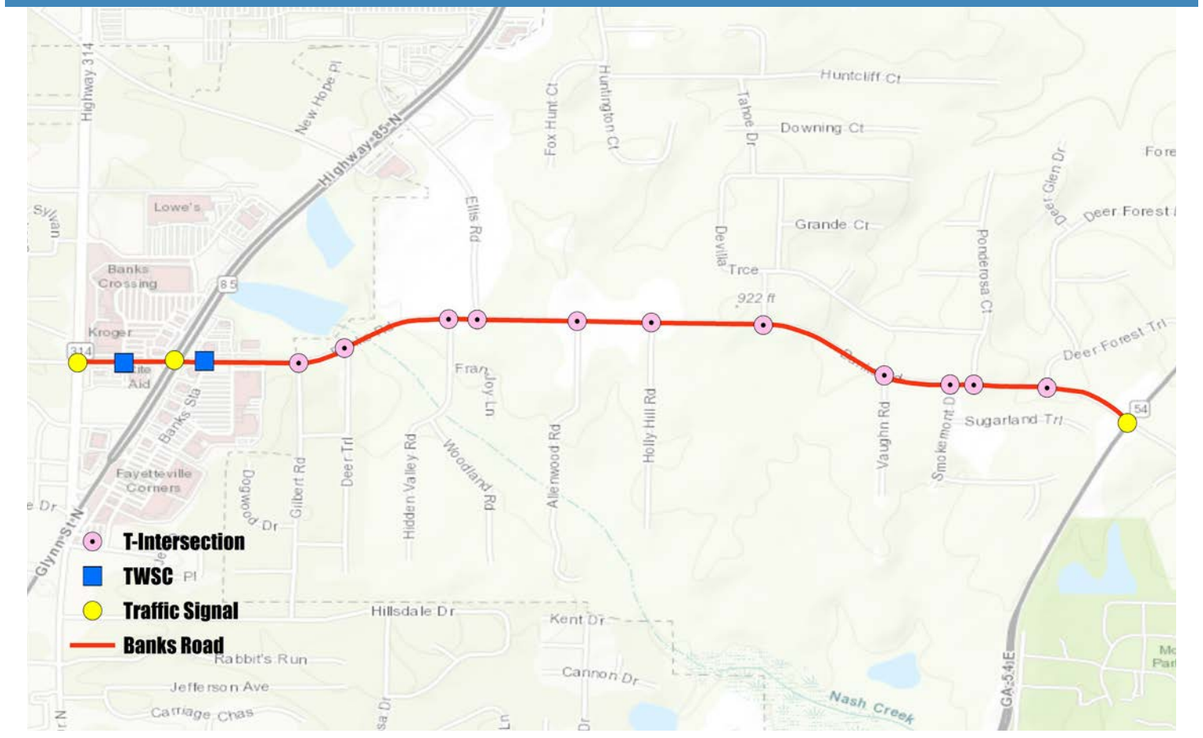


Table 1.6 - Banks Road Intersections

INT. NO	BANKS ROAD	TRAFFIC CONTROL
1	AT SR 314/W FAYETTEVILLE ROAD	TRAFFIC SIGNAL
2	AT BANKS CROSSING	TWSC (NB/SB)[1]
3	AT SR 85/S GLYNN STREET	TRAFFIC SIGNAL
4	AT BANKS STATION DRIVEWAY	TWSC (NB/SB)[1]
5	AT GILBERT ROAD	T-INTERSECTION (NB)[1]
6	AT DEER TRAIL	T-INTERSECTION (NB)[1]
7	AT HIDDEN VALLEY ROAD	T-INTERSECTION (NB)[1]
8	AT ELLIS ROAD	T-INTERSECTION (SB)[1]
9	AT ALLENWOOD ROAD	T-INTERSECTION (NB)[1]
10	AT HOLLY HILL ROAD	T-INTERSECTION (NB)[1]
11	AT PONDEROSA TRACE	T-INTERSECTION (SB)[1]
12	AT VAUGHN DRIVE	T-INTERSECTION (NB)[1]
13	AT SMOKEMONT DRIVE	T-INTERSECTION (NB)[1]
14	AT PONDEROSA COURT	T-INTERSECTION (SB)[1]
15	AT DEER FOREST TRAIL	T-INTERSECTION (SB)[1]
16	AT SR 54	TRAFFIC SIGNAL

1. DENOTES WHICH MANEUVERS ARE STOP CONTROLLED.

Bike/Pedestrian Facilities

There are sidewalks along both sides of Banks Road between SR 314 and SR 85, and along the north side from SR 85 to the City of Fayetteville limits. From the City of Fayetteville limits to SR 54, there are no sidewalks along Banks Road. There are no bicycle facilities along the corridor. Fayette County is currently in the process of completing the Master Path Plan.

Transit Facilities

There are no fixed routes that serve Fayette County. The closest GRTA Park & Ride lots (using driving distance and measured from the center of the corridor) are:

- Newnan Park & Ride – approximately 19.9 miles*
- Union City Park & Ride – approximately 12.6 miles*
- Jonesboro Park & Ride – approximately 6.6 miles*

[* - Measured from the midpoint of the corridor (Banks Road at Allenwood Road)]

Fairburn and the South Fulton Community Improvement District (CID) are in the process of constructing a Park-n-Ride lot along the east side of SR 74 between Harris Road and Milam Road. Fayette Senior Services, Inc. provides inexpensive, flexible transportation for Fayette County's disabled (18 - 59 years) and older citizens (60 years & above). The organization provides two types of transportation options: Voucher Transportation and Non-emergency Medical Transportation. Services are available Monday through Friday, 6:00 AM to 6:00 PM.

Field Observations

The following observations were made by the project team during a field visit in Spring 2019:

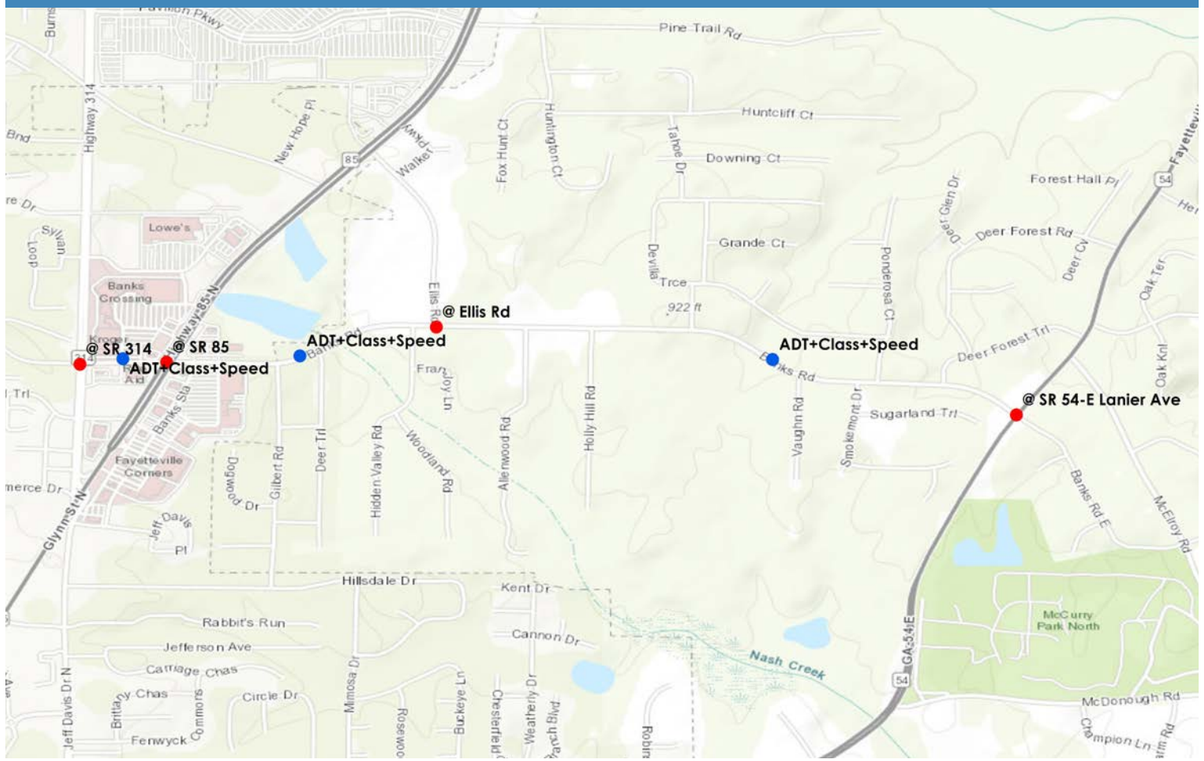
- From the western termini, Banks Road begins a commercial/retail environment and transitions to a residential area east of the City of Fayetteville limits. As this area continues to grow there may arise the need for concrete channelizing islands to encourage right turns ingress and egress into and out of the commercial areas.
- Intersection at Gilbert Road has limited sight distance looking east.
- Intersection of Deer Trail is in a downhill grade looking east on Banks Road.
- Pedestrians observed walking on the shoulder of Banks Road.
- Congestion at Hidden Valley Road and Ellis Road.
- Ample sight distance (both east and west) at Allenwood Road.
- Limited sight distance (east and west) at Ponderosa Trace and Banks Road intersection. There are curves in both directions approaching Vaugh Drive
- Smokemont Drive at Banks Road has standing water in the turning lane gutter.
- Some subdivisions have small turn radii, which may impact turn movements for residential trash pickup at least during weekday commutes.
- Approaching SR 54, there is a gore area evolving into a turning lane and this intersection is under construction, by GDOT as part of the SR 54 widening project.
- Fair pavement condition with 25' wide surface with some longitudinal and transverse cracking.
- Some raveling and slight reflection of wheel path is visible in some areas.
- Observed that some shoulders broke in various radius.
- The majority of the road had 3' grass shoulders some with steep slopes.

Images 1.1 to 1.3 - Banks Road - Field Observations

1.5 Existing Traffic Conditions

Traffic counts were conducted in April 2018 at the locations described below. The count locations are shown in Map 1.9.

Map 1.9 - Banks Road - Traffic Count Locations



Weekday 24-hour Bidirectional Volume Count with Vehicle Classification and Speed were collected at:

- Banks Road between SR 314/W Fayetteville Road and SR 85
- Banks Road east of Gilbert Road
- Banks Road west of Vaughn Drive

Weekday 4-hour AM and PM Peak Period (7-9 AM and 4-6 PM) Turning Movement Counts (TMC) were collected at:

- Banks Road at SR 314/W Fayetteville Road
- Banks Road at SR 85/S Glynn Street
- Banks Road at Ellis Road
- Banks Road at SR 54

Saturday peak period Turning Movement Counts were also collect at SR 314/W Fayetteville Road and SR 85/S Glynn Street.

Between SR 314 and Ellis Road, the average ADT is 8,652 vehicles. Between Ellis Road and SR 54, the average ADT is 12,751 vehicles. Adjusting the April counts for daily and seasonal factors per GDOT standards, the Average Annual Daily Traffic (AADT) for the two aforementioned segments, are 7,900 vehicles and 11,650 vehicles, respectively. The count data shows that there is significant increase in traffic along Banks Road east of Ellis Road. Table 1.7 describes daily truck percentages along the corridor.

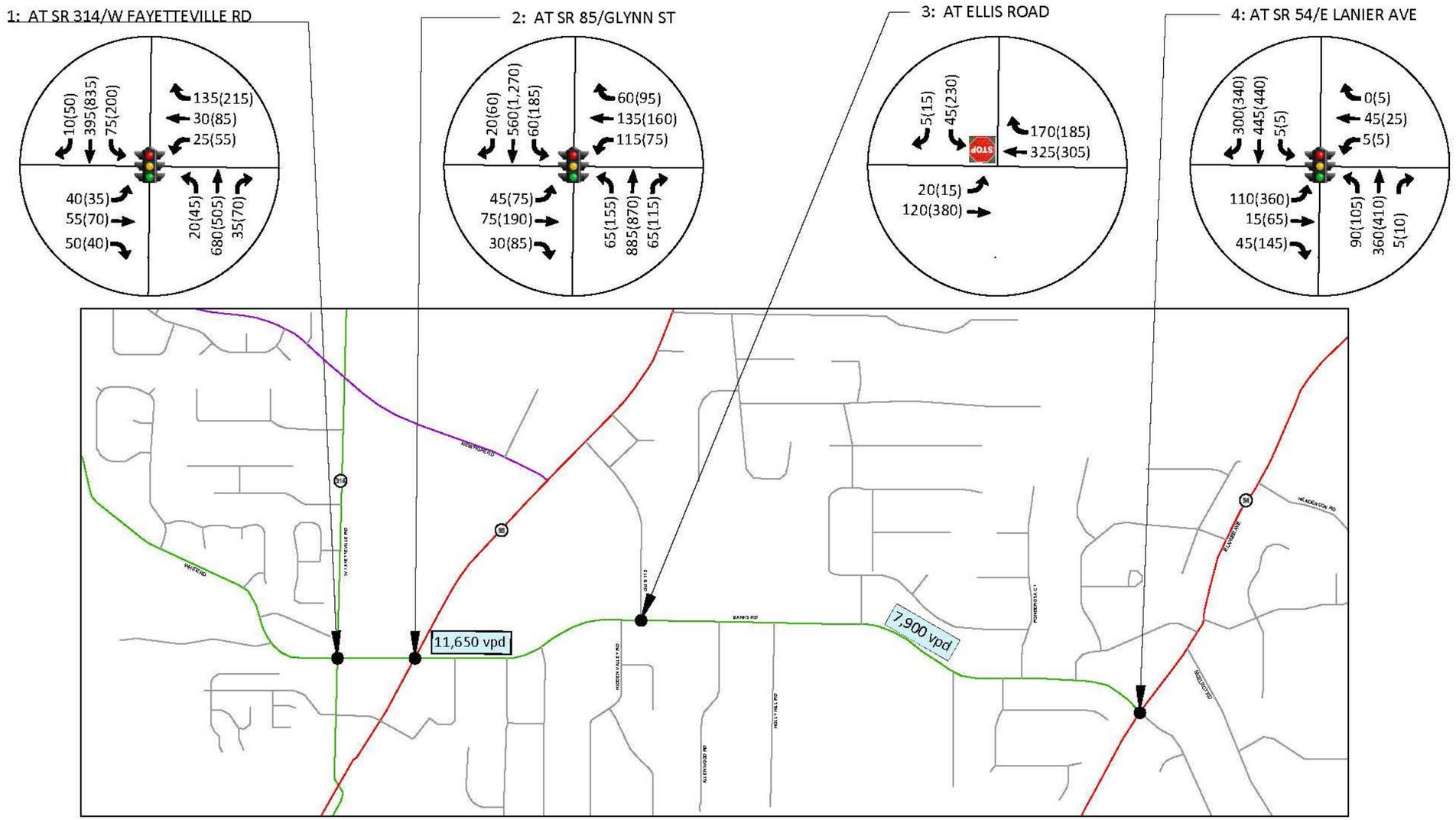
Table 1.7 - Banks Road Daily Truck Percentages

BANKS ROAD	SINGLE UNIT	COMBO	TOTAL
BETWEEN SR 314 AND ELLIS ROAD	1.7 %	0.1 %	1.8 %
BETWEEN ELLIS ROAD AND SR 54	2.9 %	0.1 %	3.0 %

The morning and afternoon peak period counts collected indicate that the average AM peak hour is 7:00 am to 8:00 am and the average PM peak hour is 5:00 pm to 6:00 pm. For continuity between the study intersections, a uniform average peak hour was used for each time period.

The 2018 existing traffic volumes along Banks Road are shown in Figure 1.2.

Figure 1.2 - Banks Road - 2018 Traffic Volumes



Traffic Volumes Projection Sources

- GDOT Historic Traffic Volumes

GDOT's count program, Traffic Analysis and Data Application (TADA), provides a source of data for assessing traffic volume trends over a sustained period of time. The following count stations on minor arterials within the vicinity of Banks Road were collected:

- White Road West of SR 314 (Minor)
- SR 314 North of Banks Road (Minor)
- N Jeff Davis Drive South of Banks Road (Minor)
- Highway 92 West of SR 314 (Minor)

Historical counts were also collected for the following corridors, which are principal arterials:

- SR 85 North of SR 314 (Principal)
- SR 54 North of Banks Road (Principal)
- McDonough Road East of McElroy Road (Principal)

Historical traffic data was used to establish historical traffic trends in the region and predict future traffic growth along Banks Road.

- Regional Travel Demand Model

The Atlanta Regional Commission travel demand model (ARC TDM) was reviewed and traffic projections at pertinent locations were selected and analyzed to determine future growth rates of traffic along the corridor and the surrounding roadway network.

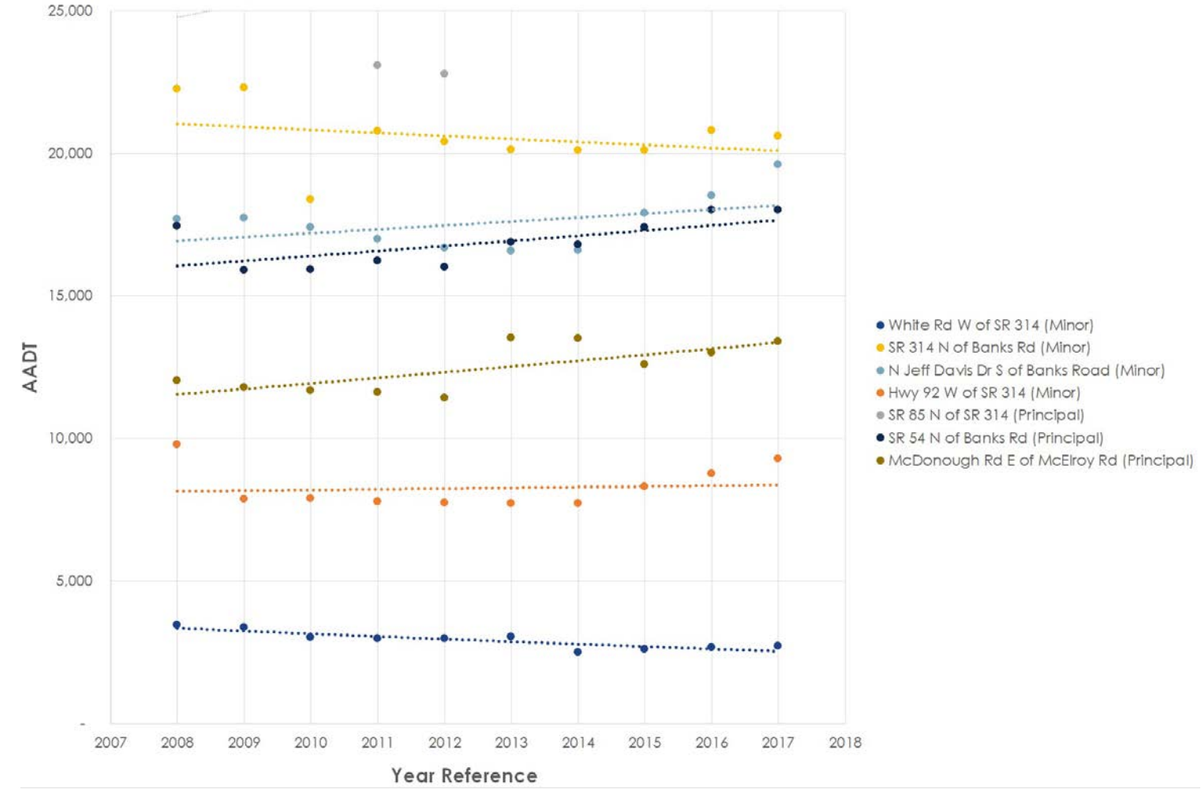
Traffic Growth Methodology

- Historical Growth Regression

An exponential regression analysis was performed using historical traffic count data collected from GDOT's TADA online mapping to determine annual growth factors. Roadways deemed key in determining the overall traffic trends in the region were selected and segments with corresponding traffic counters were plotted for each year. Per GDOT's Design Traffic Forecasting Manual, traffic counts that were deemed irregular were omitted to "eliminate erroneous counts and reflect general trend."

Using the exponential regression line's R2 value as a measurement of accuracy, the equation for the data was used to calculate ADT for 2019, 2020, and 2040. These volumes were then used to calculate annual growth rates (AGR) based on the historical 5 and 10 year periods. The average annual growth rate over the past 10 years for the area was 0.95%. Figure 3 shows the historical growth trends for Historical Growth Trends for Minor & Principal Arterials in Area.

Figure 1.3 - Historical Growth Trends for Banks Road & Other Minor Arterials



- ARC Travel Demand Model

Since roadway improvements and socio-economic factors, such as population and employment change are incorporated into regional TDM, they provide realistic projections of future traffic volumes for a region. The ARC TDM forecasted data for 2015, 2020, 2030, and 2040 was used in the growth rate analysis.

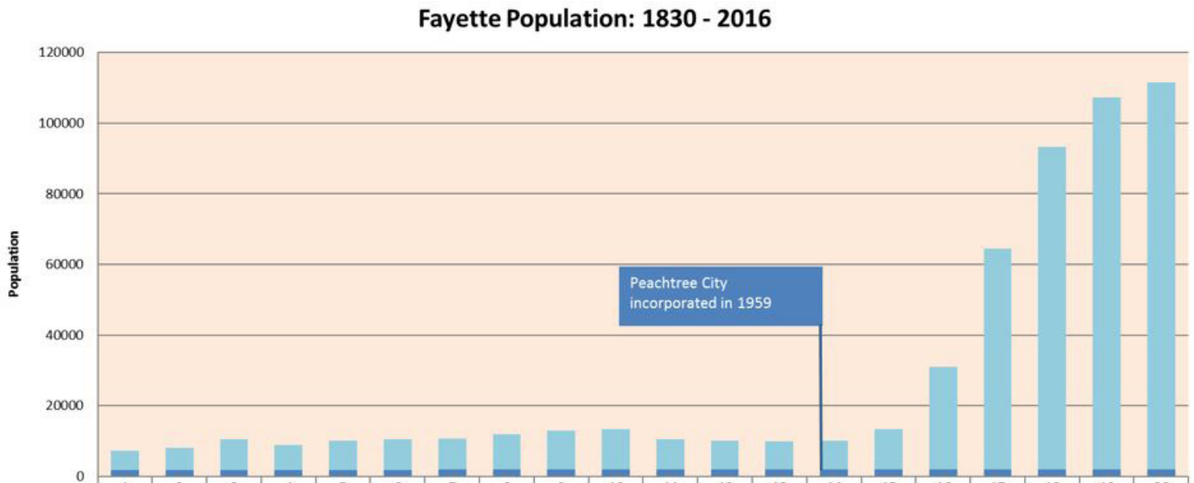
Roadway segments with corresponding traffic data were selected for each year and the AGR from 2015 – 2020 and 2020 – 2040 were calculated. The average annual growth rate for the 2020 to 2040 projection was 1.1%.

- County Population and Growth Forecasts

In step with the rest of the metropolitan Atlanta area, Fayette County has experienced significant growth in population over the past few decades. Figure 4 shows the total population from 1830 to 2016 based on the latest estimates from the American Community Survey (ACS).

In 2017, Fayette County adopted a new Comprehensive Plan, which included a population project based on the ARC's population projections. The data extracted from ARC's models showed that Fayette County's population will increase from 110,975 to 143,255 between 2015 and 2040. This projection represents a 29 percent increase (32,280 people) and an annual growth rate of 1.16 percent.

Figure 4 - Fayette County Historic Population



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Population	5504	6,191	8,709	7,047	8,221	8,605	8,728	10,114	10,966	11,396	8,665	8,170	7,978	8,199	11,364	29,034	62,415	91,263	105,344	109,495
Year	1830	1840	1850	1860	1870	1880	1890	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000	2010	2016

Source: US Census, ACS

- Proposed Future Annual Growth Rates

During the development of concepts for the Banks Road corridor, an AGR will be used to project the existing traffic volumes to a future base year and design year to determine the viability of recommendations. Based on the review of GDOT historic data and the ARC 2015, 2020, 2030, and 2040 models, the proposed AGR for the 2020 and 2040 traffic projections were rounded to 1.5% in order to conduct a conservative future analysis and account for any additional traffic factors that may arise.

Traffic Operations Analysis

Capacity analyses for Banks Road were conducted based on the procedures defined by the Transportation Research Board's Highway Capacity Manual, 2010 edition (HCM 2010) methodology using Synchro™ (Version 9) and HCS 2010™ software. The HCM 2010 was used to define the overall Level of Service of the corridor and the individual study intersections.

Level of Service (LOS) is defined as a qualitative measure that describes operational conditions and motorists perceptions within a traffic stream. Level A represents the best quality of traffic where the drive has the freedom to drive with free flow speed and level F represents the worst quality of traffic when the traffic flow breaks down. Level of service is defined based on the measure of effectiveness (MOE). Typically three parameters are used under this and they are speed and travel time, density, and delay.

One of the important measures of service quality is the amount of time spent in travel. Therefore, speed and travel time are considered to be more effective in defining LOS of a facility. Density gives the proximity of other vehicles in the stream. Since it affects the ability of drivers to maneuver in the traffic stream, it is also used to describe LOS. Delay is a term that describes excess or unexpected time spent in travel. For metropolitan areas, an acceptable Level of Service during peak hours is LOS D, which indicates a tolerable delay for the average road user.

For highway capacity, the LOS is defined by density. In the case of two-lane highways, the roadway LOS is defined based on its classification, average travel speed, time-spend-following, and free-flow speed. For intersections, the LOS is defined by controlled delay. LOS for unsignalized intersections, with stop control on the minor street only, are reported for the side street approaches. The LOS criteria for signalized, unsignalized, and roundabout intersections are based on average controlled delay and are given in Table 8.

Table 8 - Level of Service Criteria for Intersections

	SIGNALIZED	UNSIGNALIZED	ROUNDABOUT
LEVEL OF SERVICE	CONTROL DELAY (SEC)	CONTROL DELAY (SEC)	CONTROL DELAY (SEC)
A	≤ 10	≤ 10	≤ 10
B	> 10 AND ≤ 20	> 10 AND ≤ 15	> 10 AND ≤ 15
C	> 20 AND ≤ 35	> 15 AND ≤ 25	> 15 AND ≤ 25
D	> 35 AND ≤ 55	> 25 AND ≤ 35	> 25 AND ≤ 35
E	> 55 AND ≤ 80	> 35 AND ≤ 50	> 35 AND ≤ 50
F	> 80	> 50	> 50

Operational conditions were evaluated for the 2018 Existing conditions during the morning and afternoon peak hours. The Levels of Service (LOS) and delay per intersection are shown in Table 9, and the roadway LOS and volume-to-capacity ratio (V/C) are shown in Table 10.

Table 9 - 2018 Existing Intersection Level of Service (LOS)					
	BANKS ROAD	TRAFFIC CONTROL	AM PEAK	PM PEAK	SAT PEAK
1	AT SR 314/W FAYETTEVILLE ROAD	TRAFFIC SIGNAL	B (11.1 s)	B (18.1 s)	B (17.8 s)
2	AT SR 85/S GLYNN STREET	TRAFFIC SIGNAL	C (22.9 s)	C (32.5 s)	C (33.5 s)
3	AT ELLIS ROAD	TWSC (SB)[1]	C (15.0 S)	F (63.0 s)	
4	AT SR 54	TRAFFIC SIGNAL	B (14.0 S)	D (26.4 s)	

1. FOR TWO-WAY STOP CONTROLLED (TWSC) INTERSECTIONS, LOS ARE REPORTED FOR THE SIDE STREET APPROACHES ONLY.

As shown above, under the 2018 existing traffic conditions, all of the study intersections are operating at an acceptable LOS during the morning peak hour. In the afternoon peak hour, Ellis Road at Banks Road is operating at LOS F with the average control delay being 63 seconds for the southbound vehicles. Banks Road at SR 54 is operating at LOS D and is currently under construction as part of the SR 54 Widening.

In terms of roadway capacity, Banks Road is operating at an acceptable LOS between SR 85 and Ellis Road during morning and afternoon peak hours. Between Ellis Road and SR 54, Banks Road is performing at LOS D during both the morning and afternoon peak hour.

Table 10 - 2018 Existing Peak Hour Roadway Capacity Level of Service (LOS)				
BANKS ROAD	AM PEAK		PM PEAK	
	LOS	V/C	LOS	V/C
FROM SR 85 TO ELLIS ROAD	C	0.14	C	0.30
FROM ELLIS ROAD TO SR 54	D	0.13	D	0.40
V/C - VOLUME TO CAPACITY RATIO				

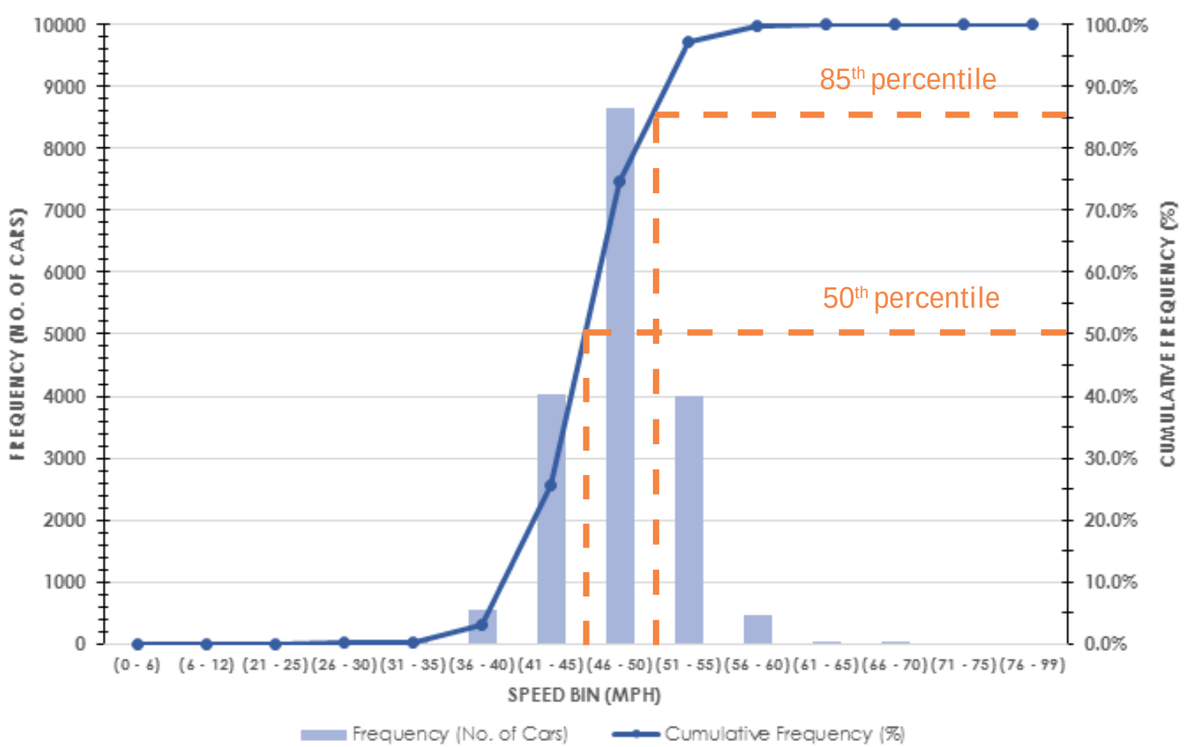
Safety Analysis

- Speed Study -

Vehicle speeds were obtained for Banks Road eastbound and westbound travel directions in April 2018 at two points along the corridor. Figure 5 shows the average cumulative speed distribution along Banks Road. Given the posted speed limit of 35 miles per hour, approximately 99% of vehicles were exceeding the speed limit with the 85th percentile speed being an average of 51 mph.

As shown, the 85th percentile speed along Banks Road is approximately 51 mph. The 10 mph pace along the corridor was 41 mph to 51 mph. Given the posted speed limit along Banks Road is 35 mph, these results indicate that vehicles along the corridor are typically exceeding the speed limit which creates a safety concern.

Figure 5 - Banks Road - Cumulative Speed Distribution (Average)



- Crash Data -

In order to identify crash trends and safety characteristics for the corridor, crash data was obtained from the Georgia Electronic Accident Reporting System (GEARS) database.

Crash records were collected along Banks Road between November 2013 and October 2018. Crash Data by Type, 5-Year Crash History, and Time-of-Day are shown in Figure 1.6, Figure 1.7 and Figure 1.8, respectively. Property Damage Only (PDO), injuries, and fatalities resulting from car crashes along Banks Road for this 5-year period are shown in Table 1.11.

This data demonstrates that there has been a substantial number of crashes along this corridor. Banks Road's crash rate is higher in every category when compared to the statewide average for minor arterials. Particularly concerning is the severity of the crashes along Banks Road. Approximately 23% of the crashes during this time period resulted in one or more injuries.

There were two fatalities resulting from a vehicle going off the roadway east of Ponderosa Trace in January 2018. There was one crash involving a pedestrian on Banks Road at its intersection with Ellis Road. The average number of crashes occurring on Banks Road is 74 crashes per year. The majority of the crashes are rear end or angle crashes. These findings indicate that there is a recognizable need to implement techniques to reduce the frequency and severity of crashes along the corridor.

As expected, the signalized intersections along the corridor have the highest number of crashes for the five-year period. The five unsignalized intersections with the greatest number of crashes are from higher to lower: Deer Forest Trail, Ellis Road, Vaughn Drive, Ponderosa Trace, and Allenwood Road.

Rural-two lane typical sections, such as Banks Road, typically have higher frequencies of rear end and angle crashes, due to the number of access points along the corridor, high turning volumes from a single shared lane, and restricted sight distance.

Map 1.10 represents a heat map of crashes along Banks Road. The intersections are considered hot-spots for crashes with higher number of accidents in the red zones.

Figure 1.6 - Banks Road - Five Year Crash Data by Type

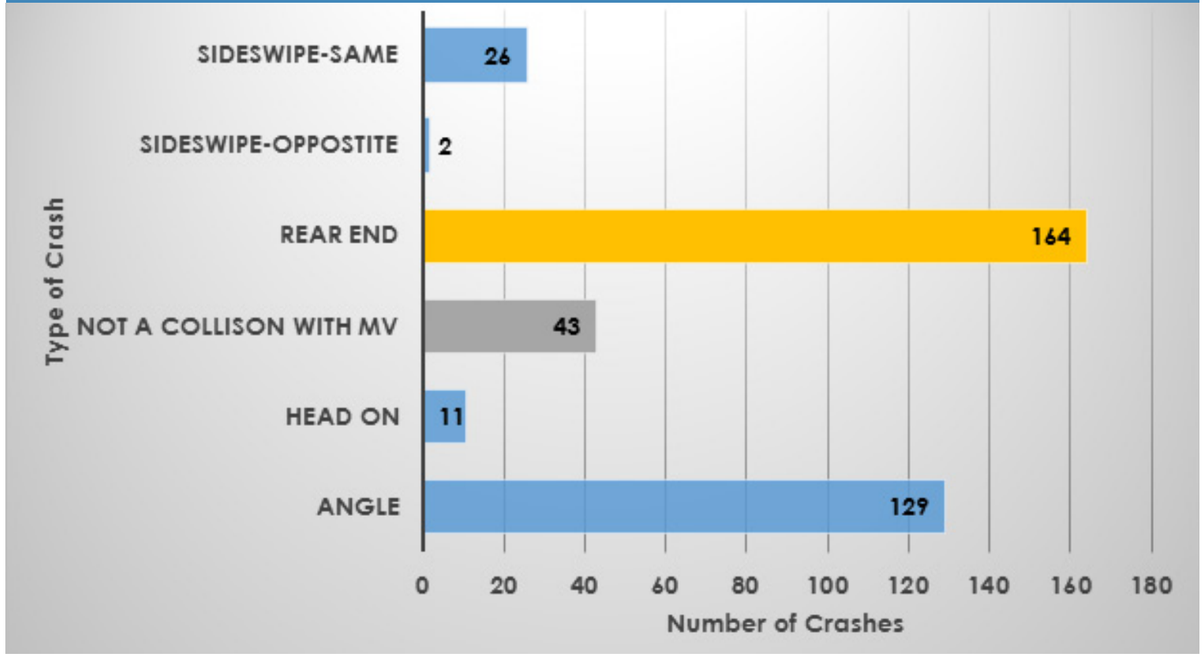


Figure 1.7 - Banks Road - Five Year Crash History by Type

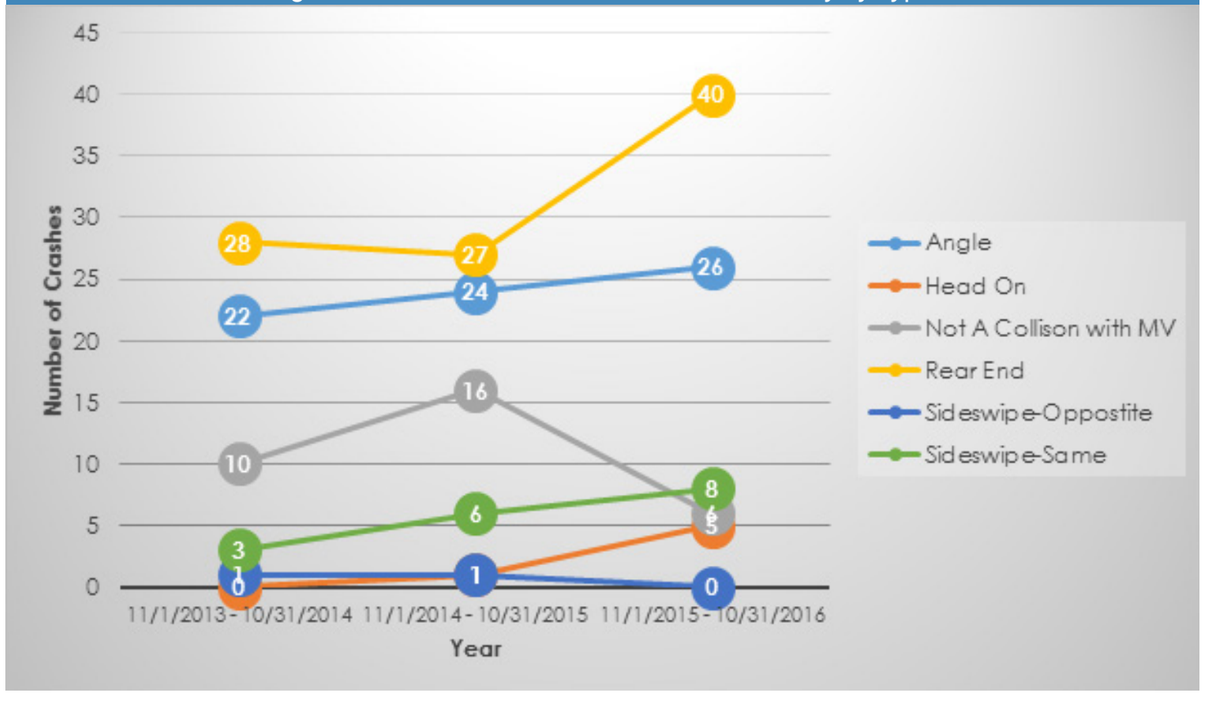


Figure 1.8 - Banks Road - Total Crashes by Time-of-Day

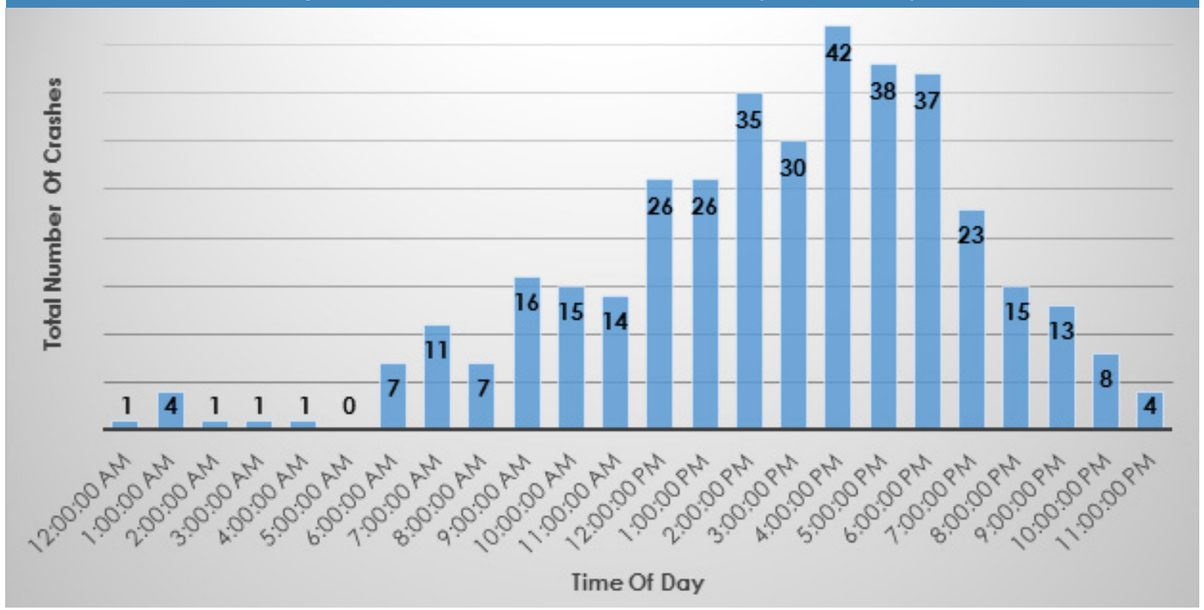


Figure 1.9 - Banks Road - Total Crashes per Intersection

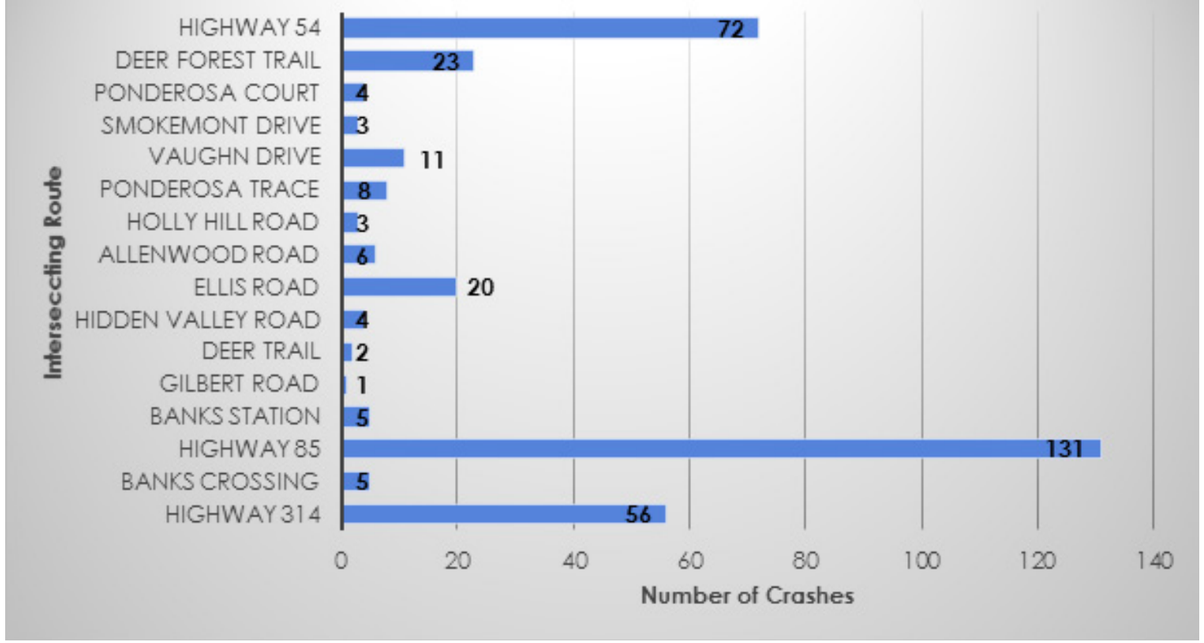
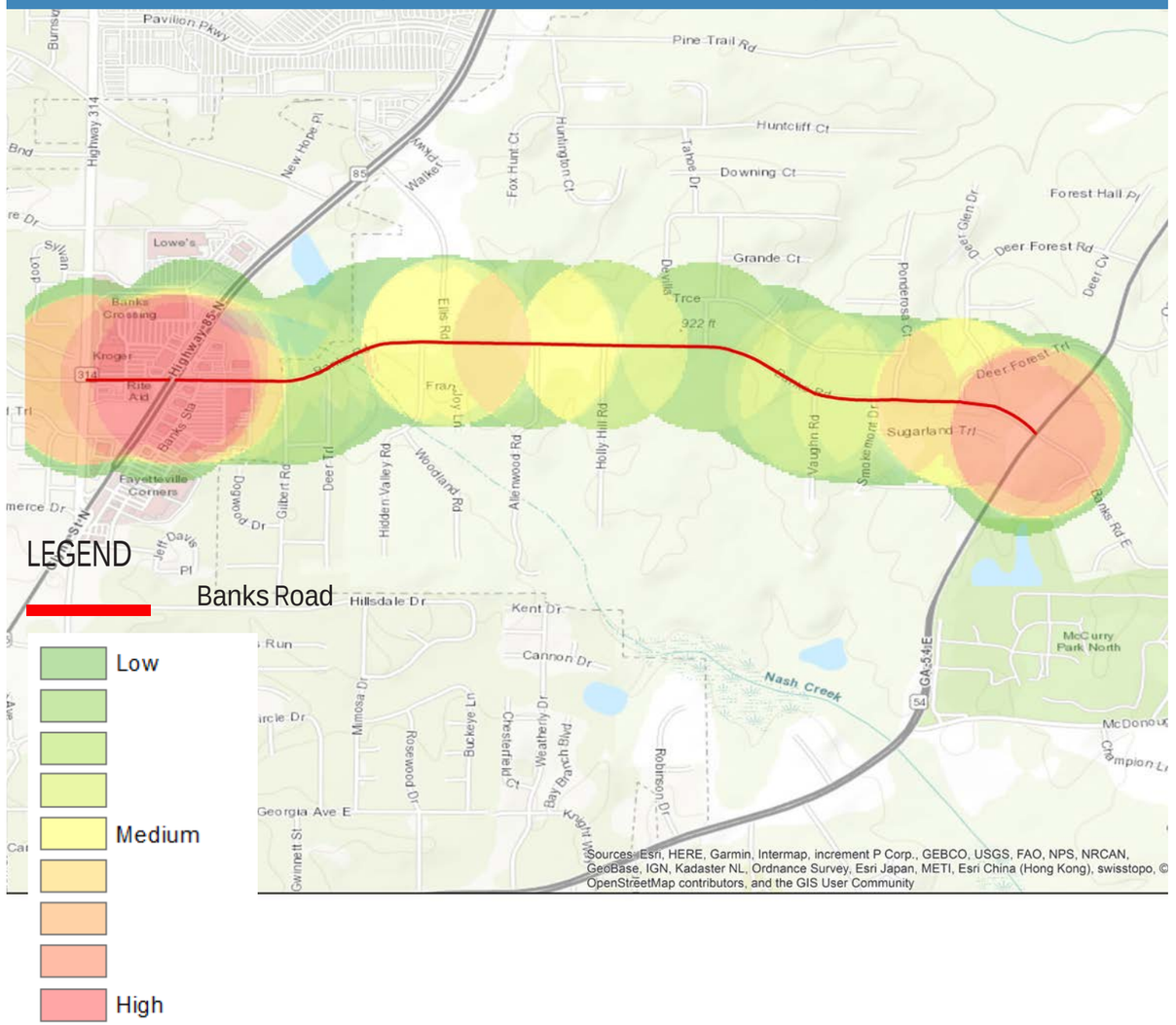


Table 1.11 - Banks Road Crash Rates Relative To State Averages

	TOTAL CRASHES (5 YEARS)	CRASH RATE [1]	STATEWIDE AVG. (2016) [1]
TOTAL CRASHES	375	1078	506
TOTAL INJURY ACCIDENTS	86	247	124
TOTAL INJURIES	164	471	186
TOTAL FATAL ACCIDENTS	1	2.87	1.72
TOTAL FATALITIES	2	5.75	1.86

1. Crashes per 100 million vehicle-miles of travel.

Map 1.10 - Banks Road - Crashes Heat Map



1.6 Environmental Due Diligence

The purpose of the survey was to identify sensitive environmental conditions that may provide corridor improvement opportunities and/or constraints. The survey included agency database research as well as on site reconnaissance of the corridor. Sensitive environmental land uses that were surveyed included natural, cultural, community, and physical resources in the general vicinity of the Banks Road corridor.

The existing Banks Road study consists of two travel lanes and is an undivided roadway throughout the corridor. Right and left turn lanes are provided at SR 314, SR 85, and SR 74. Land use along the Banks Road corridor is urban and primarily commercial near the western terminus of the study corridor in the area of SR 314 and SR 85, and is rural and primarily residential with some agricultural use along the remainder of the corridor. A sample of sensitive environmental land uses that were identified along the study corridor are shown in Image 1.4, Image 1.5, and Image 1.6.

Prior to design and construction in the area, coordination with appropriate approval agencies would be required to determine type of environmental and historic resources that need to be protected in the jurisdiction.

The Banks Road Due Diligence report along with the Environmental Resources Location map are attached in the appendix.

Image 1.4 - Nash Creek

Image 1.5 - Unnamed Tributary to Morning Creek

Image 1.6 - Example of Potential Historic Resource

1.7 Utilities

This section of the report presents an inventory of existing utilities along the corridor. Map 1.13 represents the location of these utilities. Description and photos of these utilities are presented below. Fayette County must conduct a detailed analysis prior to any construction.

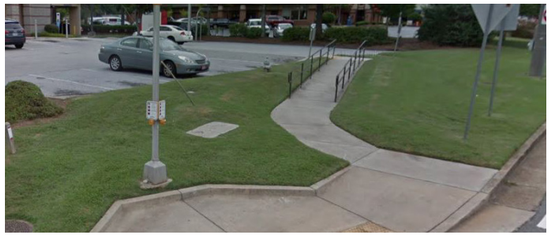
A
Fiber Box (2 AYO)

B
Banks Road looking west

C
Fiber Optic Pedestal AT&T

D
AT&T UG. Pedestal

E
Fire Hydrant



F
FDC Vault

G
AT&T UG. Cable Pedestal

H
Detention Pond

I
AT&T Cabinets

J
Looking west toward GA 85 reflecting turn lane for Dollar General

K
Power Line

L
Marked Gas-line (AGL) & AT&T Telephone Pedestal

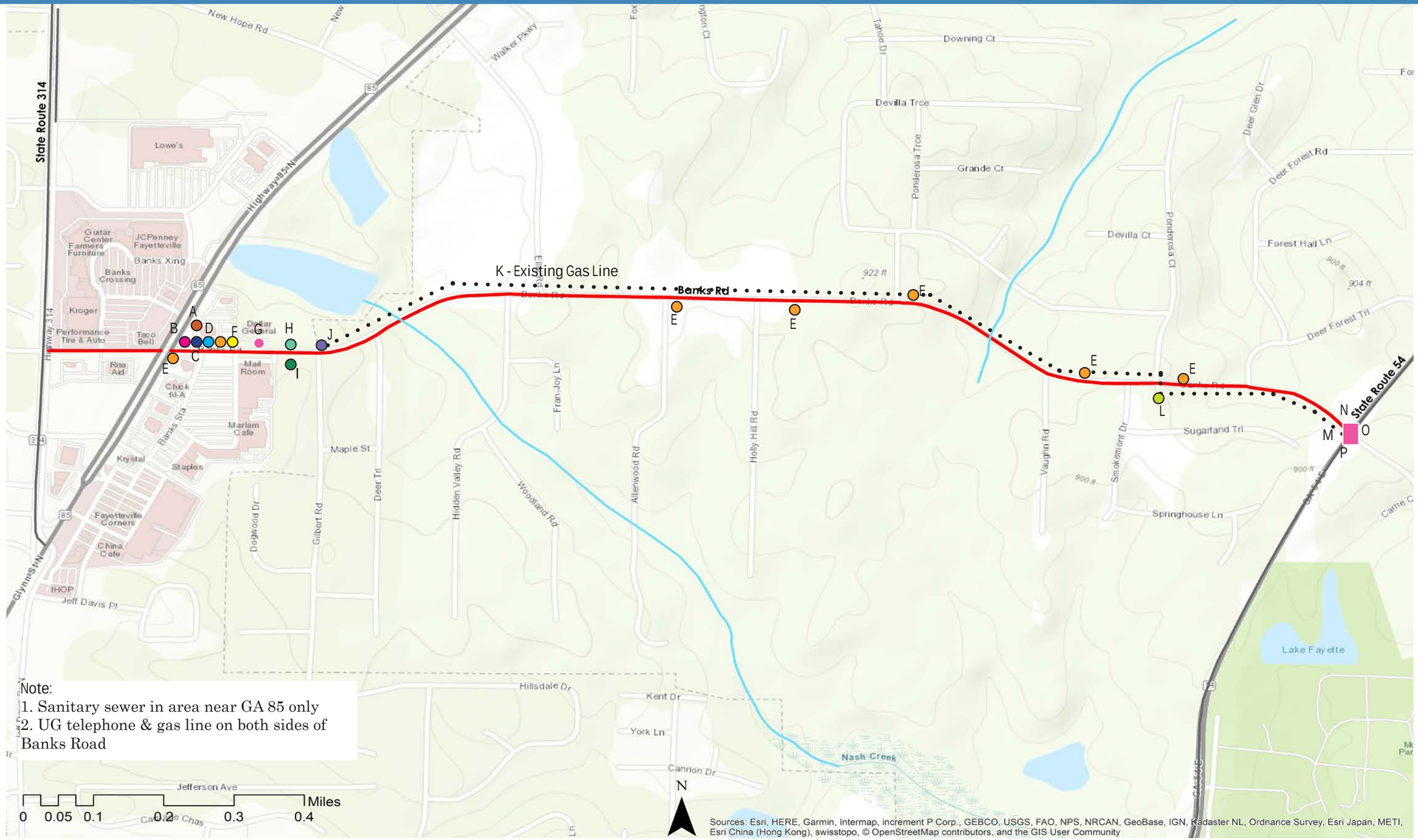
M
GA 54 looking Southwest

N
GA 54 looking Southwest

O
GA 54 looking Southwest

P
Banks Road looking Southeast

Map 1.11 - Banks Road - Utilities



Note:
1. Sanitary sewer in area near GA 85 only
2. UG telephone & gas line on both sides of Banks Road

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

1.8 Summary

Banks Road is an important roadway in the northeastern quadrant of Fayette County providing mobility between State Route 54 to State Route 85 and Route 314. The 1.9-mile major road also provides connectivity for the abutting property owners and intersecting local streets.

Banks Road has one through lane, typically 11 feet wide for each direction of travel (turn lanes are provided at a few side streets) and is posted with a 35 mph speed limit. It is controlled by three signalized intersections (at SR 314/W Fayetteville Road, SR 85/S Glynn Street, and SR 54); all other unsignalized intersections are two-way stop controlled (TWSC). There are sidewalks along both sides of Banks Road between SR 314 and SR 85, and along the north side from SR 85 to the City of Fayetteville limits. There are no bicycle facilities along the corridor. The only transit service is demand responsive provided by Senior Services and different private carriers.

The abutting land use is primarily residential with commercial activity being clustered around the SR 85 and SR 314 corridors. An investigation of the demographic make-up of the citizens within 1-mile of Banks Road (data source was the 2016 American Community Survey at the block group level) reveals that 56% of the population is female; approximately 46% of the citizens are white, 42% are African American; less than 1% have not completed high school; and the mean median household income is $59,903.

The average annual daily traffic along Banks Road ranges from approximately 7,900 vehicles to 11,650 vehicles, and the daily truck percentage along the corridor ranges from 2% to 3%. The morning and afternoon peak hours begin at 7:00 AM and 5:00 PM, respectively. Under the existing traffic conditions, all study intersections are operating at an acceptable LOS during the morning and afternoon peak hours except at Banks Road and Ellis Road, which is currently failing in the afternoon peak hour. In terms of roadway capacity, the corridor itself is operating at an acceptable LOS. From collected speed data, the 85th percentile speed is 51 mph, approximately 16 mph over the posted speed limit.

For the recent 5-year period ending October 2018, an analysis of crash records from GEARS revealed 375 crashes with two resulting in a fatality. The most common crash type were rear-ends and angle collisions. The majority of the crashes are clustered at the intersections with Highway 85 and 54, followed by Highway 314. Approximately 23% of the crashes resulted in an injury. **Banks Road's crash rate is higher in every category when compared to the statewide average for minor arterials.**

An environmental survey revealed that Banks Road is within the Line Creek Watershed and and the Flint River Upper 6 Watershed. Both these watersheds are listed as a High Priority Watershed by the Georgia Department of Natural Resources' (GDNRs'). The Banks Road corridor crosses two streams: Nash Creek and an Unnamed Tributary to Morning Creek. Nash Creek is a perennial stream that flows southeasterly from the project corridor. The Unnamed Tributary to Morning Creek is a perennial stream that flows northeasterly from the project corridor toward Morning Creek.

The National Wetland Inventory (NWI) identified no wetlands in the area of the Banks Road study corridor. Field reconnaissance of the corridor identified two potential wetland areas associated with the two stream crossings. 2013 Fayette County Flood Study identified the Nash Creek floodplain as a special flood hazard area (existing 100-year floodplain) that crosses Banks Road. The GDNR lists eight federal and state protected species known to occur in Fayette County. Eight historic resources were identified along the corridor that are potentially eligible for the National Register of Historic Places. No community resources such as churches, cemeteries, schools, fire stations, or community centers were identified along the Banks Road study corridor.

Chapter 2:
Needs Assessment

2.1 Introduction - Page 27
This section of the report introduces the needs assessment report and discusses the structure of the document.

2.2 Vision & Goals - Page 28
The visions and goals for the study corridor are defined in this section.

2.3 Methodology & Analysis - Page 29
This segment discusses the methodology, qualitative and quantitative tools used in identifying the needs assessment.

2.4 Next Steps - Page 35
This section identifies the next steps and action items for the planning process.

2.1 Introduction

The Needs Assessment report is the second chapter of the Banks Road Transportation corridor study. The precedent to this document is the Existing Conditions Report which detailed the current conditions of the area around the corridor, including demographic character, land use, transportation infrastructure, operations and safety, utilities and environmental due diligence.

With the Existing Conditions Report in place, the Needs Assessment Report is useful in identifying insights into the current and future needs of the corridor. The intent of the Needs Assessment Report is to take a comprehensive look at the existing conditions, future demographic and population projections, and other forecasts including public engagement to help understand the needs along the corridor.

Banks Road is a 1.9-mile major road with the western end of the corridor within the City of Fayetteville. In addition to providing access for abutting neighborhoods, Banks Road is used as a cut-thru between SR 314, SR 85 and SR 54. However, the road lacks adequate design and capacity for current and future traffic volumes and pedestrian demands.

Image 2.1 - Banks Road Public Involvement Open House

This chapter helps recognize accessibility and mobility issues by identifying the existing as well as future needs. Needs assessment can be determined by qualitative as well as quantitative tools and resources. This includes not only the use of data and models to understand future development, population projections, and travel demand in the area, but also using community participation and stakeholder engagement to identify needs of the citizens.

Graphic 2.1 - Three Pillars of the Corridor Study

The sections of this chapter provide introductory information about the plan, identifies the visions and goals for the study corridor and discusses the methodology, qualitative and quantitative tools used in identifying the needs assessment. The chapter further outlines detailed public comments and SWOT (Strengths, Weaknesses, Opportunities and Trepidations*) analysis and identifies the next steps and action items for the planning process.

**The word 'trepidation' was used in place of 'threat'*

2.2 Vision & Goals

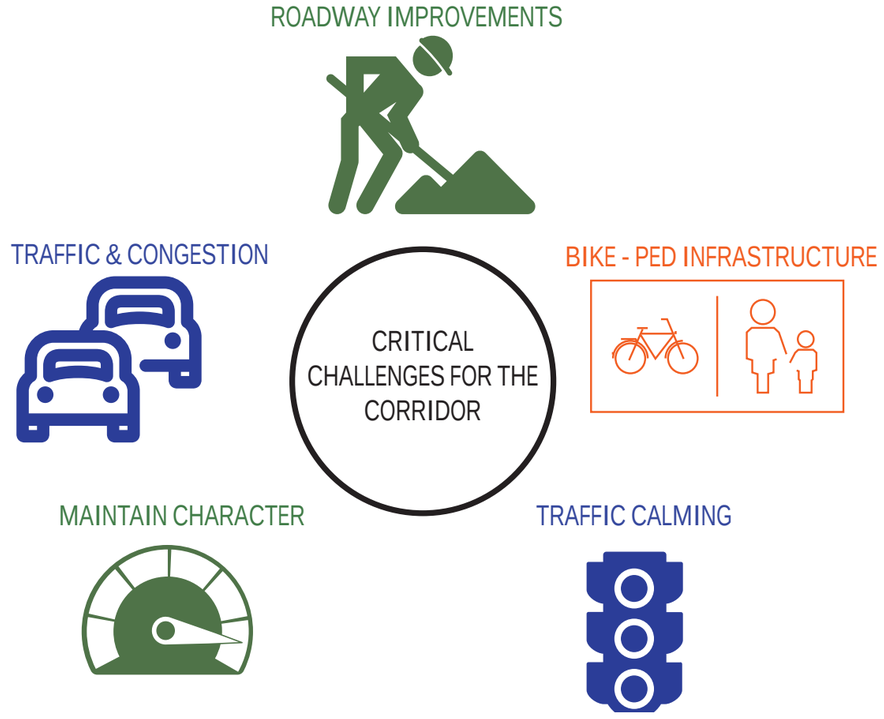
The aim of the corridor study is to identify traffic and transportation solutions from a holistic perspective to:

- Ensure safety
- Provide solutions for congestion and delay
- Identify prospects for multi-modal uses
- Create sustainable infrastructure improvements
- Promote economic development

To further the development of the corridor study, the planning team, County staff and stakeholder committees worked to draft a vision statement for the plan as well identify a set of goals. The vision and goals were corroborated through public involvement effort, where total of 195 citizens participated and over 300 comments were received at the first Public Information Open House (PIOH).

The challenges identified for the corridor are displayed in Graphic 2.2. Detailed comments and charts are attached in the appendix.

Graphic 2.2 - Priority Challenges for the Corridor



The Banks Road Corridor Study envisions to provide a framework to improve quality of life for citizens living not only around the corridor but also for County residents and visitors using the corridor. The aim of the study is to facilitate mobility, ensure safety and improve efficiency across all modes of transportation in cooperation with local, regional, state, and federal partners. This framework will be established through the preliminary concepts and preferred alternatives.

Graphic 2.3 - Vision and Goals for the Corridor

VISION	GOALS
ENSURE SAFETY	• Prioritize projects that improve safety, acknowledging all user groups
PROVIDES SOLUTION FOR CONGESTION & DELAY	• Build corridor capacity to anticipate future needs • Improve connectivity and reliability regardless of mode or purpose
IDENTIFY PROSPECTS FOR MULTI-MODAL USES	• Consider mobility needs of all population groups when investing in transportation projects
CREATE SUSTAINABLE INFRASTRUCTURE IMPROVEMENTS	• Invest in rehabilitation and maintenance of existing transportation infrastructure • Prioritize projects to maximize benefits
PROMOTE ECONOMIC DEVELOPMENT	• Use transportation investments to encourage development/ redevlopment in strategic locations throughout the County

2.3 Methodology & Analysis

The transportation corridor study requires an aggregate of information from a variety of sources, especially since transportation is not only about infrastructure and engineering, but more about the community using the corridor. Therefore, the process of developing the needs assessment is a balance between quantitative tools and qualitative information acquired through community outreach and engagement. This section describes tools and methodologies used to identify needs for the corridor.

Quantitative Analysis

Various data sources and tools were used throughout the analysis. Data sources such as existing transportation, land use and demographic data were used in combination with travel demand modeling and crash data to develop the basis for existing and future needs. Some of the data sources are spatial and mapped through Geographic Information Systems (GIS) for analysis. All data presented are estimates and do have a margin of error value associated with it. Detailed quantitative analysis can be found in the Existing Conditions Report.

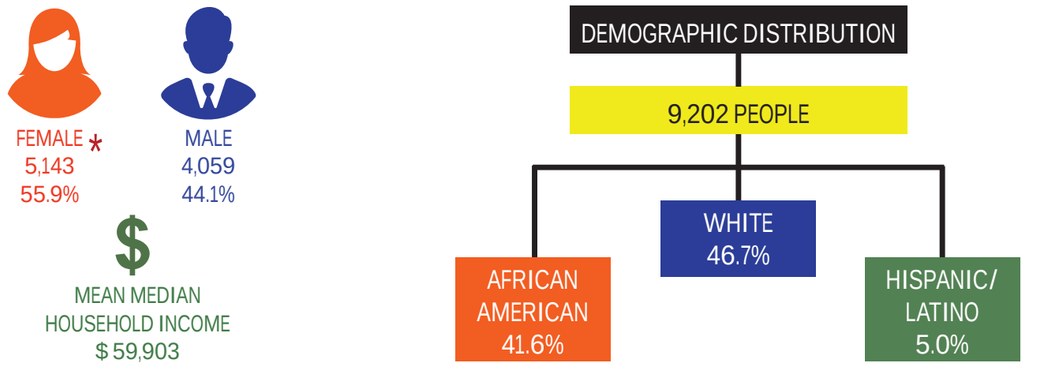
- **Demographic Character -**

Graphic 2.4 represents the demographic character of the corridor. For this analysis, the 2016 American Community Survey (ACS) – 5 Year estimates data was used at the block group level (the smallest scale of data availability) for block groups that included the Banks Road corridor.

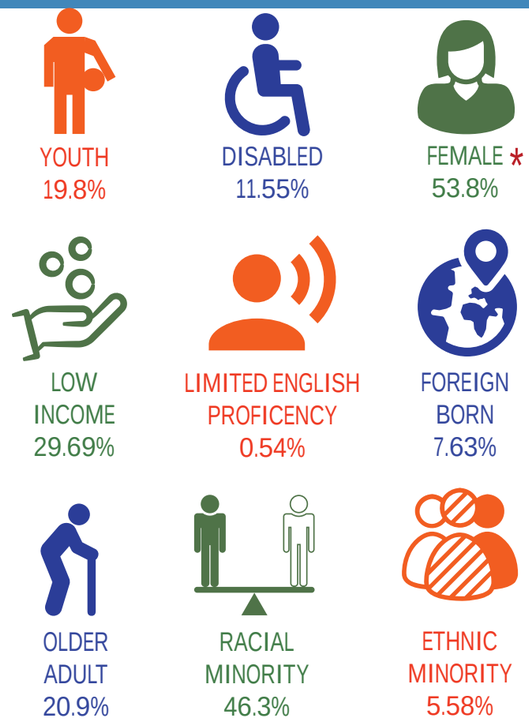
Title VI of the Civil Rights Act identifies 9 population categories that must be protected. The Atlanta Regional Commission (ARC) has two models to help counties, governments and private organizations to ensure inclusion and equity for these 9 population groups.

The model uses American Community Survey 5-Year population estimates for 2012-2016. The Banks Road corridor lies on the border of two census tracts. Fayette County's census tract 1404.06 lies on the east and census tract 1401.02 lies on the west. Census tract 1404.06 has an average cumulative score of 18 for the Protected Classes Model and an equity score of 6 for the Racial Minority, Ethnic Minority, and Low-Income Model. Census tract 1401.02 has an average cumulative score of 16 for the Protected Classes Model and an equity score of 4 for the Racial Minority, Ethnic Minority, and Low-Income Model.[1] Graphic 2.5 represents the ARC equity analysis. This analysis is crucial to bring equity and inclusivity to the corridor study.

Graphic 2.4 - Demographic Character



Graphic 2.5 - ARC Equity Analysis



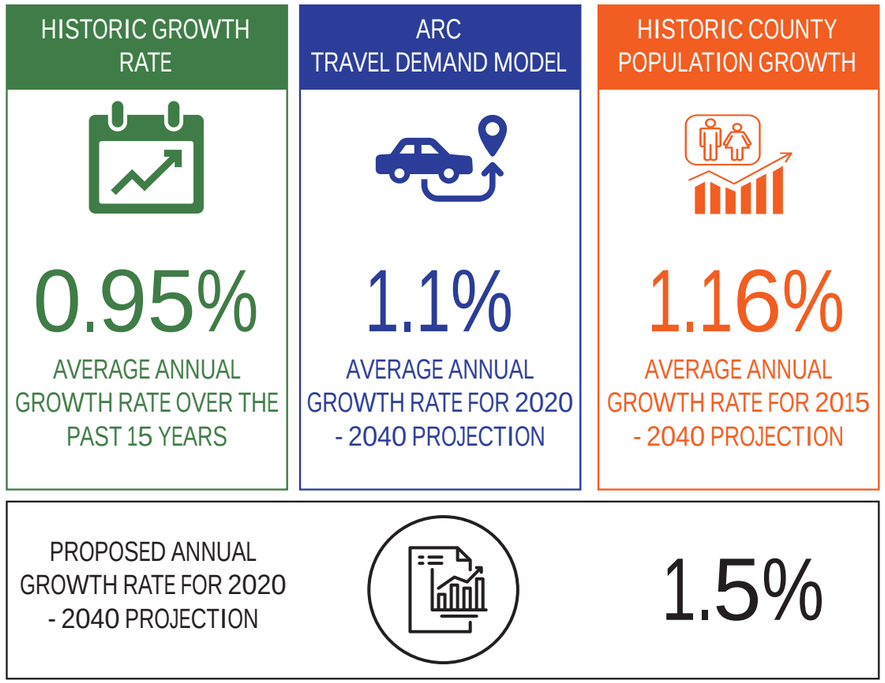
[1] - For more in-depth understanding of the equity analysis, refer to Chapter 1 - Existing Conditions. Percentage values reflect percentage of population in the census tracts. Since Banks Road has two census tracts in concern, average values were estimated for the corridor.

** - Values differ since ARC analysis was done at the census tract level while the analysis for this report was done at the block group level.*

- **Future Growth and Planned Developments -**

Reported traffic data from GDOT's Traffic Analysis and Data Application (TADA) and the ARC's Travel Demand model was used to establish historical traffic trends in the region and project future traffic growth along Sandy Creek Road. The historic population growth in Fayette County was also reviewed to establish projected traffic growth in the area.

Graphic 2.6 - Future Growth Projections



Note - For details on the modelling and growth projections, refer to Chapter 1 - Existing Conditions.

Fayette County's SPLOST Project R-8, the East Fayetteville Bypass, is a programmed transportation improvement that will have a substantial impact of capacity and traffic condition in the area. The East Fayetteville Bypass is a proposed thoroughfare designed to reduce traffic congestion within the City of Fayetteville by providing an alternative north/south route across the east side of the County.

The proposed project begins at the intersection of South Jeff Davis Road/North Bridge Road and County Line Road, runs in a northerly direction and terminates at the intersection of Corinth Road and Highway 85. The project is fully funded through 2004 SPLOST (special purpose local option sales tax) revenues.

Graphic 2.6 represents the future growth projections. The addition of the bypass to Fayette County's road network will undoubtedly have an impact of traffic orientation in the area, and Banks Road will experience some change in traffic flow given its proximity to the new roadway. A benefit of the bypass to Banks Road will be that traffic from McDonough Road and Clayton County oriented to SR 314 and SR 85 will now have to option to use the bypass to connect to Corinth Road to Highway 85 and beyond versus using Banks Road as a cut through.

- **Roadway Infrastructure, Facilities and Existing Traffic Conditions -**

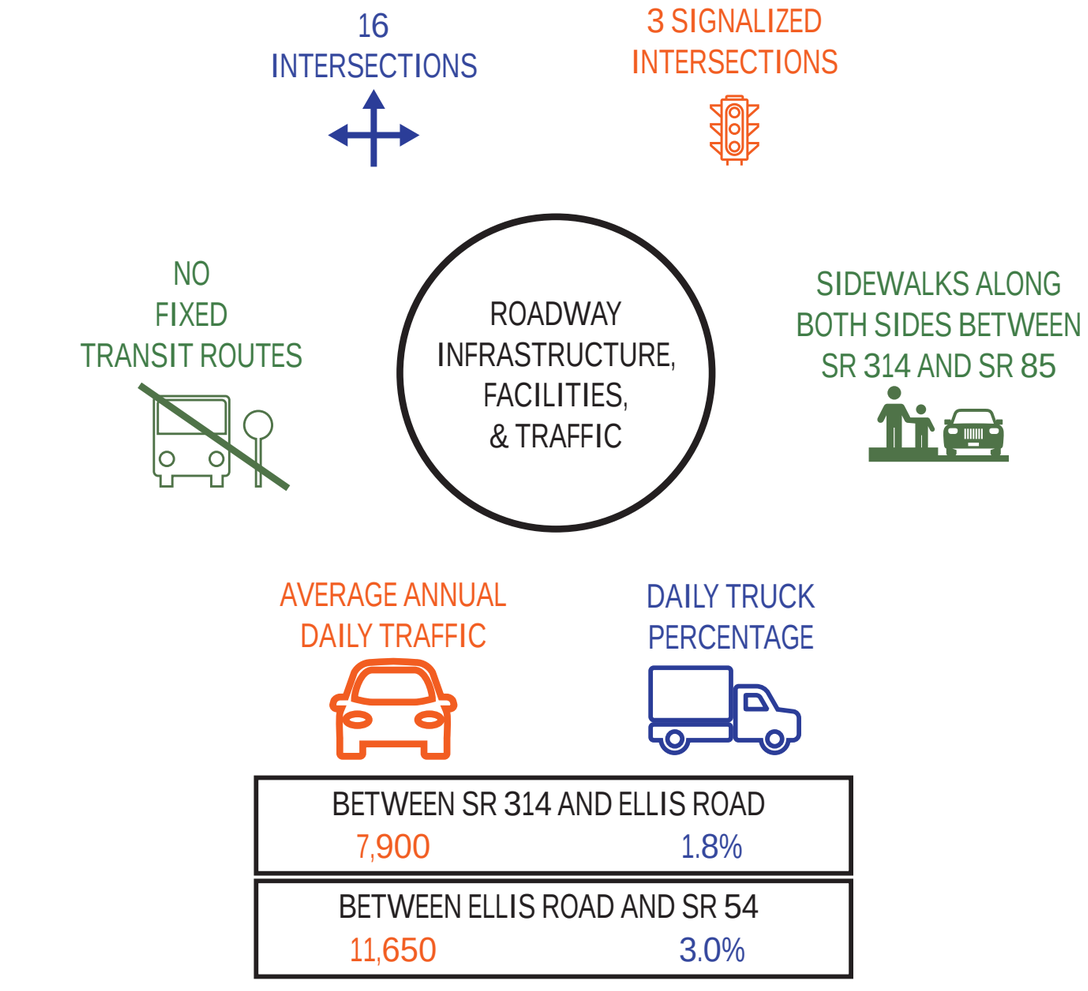
Per the Georgia Department of Transportation (GDOT) road classifications, Banks Road is classified as a minor arterial.

Transportation data sources provide a real-time snapshot of existing conditions. The analysis is valuable for understanding current volumes, historic growth in traffic, and percent of the overall traffic that is made up of truck freight. Additionally, crash data analysis helps identify where some safety concerns may exist and is valuable in assessing where the most immediate improvements are required. Graphic 2.7 represents the roadway infrastructure and facilities along the corridor.

Roadway Infrastructure and Facilities Summary:
- One 11-foot wide travel lane in each direction
- Separate turn lanes at major intersections
- 16 intersections - three signalized

Banks Road within the city limits abuts commercial developments and become primarily residential east of the Fayetteville city limits. There is a pedestrian presence along Banks Road, and providing bike and pedestrian accommodations for residents to travel to and from the commercial node at the western end of Banks Road can be of great value. The County's Master Path Plan identifies additional opportunities for path connections that will tie in to the county's overall a bicycle and pedestrian network.

Graphic 2.7 - Roadway Infrastructure and Facilities



Traffic Operations Analysis

Level of Service (LOS) is defined as a qualitative measure that describes operational conditions and motorists' perceptions within a traffic stream. Level A represents the best quality of traffic where the driver has the freedom to operate with free flow speed and level F represents the worst quality of traffic when the traffic flow breaks down. For metropolitan areas, an acceptable Level of Service during peak hours is LOS D, which indicates a tolerable delay for the average road user.

Operational conditions were evaluated for the 2040 "No Build" traffic conditions during the morning and afternoon peak hours. The "No Build" Levels of Service (LOS) and delay per intersection are shown in Table 2.1, which indicate how the study intersections would operate if no improvements were made to the corridor. To project traffic volumes for 2040, the aforementioned 1.5 % Annual Growth Rate was used.

Table 2.1 - 2040 "No Build" Peak Hour Intersection Level of Service (LOS)

	BANKS ROAD[1]	TRAFFIC CONTROL	AM PEAK	PM PEAK	SAT PEAK
1	AT SR 314/W FAYETTEVILLE ROAD	TRAFFIC SIGNAL	B (12.3 S)	C (20.4 S)	C (21.5 S)
2	AT SR 85/S GLYNN STREET	TRAFFIC SIGNAL	C (27.5 S)	D (49.6 S)	E (57.6 S)
3	AT ELLIS ROAD	TWSC (SB)[1]	C (20.4 S)	F (**)	
4	AT SR 54	TRAFFIC SIGNAL	B (17.7 S)	D (44.5 S)	

1. FOR ENTIRE CORRIDOR BANKS ROAD ORIENTATION IS EB/WB AND SIDE STREETS ARE NB/SB.
2. FOR TWO-WAY STOP CONTROLLED (TWSC) INTERSECTIONS, LOS ARE REPORTED FOR THE SIDE STREET APPROACHES ONLY.
3. THE DELAY OUTPUT BY THE SOFTWARE EXCEEDS 300 SECONDS AND THE HCM METHODOLOGY.

By the 2040 design year, significant delays will be experienced by the side streets at Ellis Road during the afternoon peak hour. Deficiencies begin to emerge at Highway 85 during Saturday peak hour as well.

Road Capacity

Road capacity is defined as the maximum rate at which vehicles can pass through a given point in an hour under prevailing conditions; it is often estimated based on assumed values for saturation flow. The volume-to-capacity (v/c) ratio, also referred to as degree of saturation, represents the sufficiency of an intersection or roadway to accommodate the vehicular demand.

A v/c ratio less than 0.50 generally indicates that adequate capacity is available and vehicles are not expected to experience significant queues and delays. As the v/c ratio approaches 1.0, traffic flow may become unstable, and delay and queuing conditions may occur. Once the demand exceeds the capacity (a v/c ratio greater than 1.0), traffic flow is unstable and excessive delay and queuing is expected.

The roadway capacity of Banks Road was evaluated for two segments for the 2040 "No Build" traffic conditions during the morning and afternoon peak hours. The "No Build" Levels of Service (LOS) and v/c ratio are shown in Table 2.2, which indicate the roadway capacity of Banks Road if no improvements were made to the corridor.

Table 2.2 - 2040 Horizon Peak Hour Roadway Capacity Level of Service (LOS)				
BANKS ROAD	**AM PEAK**		**PM PEAK**	
	LOS	**V/C[1]**	**LOS**	**V/C[1]**
FROM SR 85 TO ELLIS ROAD	C	0.17	D	0.35
FROM ELLIS ROAD TO SR 54	C	0.17	E	0.51
1. V/C - VOLUME TO CAPACITY RATIO				

In terms of road capacity, the Banks Road's east of Ellis Road will begin to approach LOS E during the afternoon peak hour by the 2040 horizon year.

- **Safety**

Road Safety Audits

Road Safety Audits (RSA) are required by Georgia Department of Transportation to locate any potential road safety issues and identify opportunities for improvements in safety for all road users. The RSA was conducted on Banks Road from SR 314 to SR 54, in April 2019.

The RSA was conducted over a half-day period by having the RSA Team observe the corridor and intersections on foot and a windshield survey. In addition, the team also examined crash data and public input responses for the corridor to help identify safety issues or concerns. Graphic 2.9 represents key takeaways from the RSA. For detailed assessment, refer to the Road Safety Audit document attached in the appendix.

Image 2.2 - Team Conducting Road Safety Audits

Graphic 2.9 - Road Safety Audit Findings

HORIZONTAL CURVE EAST OF PONDEROSA TRACE CAUSE SIGHT DISTANCE ISSUES AT A NUMBER OF INTERSECTIONS

OVERGROWN VEGETATION ALONG THE CORRIDOR LIMITS SIGHT DISTANCE AT A NUMBER OF INTERSECTIONS

STEADY FLOW OF TRAFFIC DURING OFF-PEAK OBSERVATIONS. LIMITED SHOULDER PRESENTS SAFETY ISSUES FOR DRIVERS

SPEED STUDY SHOWS THAT 99% OF VEHICLES TRAVEL ABOVE SPEED LIMIT WITH THE 85TH PERCENTILE BEING 51 MILES PER HOUR

RSA Takeaways

- There was a steady flow of traffic along Banks Road during off-peak observations.
- Limited shoulder presents safety issues for drivers.
- Horizontal curve east of Ponderosa Trace cause sight distance issues at a number of intersections
- Overgrown vegetation along the corridor limits sight distance at certain of intersections.
- Speed study shows that 99% of vehicles travel above speed limit (35 mph) with the 85th percentile being 51 miles per hour.

Crash Rate Analysis

Crash rates describe the number of crashes in a given period as compared to the traffic volume (or exposure) to crashes. Crash rates are calculated by dividing the total number of crashes at a given roadway section or intersection over a specified time period by a measure of exposure. Crash rate analysis typically uses exposure data in the form of traffic volumes or roadway mileage. The crash rate is calculated to determine relative safety compared to other similar roadways, segments, or intersections.

The benefit of crash rate analysis is that it provides a more effective comparison of similar locations with safety issues. This allows for prioritization of these locations when considering safety improvements with limited resources. Table 3 shows the roadway crash rate along Banks Road between SR 314 and the City of Fayetteville limits. Table 4 shows the roadway crash rate along Banks Road between the City of Fayetteville limits and SR 54.

Table 2.3 - Banks Road's Crash Rate between SR 314 and Fayetteville city limits

	BANKS ROAD 5-YEAR CRASHES	BANKS ROAD CRASH RATE[1]	STATEWIDE AVG CRASH RATE (2017)[1]
ALL CRASHES	49	785	506
TOTAL NON-FATAL INJURY CRASHES	5	80	124
TOTAL FATAL CRASHES	0	0	1.7
1. CRASHES PER 100 MILLION VEHICLE-MILES TRAVELED.			

From the SR 314 to the City of Fayetteville limits, Banks Road's crash rate is 55%, is substantially higher than the statewide average for minor arterials. From the city limits to SR 54, the crash rate falls below the statewide average; however, the crash rate for fatal accidents is higher than the statewide average for minor arterials. The results of the road segment crash rate analysis indicate safety improvements along Banks Road are needed to mitigate the high crash rate.

Table 2.4 - Banks Road's Crash Rate between Fayetteville city limits and SR 54

	BANKS ROAD 5-YEAR CRASHES	BANKS ROAD CRASH RATE[1]	STATEWIDE AVG CRASH RATE (2017)[1]
ALL CRASHES	171	438	506
TOTAL NON-FATAL INJURY CRASHES	38	119	124
TOTAL FATAL CRASHES	1	3.59	1.7
1. CRASHES PER 100 MILLION VEHICLE-MILES TRAVELED.			

For the intersection crash rates, statewide crash rate data was not available for a comparative analysis; consequently, the intersection crash rates for the four Fayette County Corridor Studies, Sandy Creek Road, Banks Road, Tyrone Road – Palmetto Road and State Route 279 were used to normalize the crash rate data. When combined, the crash rate for the 3rd quartile, or 75th percentile was 1.39 per 100 million entering vehicles. For Banks Road, the following intersection fell above the 75th percentile:

- Banks Road and SR 314/W Fayetteville Road
- Banks Road and SR 85
- Banks Road and SR 54

Qualitative Analysis

The core of any transportation study are the citizens who use the corridor. Residents and stakeholders form an important voice for the existing and anticipated future challenges with the transportation system. Citizens were provided multiple platforms and avenues to engage in the development of the study, including traditional public meetings; stakeholder meetings; online surveys and an interactive project website. These efforts formed the basis of the qualitative analysis, which used a combination of tools to capture citizen views.

- **Stakeholder Committee Meetings -**

Two stakeholder committee meetings were organized - first at the onset of the project to help identify high level challenges and concerns for the corridor, and the second after the first Public Information Open House, to conduct an in-depth SWOT (Strengths, Weakness, Opportunities, Trepidation) analysis of the corridor and discuss potential projects and prioritization.

Image 2.3 - Photos from Stakeholder Committee Meetings 1 & 2

The first stakeholder committee meeting provided members the opportunity to identify specific transportation challenges within the corridor at the mapping station. Stakeholders were asked for input via an interactive Word Cloud and Kahoot questionnaire.

The second stakeholder meeting was workshop style where committee members and County staff worked on three activities and focused on the draft concepts and their priority. The activities included a SWOT Analysis, discussing the draft concepts and prioritizing them. The third activity was called "Show me the Money" where each stakeholder was given 1 million dollars in funds to invest in projects. Graphic 2.10 illustrates the stakeholders characterization of Banks Road.

Graphic 2.10 - Perceptions of the Existing Conditions of the Banks Road Corridor

- **Public Information Open House -**

The first Public Information Open House for the Banks Road corridor study was held on March 18, 2019 from 4 pm to 7 pm at the Fayette County Public Library in conjunction with the other three corridors also being studied by Fayette County.

Citizens were given various opportunities to provide feedback on the current conditions of the corridor, including sticker stations, comment cards and detailed comment forms. Graphic 2.11 represents highlights from the PIOH.

Graphic 2.11 - PIOH Comments

ALMOST
200
CITIZENS ATTENDED

CLOSE TO
350
INDIVIDUAL COMMENTS

MOST IDENTIFIED CONCERN CATEGORIES

ROADWAY IMPROVEMENTS
BIKE - PED INFRASTRUCTURE
TRAFFIC CALMING
SPEEDING & CONGESTION
LIGHTING
THRU-TRAFFIC

MOST IDENTIFIED CONCERN LOCATIONS IN RANK ORDER BASED ON THE COMMENTS RECIEVED

1. BANKS ROAD CORRIDOR
2. ELLIS ROAD & BANKS ROAD INTERSECTION
3. DEER FOREST TRAIL & BANKS ROAD INTERSECTION
4. SR 54 & BANKS ROAD INTERSECTION

Image 2.4 - PIOH

Review of Existing Documents

The Fayette County Transportation Corridor Studies builds on the momentum of previous plans and studies. To understand the County's vision and goals, the Fayette County Transportation Plan and the Fayette County Comprehensive Plan were reviewed.

2.4 Next Steps

After the County's current and projected future transportation needs along the Banks Road corridor were analyzed, the focus of the study was directed towards identifying solutions and projects that will meet these needs. These preliminary project concepts were presented to the citizens at the second Public Information Open House. More information of the outreach is outlined in Chapter 3 - Community Engagement.

The set of draft recommendations, will undergo a robust project evaluation and prioritization process. To evaluate and prioritize the projects, the team will develop criteria that align with the project's vision and goals, keeping these objectives as the driving force of the plan. Details of this section are in Chapter 4 - Concept Development.

Chapter 3:
Community Engagement

3.1 Introduction

The core of any transportation study are the citizens who use the corridor. Residents and stakeholders form an important voice for the existing and anticipated future challenges with the transportation system.

Citizens were provided multiple platforms and avenues to engage in the development of the study, including traditional public meetings, stakeholder meetings, online surveys and an interactive project website. These efforts formed the basis of the qualitative analysis, which used a combination of tools to capture citizen views.

"Successful public participation is a continuous process, consisting of a series of activities and actions to both inform the public and stakeholders and to obtain input from **them which influence decisions that affect their lives."**

- Federal Highway Administration

Graphic 3.1 - Three Pillars of Community Engagement

3.2 Stakeholder Committee

The Stakeholder Committee is a critical element in the corridor studies process, ensuring that the plan and process encompasses the full range of community values and desires. The group was selected from six categories represented in Graphic 3.2.

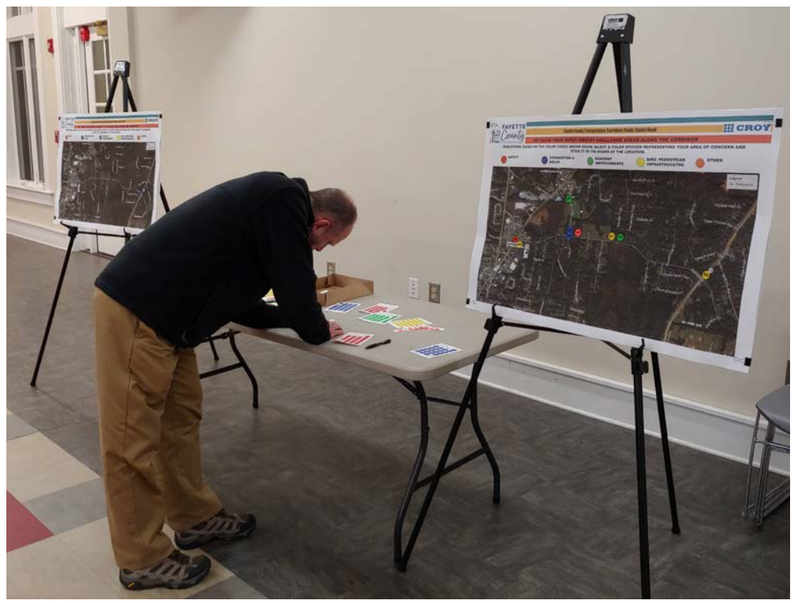
Graphic 3.2 - Stakeholder Committee Group

Two stakeholder committee meetings were organized. The first, at the onset of the project to help identify high level challenges and concerns for the corridor. The second, after the first Public Information Open House, detailed out an in-depth SWOT (Strengths, Weaknesses, Opportunities and Threats) Analysis of the corridor and discuss potential projects and prioritization.

- **Meeting 1 -**

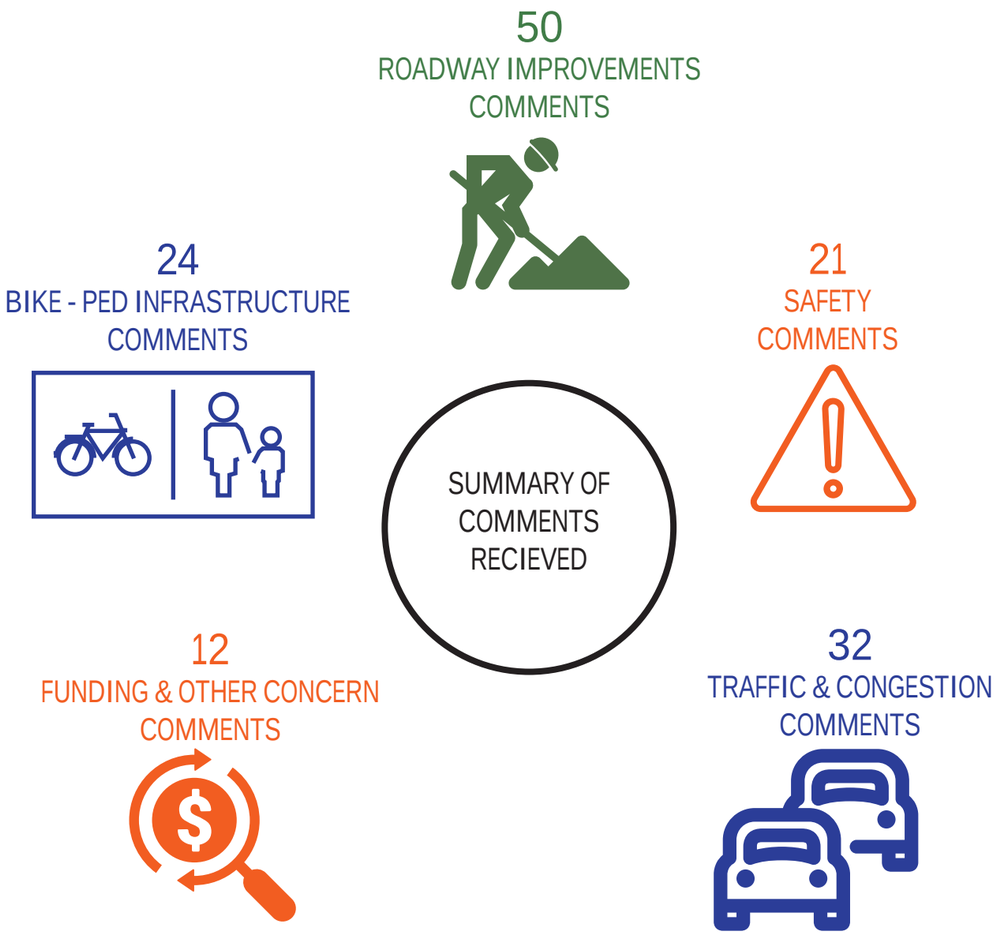
The first meeting was held on February 11, 2019 at the Fayette County Library. Of the 19 members invited to participate, 12 attended. Represented in attendance were Fayette County, City of Fayetteville, Georgia Department of Transportation, Non – Profits, Media, Institutions and Faith Groups. After introductions, a power point was presented to introduce corridor study goals, current data, and timeline. Interactive discussions were held to facilitate conversation about corridor conditions. Image 3.1 shows photographs from the meeting.

Image 3.1 - Stakeholder Committee Meeting 1



Prior to the meeting, stakeholders had the opportunity to identify specific transportation challenges within the corridor at the mapping station. Stakeholders were asked for input via an interactive Word Cloud and Kahoot questionnaire. Graphic 3.3 represents results from the activities and the overall meeting. Detailed comments and Word Cloud results are attached in the appendix.

Graphic 3.3 - Stakeholder Committee Meeting Comments & Feedback

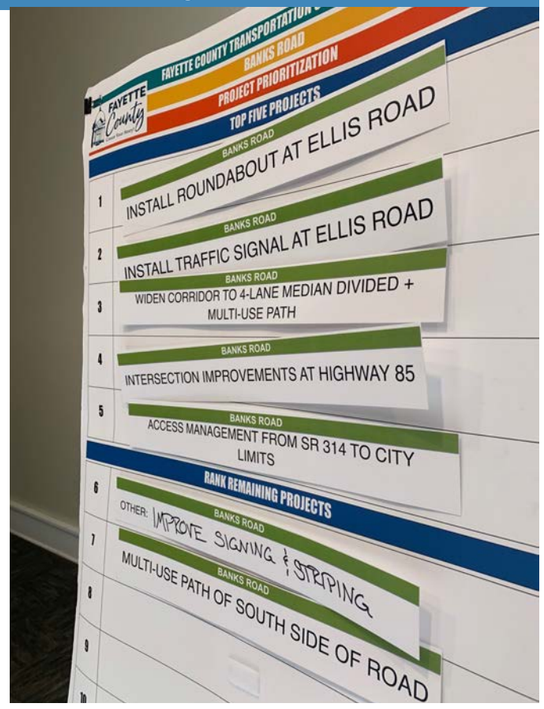


- **Meeting 2 -**

The second stakeholder committee meeting for theBanks Road corridor study was held on May 22, 2019 from 5 pm to 7 pm at the Fayette County Public Library. The stakeholder committee meeting was in conjunction with the other three corridors also being studied by Fayette County.

The meeting was workshop style where committee members and county staff worked on three activities, focused on the draft concepts and their priorities. The first activity was the SWOT Analysis (Strengths, Weakness, Opportunities, Threats). The second workshop activity was discussing the draft concepts and prioritizing them. The third activity was called “Show me the Money”. To aid further prioritization, each stakeholder was given 1 million dollars in funds to invest in projects. Image 3.2 shows photographs from the meeting. Detailed comments and Word Cloud results are attached in the appendix.

Image 3.2 - Stakeholder Committee Meeting 2



3.3 Public Information Open House

- **PIOH 1 -**

The first Public Information Open House for the Banks Road corridor study was held on March 18, 2019 from 4 pm to 7 pm at the Fayette County Public Library, in conjunction with the other three corridors also being studied by Fayette County.

Citizens were given various opportunities to provide feedback on the current conditions of the corridor, including sticker stations, comment cards and detailed comment forms. Graphic 3.4 represents highlights from the PIOH. Detailed comments and results are attached in the appendix.

Graphic 3.4 - PIOH 1 Highlights

ALMOST
200
CITIZENS ATTENDED

CLOSE TO
350
INDIVIDUAL COMMENTS

MOST IDENTIFIED CONCERN CATEGORIES

SPEEDING
CONGESTION
NO SIDEWALKS
SAFETY
18 - WHEELERS
SHARP CURVES

- **PIOH 2 -**

The second Public Information Open House for the Banks Road corridor study was held on July 15, 2019 from 4 pm to 7 pm at the Fayette County Public Library in conjunction with the other three corridors also being studied by Fayette County.

Preliminary project concepts were presented to the citizens. Citizens were given various opportunities to provide feedback on the draft concepts, including sticker stations, online survey stations and detailed comment forms.

Graphic 3.5 represents highlights from the PIOH. Detailed comments and results are attached in the appendix.

Graphic 3.5 - PIOH 2 Highlights

250
CITIZENS ATTENDED

175
INDIVIDUAL COMMENT FORMS

515
ONLINE SURVEY COMMENTS

Image 3 .3 - PIOH 2 Highlights

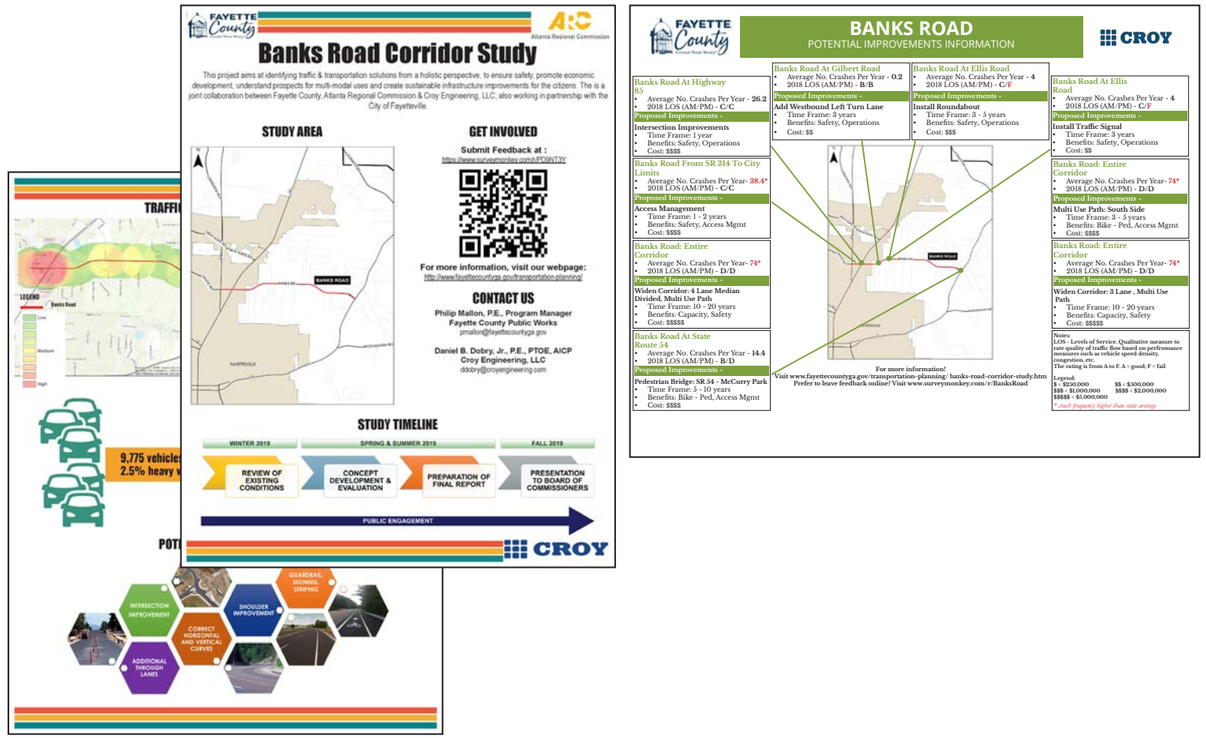
3.4 Outreach Methods and Tools

Outreach efforts relied on a variety of methods and tools to engage diverse audiences and a strong cross-section of the community.

- **Project Fact Sheets -**

A project fact sheet was created for outreach efforts to provide high-level information to educate the public about the plan. The fact sheet included details on the plan's purpose and goals, overall process and schedule, traffic volumes and crash data and QR coded links to the survey. The second phase fact sheets provided information on potential improvements, time frame, benefits and cost estimates to help citizens better understand proposed concepts. Fact sheets are attached in the appendix.

Image 3.4 - Fact Sheets



- **Project Flyers -**

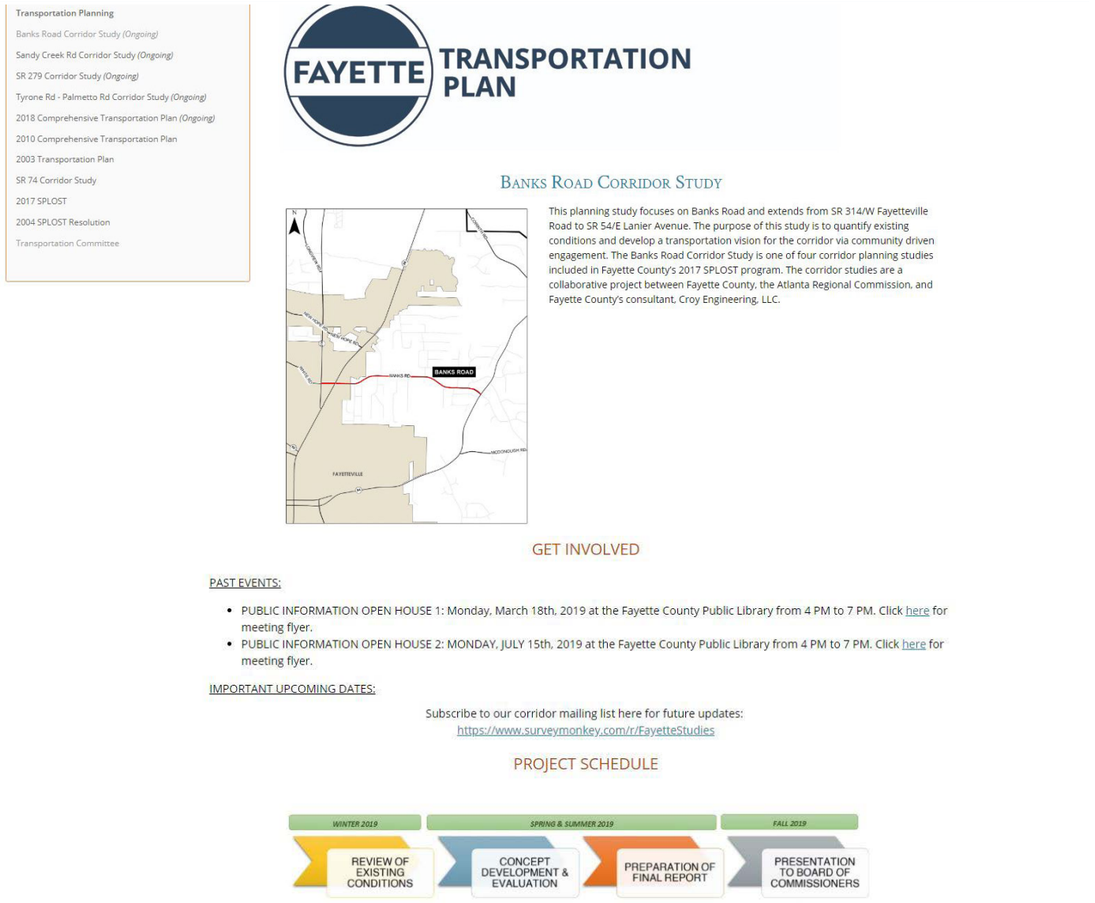
Post-card size flyers were created to send to citizens via email, newspaper distribution, and dispensed at major locations like the library and County offices.

- **Project-specific Web Page -**

The Fayette County Transportation Planning webpage was used to host corridor study information (www.fayettecountyga.gov/transportation-planning/). Information on the project was provided to the County Communications staff for posting on the site.

The aim of the website was to provide stakeholders and County residents a forum to allow continuous feedback on the corridor study, learn about public meetings, and keep up to the date on the progress of development of the project. The web page was updated with presentations, findings, results, ideas, surveys, and meeting information to foster an ongoing project conversation. Both rounds of online survey were also embedded on the project-specific webpage. All documents uploaded to the website are attached in the appendix.

Image 3.5 - Website Page



- **Surveys -**

Two rounds of surveys were used during the public outreach, one in each phase. The surveys were available in both an online format and in hard copy (for the PIOH). The first round of survey focused on understanding the overall vision for the corridor. The second round of survey focused on determining preference and priorities for recommending projects.

Image 3.6 - Survey Page

- **Email Blasts -**

Email blasts were pushed out during the plan's development to inform citizens of the public information open house and provide information to the survey links. Email blast updates included information on the plan status, dates and information on upcoming public open houses or community events and alerts to take the online surveys.

- **Variable Message Boards -**

Variable Message Boards were used at strategic locations to advertise the two Public Information Open Houses.

- **Social Media: Facebook -**

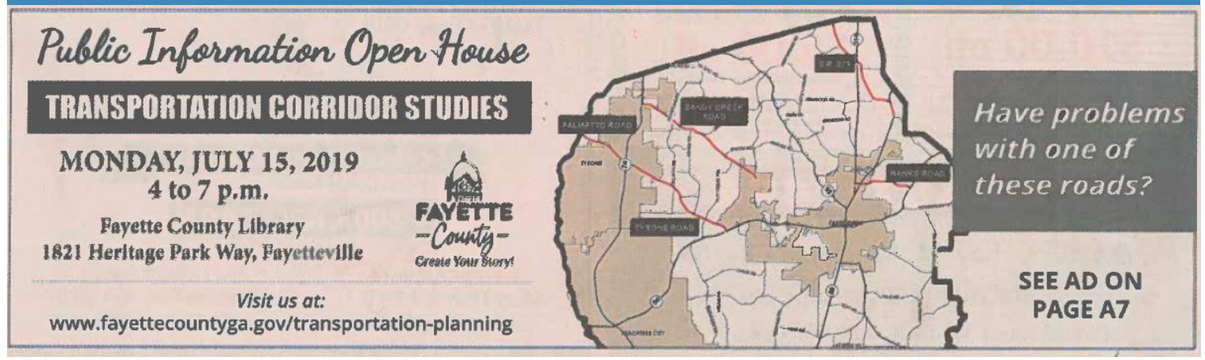
City and community Facebook pages were used to inform the community of upcoming events, access to the online survey, and plan updates during the planning process. Image 3.7 represents an example of an announcement on the City of Fayetteville Facebook page.

Image 3.7 - Facebook Page

- **Newspaper Advertisement -**

Newspaper advertisements were printed in The Citizen to in-form citizens on upcoming public open houses or community events and are displayed in Image 3.8.

Image 3.8 - Newspaper Advertisement



3.5 Transportation Committee

The Fayette County Transportation Committee is tasked with overseeing transportation planning, safety, operations and project delivery issues. The Committee meets monthly and makes recommendations for consideration by the Board of Commissioners. The group was focused on providing feedback and support to the county and consultant in defining the project and identifying potential project outcomes for the study.

Details from the meetings is described below -

- December 4, 2018 -

Presentation was made to introduce the study and teams and to outline the process and outcomes. Handouts were also distributed to gain feedback on the study goals, current perspectives, challenges and desired outcomes for the corridors.

- May 7, 2019 -

Presentation was made to provide a recap of the outreach events and the Road Safety Audit, introduce the website page, and discuss the next steps and action items.

Image 3.9 - Transportation Committee In Action

- June 4, 2019 -

This meeting introduced, discussed and debated the potential improvements for the Sandy Creek Road Corridor and the Tyrone Road - Palmetto Road Corridor.

- July 9, 2019 -

This meeting discussed potential improvements to the Banks Road Corridor and SR 279 Corridor were made. Also included in the discussions were the relocation of the intersection of SR 279 at SR 85 to form a common intersection with Corinth Road.

- September 10, 2019 -

County staff reviewed draft project recommendations, including alignment of SR 279 with Corinth Road.

- October 1, 2019 -

This meeting presented for discussion the preferred improvement projects for the 4 corridors. Presentation included concept diagrams, benefits and estimated construction cost of the projects. Edits from the Committee were incorporated into the version of the report subsequently posted for public comment.

3.6 Formal Presentations

- **City of Fayetteville City Council -**

The City of Fayetteville City Council presentation was made on November 7, 2019. The presentation included the three 2017 SPLOST Corridor Studies on: Banks Road, Sandy Creek Road, and Tyrone & Palmetto Roads. The presentation aimed to provide the public and the City Council a summary of the report recommendations and encourage input on the draft documents.

- **Fayette County Board of Commissioners -**

The Fayette county Board of Commissioners (BOC) presentation was made on November 14, 2019. The presentation included the four 2017 SPLOST Corridor Studies on: Banks Road, Sandy Creek Road, Tyrone & Palmetto Roads, and SR 279.
The presentation aimed to provide the public and the BOC a summary of the report recommendations and encourage input on the draft documents. The public comment period was open through the month of November. Final reports will be presented to the BOC for adoption in December 2019 or January 2020, depending on the amount of comments received.

Image 3.10 - Snapshot of the Formal Presentations

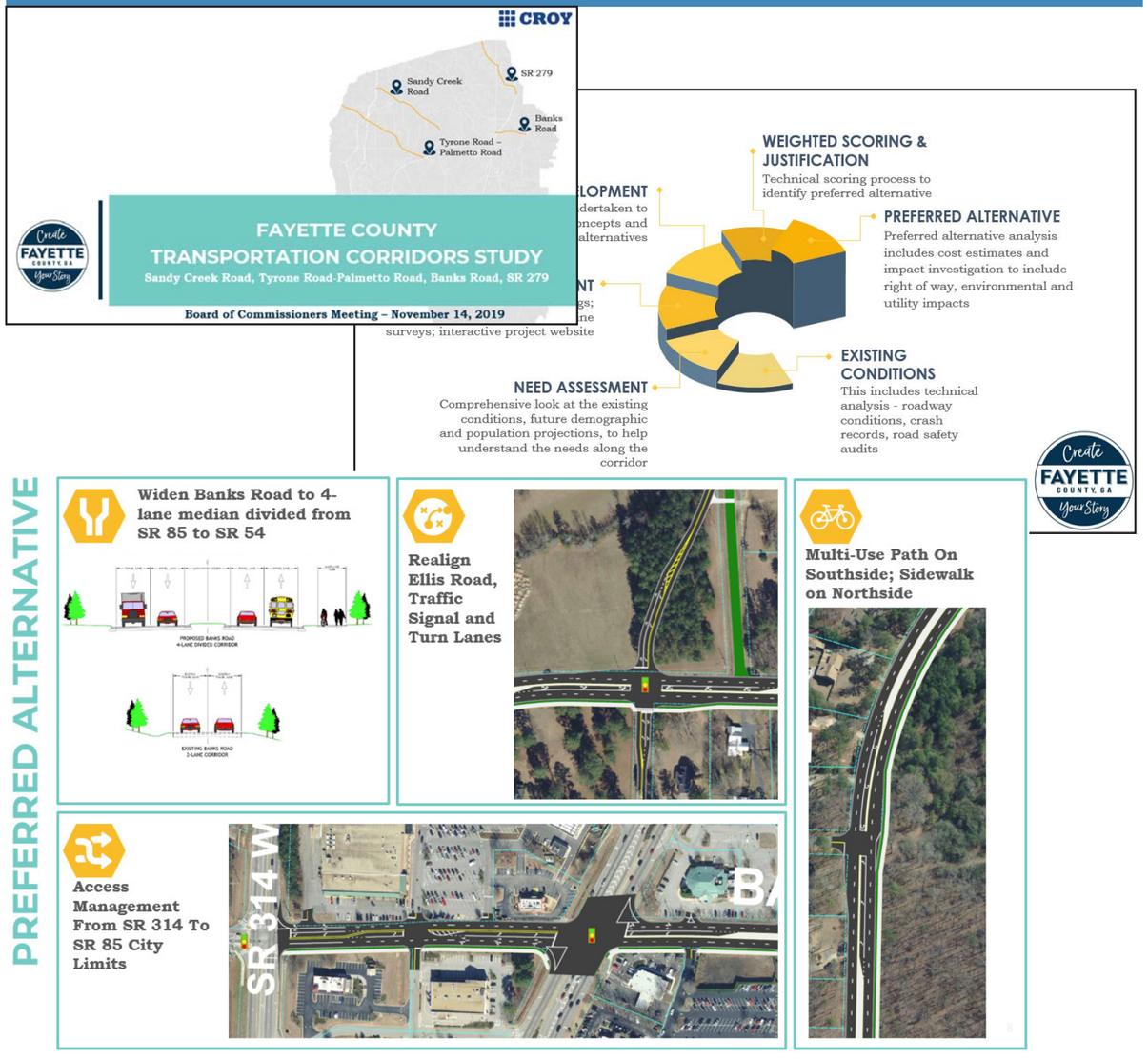
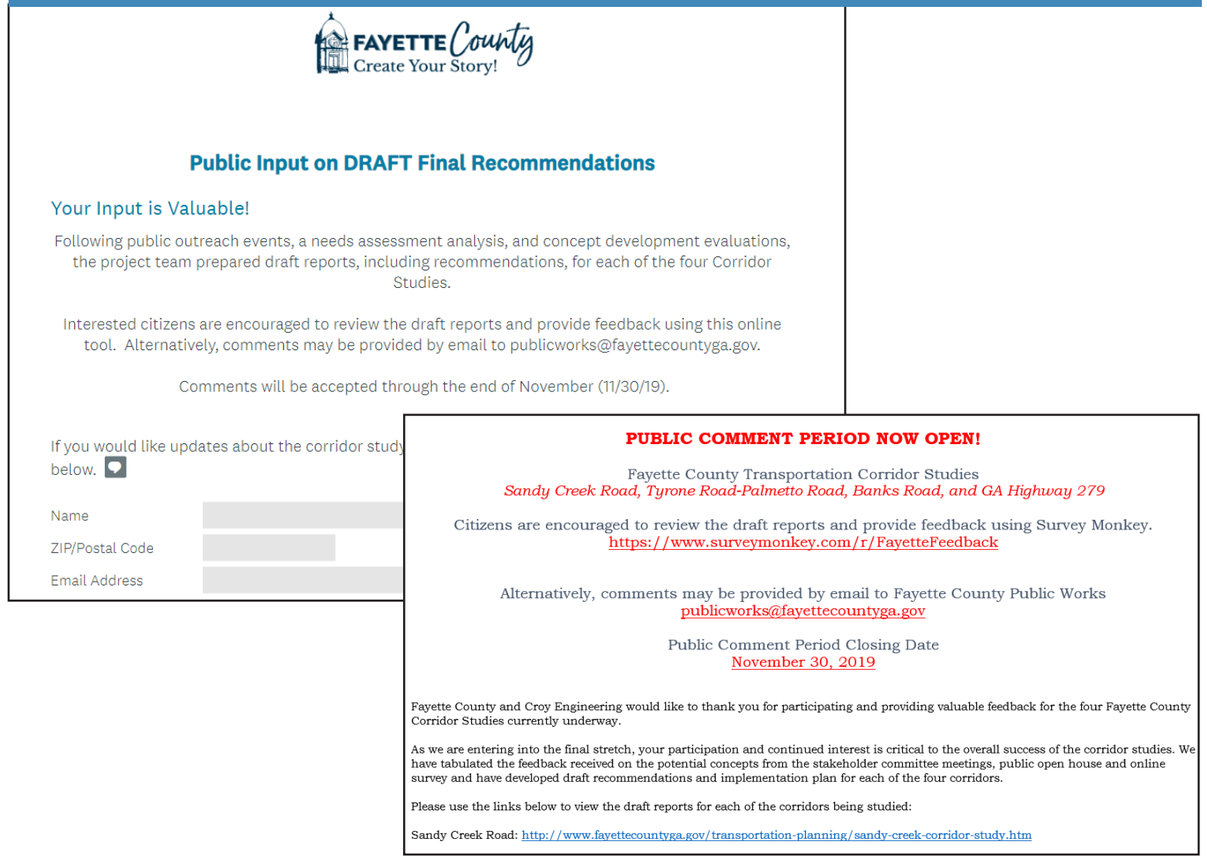


Image 3.11 - Snapshot of the Public Comment Survey and Blast Email



3.7 Next Steps

As aforementioned, once the analysis of the County's current and projected future transportation needs was completed, the focus of the study was directed towards identifying project concepts including solutions to minimize impacts.

A robust project evaluation and prioritization process was used to evaluate the set of draft recommendations to develop a criteria that aligns with the project's vision and goals. Additional criterion included right of way impacts, cost estimates, and funding mechanisms.

The Existing Conditions, Needs Assessment and the Road Safety Audit lay the foundation for the draft GDOT Concept Report, which is included in the appendix of the report.

Chapter 4:
Concept Development

4.1 Introduction

The Concept Development Report is the fourth section of the Banks Road Corridor Study. The precedents to this report are the Existing Conditions report which detailed the current conditions of the area around the corridor; the Needs Assessment report which identifies insights into the current and future needs of the corridor; and the Community Engagement report which describes the outreach efforts and feedback.

This chapter highlights the concept development approach utilized as part of the Banks Road corridor planning process and discusses the approach and process undertaken to develop the preliminary concepts and arrive at the preferred alternatives. This includes the draft concepts, feedback from citizens, formal weighted scoring process used to streamline the draft concepts, project justification and the preferred concept.

Preferred alternative analyses include cost impacts to right of way, the environmental, and utilities.Concepts developed represent potential combinations of safety improvements, operational improvements, and multi-modal accommodations per the corridor's Needs Assessment Evaluation and public feedback from the first Public Information Open House (PIOH).

4.2 Concept Development Process

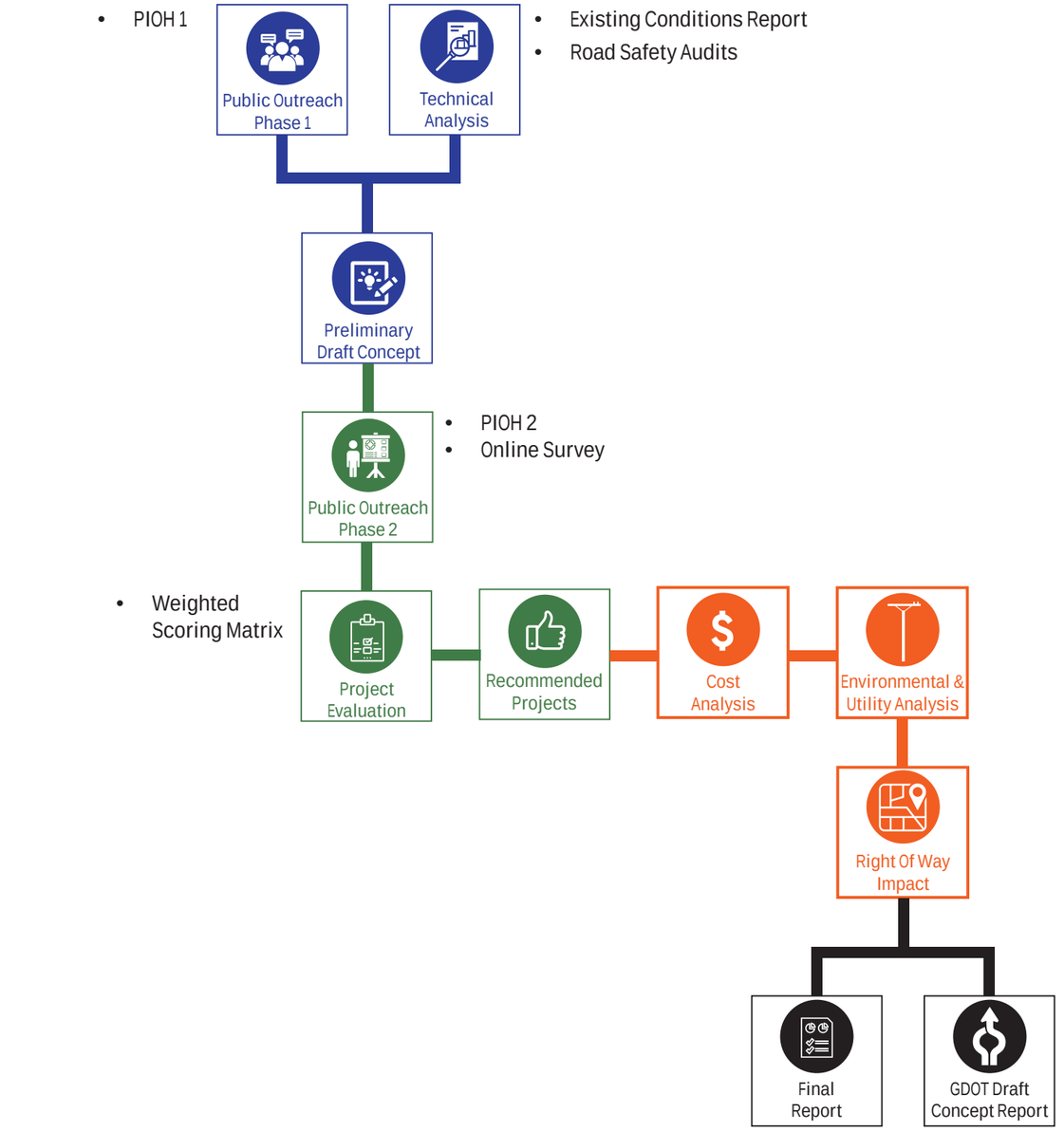
After the County's current and projected future transportation needs along the Banks Road corridor were analyzed, feedback was compiled from the first round of public outreach – the Public Information Open House (PIOH) and online submissions. This analysis was directed to identify concepts and solutions to address citizen concerns in alignment with the goals and vision for the corridor.

Preliminary draft concepts were presented to the citizens. Concept boards included descriptions, image renderings, and listing of benefits and impacts. Citizens were given various opportunities to provide feedback on the draft concepts, including sticker stations, online survey stations and detailed comment forms.

After compiling the second round of public feedback through the outreach sessions and online surveys, the set of draft recommendations were assessed using robust project evaluation and prioritization processes. A scoring matrix was created to evaluate and prioritize the projects keeping the objectives as the driving force of the process.

Project justification including traffic operations modeling and safety benefits were provided to identify the preferred alternative. The cost analysis, right of way, environmental and utility impacts for this alternative were also assessed. The concept development process is detailed in Graphic 4.1.

Graphic 4.1- Banks Road Concept Development Process



4.3 Weighted Scoring

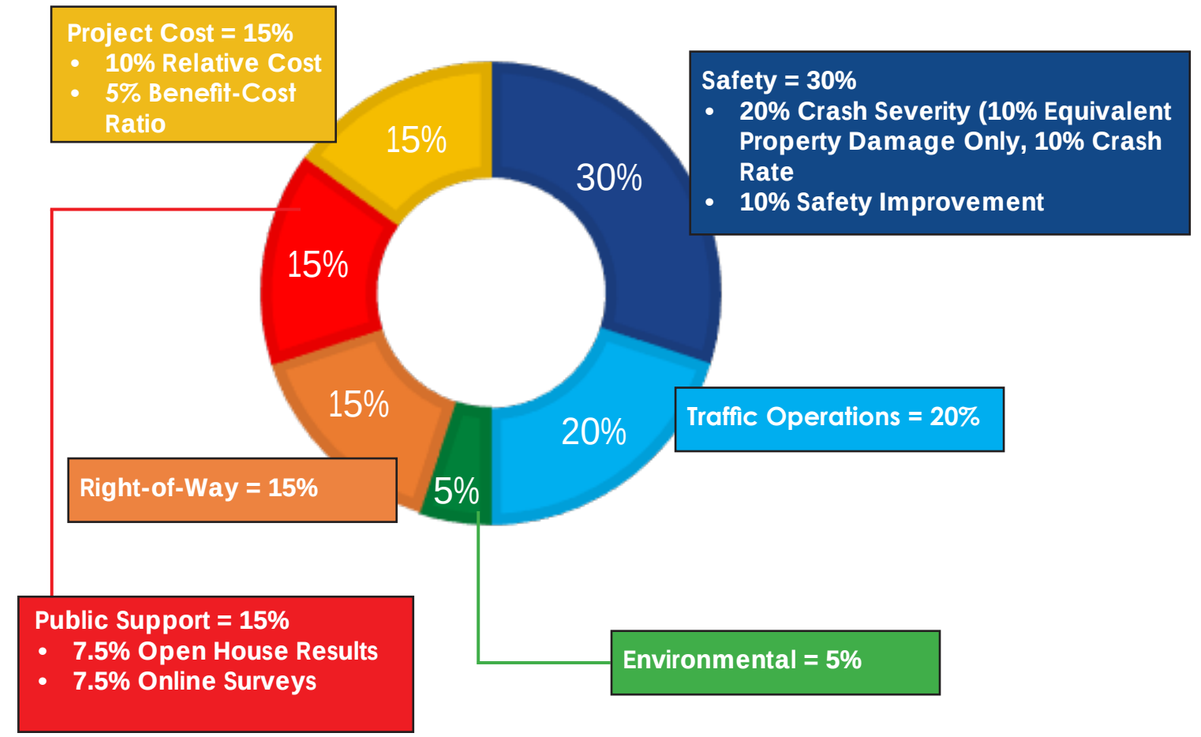
To assess the performance of each alternate improvement with regard to the study's vision, a quantitative and qualitative approach was developed. An evaluation matrix was prepared to quantitatively compare and "score" the performance of each concept. The qualitative approach included comparing the concepts to Fayette County's policies included in the pending Comprehensive Transportation Plan (CTP) to ascertain how well each concept supports the CTP. As aforementioned, this section details the tools and methodology used to evaluate the transportation concepts developed for Banks Road.

Quantitative Approach – Evaluation Matrix

The categories evaluated in the evaluation matrix for each concept were safety, traffic operations, environmental impact, right-of-way acquisition, project cost, and public support. For each category, performance measures were selected and/or developed as a means of evaluating the relative performance of each concept in terms of each specific scoring category.

Within the evaluation matrix, a weighted system was used to assign each category points totaling to 100 points. Graphic 4.2 and 4.3 summarize the performance measures, descriptions, data sources, and methodology by category. The concept evaluation worksheets for each category are included in the appendix.

Graphic 4.3 - Weighted Scoring Percentages



Graphic 4.2 - Weighted Scoring Categories

- **Safety (30 Points)**

To score safety, each concept was analyzed based on the current crash severity at the location and the potential improvement to safety that can be realized by the proposed concept design. To calculate the crash severity, crash data was obtained from the Georgia Electronic Accident Reporting System (GEARS) database. Crash records were collected along Sandy Creek Road between 2014 and 2018.

The crash data was sorted by crash severity based on the KABCO scale per intersection and road segment. Table 4.1 represents the KABCO Injury Classification scale for crash severity defines levels of injury severity. If several people are injured in a crash, the most severe injury level is used to set crash severity.

Table 4.1 - Injury Severity	
INJURY SEVERITY LEVEL	**DESCRIPTION**
K (Fatality)	FATAL INJURIES INCLUDE DEATHS WHICH OCCUR WITHIN THIRTY DAYS FOLLOWING INJURY IN A MOTOR VEHICLE CRASH.
A (Incapacitating Injury)	INCAPACITATING INJURIES INCLUDE SKULL FRACTURES, INTERNAL INJURIES, BROKEN OR DISTORTED LIMBS, UNCONSCIOUSNESS, SEVERE LACERATIONS, SEVERE BURNS, AND UNABLE TO LEAVE THE SCENE WITHOUT ASSISTANCE.
B (Non-Incapacitating Injury)	NON-INCAPACITATING INJURIES INCLUDE VISIBLE INJURIES SUCH AS A "LUMP" ON THE HEAD, ABRASIONS, AND MINOR LACERATIONS.
C (Complaint Injury)	MINOR INJURIES INCLUDE HYSTERIA, NAUSEA, MOMENTARY UNCONSCIOUSNESS, AND COMPLAINT OF PAIN WITHOUT VISIBLE SIGNS OF INJURY.
O (Property Damage Only)	NO FATALITY OR INJURY; PROPERTY DAMAGE ONLY

Crash Severity (20 points)

The first component of the Safety Score for each concept is the crash severity currently experienced at the project location. The crash severity at each proposed project's location was scored based on its EPDO (Equivalent Property Damage Only) value and the intersection or road segment crash rate at the location. The equivalent property damage only (EPDO) value for a crash location weighs factors related to the societal costs of fatal, injury, and property damage-only crashes. The relative costs are assigned to crashes by severity to develop an equivalent property damage-only score that considers frequency and severity of crashes. Each concept's EPDO Score was normalized relative to the EPDOs for the four Fayette Corridor Studies with the maximum value being 10 points.

A road segment or intersection's crash rate is calculated to determine relative safety compared to other similar roadways, segments, or intersections. Crash rate analysis typically takes into account data such as traffic volumes or roadway mileage to provide a more effective means of comparing crash frequency at locations and prioritizing safety issues at similar locations. Each concept's Crash Rate Score was normalized relative to 2016 statewide average crash rate with the maximum value being 10 points.

Crash Reduction Factor (10 points)

The second component of the Safety Score for each concept is the project's potential to reduce the number of crashes at the project's location. To determine this value, the FHWA's Highway Safety Manual was used to identify the crash reduction factor(s) (CRFs) for each concept. A crash reduction factor (CRF) is the percentage crash reduction that might be expected after implementing a given countermeasure at a specific site. Each concept's Safety Improvement Score was normalized to 100% with the maximum value being 10 points.

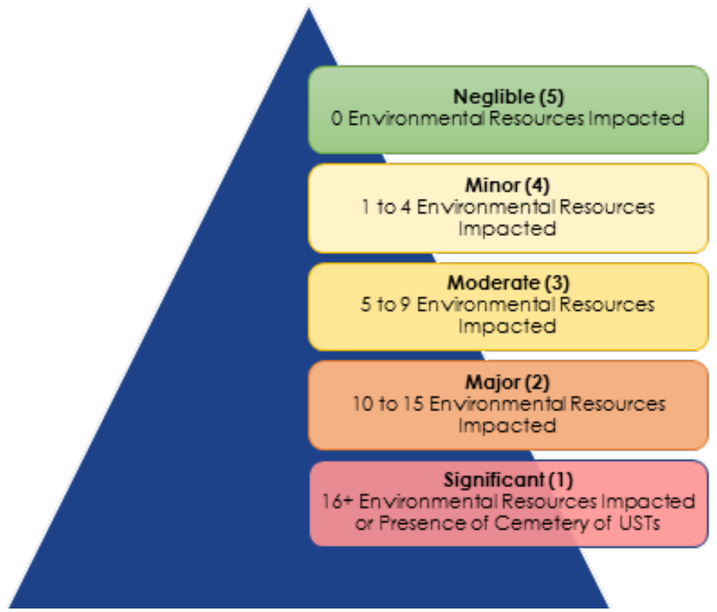
- **Traffic Operations (20 points)**

To score traffic operations, each concept was analyzed based on the net difference in delay or road capacity between a 2040 Build scenario and the 2040 No Build scenario. The net difference in delay or capacity between the 2040 Build and No Build scenarios was calculated for the AM and PM peak hours. The peak hour with the greatest reduction in delay or increase in capacity was selected and used to rank the concept's potential improvement to traffic operations based on a ranking from 1 to 10. The ranking was then converted to the overall Traffic Operations score for the concept, with the maximum score being 20 points.

- **Environmental (5 points)**

To score environmental impacts, each concept was analyzed based on the number of environmental resources potentially impacted by the construction of the project. The potential environmental impact was ranked on a scale from Negligible (5 ranking) to Significant (1 ranking). The total number of environmental resources impacted by a project was determined based on the number of resources present within a quarter mile radius of the project. Moreover, if there is a presence of a cemetery or underground storage tank (UST), the concept automatically received an impact score of Significant. The ranking was then converted to the overall Environmental Impact score for the concept, with the maximum score being 5 points.

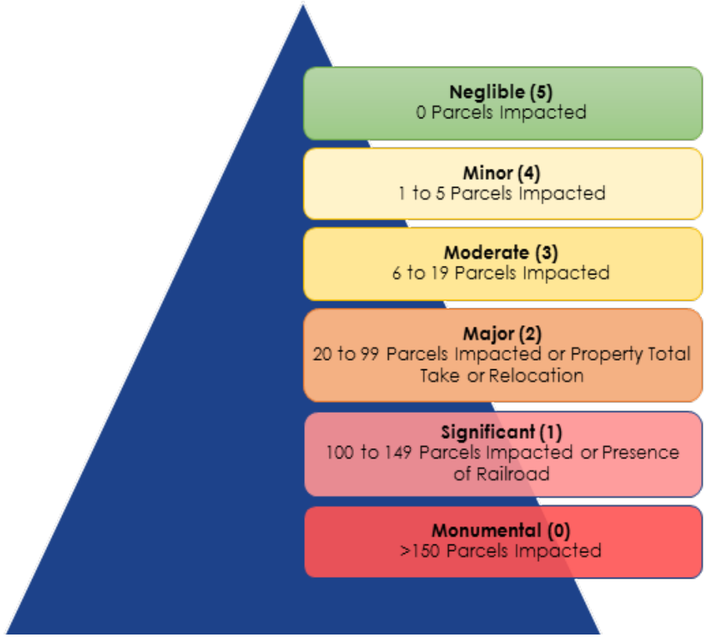
Graphic 4.4 - Environmental Categories



- **Right-of-Way (15 points)**

To score right-of-way impacts, each concept was analyzed based on the number and type of parcels potentially impacted by the construction of the project. To account for the current zoning of the parcels impacted, an undeveloped parcel is equal to 1 impact, a developed residential parcel is equal to 2 impacts, and a developed commercial parcel is equal to 5 impacts. The potential right-of-way impact was ranked on a scale from Negligible (5 ranking) to Monumental (0 ranking). Moreover, if a project requires a total take or relocation of a property, the concept automatically received an impact score of "Major". If there is a presence of a railroad within the project limits, the concept automatically received an impact score of "Significant". The ranking was then converted to the overall Right-of-Way score for the concept, with the maximum score being 15 points.

Graphic 4.5 - Right-of-Way Categories



- **Project Costs (15 points)**

To score project costs, each concept was analyzed based on its overall construction costs and the project's benefit-cost ratio. To calculate the Project Cost score, a planning-level construction cost estimate was prepared for each concept. Each project's construction cost estimate was used to calculate a Relative Project Cost score and a Benefit-Cost score. For project scoring purposes, design and right-of-way costs were not considered.

Relative Project Cost (10 points)

The first component of the Project Costs Score for each concept is its projected construction cost ranked on a scale from 0 to 5. For each concept, its Relative Project Cost is based on the price range and was ranked accordingly. The ranking was then converted to the Relative Project Cost score for the concept, with the maximum score being 10 points.

Benefit - Cost Ratio (5 points)

The second component of the Project Costs Score for each concepts is its benefit-cost ratio. The benefit-cost ratio was calculated by dividing the total monetary value of the potential benefits of the project by the projected construction cost for the project. The monetary value of the potential benefits was the sum of the potential crash cost savings over a 20-Year horizon and the travel time savings over a 20-Year horizon. Crash Costs savings were calculated per Property Damage Only (PDO) Crash Costs in GDOT's Highway Safety Improvement Program Report (2016). Travel Time savings were calculated by assigning monetary values to the reduction in automobile delay and truck delay and by accounting for fuel cost savings. The ranking was then converted to the Benefit-Cost Ratio score for the concept, with the maximum score being 5 points.

- **Public Support (15 points)**

To score public support, each concept was analyzed based on documented comments received at the second Public Open House and the results from the Phase II Online Survey. The information was then converted to an overall Public Support score for each concept, with the maximum score being 7.5 points for the comment forms and 7.5 points for the online surveys.

4.4 Preliminary Draft Concepts

Preliminary projects were identified to address current and projected future transportation needs. These concepts were presented to the citizens at the second PIOH. Citizens were given various opportunities to provide feedback on the draft concepts, including sticker stations, online survey stations and detailed comment forms. As aforementioned, around 250 citizens attended, 176 comments received via comment forms, and 515 comments were received via the online survey.

Following a review of the results from the first Public Open House and completion of the Phase 1 online survey, the project management team discussed and developed a series of projects that addressed the concerns identified by the public. With the completion of the Needs Assessment Report, concept ideas were refined and additional concepts were added to address the current facility needs.

Below is the final list of concepts evaluated for inclusion in the final recommendation:

- Access Management from SR 314 to City of Fayetteville Limits
- Intersection Improvements at Highway 85
- Westbound Left Turn Lane at Gilbert Road
- Install Traffic Signal at Ellis Road
- Install Roundabout at Ellis Road
- Multi-Use Path on south side of road
- Pedestrian Bridge on SR 54 to McCurry Park
- Widen Corridor to 4-Lane Median Divided with Multi-Use Path
- Widen Corridor to 3-Lane with Multi-Use Path

Each concept's project description and potential benefits are listed in the following sections.

LOS - Levels of Service. Qualitative measure to rate quality of traffic flow based on perfromance measures such as vehicle speed density, congestion, etc. The rating is from A to F. A = good; F = fail
Legend: $ < $250,000 $$ < $500,000 $$$ < $1,000,000 $$$$ < $2,000,000 $$$$$ < $5,000,000

1. Concept: Access Management from SR 314 to City of Fayetteville Limits

Based on the Needs Assessment and public comments, access management improvements along Banks Road from SR 314/W Fayetteville Road to the City of Fayetteville limits was warranted for additional consideration.

This concept includes improving Banks Road from SR 314 to the city limits by installing raised medians in the commercial area to address the high rate of crashes in the area and access management challenges. This project would improve safety and traffic operations along this segment of Banks Road.

Average No. Crashes Per Year	2018 LOS (AM/PM)	Time Frame	Benefits	Cost
38.4*	C/C	1 - 2 years	Safety, Access Management	$$$

** crash frequency higher than state average*

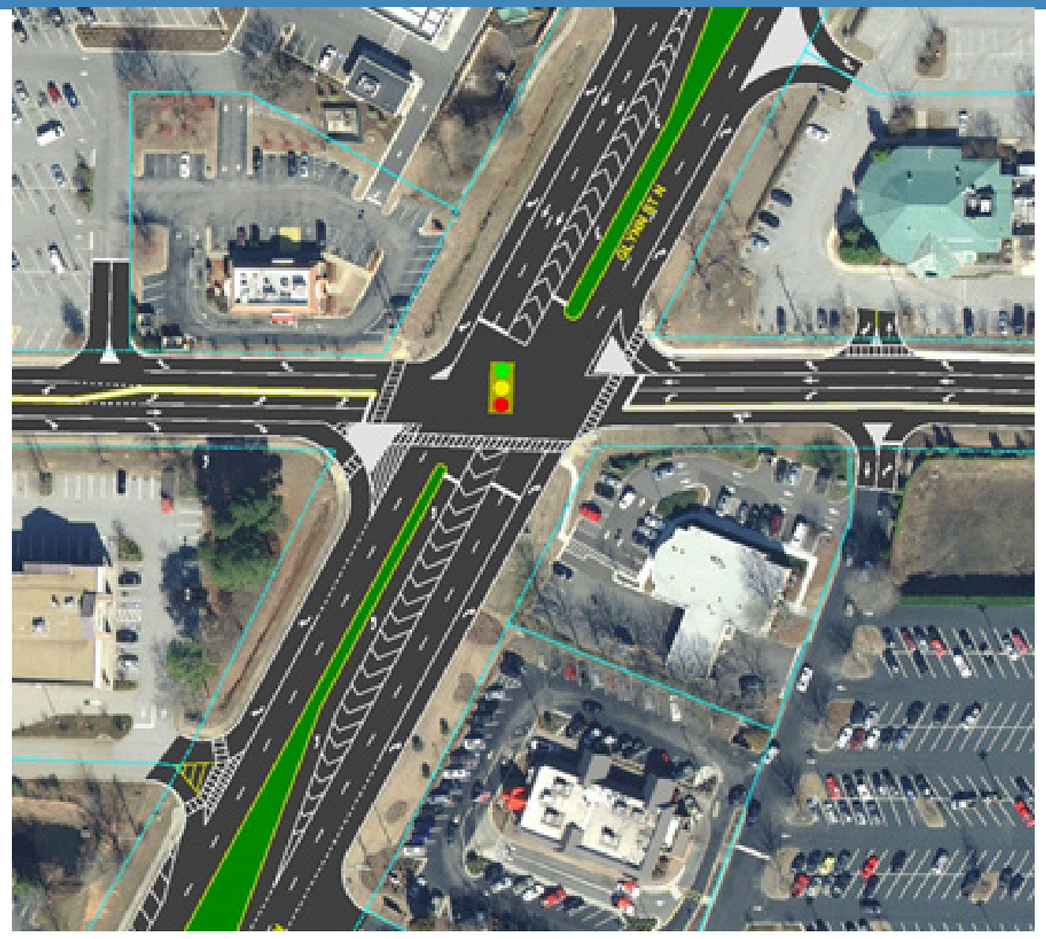
Graphic 4.6 - Concept: Access Management from SR 314 to City of Fayetteville Limits

2. Concept: Intersection Improvements at Highway 85

Based on public comments, improvements at Highway 85 warranted additional consideration. The proposed concept includes intersection improvements at Highway 85, including installing concrete islands and improving turn lanes. This project would improve safety and traffic operations at Banks Road and Highway 85, one of the busiest intersections along the corridor.

Average No. Crashes Per Year	2018 LOS (AM/PM)	Time Frame	Benefits	Cost
26.2	C/C	1 year	Safety, Operations	$$$$

Graphic 4.7 - Concept: Intersection Improvements at Highway 85



3. Concept: Westbound Left Turn Lane at Gilbert Road

Based on the public comments, the installation of a left turn lane at Gilbert Road was warranted for additional consideration. The proposed concept includes adding a westbound left turn lane at Gilbert Road. Gilbert Road serves over 50 homes and connects with Hillsdale Drive. This project would improve safety and traffic operations at the intersection.

Average No. Crashes Per Year	2018 LOS (AM/PM)	Time Frame	Benefits	Cost
0.2	B/B	3 years	Safety, Operations	$$

Graphic 4.8 - Concept: Westbound Left Turn Lane at Gilbert Road

4. Concept: Intersection Improvement at Ellis Road

Based on the Needs Assessment and public comments, an intersection improvement at Ellis Road was warranted for additional consideration. Two concepts were developed: 1) aligning Ellis Road with Hidden Valley Road and installing a traffic signal; and 2) installing a roundabout at the existing Ellis Road intersection. Both concepts provide safety and traffic operations benefits at the intersection.

Average No. Crashes Per Year	2018 LOS (AM/PM)	Time Frame	Benefits	Cost
4.0	C/F	3 - 5 years	Safety, Operations	$$$

Graphic 4.9 - Concept : Traffic Signal at Ellis Road

Graphic 4.10 - Concept : Roundabout at Ellis Road

5. Concept: Multi-Use Path on South Side of Road

Based on the Needs Assessment and public comments, the addition of bicyclist and pedestrian improvements were warranted for further consideration. The proposed project calls for a multi-use path on the south side of Banks Road from SR 314 to SR 54. The proposed project would improve safety for pedestrians and bicyclists in the area.

No. Of Bike-Ped Crashes Per Year	2018 LOS (AM/PM)	Time Frame	Benefits	Cost
1	D/D	3 - 5 years	Access Management, Bike - Pedestrian Access	$$$$

Graphic 4.11 - Concept : Multi-Use Path on South Side of Road

Graphic 4.12 - Concept : Pedestrian Bridge over SR 54 to McCurry Park

5. Concept: Pedestrian Bridge over SR 54 to McCurry Park

Based on public comments, safer connectivity for bicyclists and pedestrians to amenities in the area was warranted for further consideration. The proposed project is to construct a pedestrian bridge on SR 54 to McCurry Park. This project aims to improve bicycle and pedestrian safety.

Although the proposed bridge is over SR 54, it is a long-term project in this report due to the large number homes (existing and anticipated) on the west side of SR 54 and the latent demand for safe access to McCurry Park for walking, soccer, football, baseball, softball, frisbee-golf, picnicking, etc. on the east side of the State Route

Average No. Crashes Per Year	2018 LOS (AM/PM)	Time Frame	Benefits	Cost
14.4	B/D	5 - 10 years	Access Management, Bike - Pedestrian Access	$$$$$

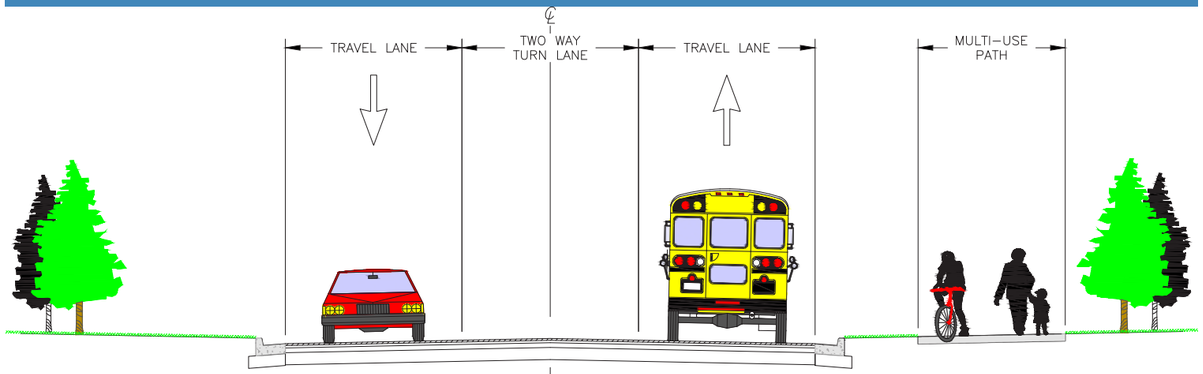
6. Concept: Widen Corridor with Multi-Use Path

Based on the Needs Assessment and public comments, corridor wide traffic operations, capacity, and safety improvements were warranted for further consideration. The proposed project involves widening the Banks Road corridor from SR 314 to SR 54. Two concepts were proposed, widen to 3 lanes with a center two-way-left-turn lane or widen to 4 lanes with a raised landscaped median. The corridor is envisioned to have multi-use path on south side of road. This project aims to address capacity, safety and access management challenges and allows for multi-modal use.

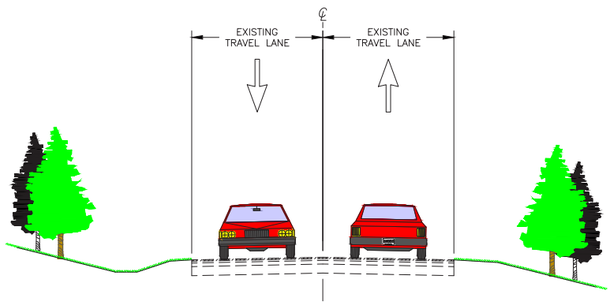
Average No. Crashes Per Year	2018 LOS (AM/PM)	Time Frame	Benefits	Cost
74*	D/D	10 - 20 years	Capacity, Access Management, Safety	$$$$$

** crash frequency higher than state average*

Graphic 4.13 - Concept : Widen to 3 Lanes with Multi-Use Path

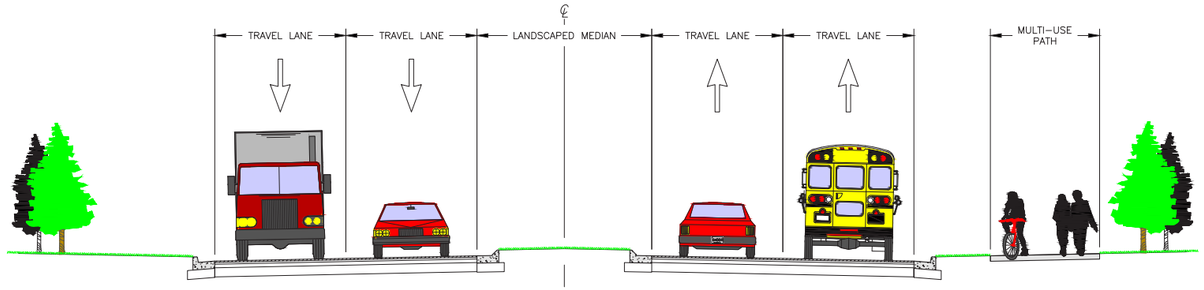


PROPOSED BANKS ROAD
3-LANE CORRIDOR

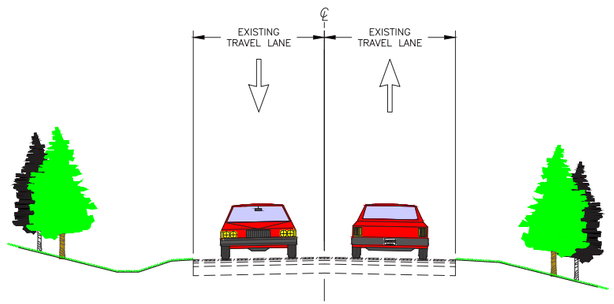


EXISTING BANKS ROAD
2-LANE CORRIDOR

Graphic 4.14 - Concept : Widen to 4 Lanes with Multi-Use Path*



PROPOSED BANKS ROAD
4-LANE DIVIDED CORRIDOR



EXISTING BANKS ROAD
2-LANE CORRIDOR

**Proposed sidewalk included after the second PIOH and online surveys.*

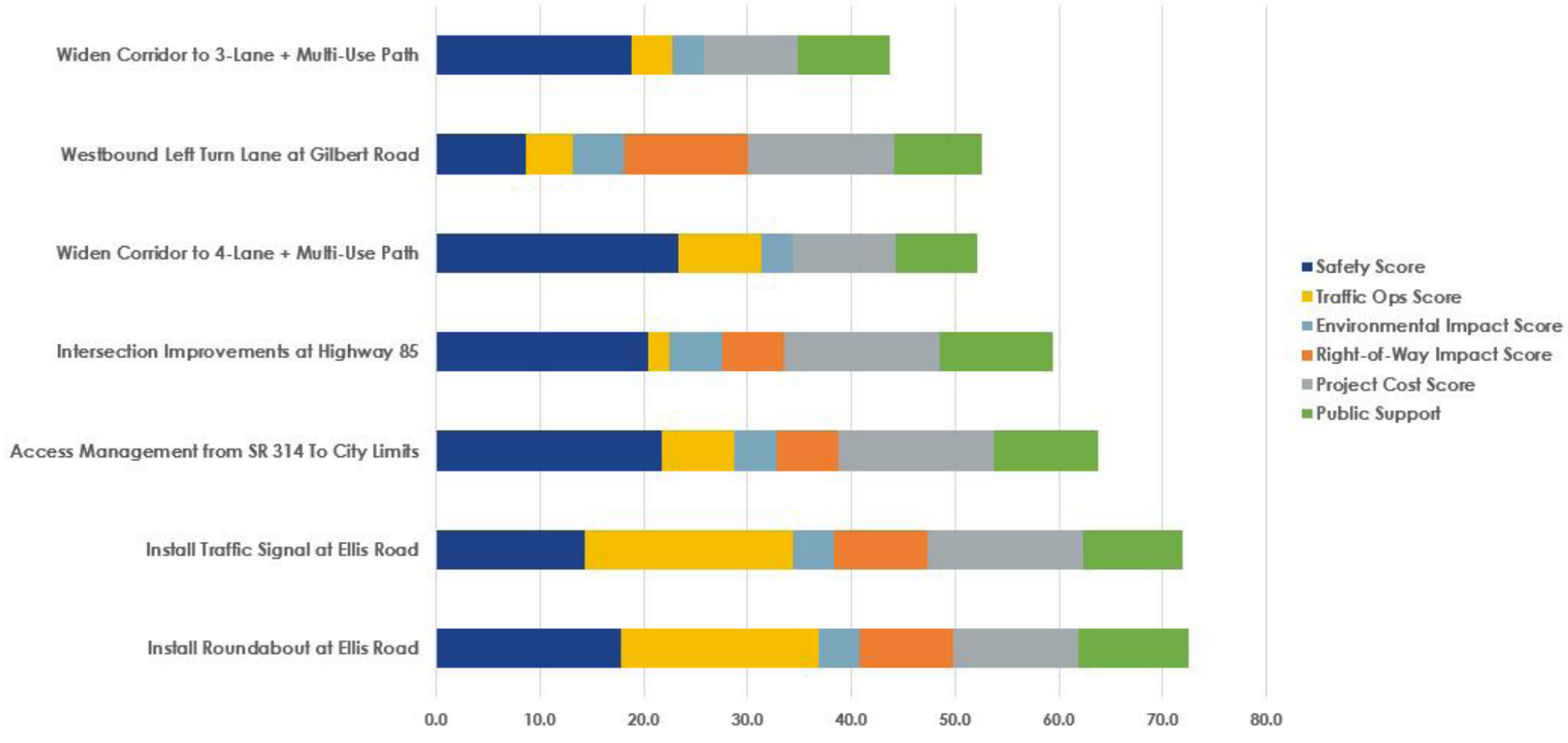
4.5 Evaluation Results

Using the methodology detailed in the previous sections, each concept was evaluated in the Evaluation Matrix for Banks Road. The results of the scoring matrix are detailed per category in the Table 4.1. The overall project score is shown in a stacked bar in Graphic 4.15.

Table 4.1 - Evaluation Results

Project Name	Safety (Max 30 pts)	Traffic Operations (Max 20 pts)	Project Cost (Max 15 pts)	Environmental Impact	R/W Impact	Public Support (Max 15 Pts)
• Access Management from SR 314 To City Limits	21.7	7.0	15.0	Minor	Major	10.0
• Intersection Improvements at Highway 85	20.5	2.0	15.0	Negligible	Major	10.9
• Westbound Left Turn Lane at Gilbert Road	8.7	4.4	14.0	Negligible	Minor	8.5
• Install Traffic Signal at Ellis Road	14.3	20.0	15.0	Minor	Moderate	9.6
• Install Roundabout at Ellis Road	17.8	19.0	12.0	Minor	Moderate	10.7
• Widen Corridor to 4-Lane + Multi-Use Path	23.3	8.0	10.0	Moderate	Significant	7.8
• Widen Corridor to 3-Lane + Multi-Use Path	18.7	4.0	9.0	Moderate	Significant	9.0

Graphic 4.15 - Overall Concept Score



The results of the evaluation matrix for the Banks Road concepts provide the opportunity to objectively judge each concept idea using a quantifiable methodology. The overall project score for each project is a tool to be used when selecting the preferred alternatives for each corridor in conjunction with a qualitative approach including each project's support of goals outlined in Fayette County's Comprehensive Plan, available funding sources, and implementation plan.

Chapter 5:
Recommendations & Implementation

5.1 Introduction

The section details the recommendations for the Banks Road corridor and the implementation plan for the preferred alternative. As detailed in previous sections, these recommendations were developed through several analyses, including:

- Review of existing conditions
- Need Assessment analysis for corridor
- Input from citizens, stakeholders, and agencies
- A comprehensive evaluation of potential impacts including safety, traffic operations, environmental, and right-of-way
- Consideration of land use policies and development goals in Fayette County

The needs of the corridor were outlined in the Needs Assessment. The final recommendations for Banks Road meet those needs while adhering to the goals of Fayette County outline in the 2010 Comprehensive Transportation Plan summarized in Graphic 5.1. The final recommendations and implementation plan are detailed in the following sections.

Graphic 5.1 - 2010 Comprehensive Transportation Plan Goals

5.2 Final Recommendations

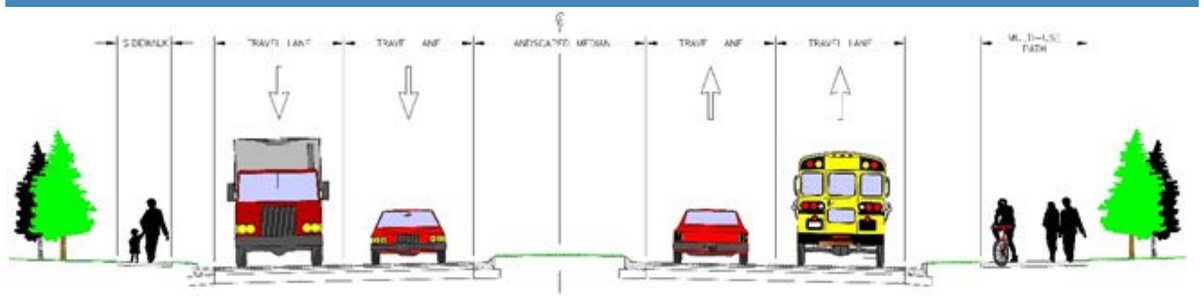
The recommendations for Banks Road are divided into recommendations for the corridor's typical section, specific intersection improvements, bicycle and pedestrian improvements and quick-response improvements. A corridor transportation system comprised of multiple elements including safety enhancements, roadway capacity, and streetscapes, was developed as part of the final recommendations. These improvements were developed in tandem with Fayette County and local municipalities Future Land Use plans to maximize the effectiveness of the final recommendations with regard to both land use and transportation.

Summary of Corridor Recommendations

The recommended typical section for Banks Road is to widen the road to 4-lanes with a center median from SR 54 to SR 85, install a shared-use path on one side of the south side of the road, and install a sidewalk on the north side of the road. From SR 314 to the City of Fayetteville limits, access management treatments are recommended within the commercial node to reduce the present high crash rate.

The roadway recommendations for Banks Road include correcting horizontal and vertical curves where needed based on an evaluation of sight distance availability along the corridor and upgrading and adding warning signage to guide drivers along the corridor. The proposed typical section is shown in the Graphic 5.2.

Graphic 5.2 - Banks Road Proposed Improvements Typical Section



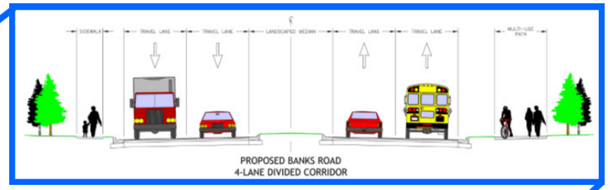
In addition to the proposed typical section and correcting horizontal/ vertical curves, the following intersection improvements are recommended along Banks Road as well:

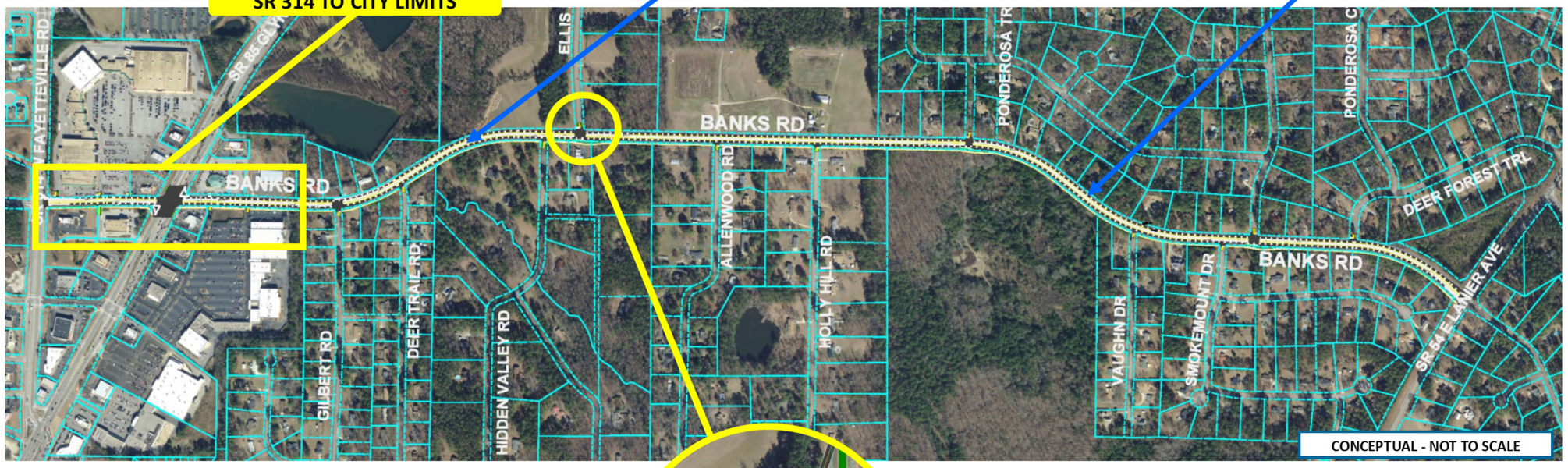
- Intersection Improvement at Highway 85
- Intersection Improvement at Ellis Road

Graphic 5.3 depicts the recommended roadway and intersection improvements.

Graphic 5.3 - Banks Road Corridor Recommendations

SR 314 TO CITY LIMITS





ELLIS ROAD

- **Roadway Recommendations**

Banks Road is a vital east-west arterial in Fayette County, which provides access to abutting neighborhoods and connects three state routes, SR 54, SR 85, and SR 314. As a minor arterial, Banks Road serves an important mobility function for longer trips between destinations in Fayette County and beyond, and it also plays an essential role in accessing adjacent land uses. Meeting the, sometimes conflicting, needs of these two uses must be at the center of roadway design decisions in this corridor to reach an equilibrium between mobility and access.

Widening the corridor to 4-lanes with a raised median provides additional capacity along the corridor as well as improves safety. The corridor segment was also analyzed using the Atlanta Regional Commission's (ARC) Travel Demand Model (Year 2040) to project future traffic conditions. An analysis of traffic projections indicates that by 2040, the road capacity observed for the PM peak hour would operate at a LOS of E. The added travel lane in each direction will improve traffic flow and capacity along Banks Road. The 2040 No Build versus Build road capacity along Banks Road is shown in the table below.

Intersection	2040 No Build		2040 Build	
	AM Peak	PM Peak	AM Peak	PM Peak
Banks Road from SR 85 to SR 54	D (v/c – 0.17)	E (v/c – 0.51)	A (v/c – 0.09)	A (v/c – 0.09)
v/c - volume to capacity ratio				

In terms of safety, an analysis of the crash data showed from the city limits to SR 54, Banks Road's crash rates for fatal accidents is higher than the statewide average for minor arterials. In 2018, there was an off-road crash east of Ponderosa Trace resulting in 2 fatalities. Moreover, during the 5-year analysis period, there was one crash involving a pedestrian along Banks Road near Ellis Road.

The addition of a raised median along the corridor reduces conflicts at intersections while preserving reasonable convenience with median opening and U-turn locations. A raised median also provides pedestrian refuge for crossing pedestrians and bicyclists.

According to FHWA analyses, over 75% of fatalities occur at non-intersection locations. Studies have shown that installing raised medians or pedestrian refuge areas at marked crosswalks yields a 46 percent reduction in pedestrian crashes and a 36 percent reduction at unmarked crosswalk locations.

Correcting horizontal and vertical curvature along Banks Road is a safety measure that can address the corridor's frequency of off-road crashes, particularly in the section east of Ponderosa Trace. For horizontal curves, providing superelevation at the curve helps keep vehicles on the road and reduces off-road crashes.

According to the Federal Highway Administration's (FHWA) Highway Safety Manual, crash prediction models indicate that inadequate superelevation increase crashes inside horizontal curves. It should be noted, however, that the increase in driver comfort associated with increasing superelevation may increase driver speeds.

A comprehensive analysis of the road's profile to identify locations along Banks Road where the horizontal or vertical curvatures of the road creates inadequate sight distance is recommended.

When restoring superelevation, a sufficient grade must be maintained along the superelevation transition to provide proper drainage as the cross slope levels. Ensuring reverse curves have appropriate transition distance must be taken into consideration as well.

Additional low cost treatments that can improve road safety and reduce speeding along Banks Road include adding advance warning signs, such as intersection warning or chevron alignment signs, and enhancing signing countermeasures via use of highly retroreflective and fluorescent sheeting. Curve warning signage can also be enhance using supplemental beacons and/or messages that activate when a motorist approaches the curve at a high speed.

Dynamic curve warning systems typically involve a combination of a speed monitoring device and a variable message sign. The advantage of dynamic curve warning systems is that they have a much greater effect on high-speed vehicles than a static curve warning sign. Given that these systems are costlier that status signs, their implementation should be limited to locations with high crash rates.

For the purposes of this scoping study, the widening of Banks Road is proposed to occur symmetrically from the existing roadway centerline. Detailed survey and design work during the preliminary engineering phase of the project will determine whether that is the preferred solution or if the new centerline will shift to one side or the other.

Adjustments to the proposed alignment of the widening could shift based on conditions at specific locations, such as environmental hazards or sensitive areas; minimizing ROW impacts, construction costs; or improving roadway alignment to enhance visibility and safety.

The width of the raised median is the distance between the inside edges of the travel lanes. Given the suburban context along the majority of Banks Road, it is recommended that the median width be designed to accommodate turning and crossing maneuvers by larger vehicles near major intersections.

For median openings along the roadway, spacing often is selected to provide openings at all public roads and at major traffic generators such as shopping centers. Left-turn lanes should be provided at all median openings and right-turn lanes should be provided at intersections with highways or other major public roads.

- **Intersection Improvement Recommendations**

Recommendation for key intersections are discussed in detailed below. All such improvements are associated with the recommended overall corridor improvements, including the proposed shoulder widening, although some may be implemented in advance of the ultimate corridor wide road improvement project.

1. SR 314 to City Limits

From SR 314 to the city limits, Banks Road has one of the highest crash rates in the county per the findings of Fayette County's CTP Assessment of Current & Future Needs Report. Installing a raised median along Banks Road in the commercial area and converting some of the intersections to right-in/right-out provides an access management treatment to address the high rate of crashes in the area.

Graphic 5.4 - Proposed Improvements from SR 314 to City Limits

2. Highway 85

At the intersection of Highway 85 and Banks Road, installing concrete islands and improving turn lanes geometry is recommended to improve safety and traffic flow at the intersection. An optional recommendation at Highway 85 is to remove one of the northbound left turn lanes and converting the northbound protect left turn phase to protected-permissive.

This conversion would remove the weaving that occurs west of Highway 85 for the dual left entry into two lanes when the outer lane immediately drops off into the Kroger shopping plaza. Routine signal timing improvements are recommended to maximize efficiency of the traffic signal throughout its life cycle.

The figure below shows the proposed concept for the intersection improvement at Banks Road and Highway 85 and the table shows the 2040 traffic operations for the No Build for Build conditions.

Graphic 5.5 - Proposed Glynn Steet Improvements

Intersection	2040 No Build		2040 Build	
	AM Peak	PM Peak	AM Peak	PM Peak
Banks Road at Highway 85	C (27.5 s)	D (49.6 s)	C (25.6 s)	D (50.5 s)

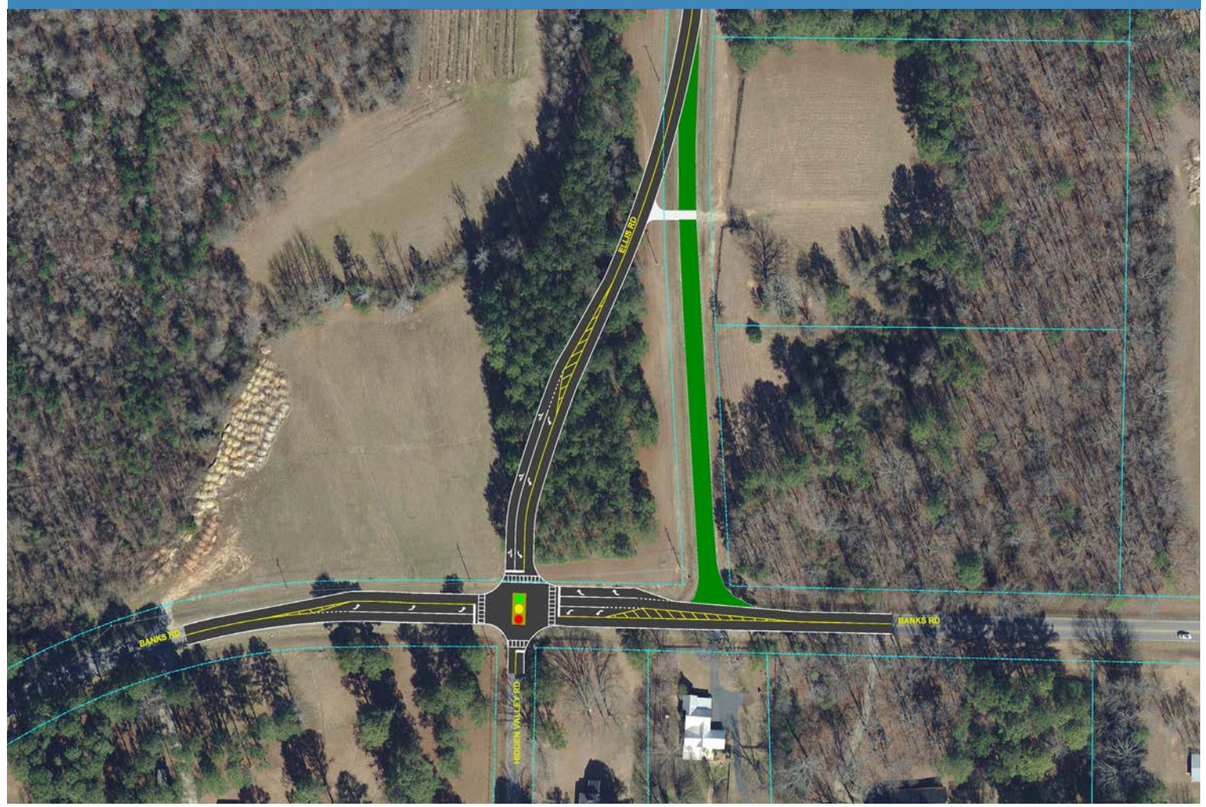
3. Ellis Road

At the intersection of Ellis Road and Banks Road, traffic operations under the existing conditions are at LOS E for the afternoon peak hour. By 2040, the traffic operations at Ellis Road are at a failing LOS. As described in the Concept Report, two concepts were developed for this location - a traffic signal and a roundabout. After consideration of all factors, a signal with realignment of Ellis Road to Hidden Valley Road is the preferred alternative.

The realignment of Ellis Road to Hidden Valley Road is recommended to provide more efficiency of a traffic signal installation and justify signal warrants. Given the current traffic operations at Ellis Road, temporary signalization of the intersection could be an interim solution prior to the completion of the widening project.

Upon widening of Banks Road east of Highway 85, a four - lane configuration is recommended for this intersection. The figure below shows the concept for the Banks Road and Ellis Road realignment and traffic signal installation. The table shows the 2040 traffic operations for the No Build for Build conditions.

Graphic 5.6 - Proposed Ellis Road Improvements



Intersection	2040 No Build		2040 Build	
	AM Peak	PM Peak	AM Peak	PM Peak
Banks Road at Ellis Road	C (20.4 s)	F (394.5 s)	A (7.1 s)	B (12.3 s)

- **Pedestrian and Bicycle Facilities**

There is a pedestrian presence along Banks Road, and providing bike and pedestrian accommodations for residents to travel to and from the commercial node at the western end of Banks Road can be of great value.

As part of Fayette County's recent Comprehensive Transportation Plan Update, a Master Path Plan for the county was developed, including a set of Path System Design Guidelines. The guidelines took into account local and national best practices for pedestrian and bicycle facilities and were tailored to the specific shared use needs of Fayette County, i.e. pedestrians, bicyclists and golf carts. Fayette County's Master Path Plan identified recommendations divided into sidewalk, sidepaths, and greenway projects.

Image 5.1 - Banks Road Pedestrian and Bicycle Facilities

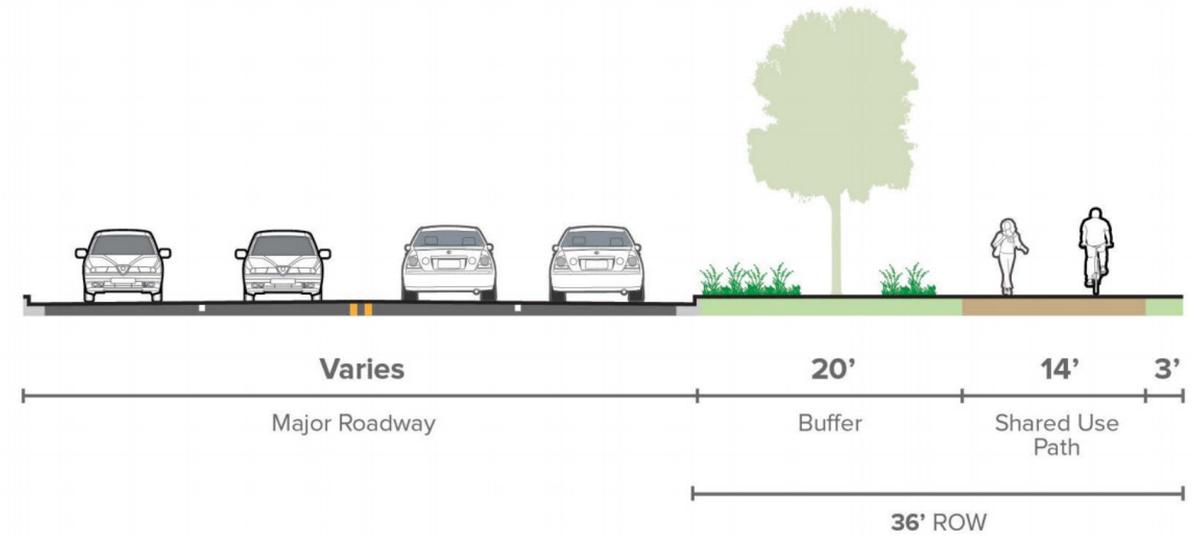
The Master Path Plan specifically recommends the addition of a sidepath along the extent of Banks Road from Highway 85 to McElroy Road. Sidepaths, similar to multi-use paths, are trails that can accommodate pedestrians, bicyclists, and golf carts adjacent and parallel to the alignment of an existing roadway. Fayette County's Path System Design Guidelines should be reference when determining the geometrics of the sidepath for Banks Road.

In line with recommendations outlined in Fayette County's CTP, a multi-use path is recommended along Banks Road within the study limits from Highway 85 to SR 54 along the south side of the road. In addition to the path, sidewalk along north side of the road is recommended as well.

An initial determination of the preferred side of the path was made based on adjacent land uses, terrain, and desirable opportunities for crossing Banks Road. Future development and information obtained from more detailed design should ultimately influence the final decision for the alignment.

The image below shows the preferred conditions for a sidepath along a minor roadway as outlined in Fayette County's Path Design Guidelines. A smaller buffer may be appropriate along Banks Road due to the proximity of existing homes along the road.

Graphic 5.7 - Side Path Recommendations (CTP Appendix D: Path Design Guidelines)



5.3 Quick Response Recommendations

The proposed list of short-term improvements for Banks Road was developed via significant input received through coordination with Fayette County, stakeholders, and public input. The specific recommendations contained in this list are based on the results of the Needs Assessment, baseline travel data, deficiencies identified along the corridor during the Road Safety Audit, and opportunities to implement cost-effective improvement projects over a short period of time. Short-term recommendations along Banks Road included the following:

1. Clear overgrown vegetation along Banks Road

An immediate measure for improving sight distance along a corridor is cutting back foliage reducing the line of sight for drivers, especially in horizontal curves. Overgrown vegetation also obstructs various traffic signs, reducing guidance for drivers along the corridor.

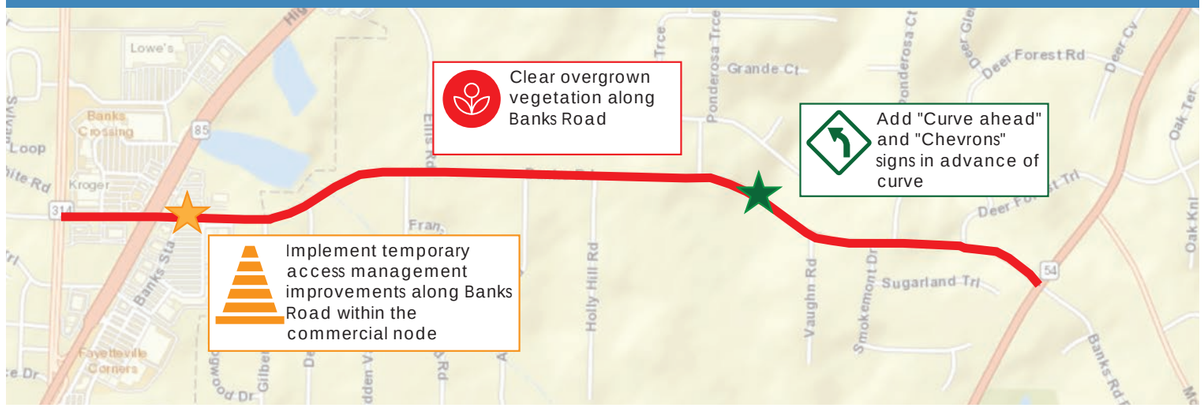
2. Access Management within Commercial Node

Given that Banks Road between SR 314 to the city limits has one of the highest crash rates in the county, immediate treatments are recommended to alleviate crash frequency. Potential improvements include converting driveways to right-in/right-out and median treatments between SR 314 and Highway 85.

3. Horizontal Alignment and Advisory Speed Signs near Ponderosa Trace

There were several public comments regarding the horizontal curve near Ponderosa being unsafe, especially for speeding vehicles. A fatal accident occurred within the past 5-years east of Ponderosa Trace. To alert drivers of upcoming curve a combination Turn/Advisory Speed (W1-1a) sign or a combination Curve/Advisory Speed (W1-2a) sign is recommended as drivers approach the intersection. Graphic 5.8 shows the locations of the proposed quick response projects along Banks Road.

Graphic 5.8 - Quick Response Recommendations On Banks Road



5.4 Implementation Plan

The implementation plan for Banks Road corridor identifies the projects in terms of project costs, project scheduling, responsible parties for project completion, and funding opportunities. The development of the implementation plan considered the functionality of each project to make sure that projects had logical termini. Dependencies between projects were also a point of consideration in the development of the implementation plan. Overall, for the plan to succeed, several agencies must coordinate their efforts, such as Fayette County, City of Fayetteville, ARC, and GDOT.

- **Construction Cost Estimates**

For recommended roadway improvements, construction cost estimates were generated by estimating the quantities of materials and/or equipment required for each improvement. Aerial photography and field surveys of existing conditions along the corridor were used to develop quantities to complete the construction of each project. The quantities were put into a cost estimate tool and then multiplied by a typical unit cost for to determine the construction cost.

Construction cost estimates for the roadway projects are included in a separate "Concept Reports" document provided as part of the corridor study process. Aside from projects identified as qualifying projects for the Atlanta Regional Commission's Transportation Improvement Program (ARC TIP), the construction cost estimates do not include the cost of right-of-way or utilities.

- **Project Scheduling**

The proposed scheduling for the recommended projects was based on three generalized timeframes within a 20-year planning horizon. These timeframes are as follows: Short-Term, 2020-2022; Intermediate-Term, 2022-2027; and Long-Term, 2027-2040.

The proposed short-term projects are lower cost improvements for the corridor that would provide immediate benefits. Potential funding opportunities for these projects existing through Fayette County's maintenance and SPLOST programs. For the intermediate and long-term projects listed in the implementation plan, higher costs and additional analyses are required to fully develop the project scopes for implementation. The planning-level cost estimates are appropriate for corridor-wide planning, but more detailed analyses are needed to set the projects' scope. The securing of local funding for the intermediate and long-term projects will be an important step in project development.

5.5 Phased Recommended Projects

The following table lists the recommended projects for Banks Road, including the projects' description, benefits, construction cost estimate, and time frame. The implementation of projects may take place across multiple segments of the corridor or efforts may focus in one segment as resources allow. Implementation is prioritized by safety, traffic operations benefits, and potential to serve as a catalyst for continued corridor improvement.

Table 5.1 - Phased Recommended Projects

PROJECT ID	PROJECT NAME	PROJECT DESCRIPTION	BENEFITS	CONSTRUCTION COST ESTIMATE	TIME FRAME
BK-1	ROUTINE MAINTENANCE ALONG BANKS ROAD	CLEAR OVERGROWN VEGETATION ALONG BANKS ROAD	SAFETY	TBD	SHORT - TERM
BK-2	CURVE WARNING SIGNAGE NEAR PONDEROSA TRACE	ADD STRIPING, "CURVE AHEAD" AND "CHEVRONS" SIGNS IN ADVANCE OF CURVE EAST OF PONDEROSA TRACE.	SAFETY, OPERATIONS	TBD	SHORT - TERM
BK-3	ACCESS MANAGEMENT FROM SR 314 TO CITY LIMITS	PROJECT INCLUDES IMPROVING BANKS ROAD FROM SR 314 TO THE CITY LIMITS BY INSTALLING RAISED MEDIANS IN THE COMMERCIAL AREA TO ADDRESS THE HIGH RATE OF CRASHES IN THE AREA AND ACCESS MANAGEMENT CHALLENGES. THIS PROJECT WOULD IMPROVE SAFETY AND TRAFFIC OPERATIONS ALONG THIS SEGMENT OF BANKS ROAD.	SAFETY, ACCESS MANAGEMENT	$350,000	INTERMEDIATE - TERM
BK-4	INTERSECTION IMPROVEMENT AT ELLIS ROAD	INSTALL A TRAFFIC SIGNAL AT THE INTERSECTION AND REALIGN ELLIS ROAD TO TIE-IN WITH HIDDEN VALLEY ROAD TO THE SOUTH. THIS PROJECT WOULD IMPROVE SAFETY AND TRAFFIC OPERATIONS AT THE INTERSECTION.	SAFETY, OPERATIONS	$1,350,000	INTERMEDIATE - TERM
BK-5	INTERSECTION IMPROVEMENTS AT HIGHWAY 85	PROJECT INCLUDES INTERSECTION IMPROVEMENTS AT HIGHWAY 85, INCLUDING INSTALLING CONCRETE ISLANDS AND IMPROVING TURN LANES. THIS PROJECT WOULD IMPROVE SAFETY AND TRAFFIC OPERATIONS AT BANKS ROAD AND HIGHWAY 85, ONE OF THE BUSIEST INTERSECTIONS ALONG THE CORRIDOR.	SAFETY, OPERATIONS	$250,000	INTERMEDIATE - TERM
BK-6	WIDEN CORRIDOR TO 4-LANES	GDOT ROUTINE MAINTENANCE AT BANKS ROAD AND SR 74; ADD "KEEP MOVING" SIGN FOR WB RIGHT; ADD PAVEMENT TO ACCOMMODATE TRUCKS.	SAFETY, OPERATIONS, CAPACITY, BIKE-PEDESTRIAN IMPROVEMENTS	$10,992,954*	LONG - TERM

* COST ESTIMATES INCLUDES RIGHT-OF-WAY AND UTILITIES. COSTS ARE IN 2019 DOLLARS AND NEED TO BE ADJUSTED FOR INFLATION FOR PROJECTS IN THE FUTURE.