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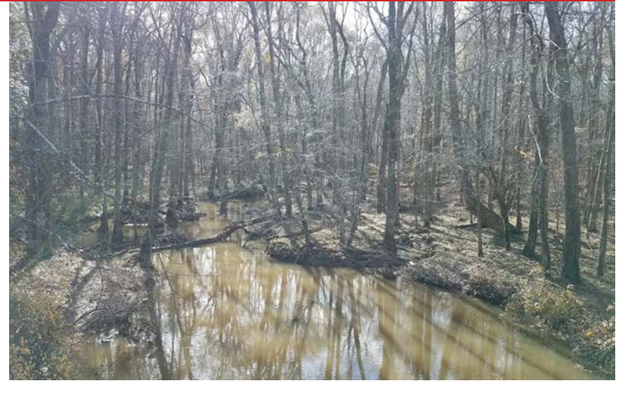
Tyrone Road - Palmetto Road Transportation Corridor Study

Fayette County Public Works

2017 SPLOST No. 17 TAQ

December 2019

CROY



Prepared In Association With:

Fayette County Commissioners

Randy Ognio, Chairman, District 2

Charles W. Oddo, Vice Chairman, District 5 (At-Large)

Eric Maxwell, District 1

Edward Gibbons, District 3

Charles D. Rousseau - District 4

Fayette County Staff

Phil Mallon, P.E., Fayette County, Public Works

Joseph Robison, P.E., RLS, Fayette County, Public Works

Chelsie Boynton, Fayette County, Staff

Vanessa Birrell, Fayette County, Environmental Management

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Mission Statement:

The Tyrone Road - Palmetto Road corridor 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

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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

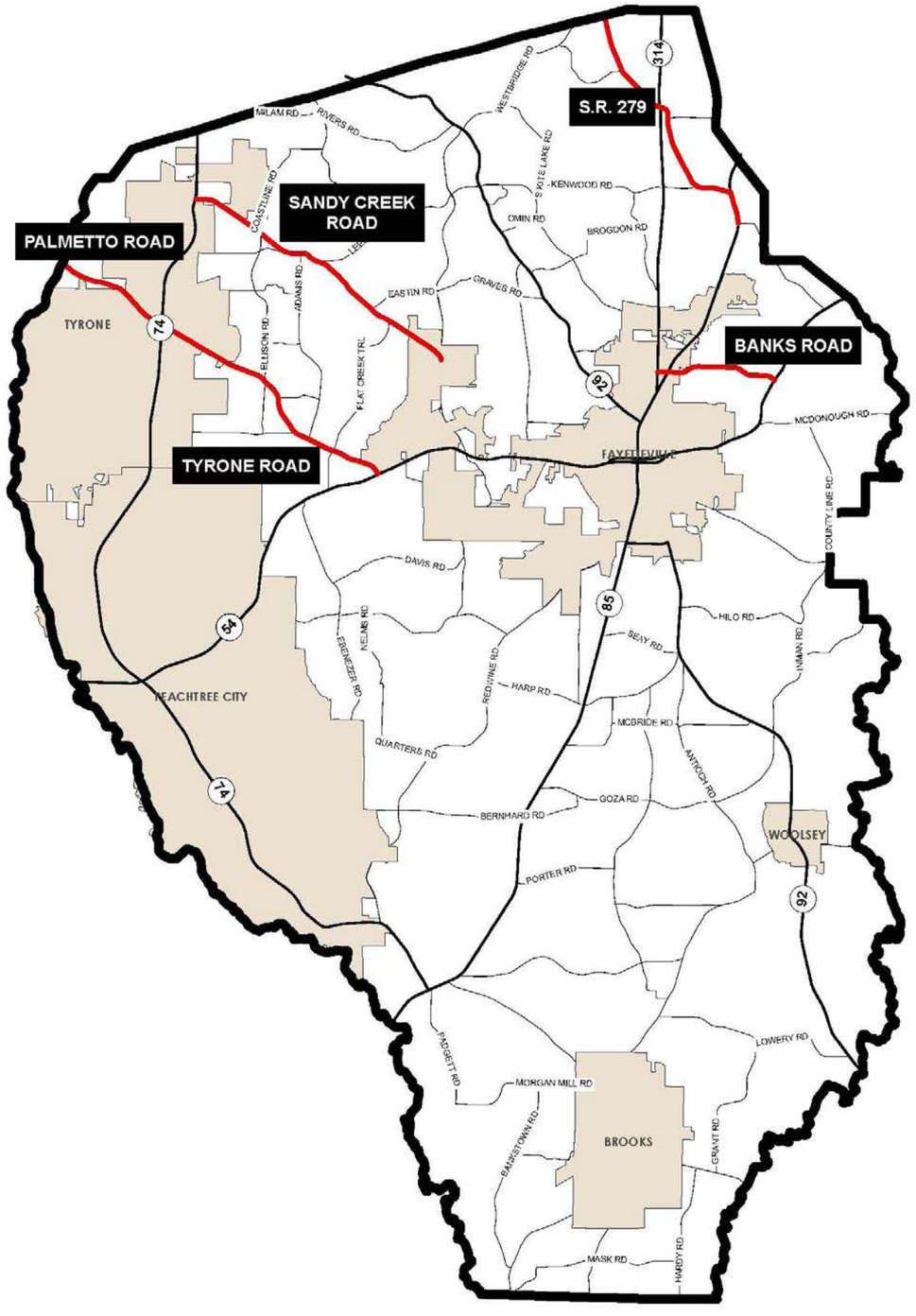
The Timeline for this study is divided into 4 tasks and is spread over a period of 12 months.

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 Tyrone Road - Palmetto Road corridor and describe the existing conditions of the roadway.

Map 1.1 - Vicinity Map



The study focuses on Tyrone Road and Palmetto Road. Tyrone Road is a 4.5-mile major road extending from State Route 54 to Senoia Road in Tyrone. Palmetto Road is a 1.7 mile roadway starting from Senoia Road to the Coweta County border.

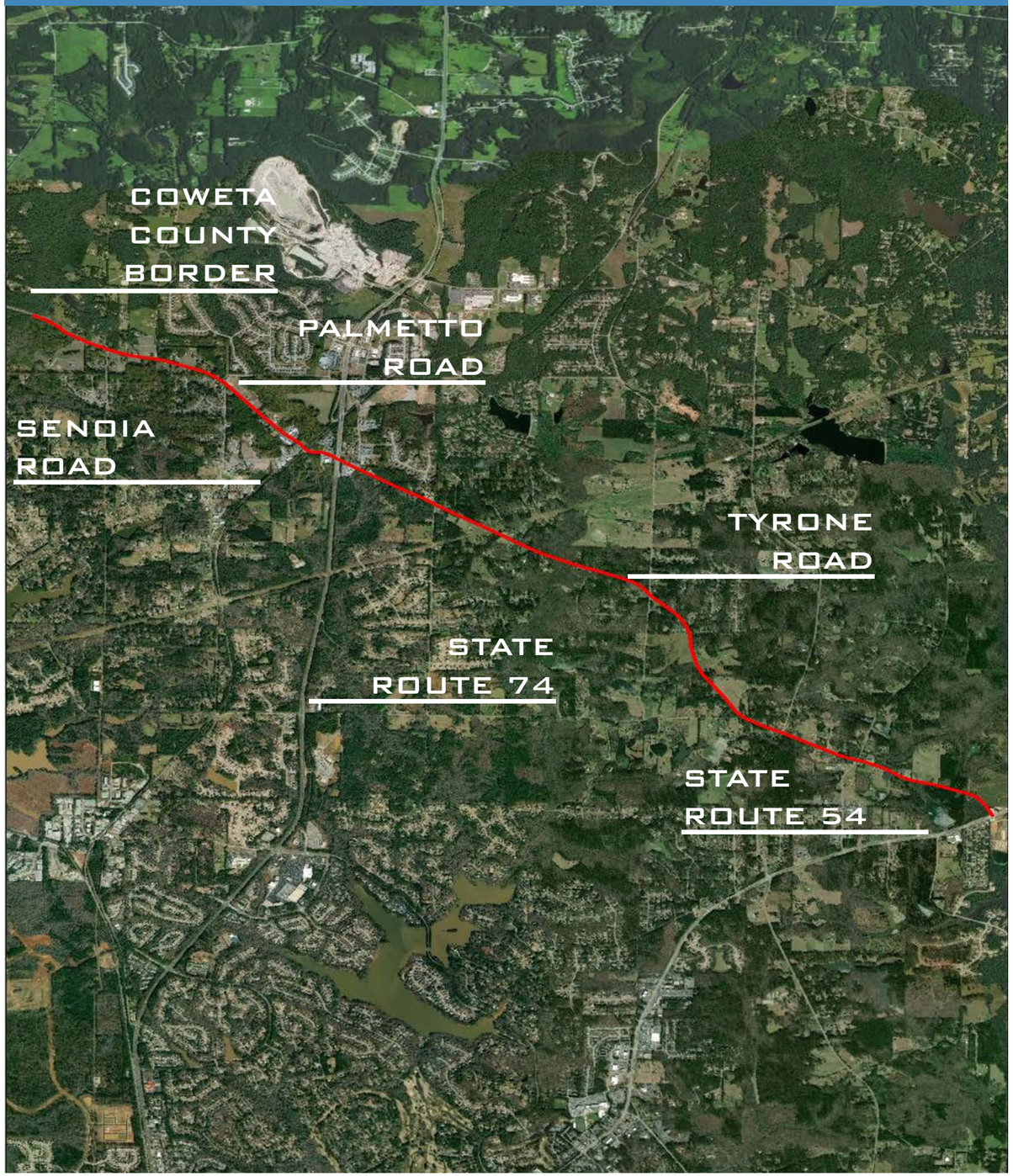
The study is an investigative foundation to implementing improvements that will enable Tyrone Road - Palmetto Road to be a well-functioning roadway that accommodates the transportation needs of the residents, adds value to the communities, and enhances mobility and safety in the area.

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.

Image 1.1 is a photograph of the Tyrone Road intersection approach from State Route 74. Map 1.2 depicts the location and extent of the corridor study.

Image 1.1 - Tyrone Road & State Route 74 Intersection

Map 1.2 - Tyrone Road - Palmetto Road - Location and Extent



1.2 Demographics -

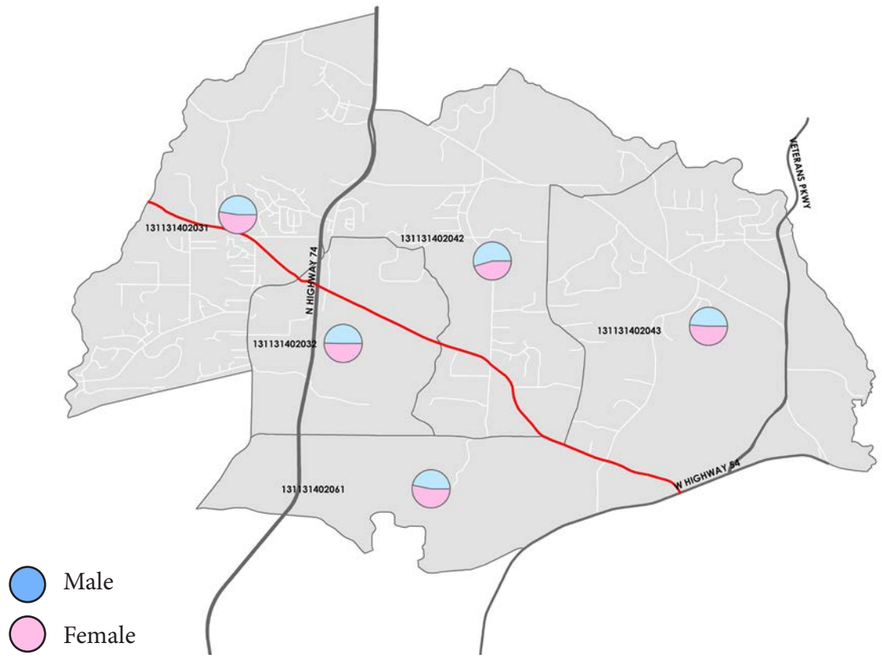
Understanding the demographic character of the corridor is an important factor in identifying the key stakeholders and the influence on their travel demands. This information along with other components will be used when developing alternative transportation improvements.

For this analysis, the 2016 American Community Survey (ACS) – 5 year estimates data was 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 do 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 Tyrone Road - Palmetto Road Corridor is approximately 12,711, with 6,250 [49.2 %] being male and 6,461[50.8 %] being female. Map 1.3 represents a male to female distribution in the block groups along the corridor.

Map 1.3 - Tyrone Road - Palmetto Road - Gender Distribution



Analyzing the racial composition along the corridor, it is seen that approximately 8,952 citizens [70.4%] are white, 3,074 [24.1%] are African American and 1,073 [8.4%] are Hispanic or Latino.

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

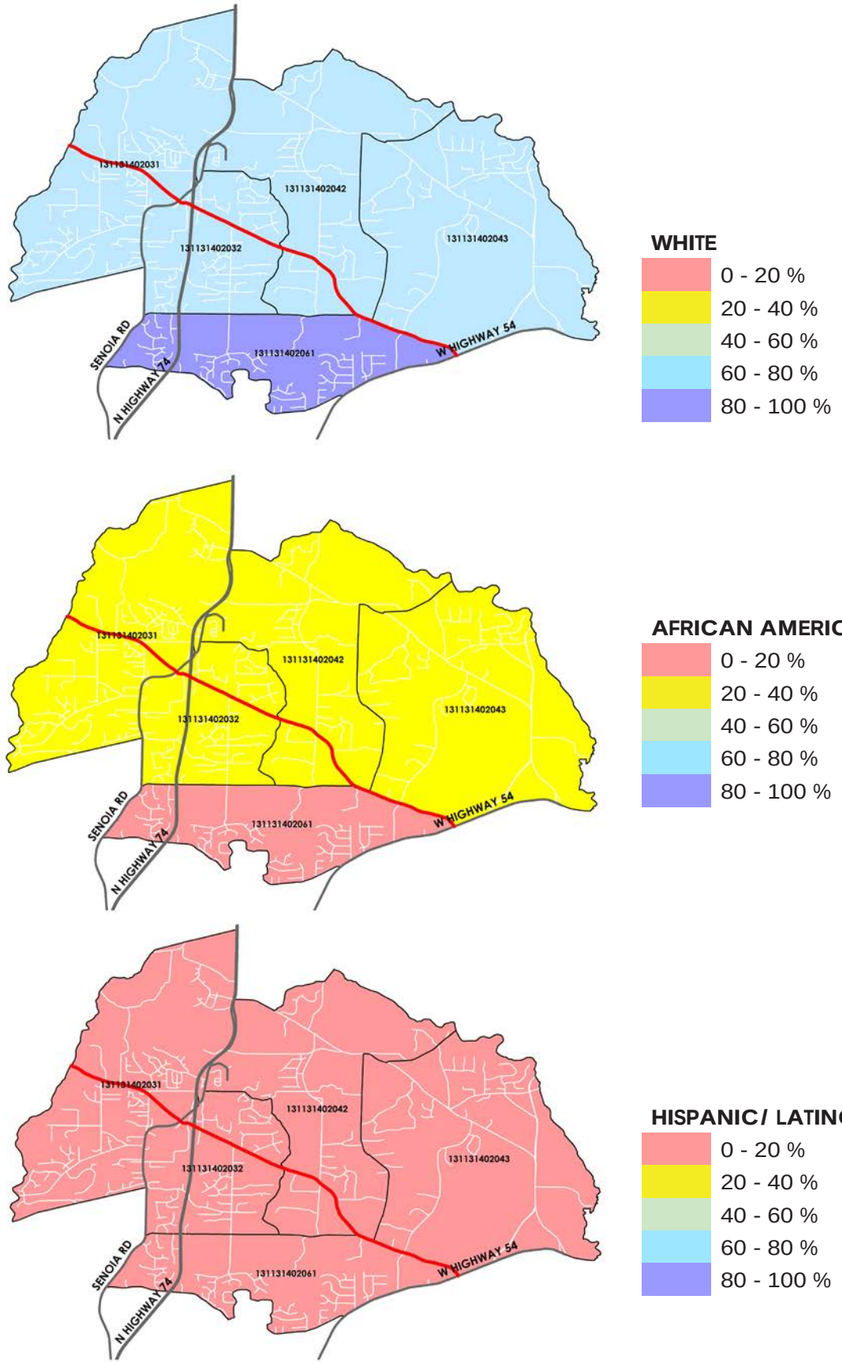
Table 1.2- Racial Distribution

ID	131131402031	131131402042	131131402043	131131402061	131131402032	TOTAL
Block Group Population	3,308	2,286	2,104	2,921	2,092	12,711
White	2,240	1,486	1,333	2,527	1,366	8,952
% White	67.7%	65.0%	63.3%	86.5%	65.2%	70.4%
African American	862	694	771	116	631	3,074
% African American	26.0%	30.3%	36.6%	3.97%	30.1%	24.18%
Hispanic/ Latino	230	213	230	198	202	1,073
% Hispanic/ Latino	6.95%	9.3%	10.9%	6.7%	9.6%	8.4%
NOTE - All values are estimates and do have associated margins of error.						

[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 - Tyrone Road - Palmetto 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 - Tyrone Road - Palmetto Road - Educational Attainment

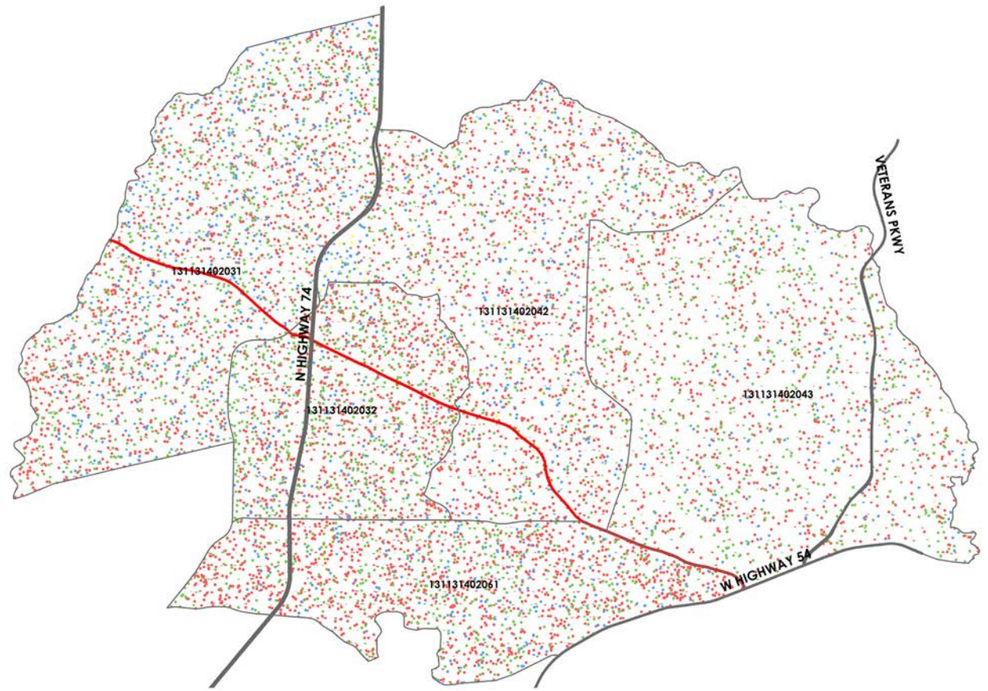


Table 1.3 - Educational Attainment						
ID	131131402031	131131402042	131131402043	131131402061	131131402032	TOTAL
Block Group Population (25 Years & Older)	2,243	1,664	1,536	1,817	1,441	8,701
No School Completed	0	13	0	0	0	13
% No School Completed	0%	0.78%	0%	0%	0%	0.14%
Regular High School Diploma	397	198	300	220	365	1,480
% Regular High School Diploma	17.6%	11.8%	19.5%	12.1%	25.3%	17%
Some College, Less Than A Year	232	136	63	76	70	577
% Some College, Less Than A Year	10.3%	8.17%	4.1%	4.1%	4.8%	6.65%
Bachelor's Degree	519	490	390	510	355	2,264
% Bachelor's Degree	23.1%	29.4%	25.3%	28.0%	24.6%	26%
NOTE - All values are estimates and do have associated margins of error.						

Table 1.3 represents the counts and percentages of the population in the block group with a certain level of education. The analyses depicts that 98.8% of the population of the block groups has completed school. While 17% has a regular high school diploma, 6.65% has attended some college for less than a year and 26% has a bachelor's degree.

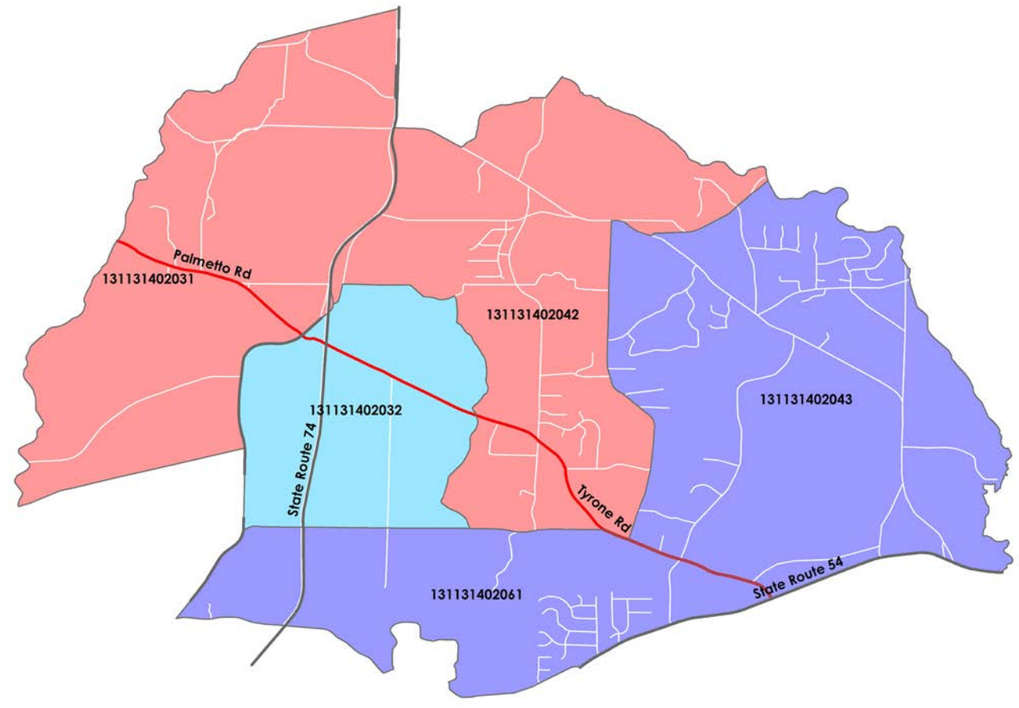
Note - Percentage values in Table 1.3 are not intended to total 100 percent since not all categories such as 'Some College More Than A Year' or 'Masters Degree' are listed.

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 Tyrone Road - Palmetto Road was analyzed.

The minimum median household income in the area is approximately $16,350, while the maximum median income is approximately $68,350, the mean median household income in the area is $40,310.

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

Map 1.6 - Tyrone Road - Palmetto 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. The low score is 0 and 12 is a high score.

Corridor Analysis

The Tyrone Road - Palmetto Road corridor lies majorly in Fayette County's census tract 1402.03 and trail into census tract 1402.04. Census tract 1402.03 has an average cumulative score of 14 for the Protected Classes Model and an equity score of 4 for the Racial Minority, Ethnic Minority, and Low-Income Model. Census tract 1402.04 has an average cumulative score of 17 for the Protected Classes Model and an equity score of 7 for the Racial Minority, Ethnic Minority, and Low-Income Model.

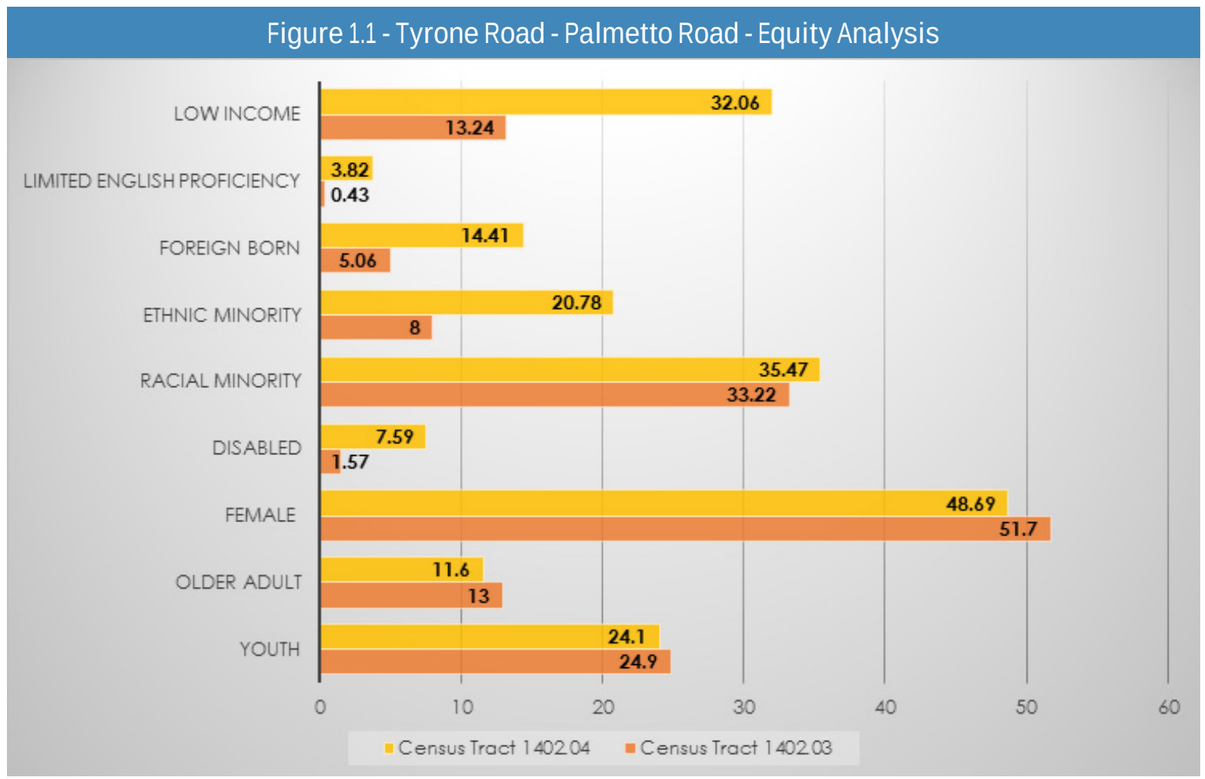
Census tract 1402.03 –

Residents in the tract under 18 years of age are 24.9 %, while 13 % of residents are 65 years or older. Females are 51.7 % of residents. Residents with disabilities account for 7.57 % of the population in the tract. While 33.22 % of residents identify as one or more racial minority, only 8 % of residents identified themselves as being of Hispanic or Spanish origin. The tract has a small population of foreign born nationals, with only 5.06 % of residents being born outside of the United States and 0.43 % of residents report having English proficiency below "very well." 13.24 % live in households with an income below 200% of the national poverty level.

Census tract 1402.04 –

Residents in the tract under 18 years of age represent 24.1%, while 11.6 % of residents are 65 years or older. 48.69 % of residents are female. Residents with disabilities account for 7.59 % of the population in the tract. While 35.47 % of residents identify as one or more racial minority, only 20.78 % of residents identified themselves as being of Hispanic or Spanish origin. The tract has a small population of foreign born nationals, with 14.41 % of residents being born outside of the United States and only 3.82 % of residents report having English proficiency below "very well." Households with an income below 200% of the national poverty level represents 32.06%.

Figure 1.1 - Tyrone Road - Palmetto Road - Equity Analysis



1.3 Land Use & Zoning -

A 1-mile buffer of the Tyrone Road - Palmetto Road corridor encompasses a total of approximately 2,957 parcels, both residential and nonresidential.

Residential Usage

Approximately 2,751 parcels or 93% of the study area are residential. The three major types of residential uses along the corridor are:

Table 1.4 - Residential Zoning

CATEGORY	ZONING ENTITY	NO. OF PARCELS
• SINGLE FAMILY RESIDENTIAL	FAYETTE COUNTY / TOWN OF TYRONE / CITY OF FAYETTEVILLE	2436
• AGRICULTURAL RESIDENTIAL	FAYETTE COUNTY / TOWN OF TYRONE	297
• CONSERVATION RESIDENTIAL	FAYETTE COUNTY / TOWN OF TYRONE	18

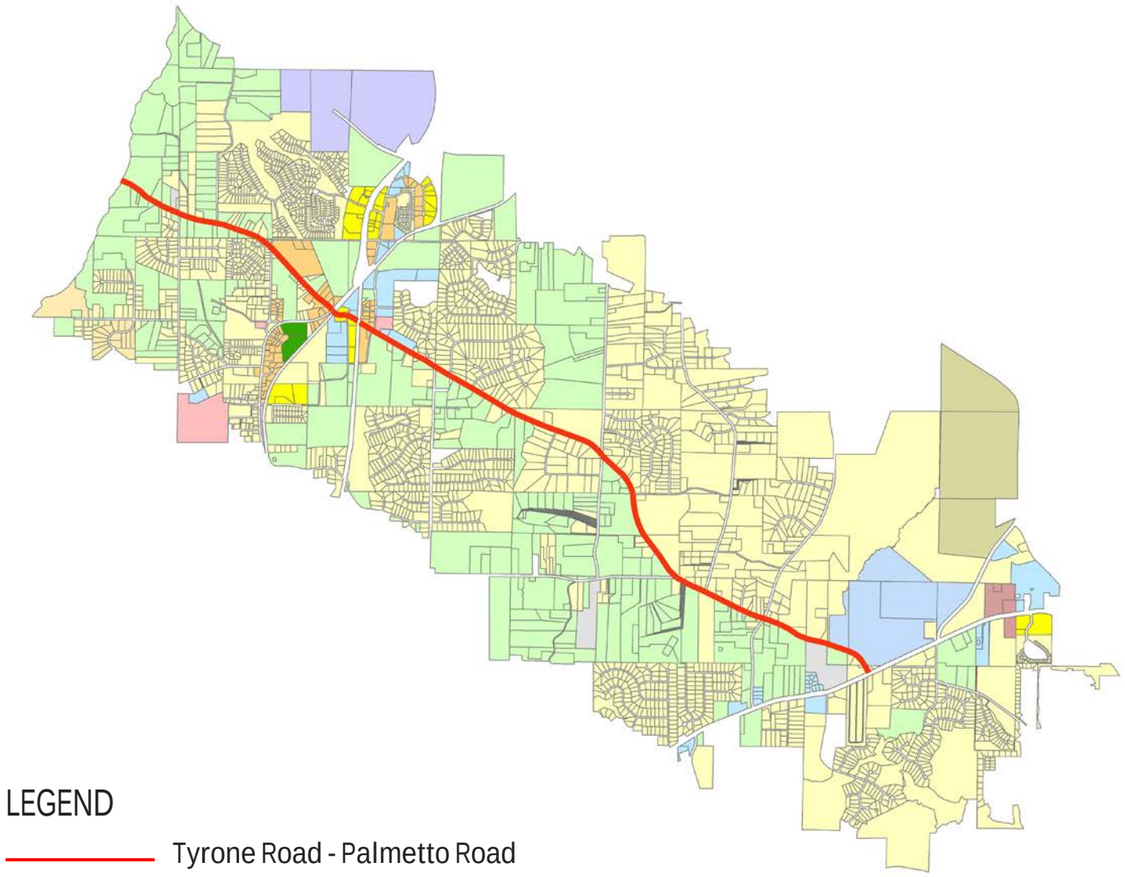
Commercial Usage

Commercial zoning is clustered at the intersection of the two roadways at SR 74 and at the end of the Tyrone Road, 206 parcels are zoned commercial. The zoning designations for the area are:

Table 1.5 - Commercial Zoning

CATEGORY	ZONING ENTITY	NO. OF PARCELS
• DOWNTOWN COMMERCIAL	FAYETTE COUNTY / TOWN OF TYRONE	88
• HIGHWAY COMMERCIAL	TOWN OF TYRONE / CITY OF FAYETTEVILLE	37
• EDUCATIONAL INSTITUTIONAL	TOWN OF TYRONE	3
• HEAVY INDUSTRIAL	FAYETTE COUNTY	3
• LIGHT INDUSTRIAL	FAYETTE COUNTY	2
• OFFICE INSTITUTIONAL	FAYETTE COUNTY / TOWN OF TYRONE / CITY OF FAYETTEVILLE	56
• OPEN SPACE	TOWN OF TYRONE	2
• SPECIAL ZONE	FAYETTE COUNTY	3
• PLANNED COMMUNITY DEVELOPMENT	CITY OF FAYETTEVILLE	3
• MEDICAL OFFICE	CITY OF FAYETTEVILLE	4
• BUSINESS PARK	CITY OF FAYETTEVILLE	5

Map 1.7 - Tyrone Road - Palmetto Road - Zoning



1.4 Roadway Infrastructure and Facilities

Per the Georgia Department of Transportation (GDOT) road classifications, Tyrone Road - Palmetto Road is classified as a minor arterial. The Tyrone Road – Palmetto Road corridor from the Fayette-Coweta County Line to SR 54 is approximately 6.2 miles. The land use along Palmetto Road-Tyrone Road is primarily single-family and agricultural residential. Moreover, there is an office/commercial node between Senoia Road and SR 74.

There is one travel lane in each direction, which is generally 11 feet wide, but varies depending on the precise location. There are turn lanes on Tyrone Road at SR 74. The average right-of-way along Tyrone Road-Palmetto Road varies. According to Fayette County's Thoroughfare Plan, minor arterials such as Tyrone Road-Palmetto Road will have 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

Map 1.8 - Tyrone Road - Palmetto Road - Intersections

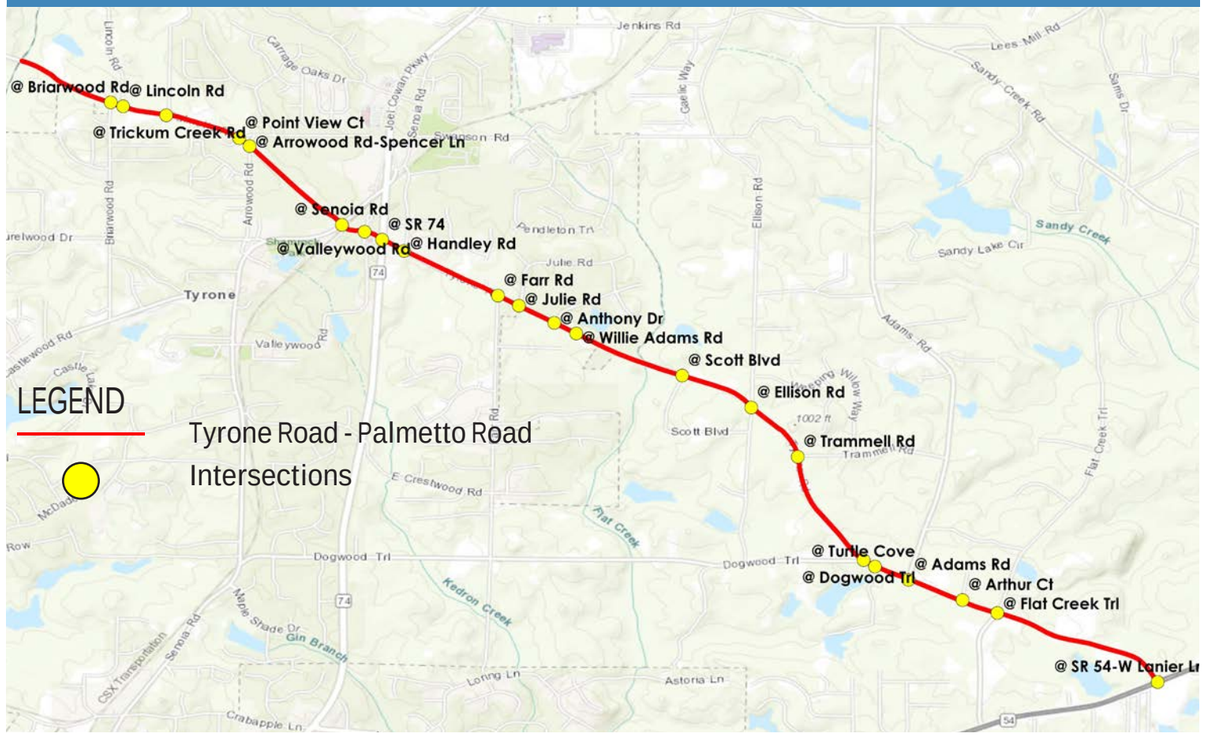


Table 1.6 - Tyrone Road - Palmetto Road Intersections

INT. NO	TYRONE ROAD-PALMETTO ROAD	TRAFFIC CONTROL
1	AT BRIARWOOD ROAD	T - INTERSECTION(NB)[1]
2	AT LINCOLN ROAD	T - INTERSECTION (SB)[1]
3	AT TRICKUM CREEK ROAD	T - INTERSECTION (SB)[1]
4	AT POINT VIEW COURT	T - INTERSECTION(NB)[1]
5	AT ARROWOOD ROAD-SPENCER LANE	ALL-WAY STOP CONTROL
6	AT SENOIA ROAD	ALL-WAY STOP CONTROL
7	AT VALLEYWOOD ROAD	TWSC (NB/ SB)[1]
8	AT SR 74/JOEL COWAN PARKWAY	TRAFFIC SIGNAL
9	AT HANDLEY ROAD	T - INTERSECTION (SB)[1]
10	AT FARR ROAD	T - INTERSECTION(NB)[1]
11	AT JULIE ROAD	T - INTERSECTION (SB)[1]
12	AT ANTHONY DRIVE	T - INTERSECTION (SB)[1]
13	AT WILLIE ADAMS ROAD	T - INTERSECTION(NB)[1]
14	AT SCOTT BOULEVARD	T - INTERSECTION(NB)[1]
15	AT ELLISON ROAD	TWSC (NB/ SB)[1]
16	AT TRAMMELL ROAD	T - INTERSECTION (SB)[1]
17	AT DOGWOOD TRAIL	T - INTERSECTION(NB)[1]
18	AT TURTLE COVE	T - INTERSECTION(NB)[1]
19	AT ADAMS ROAD	T - INTERSECTION (SB)[1]
20	AT ARTHUR COURT	T - INTERSECTION (SB)[1]
21	AT FLAT CREEK TRAIL	ALL-WAY STOP CONTROL
22	AT SR 54-W LANIER AVENUE	TRAFFIC SIGNAL

1. DENOTES WHICH MANEUVERS ARE RESTRICTED TO RIGHT-TURN ONLY.

There are a total of 22 intersections along Tyrone Road-Palmetto Road. There are two signalized intersections along the corridor, at SR 74/Joel Cowan Parkway and at SR 54/W Lanier Avenue. Palmetto Road at Arrowood Road-Spencer Road and at Senoia Road are both all-way stop controlled (AWSC). Tyrone Road at Flat Creek Trail is AWSC as well.

All other unsignalized intersections are side street stop controlled with Tyrone Road-Palmetto 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.

Bike/Pedestrian Facilities

There are no sidewalks along Tyrone Road-Palmetto Road. There is a small stretch of cart path from Senoia Road to SR 74. 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 13.9 miles*
- Union City Park & Ride – approximately 11.0 miles*
- Jonesboro Park & Ride – approximately 15.9 miles*

[* - Measured from the midpoint of the corridor (Tyrone Road at Anthony Drive)]

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 April 2019:

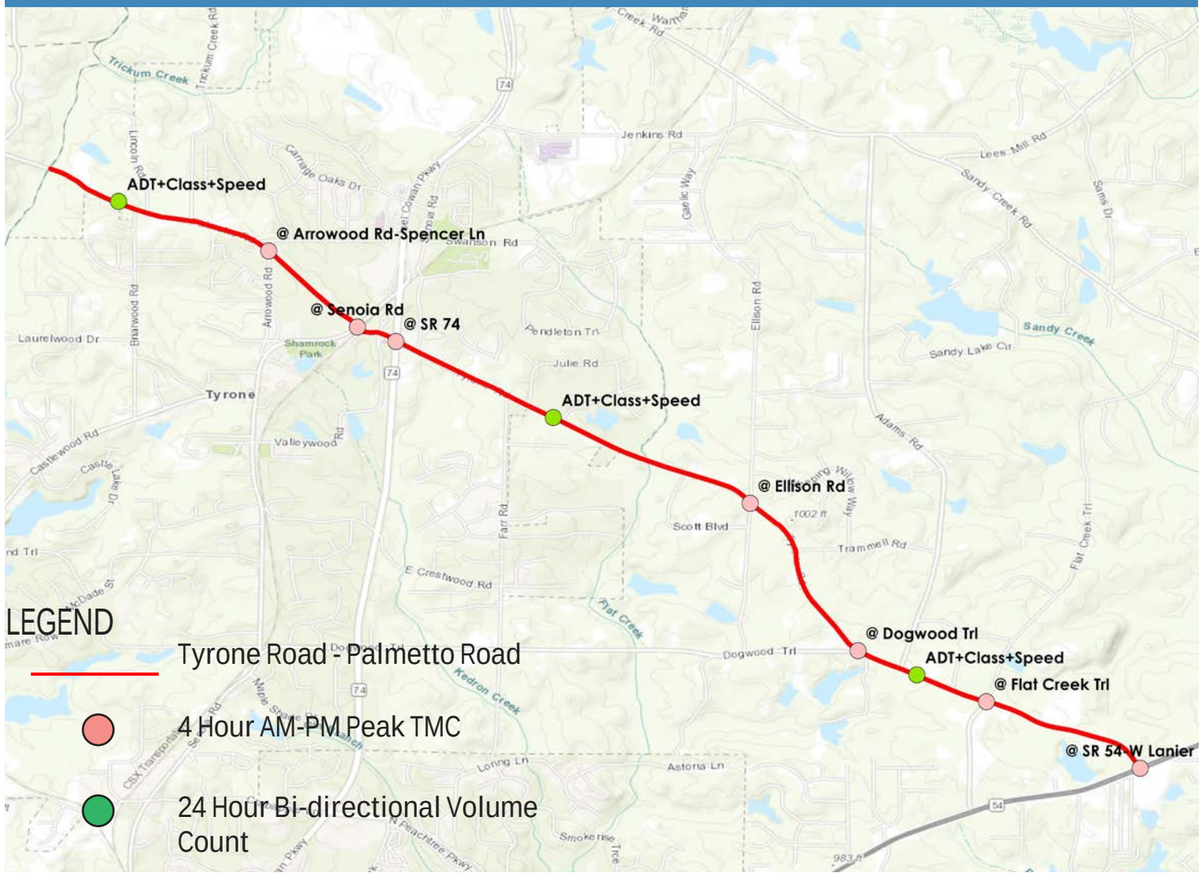
- Traffic was constant along the corridor including significant truck traffic.
- Speed limit is 35 mph and some intersections face limited sight distance challenges.
- At SR 54, the corridor begins with turn lanes and transitions into a two lane road with residential street intersections.
- There is approximately 50-60 feet right of way and the utilities cross back and forth from north to south side of road.
- The pavement at the intersection of Flat Creek Trail is rutting and bleeding.
- Dogwood Trail is a Y intersection in a downhill grade with limited sight distance.
- Continuing west, approaching the Town of Tyrone limits, there is limited sight distance with a visible sign discouraging "Jake brakes" indicating noticable truck traffic.
- Approaching SR 74 the road widens to 36-48', including turn lanes. The intersection has ADA compliant ramps and pedestrian signal with a cart path on the south side extending from SR 74 to Senoia Rd. The corridor transitions from residential to commercial zoning. Approaching the "SCL" Rail Road (operated by CSX), there is a divided road with an island containing "Crepe myrtles".
- At the intersection of Senoia Road, there is a constant flow of traffic turning and there is little storage room for traffic proceeding east after the tracks.
- There are small drainage structures that are in need of upgrades or require maintenance.
- At the intersection at Spencer Lane-Arrowood Road, longitudinal and transverse cracks are consistent.
- There appears to be ample room for future widening, with the exception of area coming out of Tyrone going west in commercial area.

Images 1.2 & 1.3 - Tyrone Road - Palmetto 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 - Tyrone Road - Palmetto Road - Traffic Count Locations



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

1. Palmetto Road east of Fayette-Coweta County Line
2. Tyrone Road east of Julie Road
3. Tyrone Road east of Dogwood Trail

Weekday 4-hour AM and PM Peak Period (7-9 AM and 4-6 PM) Turning Movement Count (TMC):

1. Palmetto Road at Arrowood Road-Spencer Lane
2. Palmetto Road at Senoia Road
3. Tyrone Road at SR 74/Joel Cowan Parkway
4. Tyrone Road at Dogwood Trail
5. Tyrone Road at Flat Creek Trail
6. Tyrone Road at SR 54-W Lanier Avenue

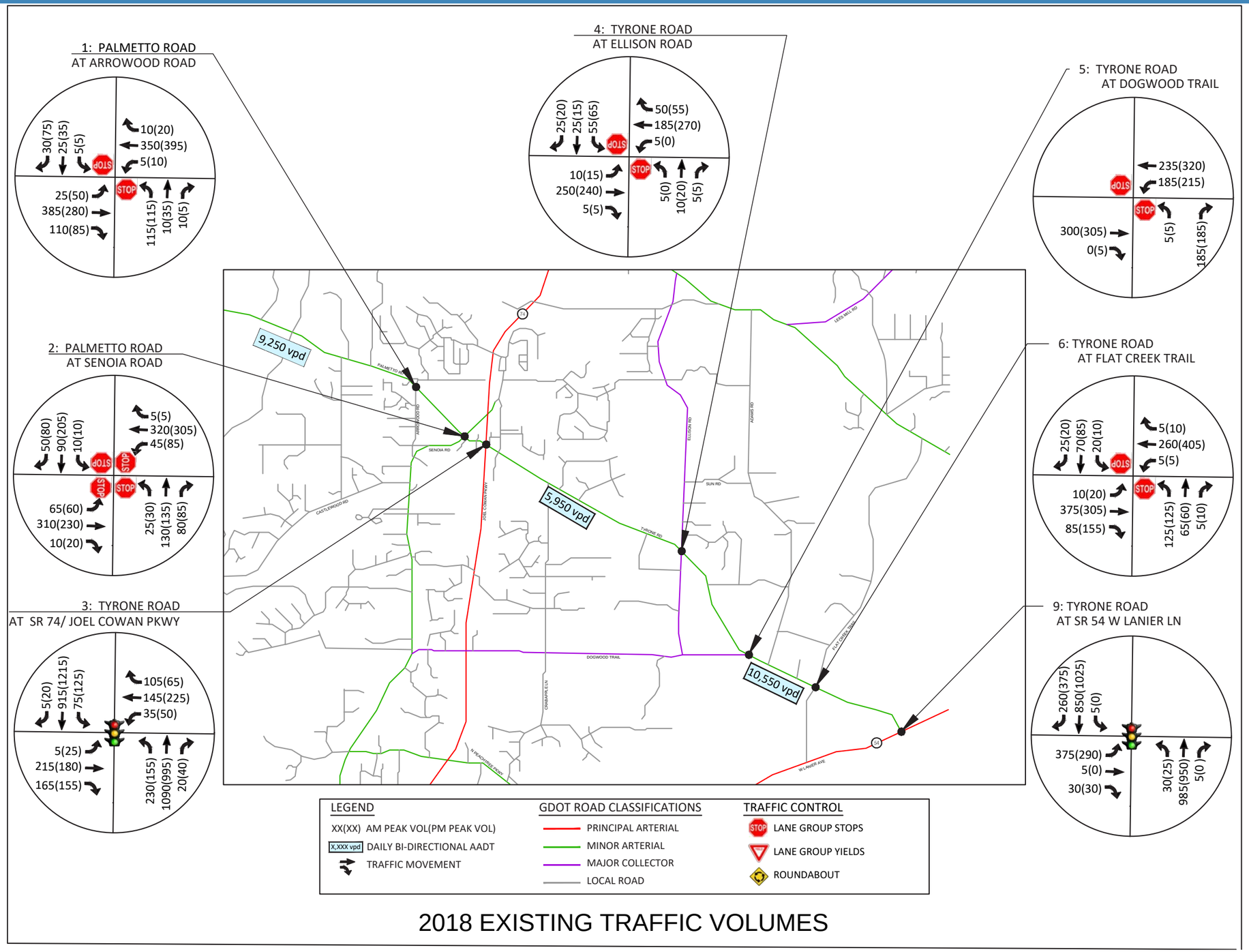
From the County line to SR 74, the average ADT is 10,141 vehicles. Between SR 74 and Dogwood Trail, the average ADT is 6,520 vehicles. Between Dogwood Trail to SR 54, the average ADT is 11,569 vehicles. Adjusting the April counts for daily and seasonal factors per GDOT standards, the Average Annual Daily Traffic (AADT) for the three aforementioned segments, are 9,250 vehicles, 5,950 vehicles, and 10,550 vehicles, respectively. Table 1.7 describes daily truck percentages along the corridor.

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 the corridor are shown in Figure 1.2.

Table 1.7 - Daily Truck Percentages

TYRONE ROAD - PALMETTO ROAD	SINGLE UNIT	COMBO	TOTAL
FROM COUNTY LINE TO SR 74	5.2 %	0.7 %	5.9 %
FROM SR 74 TO DOGWOOD TRAIL	6.6 %	0.5 %	7.1 %
FROM DOGWOOD TRAIL TO SR 54	4.5 %	0.0 %	4.5 %

Figure 1.2 - Tyrone Road-Palmetto Road - 2018 Existing 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. Data at the following count stations on minor arterials within the vicinity of Tyrone Road-Palmetto Road was collected:

1. Tyrone Road east of Farr Road
2. Tyrone Road east of Flat Creek Trail
3. Palmetto Road west of Spencer Lane
4. Collinsworth Road east of I-85
5. Senoia Road south of Palmetto Road

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

1. SR 54 north of Tyrone Road
2. SR 54 south of Tyrone Road
3. SR 74 south of Tyrone Road
4. SR 74 north of Tyrone Road

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

- 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

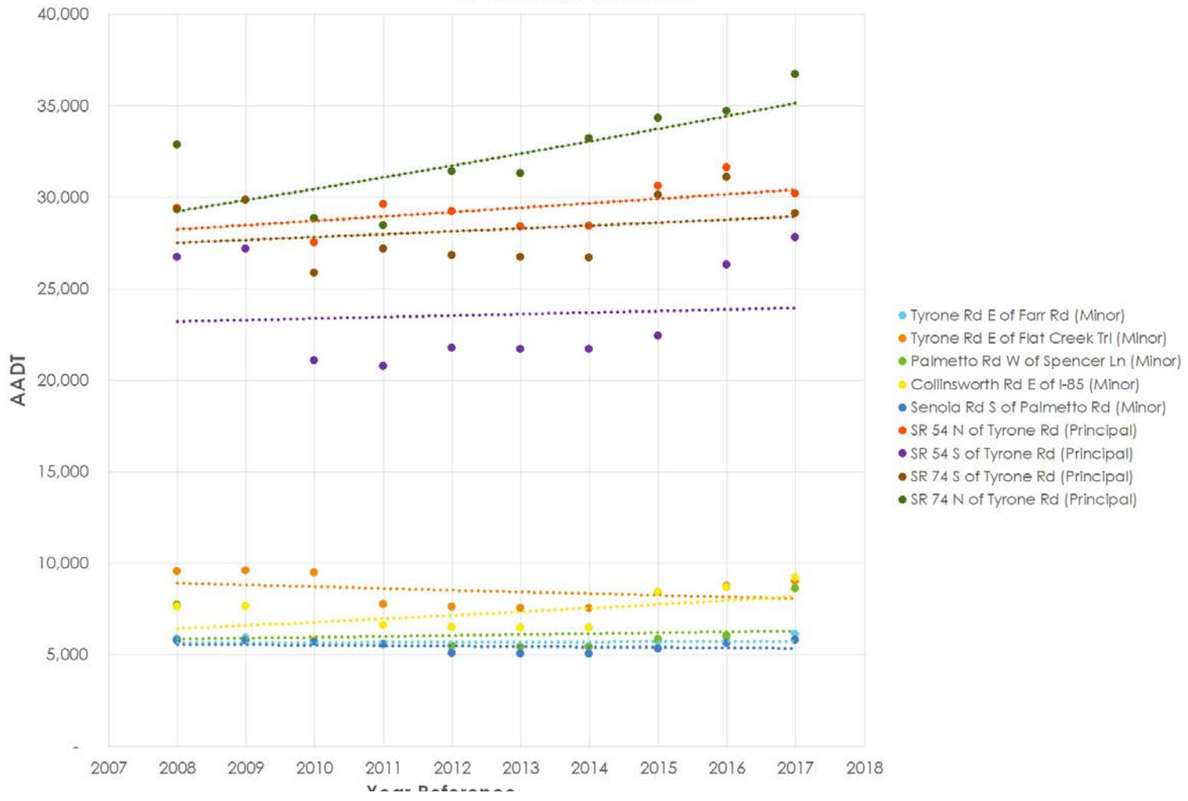
- Historical Growth Regression

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 0.85%. Figure 1.3, shows the Historical Growth Trends for Minor and Principal Arterials in the area.

Figure 1.3 - Historical Growth Trends for Tyrone Road - Palmetto Road and Other Arterials



- ARC Travel Demand Model

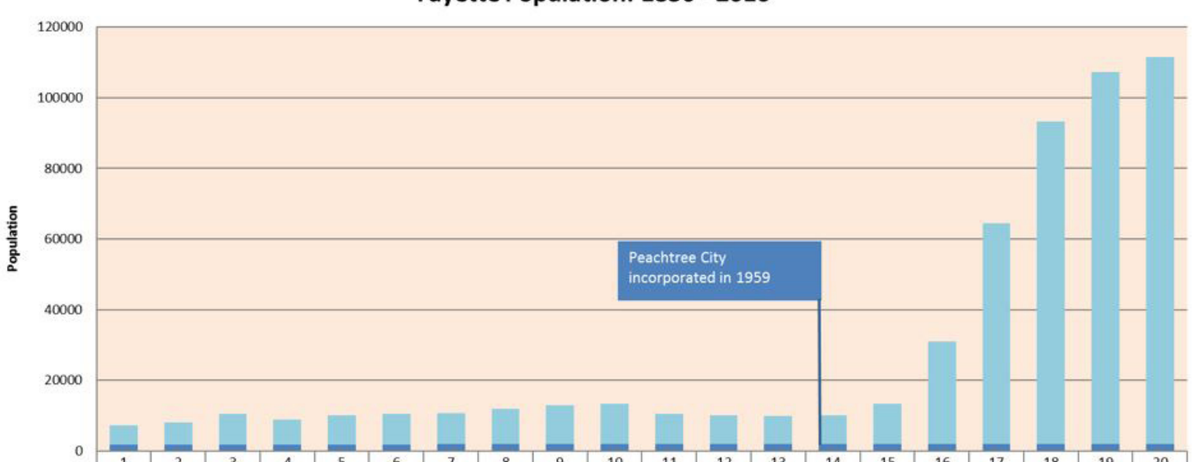
Since roadway improvements and socio-economic factors, such as population and employment change are incorporated into regional TDM, they provide realistic projections of future traffic volumes for a region. The ARC TDM forecasts data for 2015, 2020, 2030, and 2040 was used in the growth rate analysis.

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 1.4 shows the total population from 1830 to 2016 based on the latest estimates from the American Community Survey (ACS).

Figure 1.4 - 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

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 of 32,280 people, an annual growth rate of 1.16 percent.

- Proposed Future Annual Growth Rates

During the development of concepts for the Tyrone Road-Palmetto Road corridor, 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 Tyrone Road-Palmetto 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 motorist has the freedom to drive 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.

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 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 1.8.

Table 1.8 - 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 1.9, and the roadway LOS and volume-to-capacity ratio (V/C) are shown in Table 1.10. As shown, under the 2018 existing traffic conditions, all of the study intersections are operating at an acceptable LOS during the morning peak hour.

Table 1.9 - 2018 Existing Intersection Level of Service (LOS)						
	TYRONE ROAD-PALMETTO ROAD	TRAFFIC CONTROL	AM PEAK		PM PEAK	
1	AT ARROWOOD ROAD - SPENCER LANE	AWSC	C (24.7 S)		D (29.1 s)	
2	AT SENOIA ROAD	AWSC	C (21.4 S)		E (35.5 S)	
3	AT SR 74/JOEL COWAN PARKWAY	TRAFFIC SIGNAL	C (33.4 S)		D (38.0 S)	
4	AT ELLISON ROAD	SSSC*	B (13.7 S)	C (15.0 S)	B (14.1 S)	C (17.6 S)
5	AT DOGWOOD TRAIL	SSSC*	B (13.4 S)		B (12.4 S)	
6	AT FLAT CREEK TRAIL	AWSC	D (26.5 S)		E (41.6 S)	
7	AT SR 54/W LANIER AVENUE	TRAFFIC SIGNAL	C (27.6 S)		C (20.8 S)	

1. FOR ENTIRE CORRIDOR TYRONE ROAD-PALMETTO ROAD ORIENTATION IS EB/WB AND SIDE STREETS ARE NB/SB.
2. AWSC – ALL WAY STOP CONTROLLED.
3. FOR SIDE STREET STOP CONTROLLED (SSSC) INTERSECTIONS, LOS ARE REPORTED FOR THE SIDE STREET APPROACHES ONLY.

Table 1.10 - 2018 Existing Peak Hour Roadway Capacity Level of Service (LOS)				
TYRONE ROAD-PALMETTO ROAD	AM PEAK		PM PEAK	
	LOS	V/C[1]	LOS	V/C[1]
BETWEEN FAYETTE-COWETA COUNTY LINE AND SR 74	D	0.35	D	0.37
BETWEEN SR 74 AND DOGWOOD TRAIL	C	0.19	C	0.24
BETWEEN DOGWOOD TRAIL AND SR 54	D	0.35	D	0.34
1. V/C - VOLUME TO CAPACITY RATIO				

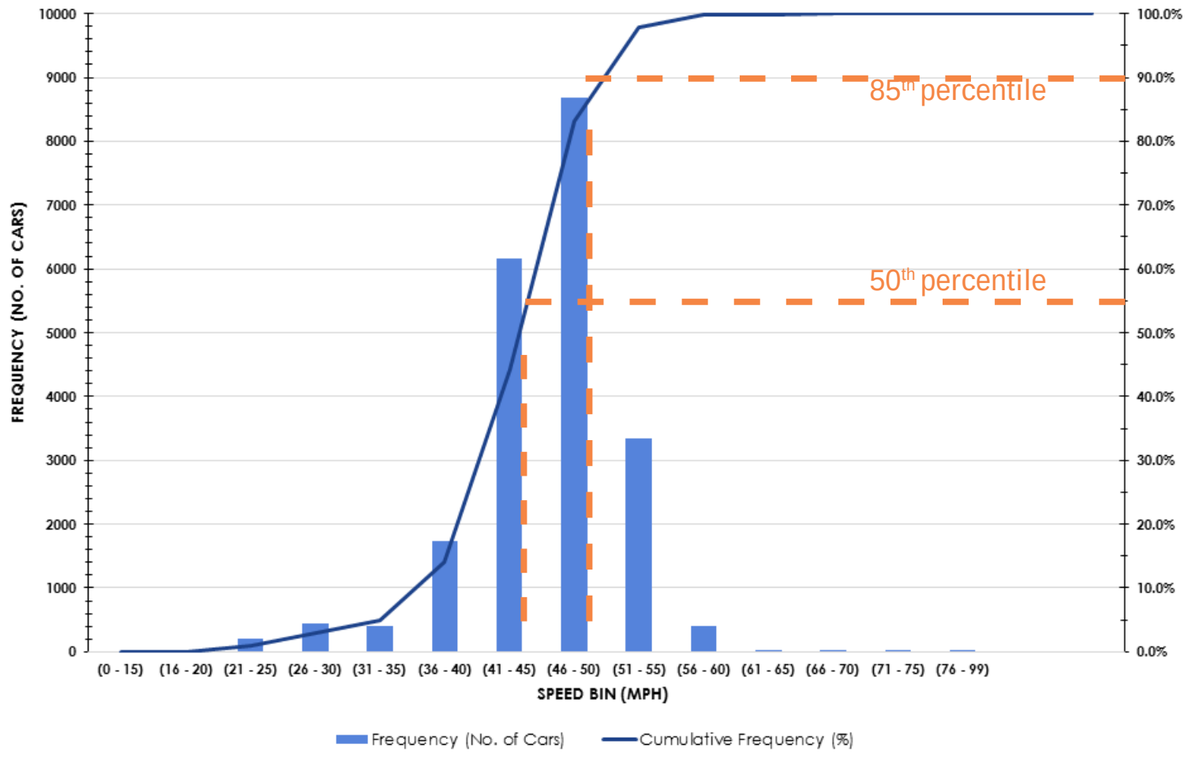
In the afternoon peak hour, all of the study intersections are operating at an acceptable LOS except at Flat Creek Trail. In terms of roadway capacity, Tyrone Road between SR 74 and Dogwood Trail is operating at LOS C during both peak hours. From the county line to SR 74 and from Dogwood Trail to SR 54, Tyrone Road-Palmetto Road is operating at LOS D during both the morning and afternoon peak hour.

Safety Analysis

- Speed Study -

Vehicle speeds were obtained for Tyrone Road-Palmetto Road eastbound and westbound travel directions in April 2018 at three points along the corridor. Figure 1.5 shows the average cumulative speed distribution along Tyrone Road Palmetto Road.

Figure 1.5 - Tyrone Road-Palmetto Road - Cumulative Speed Distribution (Average)



As shown, the 85th percentile speed along Tyrone Road-Palmetto Road is approximately 50 mph. The 10 mph pace along the corridor was 41 mph to 51 mph. Given the posted speed limit along Tyrone Road – Palmetto Road ranges from 30 mph to 40 mph, these results indicate that vehicles along the corridor are typically exceeding the speed limit which creates a safety concern.

- 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 Tyrone Road-Palmetto Road between November 2013 and October 2018.

Crash Data by Type, Five-Year Crash History, and Time-of-Day are shown in Figure 1.6, Figure 1.7 and Figure 1.8, respectively. Figure 1.9 shows the total number of crashes per intersection. Property Damage Only (PDO), injuries, and fatalities resulting from car crashes along Tyrone Road-Palmetto Road for this Five-year period are shown in Table 1.11.

This data demonstrates Tyrone Road-Palmetto Road's crash rate is lower in every category when compared to the statewide average for minor arterials. Approximately 24% of the crashes during this time period resulted in one or more injuries. There was one fatality just east of the Fayette-Coweta County line resulting from a vehicle going off road in January 2017. The average number of crashes occurring on Tyrone Road-Palmetto Road is 66 crashes per year.

Figure 1.6 - Tyrone Road-Palmetto Road - Five Year Crash Data by Type

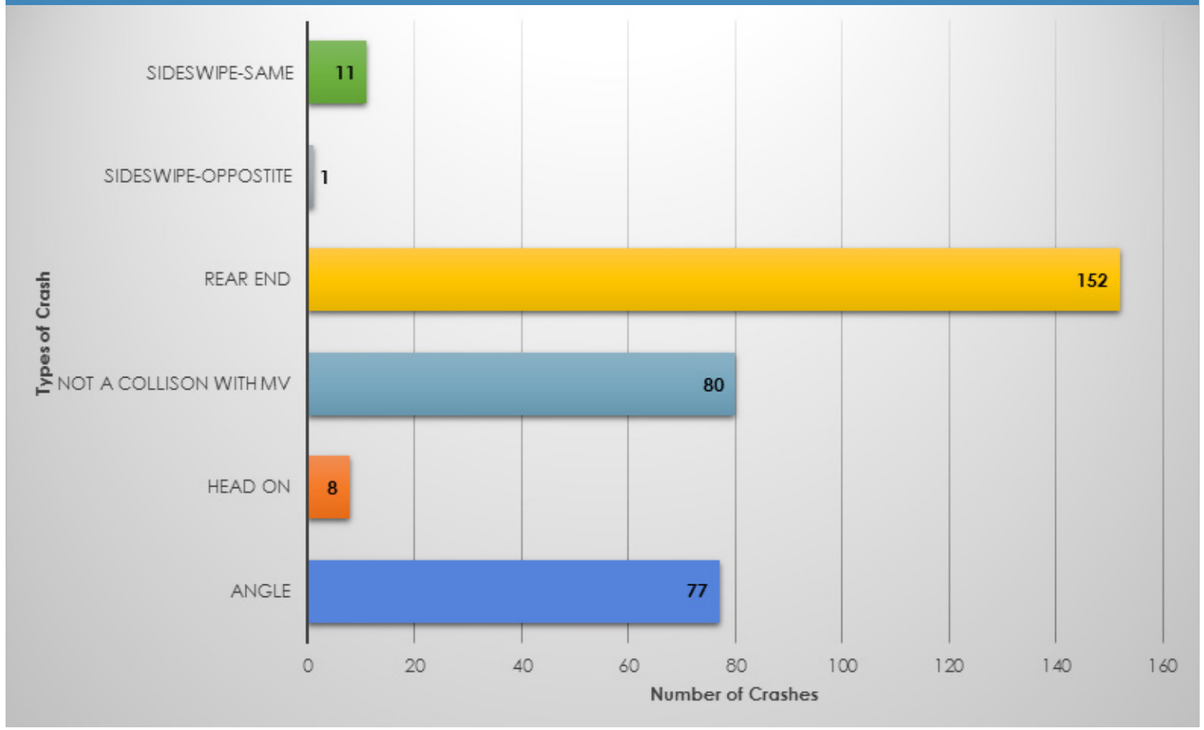


Figure 1.7 - Tyrone Road-Palmetto Road - Five Year Crash History by Type

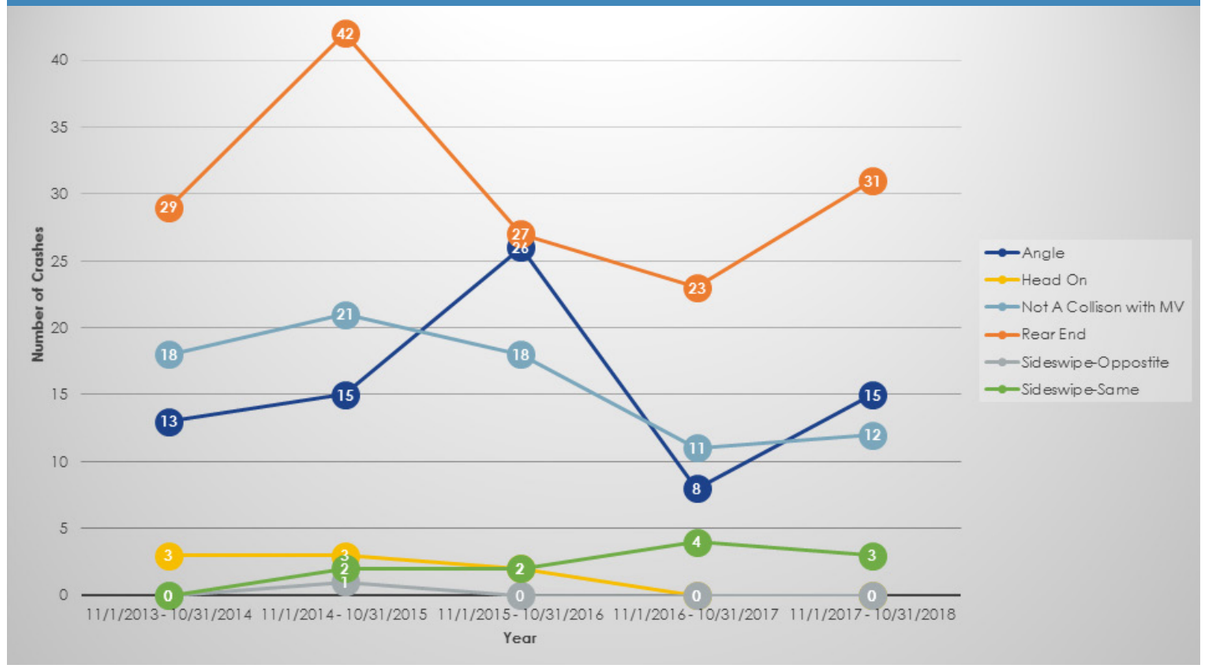


Figure 1.8 - Tyrone Road-Palmetto Road - Total Crashes by Time-of-Day

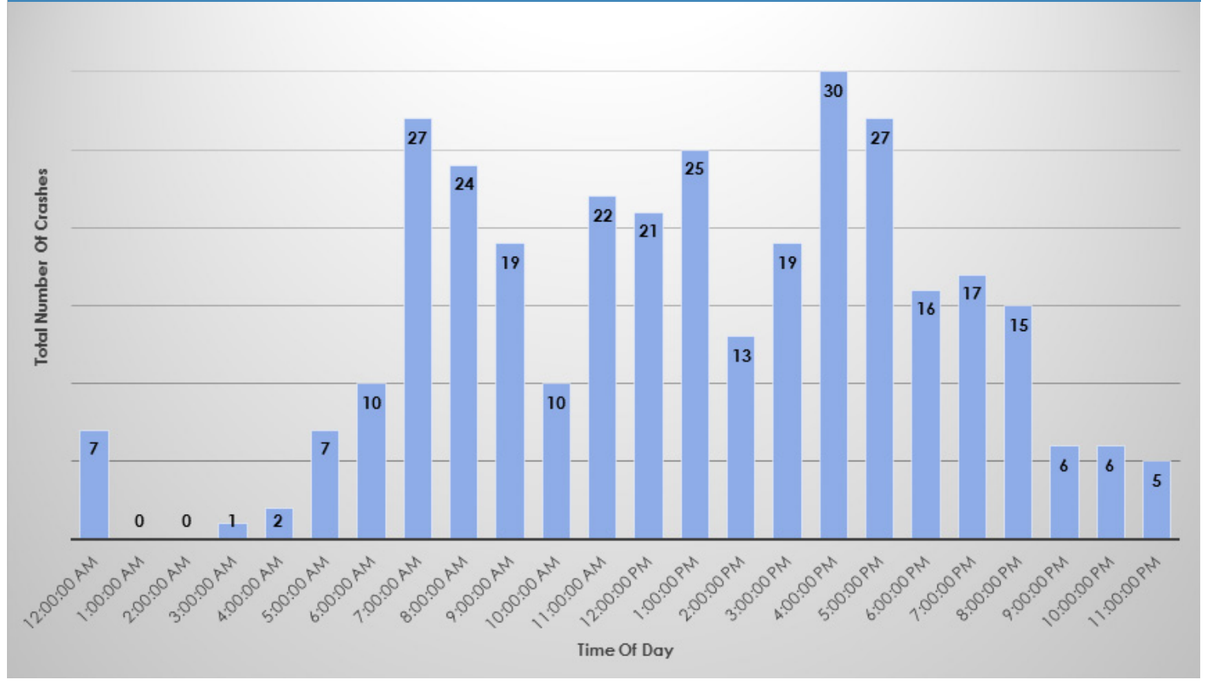
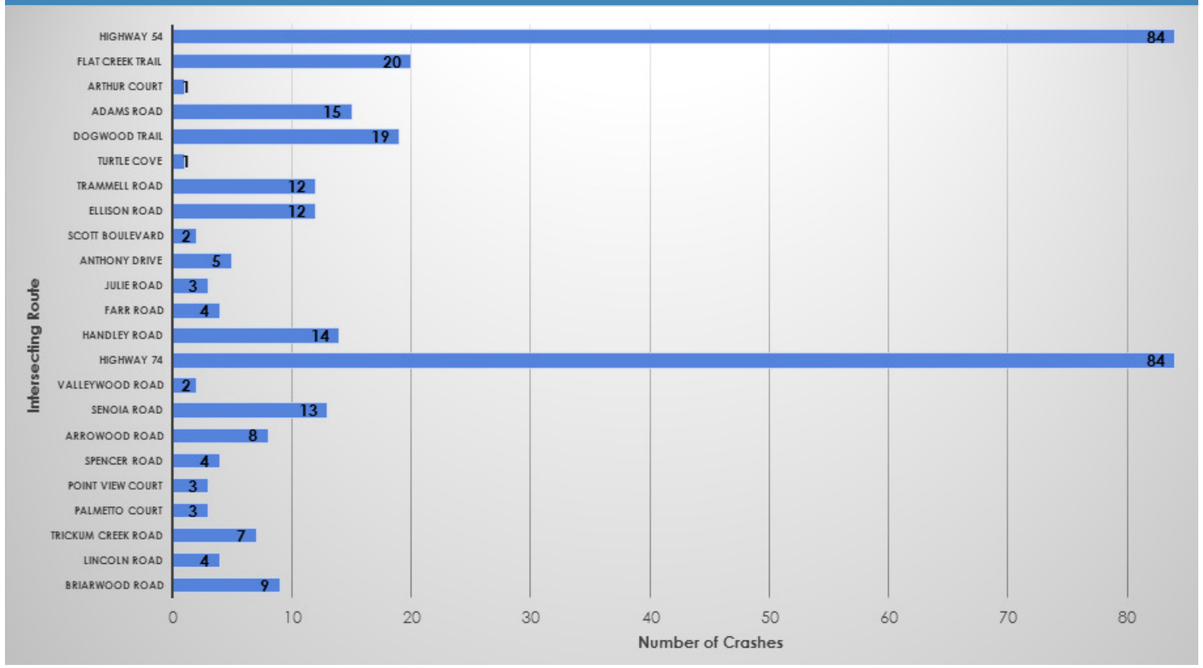


Figure 1.9 - Tyrone Road-Palmetto Road - Total Crashes per Intersection



Map 1.10 - Tyrone Road-Palmetto Road - Crashes Heat Map

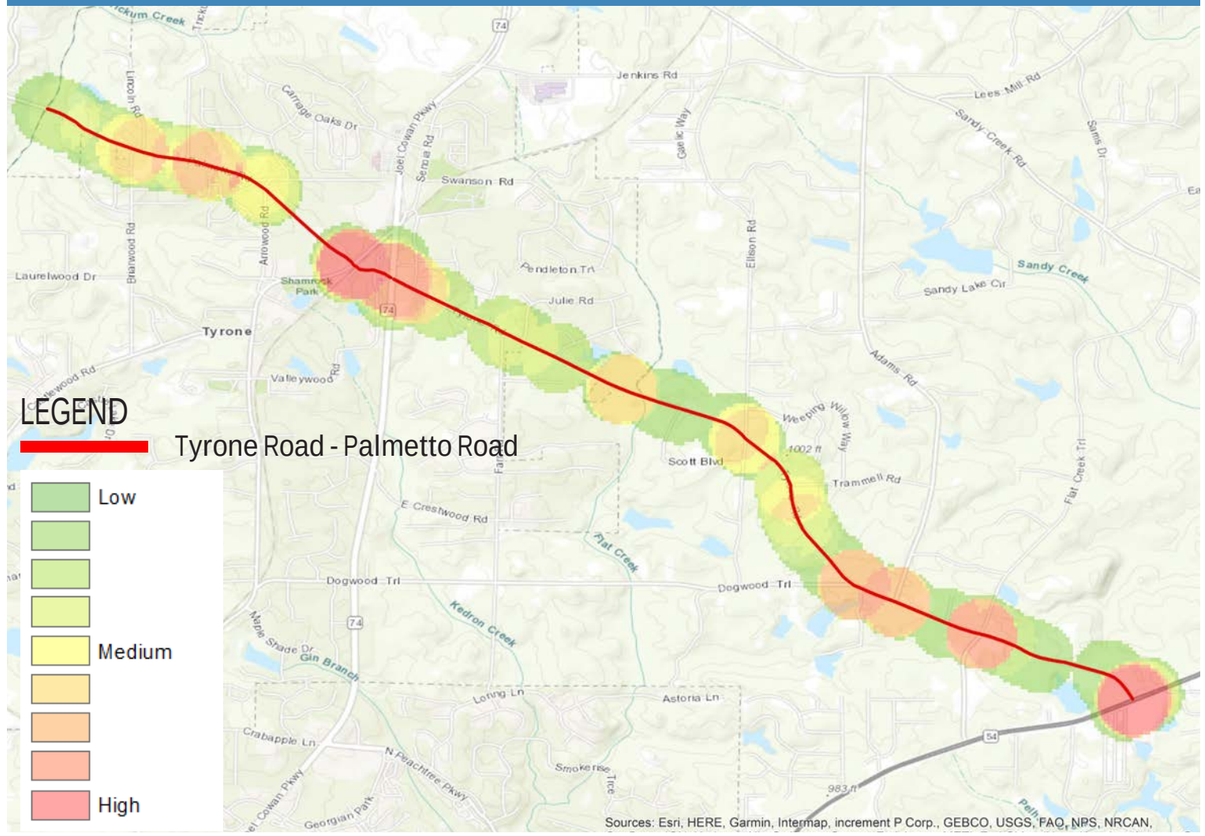


Table 1.11 - Tyrone Road-Palmetto Road Crash Rates Relative To State Averages

	TYRONE ROAD - PALMETTO ROAD 5-YEAR CRASHES	TYRONE ROAD - PALMETTO ROAD CRASH RATE [1]	STATEWIDE AVG. CRASH RATE (2017) [1]
TOTAL CRASHES	329	309	506
TOTAL INJURY ACCIDENTS	80	75	124
TOTAL INJURIES	110	103	186
TOTAL FATAL ACCIDENTS	1	1	1.72
TOTAL FATALITIES	1	1	1.86

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

1.6 Environmental Due Diligence

The purpose of the survey was to identify sensitive environmental land uses 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 were surveyed including natural, cultural, community, and physical resources in the general vicinity of the Palmetto Road - Tyrone Road study corridor.

In the study corridor, Tyrone Road extends from Senoia Road to SR 54. The roadway consists of two travel lanes with rural shoulders. Land use along the Tyrone Road portion of the study corridor is primarily residential and agricultural with some commercial and institutional use. A sample of sensitive environmental land uses that were identified along the Sandy Creek Road 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 needed to determine type of environmental and historic resources that need to be protected in the jurisdiction. The Palmetto Road - Tyrone Road Due Diligence report along with the Environmental Resources Location map are attached in the appendix.

Image 1.5 - Little Vine Baptist Church

Image 1.4 - Line Creek

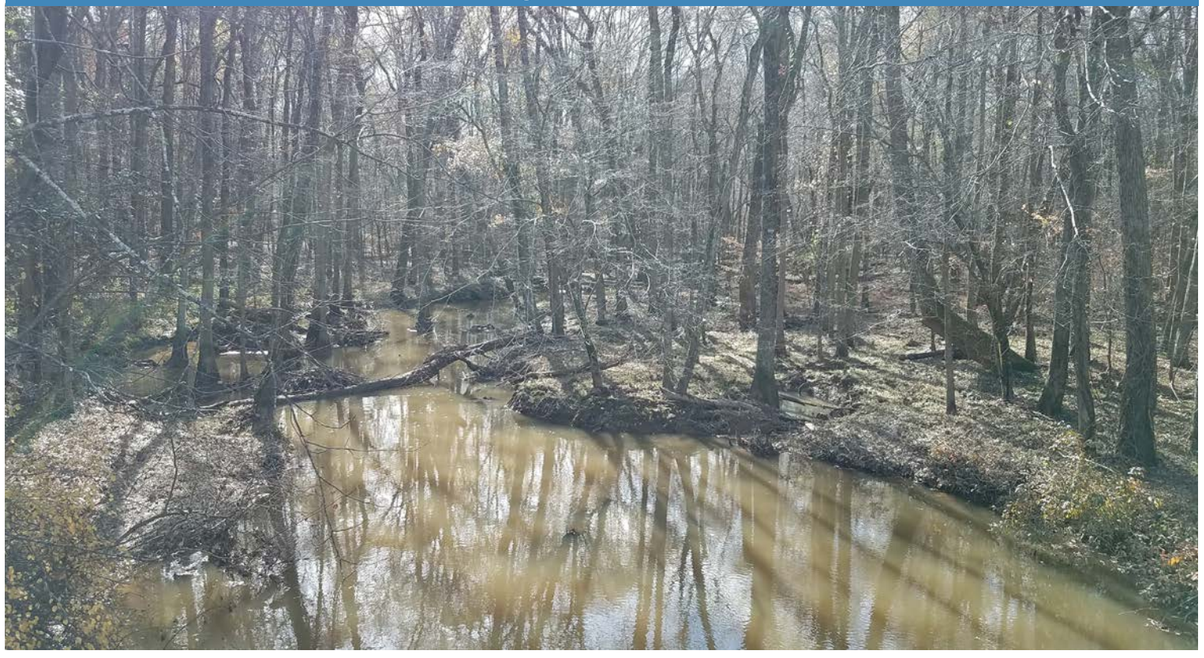


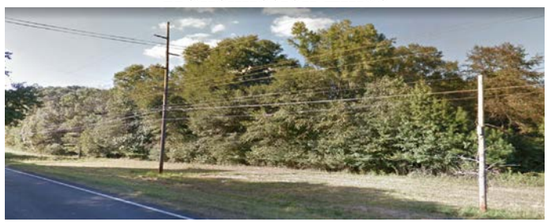
Image 1.6 - Potential Historic Resource

1.7 Utilities

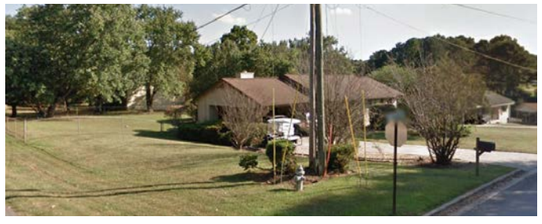
This section of the report presents an inventory of existing utilities along the corridor. Map 1.11 represents the location, description and photos of these utilities are presented below. Prior to design and construction in the area, coordination with appropriate approval agencies would be needed to determine type of utilities that need to be protected.

A
Large Drainage Culvert

B
Wood & Metal Distribution/
Transmission Lines



C
Fire Hydrant



D
Gasline Along North Side of the Road

E
AGL Gas Marker

F
Power/ Telephone Cabinets Off Railway

G
Railroad Crossing Looking North

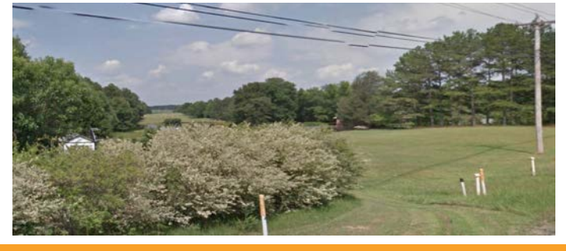
H
Looking South East towards
Railroad Crossing

I
Looking Northeast at
Utility Facilities for AGL

J
Gas Pipeline Marker

K
Utility Equipment Cabinets
AT&T Underground Cable

L
Existing Gas Line

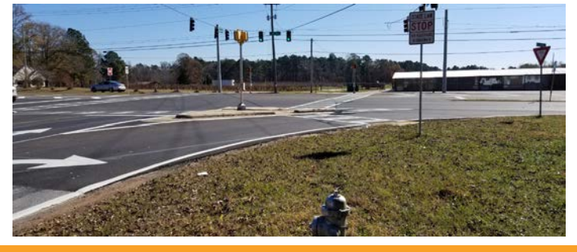


M
Looking Northwest William National Gas
Pipeline Crossing

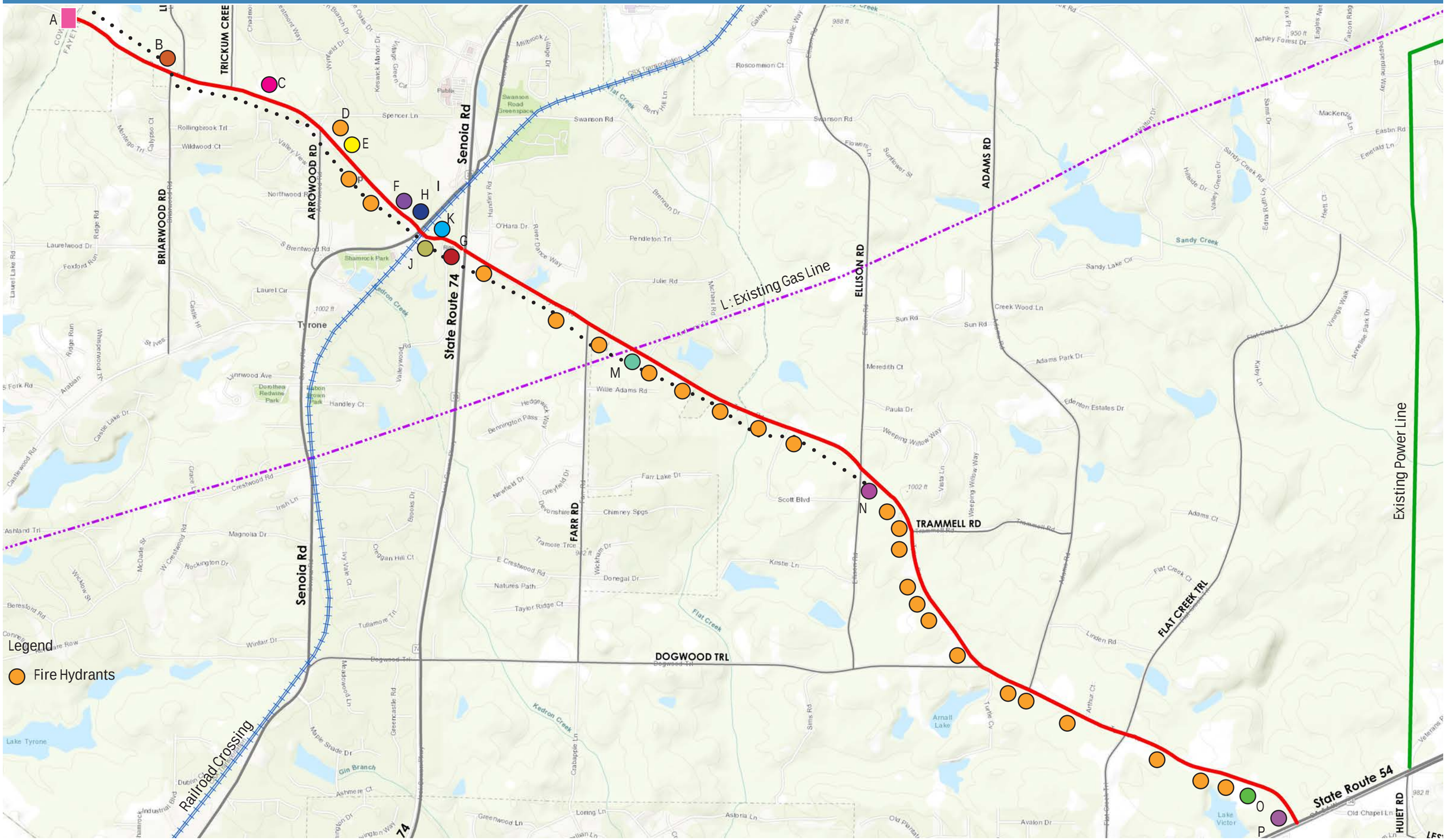
N
Major Utility Cabinet Grouping
for AT&T U.G. at Ellison Road

O
Looking Northwest AGL Facilities Group

P
Looking South Intersection at SR 54
Pedestrian Signals



Map 1.11 - Tyrone Road - Palmetto Road - Utilities



1.8 Summary

Tyrone Road and Palmetto Road are important corridors in the northwestern quadrant of Fayette County. Tyrone Road provides mobility between State Route 54 and Senoia Road in Tyrone extending into Palmetto Road, a 1.7 mile roadway starting from Senoia Road to the I-85 Interchange. It also provides connectivity for the abutting property owners and intersecting local streets. The corridor has one through lane, typically 11 feet wide for each direction of travel (with turn lanes on Tyrone Road at SR 74); has a posted speed limit ranging from 30 mph to 40 mph and a total of 22 intersections (two signalized, all other unsignalized intersections are side street stop controlled). The corridor has no sidewalks, however there is a small stretch of cart path from Senoia Road to SR 74. There are no fixed transit routes that serve Fayette County. The only transit service is demand responsive provided by Senior Services and different private carriers.

There is one railroad at-grade crossing near the Tyrone Road and Palmetto Road intersection near Senoia Road. The abutting land use is primarily residential with an office/commercial node between Senoia Road and SR 74. An investigation of the demographic make-up of the citizens within 1-mile of the corridor (data source was the 2016 American Community Survey at the block grant level) reveals that the male to female ratio is close to 50%; approximately 70% of the citizens are white; approximately 24% have completed high school; and the mean median household income is $40,310.

The average annual daily traffic along Tyrone Road – Palmetto Road ranges from 5,950 vehicles to 10,550 vehicles, and the daily truck percentage along the corridor ranges from 4.5% to 7.1%. The morning and afternoon peak hours begin at 7 AM and 5 PM, respectively. Under the existing traffic conditions, only the intersection of Tyrone Road at Flat Creek Trail during the afternoon peak hour is operating at an undesirable LOS, LOS E. In terms of roadway capacity, the corridor itself is operating at an acceptable LOS. From collected speed data, the 85th percentile speed is 50 mph, approximately 10 mph over the posted speed limit.

For the recent 5-year period ending October 2018, an analysis of crash records from GEARS revealed 329 crashes with one resulting in a fatality. The most crash occurrences were rear-ends and the second most being a single vehicle collision not with another motor vehicle. The majority of the crashes are clustered at the Highway 54 and Highway 74 intersections. Approximately 24% of the crashes resulted in an injury. Tyrone Road-Palmetto Road's crash rate is lower in every category when compared to the statewide average for minor arterials.

An environmental survey revealed that the corridor is located within the Line Creek Watershed, a High Priority Watershed. There are three streams crossing the corridor with two potential regulatory wetlands or floodplains identified. There are two special flood hazard areas crossing the study corridor. Preferred habitats of federal and state protected species were identified. In addition to two churches, one cemetery, thirteen potential historic resources were recognized. Investigation of the corridor has identified no other community resources. Four underground storage tanks (USTs) were identified. No potential contamination sites such as landfills or potential hazardous waste sites were identified. Ultimately, prior to any construction activities detailed studies would need to be conducted and coordination completed with the appropriate environmental reviewing agencies.

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 Tyrone Road - Palmetto 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.

Tyrone Road is a 4.5-mile major road extending from State Route 54 to Senoia Road in Tyrone. Palmetto Road is a 1.7 mile roadway starting from Senoia Road to the Coweta County border. Both roads are critical to transportation and economic growth.

Image 2.1 - Tyrone Road - Palmetto 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 Tyrone Road - Palmetto Road Transportation 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 -

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

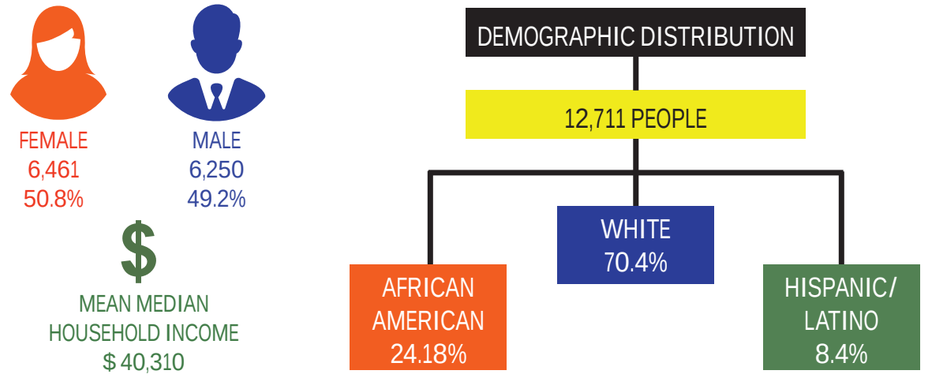
Various data sources and tools were used throughout the analysis. Data sources such as existing transportation, land use and demographic data were used in combination with travel demand modeling and crash data to develop the basis for existing and future needs. Some of the data sources are spatial and 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 chapter.

- **Demographic Character -**

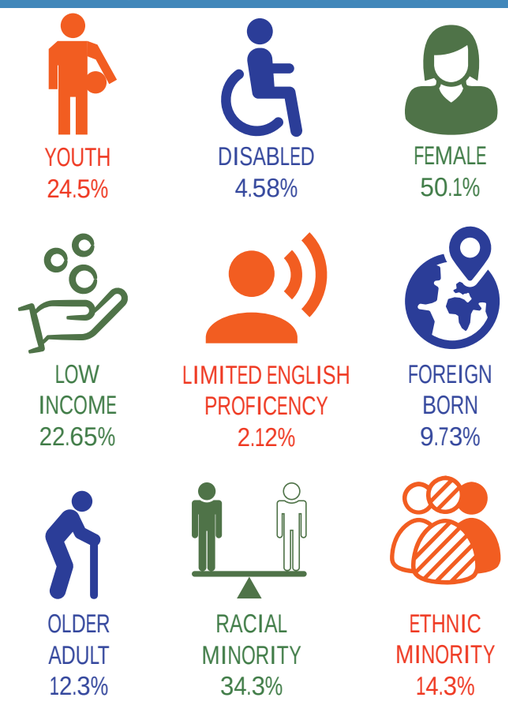
Graphic 2.4 represents the demographic character of the corridor. For this analysis, the 2016 American Community Survey (ACS) – 5 Year estimates data was used at the block group level (the smallest scale of data availability) for block groups that included the Tyrone Road - Palmetto Road corridor. Title 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 Tyrone Road - Palmetto Road corridor lies majorly in Fayette County's census tract 1402.03 and trail into census tract 1402.04. Census tract 1402.03 has an average cumulative score of 14 for the Protected Classes Model and an equity score of 4 for the Racial Minority, Ethnic Minority, and Low-Income Model. Census tract 1402.04 has an average cumulative score of 17 for the Protected Classes Model and an equity score of 7 for the Racial Minority, Ethnic Minority, and Low-Income Model.This means that according to the index, the corridor study area has a moderate rank, and is placed not too high or too low in the index.[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



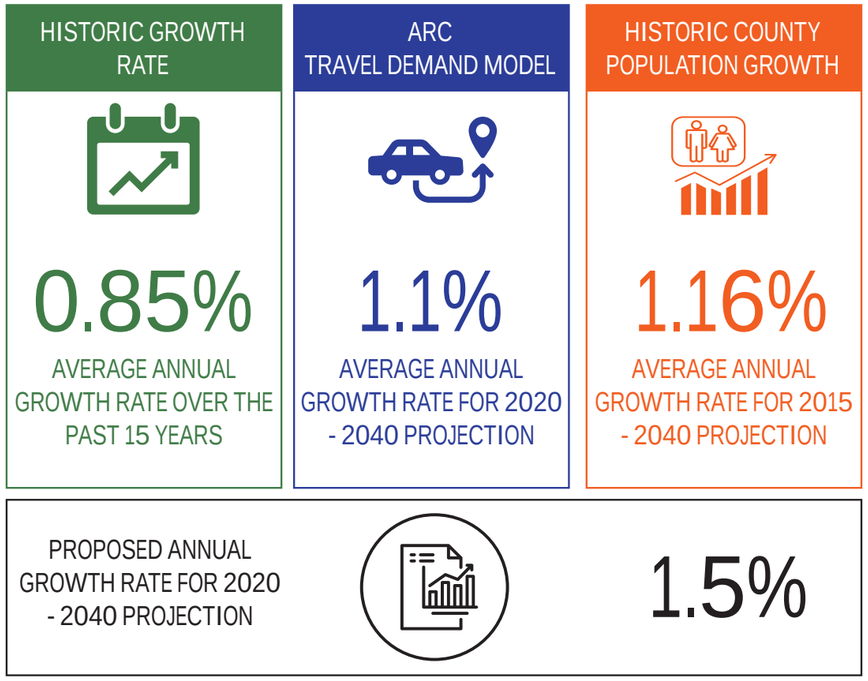
[1] - For more in-depth understanding of the equity analysis, refer to Chapter 1 - Existing Conditions Report. Percentage values reflect percentage of population in the census tracts. Since Tyrone Road - Palmetto Road have two census tracts in concern, average values were estimated for the corridor.

- **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 Tyrone Road-Palmetto Road. The historic population growth in Fayette County was also reviewed to establish projected traffic growth in the area.

DRIs currently under review or construction were reviewed, one of which, Founders Studio/ Founders Square (DRI 2830) directly impacts the intersection of Tyrone Road-Palmetto Road and SR 74. Additionally, it is important to note the development potential of undeveloped land between Tyrone Road, Sandy Creek Road and north of SR 54 that can become a mix of land uses in the future.

Graphic 2.6 - Future Growth Projections



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

It is evident that roadway improvements are needed along Tyrone Road-Palmetto Road to accommodate the impacts of the planned developments and substantial truck traffic along the corridor. Moreover, the Town of Tyrone's Future Land Use Map identify the central portion of the corridor from Spencer Lane to Farr Road as commercial and town center district. The land uses indicate the need for bicycle and pedestrian improvements to promote active transportation in the area so that the benefits of a downtown center can be fully realized by the community.

In terms of bike-pedestrian infrastructure, the Master Path Plan currently under review will ultimately identify additional opportunities for path connections that will tie in to the county's overall a bicycle and pedestrian network. Graphic 2.6 represents the future growth projections.

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

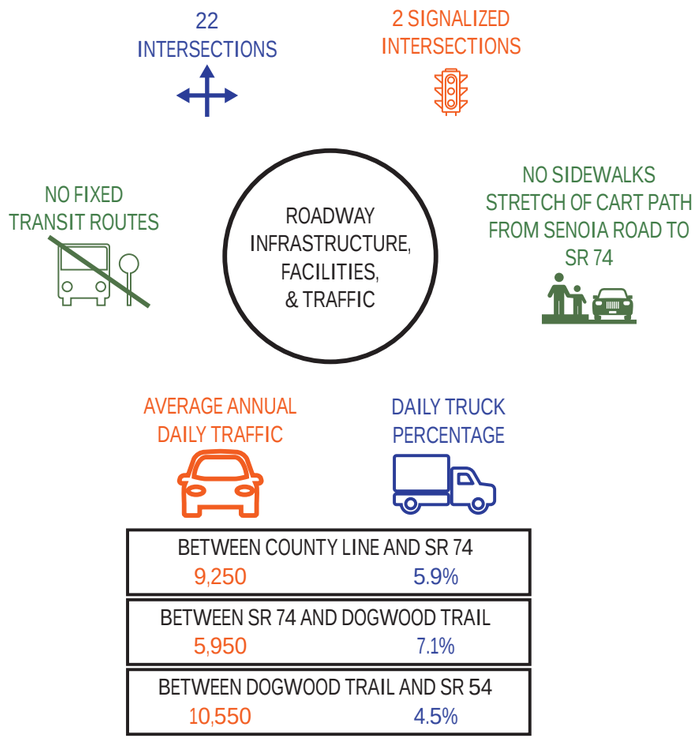
Per the Georgia Department of Transportation (GDOT) road classifications, Tyrone Road-Palmetto Road is classified as a minor arterial. The Tyrone Road-Palmetto Road corridor generally consists of residential parcels on both ends of the corridor and commercial land uses near the center of the corridor.

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:

- One 11-foot wide travel lane in each direction
- Separate turn lanes in some locations
- 12 intersections
- 2 signalized intersections
- 1 Roundabout at Spencer Lane-Arrowwood Road under design

Graphic 2.7 - Roadway Infrastructure & 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 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.

By the 2040 design year, significant delays will be experienced at Senoia Road, SR 74/Joel Cowan Parkway, and Flat Creek Trail. Deficiencies begin to emerge at Dogwood Trail during the morning peak hour.

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

	TYRONE ROAD - PALMETTO ROAD[1]	TRAFFIC CONTROL	AM PEAK		PM PEAK	
1	AT ARROWOOD ROAD - SPENCER LANE	ROUNDABOUT	C (17.0 S)		C (23.0 S)	
2	AT SENOIA ROAD	AWSC	F (109.6 S)		F (159.3 S)	
3	AT SR 74/JOEL COWAN PARKWAY	TRAFFIC SIGNAL	E (76.1 S)		E (69.0 S)	
4	AT ELLISON ROAD	TWSC (NB/SB)	C (17.0 S)	D (27.5 S)	C (17.3 S)	E (39.4 S)
5	AT DOGWOOD TRAIL	T-INTERSECTION (NB)	D (26.6 S)		C (21.6 S)	
6	AT FLAT CREEK TRAIL	AWSC	F (146.8 S)		F (176.9 S)	
7	AT SR 54/W LANIER AVENUE	TRAFFIC SIGNAL	D (41.1 S)		C (30.3 S)	

1. FOR ENTIRE CORRIDOR TYRONE ROAD-PALMETTO 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.

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 Tyrone Road-Palmetto Road was evaluated for three 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 capacity of Sandy Creek Road if no improvements were made to the corridor.

Table 2.2 - 2040 Horizon Peak Hour Roadway Capacity Level of Service (LOS)

TYRONE ROAD - PALMETTO ROAD	AM PEAK		PM PEAK	
	LOS	V/C[1]	LOS	V/C[1]
FROM COUNTY LINE TO SR 74	D	0.44	D	0.46
FROM SR 74 TO DOGWOOD TRAIL	C	0.23	C	0.28
FROM DOGWOOD TRAIL TO SR 54	D	0.44	D	0.45

1. V/C - VOLUME TO CAPACITY RATIO

In terms of road capacity, the Tyrone Road-Palmetto Road corridor will continue to operate at an acceptable LOS. Given the potential developments in the area and growing need for east-west travel, the capacity of Tyrone Road-Palmetto Road may degenerate in future years.

- **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 Tyrone Road – Palmetto Road from the Fayette-Coweta county line to SR 54.

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 2.8 represents key takeaways from the RSA. For detailed assessment, refer to the Road Safety Audit document attached in the appendix.

Overall Takeaways from the RSA -

- There was a steady flow of traffic along Tyrone Road-Palmetto Road, specifically truck traffic.
- Limited shoulder present along certain stretches safety issues for drivers.
- Overgrown vegetation along the corridor limits sight distance at certain of intersections.
- Significant number of off-roadway crashes.

Image 2.2 - Team Conducting Road Safety Audits

Graphic 2.8 - Road Safety Audit Findings

LIMITED SHOULDER PRESENT ALONG CERTAIN STRETCHES SAFETY ISSUES FOR DRIVERS

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

STEADY FLOW OF TRAFFIC SPECIFICALLY TRUCK TRAFFIC

SIGNIFICANT NUMBER OF OFF-ROADWAY CRASHES

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 2.3 shows the roadway crash rate along Tyrone Road-Palmetto Road relative to the statewide average for minor arterials.

Table 2.3 - Tyrone Road - Palmetto Road Crash Rate for Corridor			
	TYRONE ROAD - PALMETTO ROAD 5 -YEAR CRASHES	TYRONE ROAD - PALMETTO ROAD CORRIDOR CRASH RATE[1]	STATEWIDE AVG CRASH RATE (2017)[1]
ALL CRASHES	220	145	506
TOTAL NON-FATAL INJURY CRASHES	54	107	124
TOTAL FATAL CRASHES	1	3.05	1.7
1. CRASHES PER 100 MILLION VEHICLE-MILES TRAVELED.			

Tyrone Road-Palmetto Road crash rates indicate that its rate of total crashes and crashes involving injuries falls below the statewide average; however, Tyrone Road-Palmetto Road's crash rates for fatal accidents is higher than the statewide average for minor arterials.

For the intersection crash rates, statewide crash rate data was not available for a comparative analysis; consequently, the intersection crash rates for all 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 Tyrone Road-Palmetto Road, the following intersection fell above the 75th percentile:

- Tyrone Road at SR 54
- Palmetto Road at Senoia Road

- **Select Link Analysis -**

The Fayette County Comprehensive Transportation Plan used the ARC Travel Demand Model to analyze 12 key road segments consisting of primary local or regional connectors using the 2017 base year during the afternoon peak period. The select link analysis was used to provide an understanding of origins and destinations. The preliminary results of the select link analysis were reviewed to identity the impact of regional traffic orientation on Tyrone Road-Palmetto Road operations.

One of the links analyzed was SR 74 from Atlanta. Based on the results SR 74, which intersects Tyrone Road-Palmetto Road, operates a primary commuter route for Fayette County residents commuting to and from Atlanta. The origin-destination findings show that trips destined from Fulton County distribute to the Town of Tyrone, Peachtree City, Sandy Creek Road, Tyrone Road, and North Peachtree Parkway.

The CTP Needs assessment discussed the downtown Fayetteville bottleneck and the need for east-west travel. Tyrone Road specifically was identified as a link for traffic originating from downtown Fayetteville and continuing northwest on Tyrone Road and onto Interstate 85 southbound in Coweta County. Palmetto Road was analyzed and identified as a major connection with Coweta County and draws trips from SR 54 and SR 74 to Interstate 85.

- **Bicycle Usage -**

The CTP Needs Assessment collected bicycle usage data was collected from Strava users to help identify the most frequently used bicycle routes in the county. Tyrone Road was identified as one of the major commute corridors. This data showed that Tyrone Road would be a prime candidate for multi-use and bicycle lane treatments for bicyclists already present and to encourage those who are interested but many not feel comfortable riding on the main road.

In terms of bike-pedestrian infrastructure, the Master Path Plan currently under review will ultimately identify additional opportunities for path connections that will tie in to the county's overall a bicycle and pedestrian network. The Town of Tyrone is also developing a path plan in the downtown core.

- **Truck Route Candidate -**

One of the needs identified in the Comprehensive Transportation Plan was to designate new east-west and north-south truck routes throughout the county to mitigate future congestion. Tyrone Road-Palmetto Road, along with Bernhard-Goza corridor, Crabapple Lane, Sandy Creek Road, and Veterans Parkway, were identified as potential candidates east-west truck routes.

Truck count data indicates that trucks travel heavily along SR 74, which provides access to I-85, the Fairburn intermodal yard, and warehousing/distribution centers along Oakley Industrial Blvd. Community feedback indicates that trucks utilize both Sandy Creek Road and Tyrone Road as an east-west connection between SR 74 and Fayetteville, and these movements are expected to continue as direct routes into the city centers.

In tandem with the need for new truck routes, the design of these roads must be evaluated, keeping in mind the overall character of the area and the needs of the communities these thoroughfares serve. In the event that Tyrone Road-Palmetto Road is recommended as a truck route, it is imperative that all improvements be designed to accommodate truck traffic.

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 2.9 and Graphic 2.10 represents comments from these meetings.

Graphic 2.9 - Perceptions of the Existing Conditions of the Sandy Creek Road Corridor

Graphic 2.10 - SWOT Analysis

Strengths		Weaknesses	
IN WHAT AREAS DOES THE CORRIDOR DO WELL?	• Nice rural road	• Congestion within intersections during peak traffic	WHERE DO WE NEED TO IMPROVE?
	• Good Connectivity & Capacity	• Truck traffic	
	• Relatively Good Flow Throughout Most Of The Corridor		
	• Low Intensity Land Use		
Opportunities		**Trepidations**	
WHAT ARE OUR GOALS?	• Further opportunity and connectivity in the future	• Minimal Right of Way	WHAT CHALLENGES WILL WE FACE?
	• Connectivity to the interstate	• Railroad	
		• Pressure for development (public pushback)	

- **Public Information Open House -**

The first Public Information Open House for the Tyrone Road - Palmetto 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

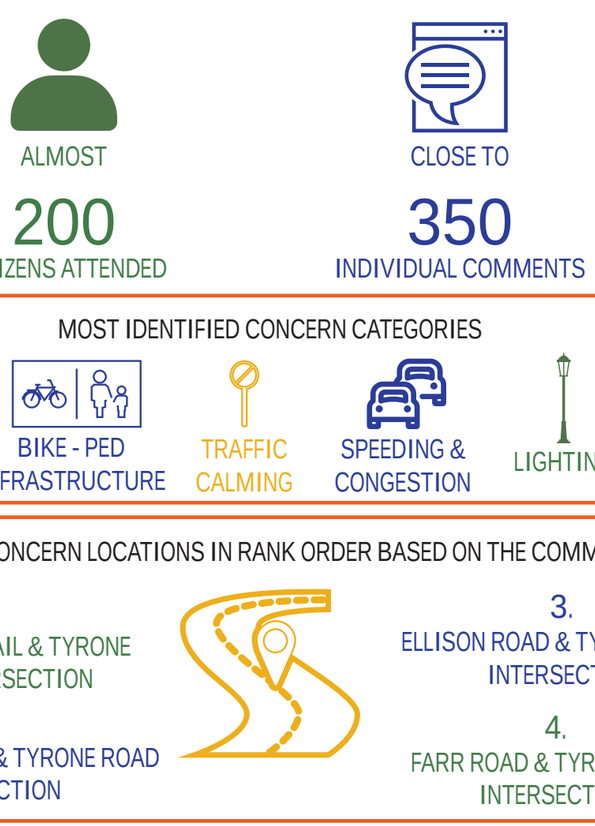


Image 2.4 - PIOH

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 Tyrone Road - Palmetto 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 - Page 37
This section of the report introduces the community engagement report and discusses the structure of the document.

3.2 Stakeholder Committee - Page 37
The details of the stakeholder committee meetings are defined in this section.

3.3 Public Information Open House - Page 39
This segment discusses the proceedings and feedback recieved during the PIOH.

3.4 Outreach and Tools - Page 41
Media and advertising outreach efforts are highlighted in this section.

3.5 Transportation Committee - Page 43
This section presents the highlights from the Transportation Committee meetings.

3.6 Formal Presentation - Page 43
Board of Commissioners and City Council formal presentations are described in this section.

3.7 Public Comment Period - Page 44
This section presents information from the final public comment period.

3.8 Next Steps - Page 44
This section identifies the next steps and action items for the planning process.

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 Trepidations) Analysis of the corridor and discuss potential projects and prioritization.

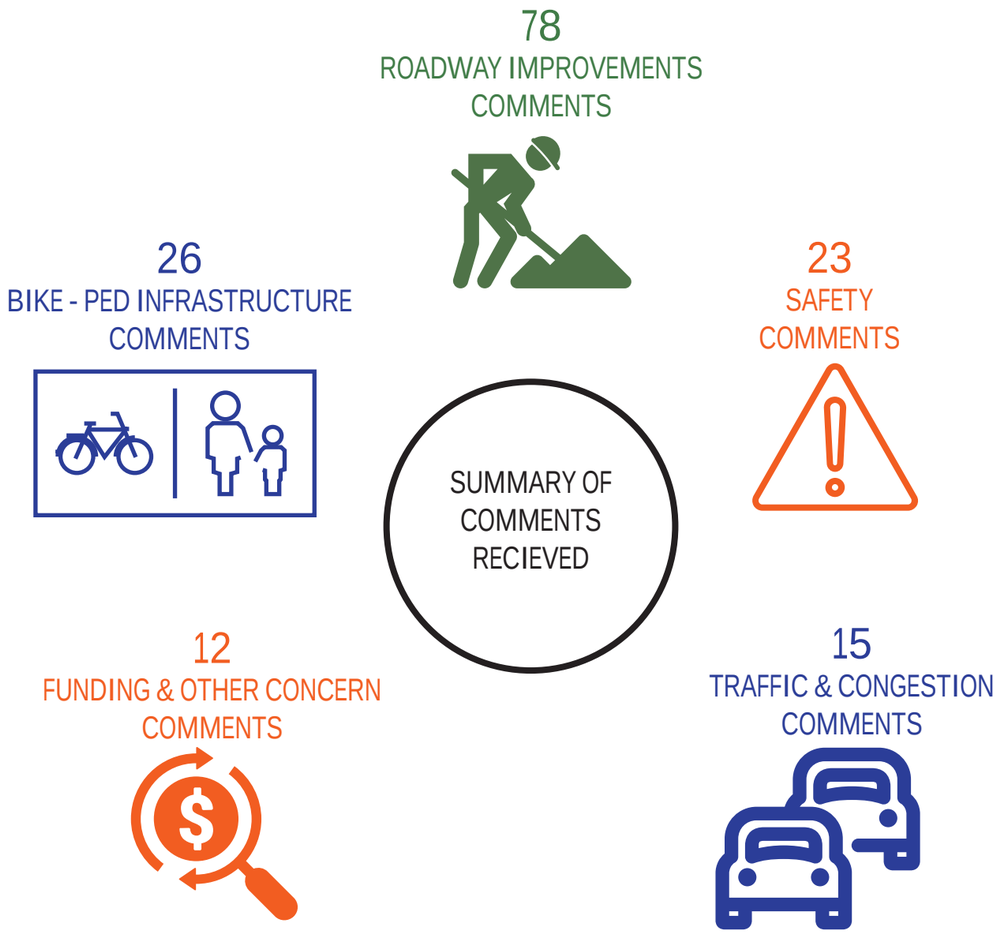
- **Meeting 1 -**

The first meeting was held on February 5, 2019 at the Fayette County Library in conjunction with the Sandy Creek Road stakeholder committee. Of the 27 members invited to participate, 18 attended. Represented in attendance were Fayette County, Town of Tyrone, City of Fayetteville, Georgia Department of Transportation, Homeowners Associations, Non – Profits, Media, Institutions and Faith Groups. 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 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

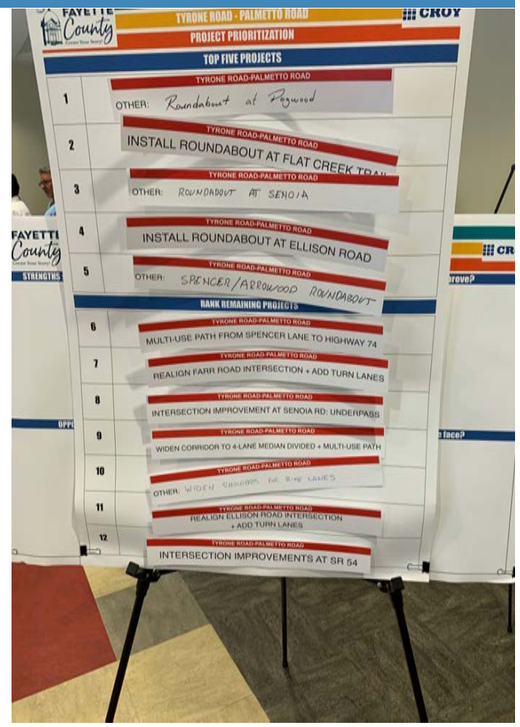


- **Meeting 2 -**

The second stakeholder committee meeting for the Tyrone Road - Palmetto 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 Tyrone Road - Palmetto 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

CONGESTION
SAFETY
NO SIDEWALKS
18 - WHEELERS
SPEEDING

- **PIOH 2 -**

The second Public Information Open House for the Tyrone Road - Palmetto 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

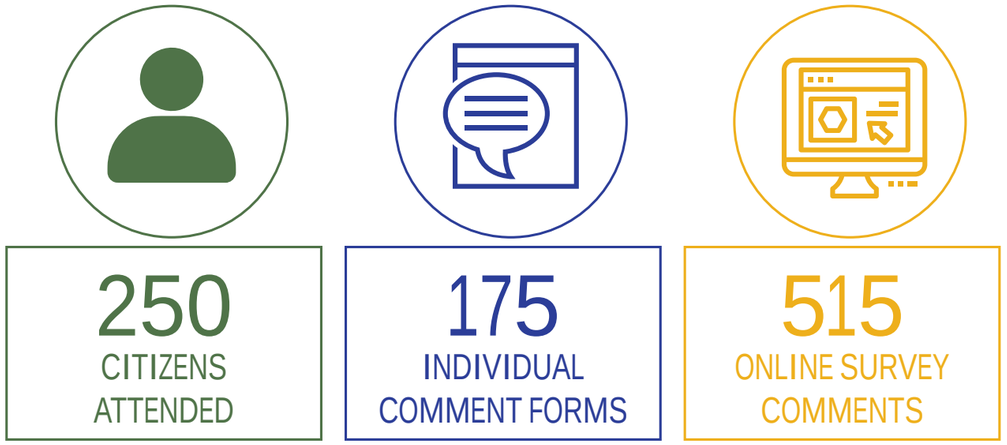
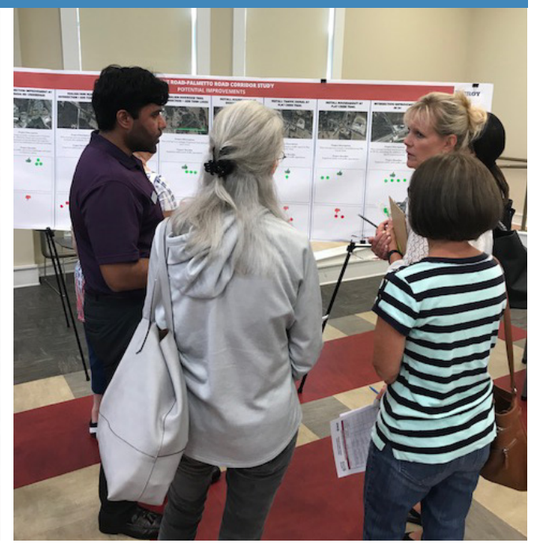
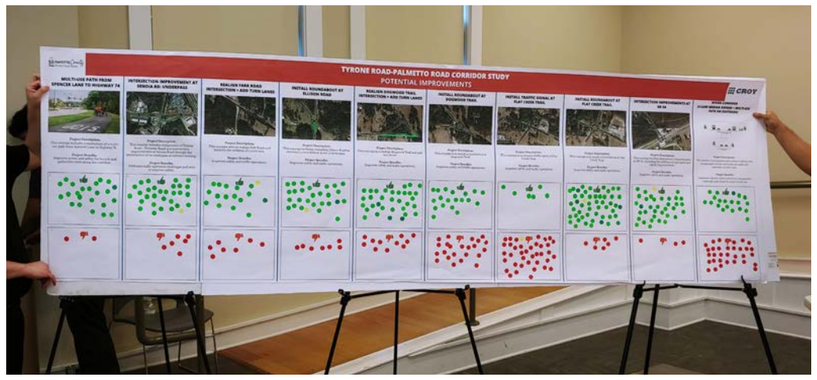


Image 3.3 - PIOH 2 Highlights





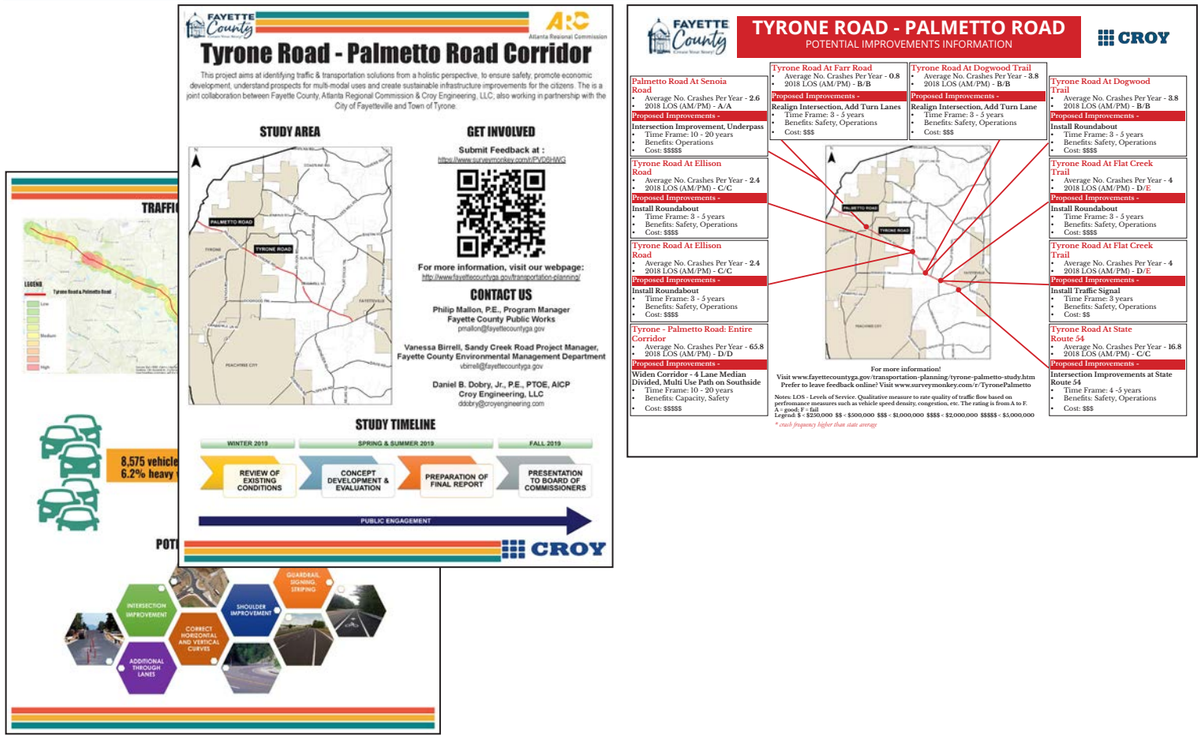
3.4 Outreach Methods and Tools

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 -**

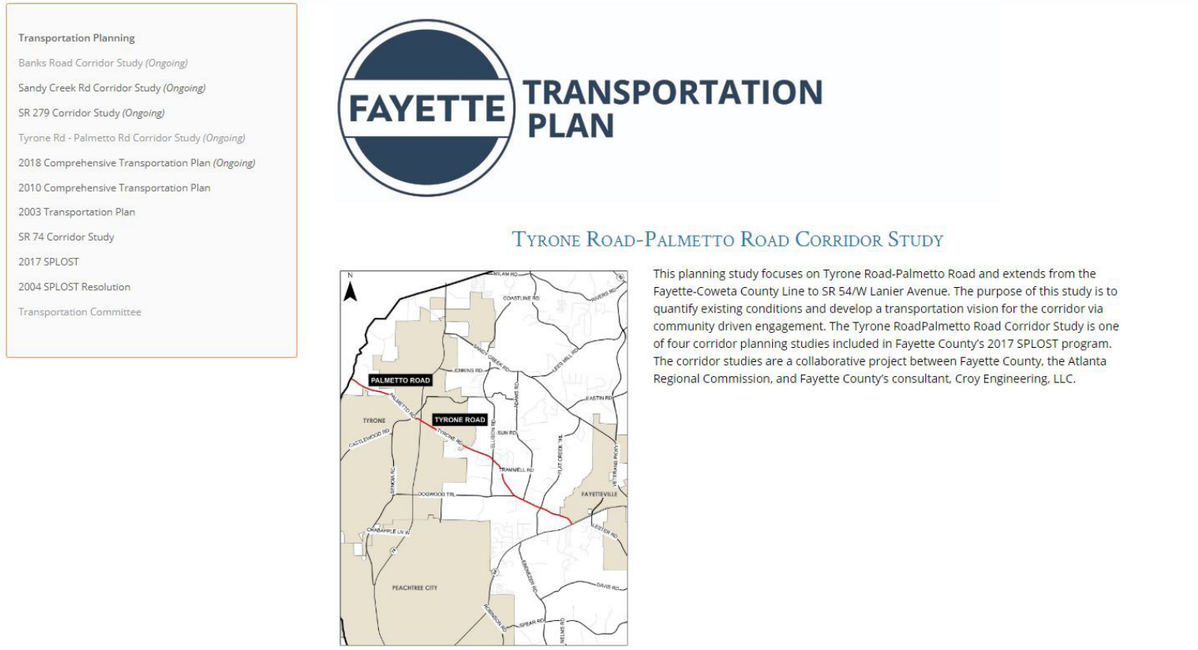
Post-card size flyers were created to send to citizens via email, newspaper distribution, and dispensed at major locations like the library and County offices.

- **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 -**

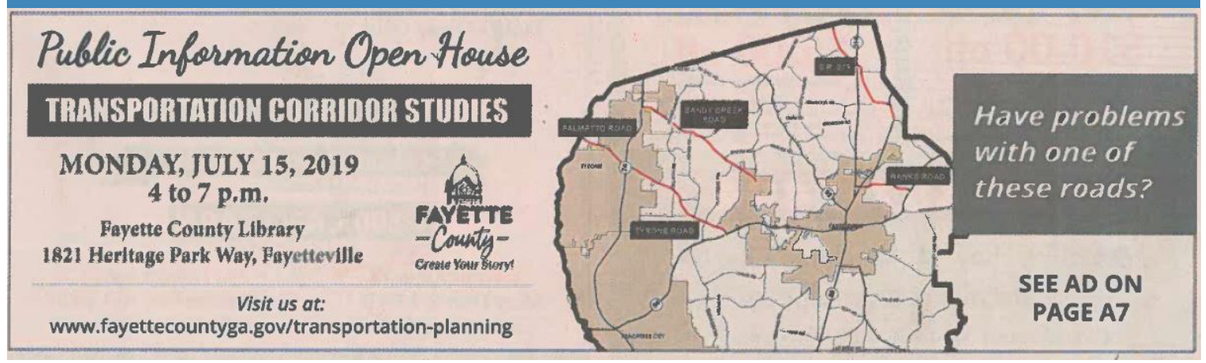
City and community Facebook pages were used to inform the community of upcoming events, access to the online survey, and plan updates during the planning process. Image 3.7 represents an example of an announcement on the City of Fayetteville Facebook page.

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 de-livery 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.

- 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.

Image 3.9 - Transportation Committee In Action

- 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.

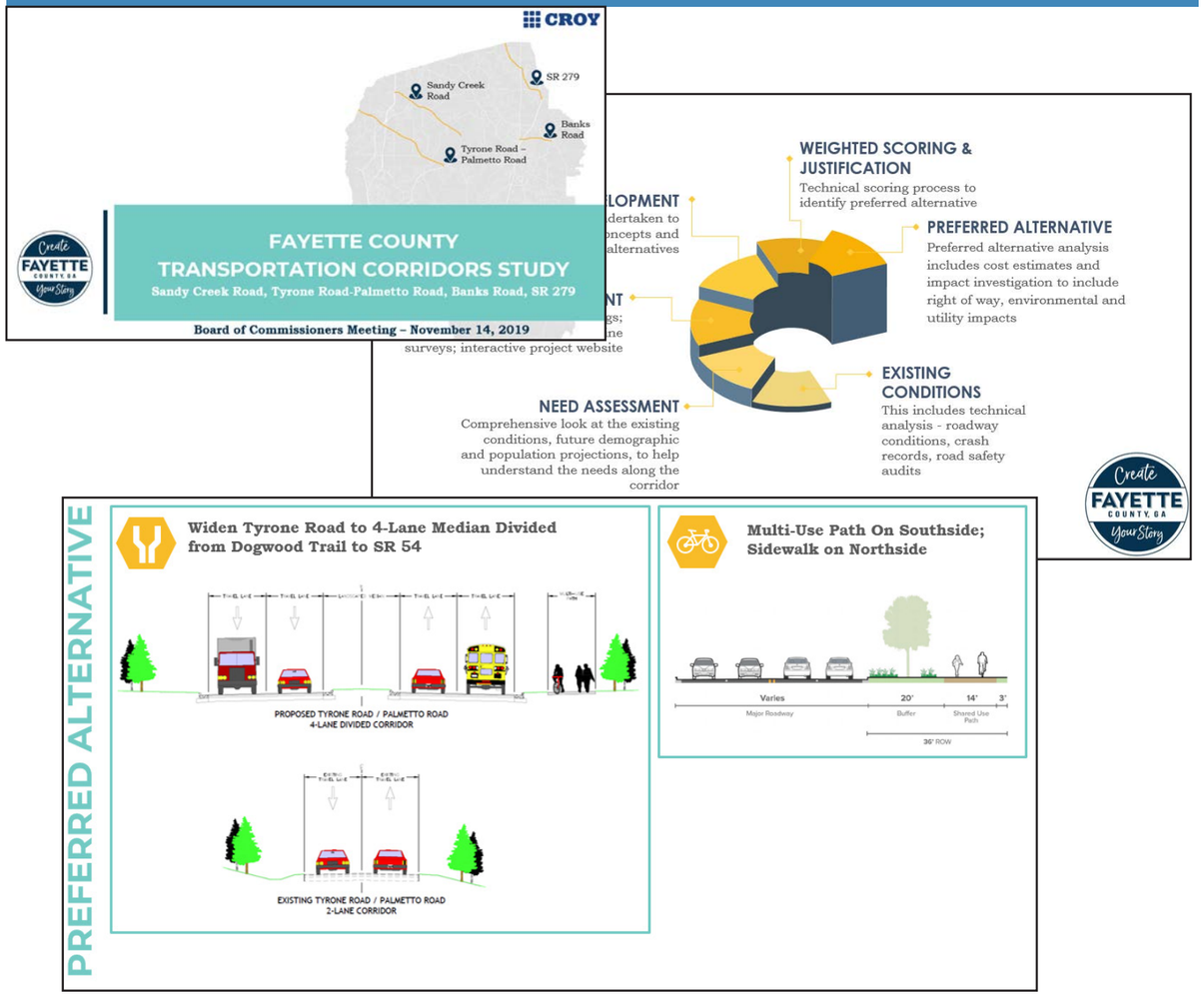
- **Fayette County Board of Commissioners -**

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.

- **Town of Tyrone City Council -**

The Town of Tyrone City Council presentation was made on November 21, 2019. The presentation included the 2017 SPLOST Corridor Studies on 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.

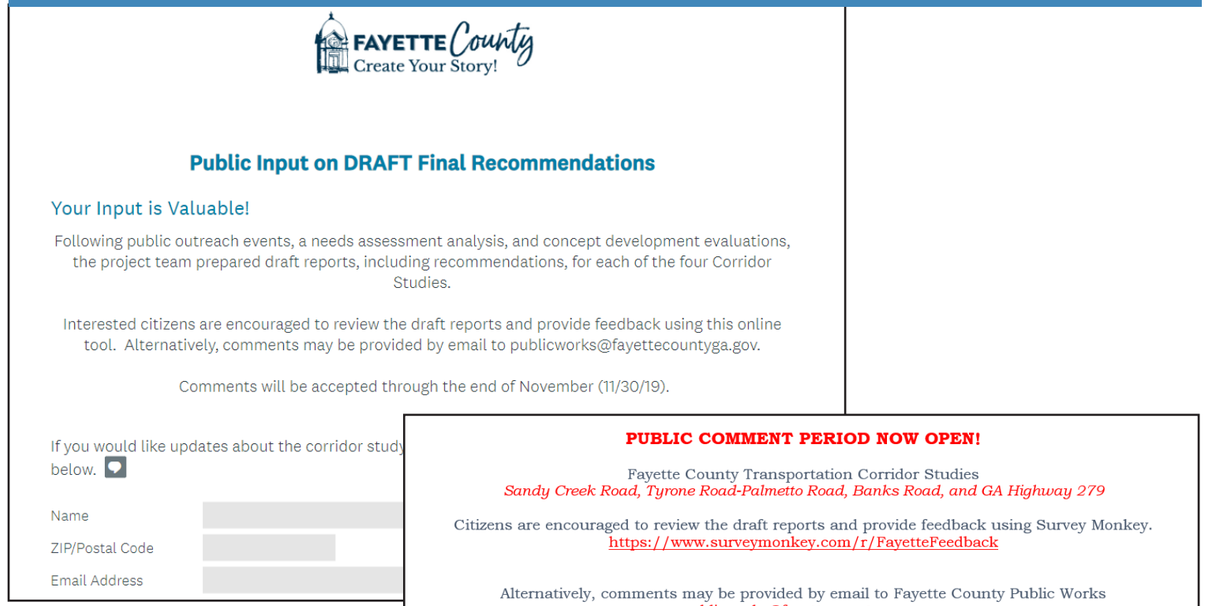
Image 3.10 - Snapshot of the Formal Presentations



3.7 Public Comment Period

The Public Comment period was open through the month of November for the four draft corridor studies (Banks Road, Sandy Creek Road, SR 279 and Tyrone & Palmetto Roads). Blast emails were sent to citizens, draft reports and survey links were posted on the website and printed copies of the draft reports were made available at key County locations. A total of 91 comments were received. After completion of the public comment period, the draft documents were revised to reflect comments received and the reports will be presented to the Board of Commissioners for adoption.

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



3.8 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 - Page 46
This section of the report introduces the concept development report and discusses the structure of the document.

4.2 Concept Development Process - Page 46
The approach and process undertaken to develop the concepts are defined in this section.

4.3 Weighted Scoring - Page 47
This section identifies the formal weighted scoring process used to initially prioritize the draft concepts.

4.4 Preliminary Draft Concepts - Page 50
This segment discusses the preliminary draft concepts identified and presented to the public and also presents feedback from citizens.

4.5 Evaluation Results - Page 54
This section identifies the results obtained from the formal weighted scoring process.

4.1 Introduction

The Concept Development section is the fourth chapter of the Tyrone Road - Palmetto Road Transportation 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 Tyrone Road - Palmetto 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 considerations, 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

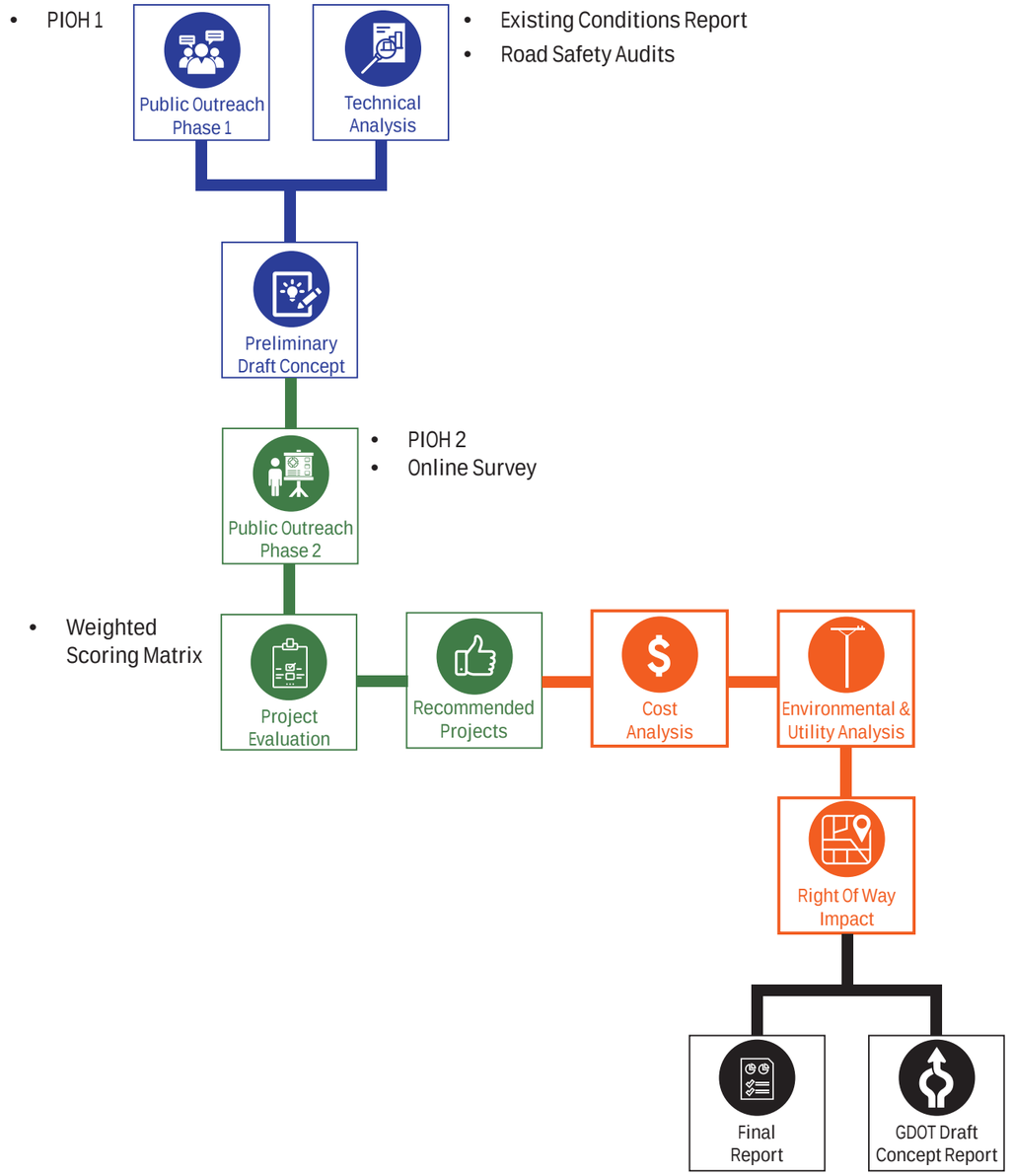
After the County's current and projected future transportation needs along the Tyrone Road - Palmetto Road corridor were analyzed, feedback was compiled from the first round of public outreach – the Public Information Open House (PIOH) and online submissions. This analysis was directed to identify concepts 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 - Concept Development Process



4.3 Weighted Scoring

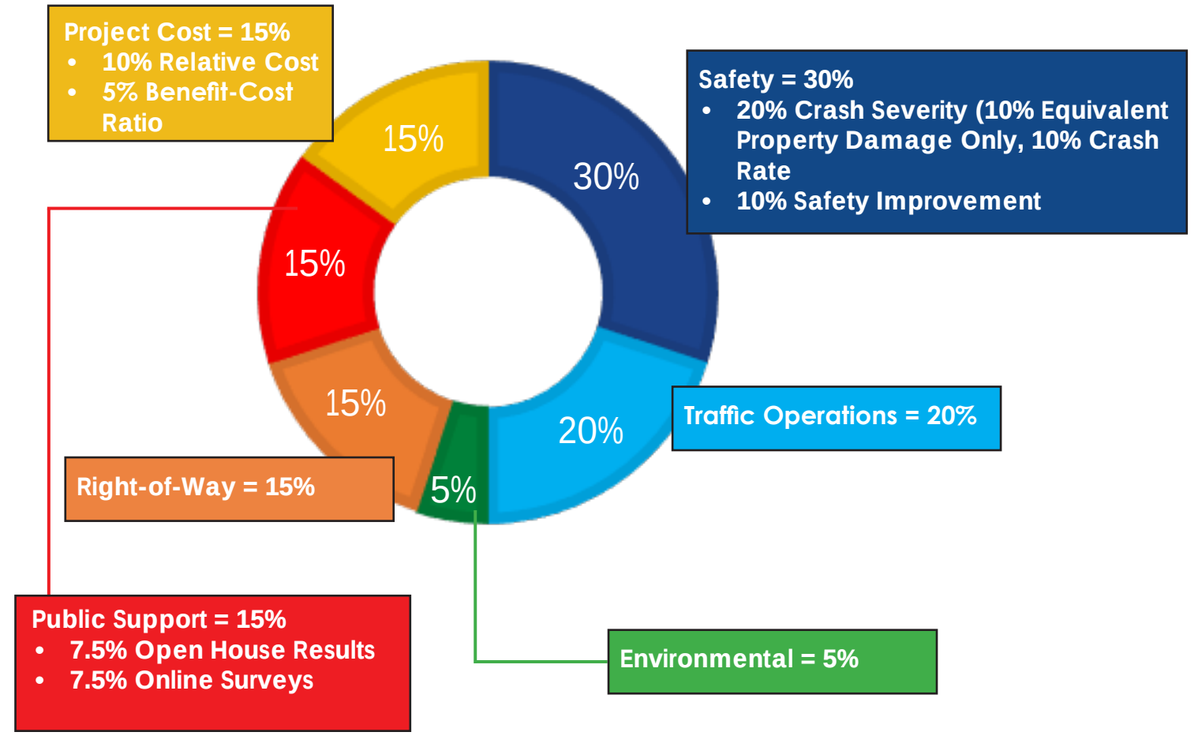
To assess the performance of each alternate improvement with regard to the study's vision, a quantitative and qualitative approach was developed. An evaluation matrix was prepared to quantitatively compare and "score" the performance of each concept. The qualitative approach included comparing the concepts 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 Tyrone Road - Palmetto 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 Tyrone Road - Palmetto 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.

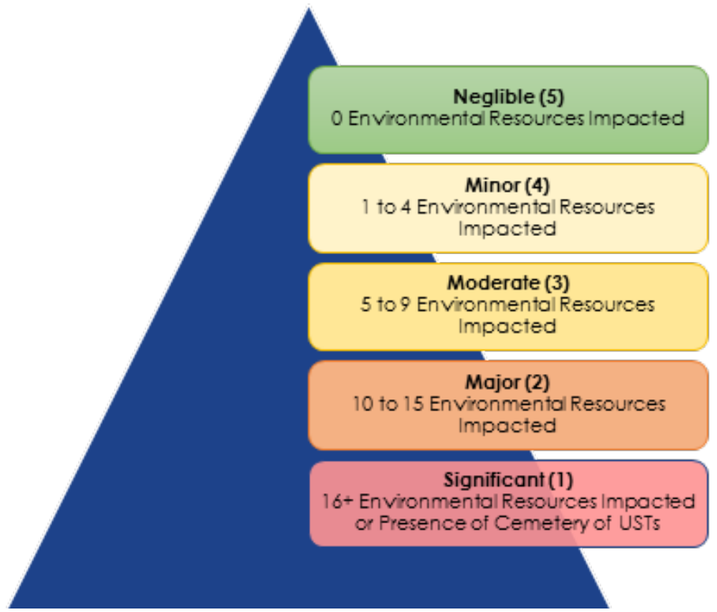
- **Traffic Operations (20 points)**

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.

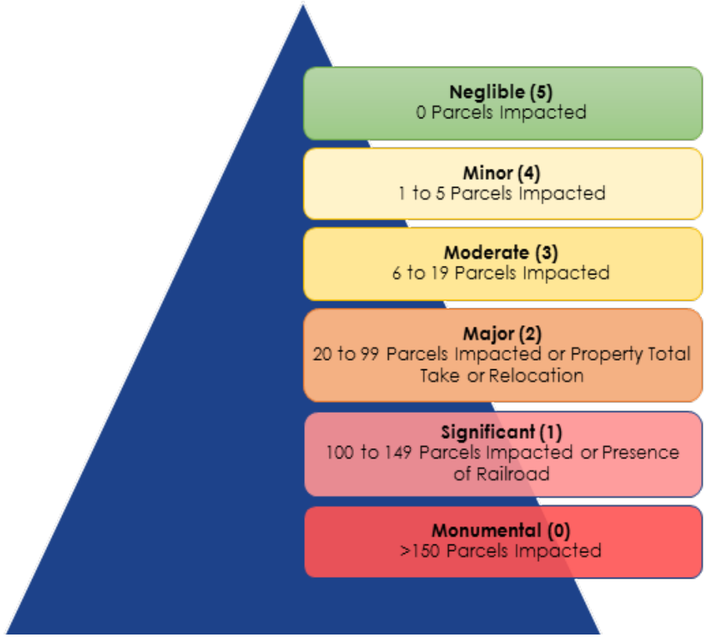
Graphic 4.4 - Environmental Categories



- **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 project 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 attend, 176 comments received via comment forms, and 515 comments 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:

- Grade Separation at Senoia Road
- Intersection Improvement at Farr Road
- Intersection Improvement at Ellison Road
- Intersection Improvement at Dogwood Trail
- Intersection Improvement at Flat Creek Trail
- Intersection Improvement at SR 54
- Widen Corridor: 4-Lane Median Divided with Multi-Use Path on One Side

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

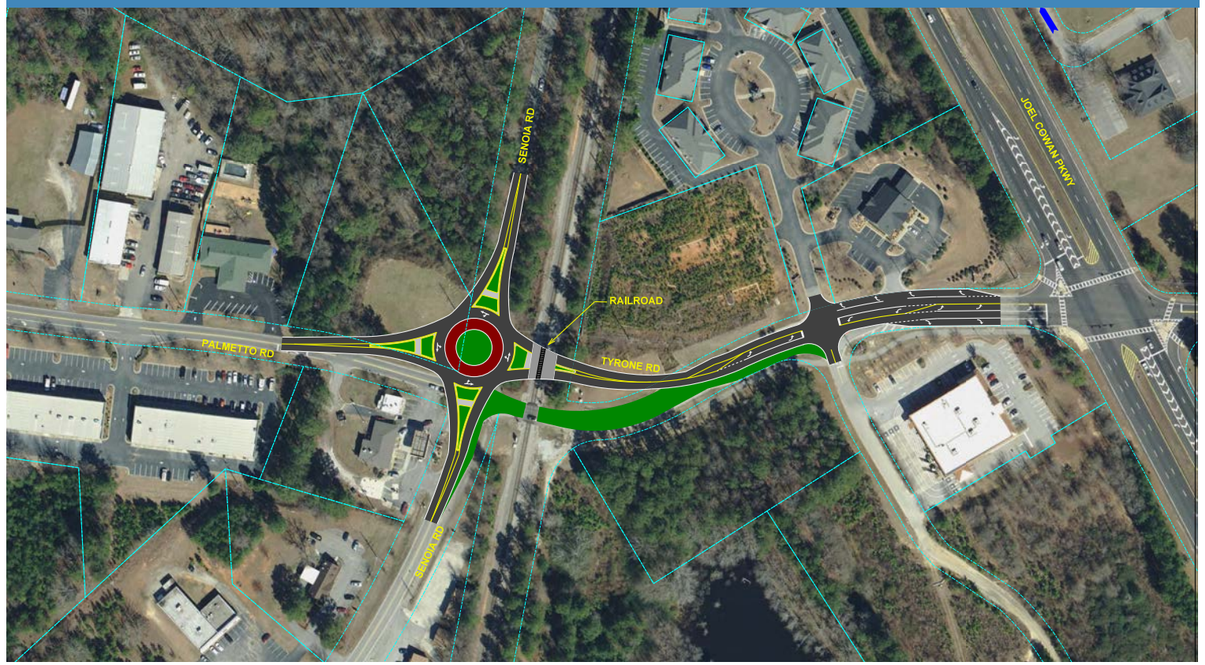
1. Concept: Grade Separation at Senoia Road

Based on the Needs Assessment and public comments, an intersection improvement at Senoia Road was warranted for additional consideration. This concept includes realignment of Tyrone Road - Palmetto Road and intersection improvements at Senoia Road through the construction of a grade separated underpass at railroad crossing as seen in Graphic 4.6 and 4.7. The concepts addresses traffic operation challenges and aims to improve safety.

Average No. Crashes Per Year	2018 LOS (AM/PM)	Time Frame	Benefits	Cost
2.6	C/E	10 - 20 years	Operations	$$$$$

Graphic 4.6 - Concept: Grade Separation at Railroad and Traffic Signal

Graphic 4.7 - Concept: Grade Separation at Railroad and Roundabout



2. Concept: Intersection Improvement at Farr Road

Based on the Road Safety Audit, an intersection improvement at Farr Road was warranted for additional consideration. The proposed concept includes realigning Farr Road to reduce the skew at the intersection and adding turn lanes. This project would improve safety and traffic operations at the location.

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

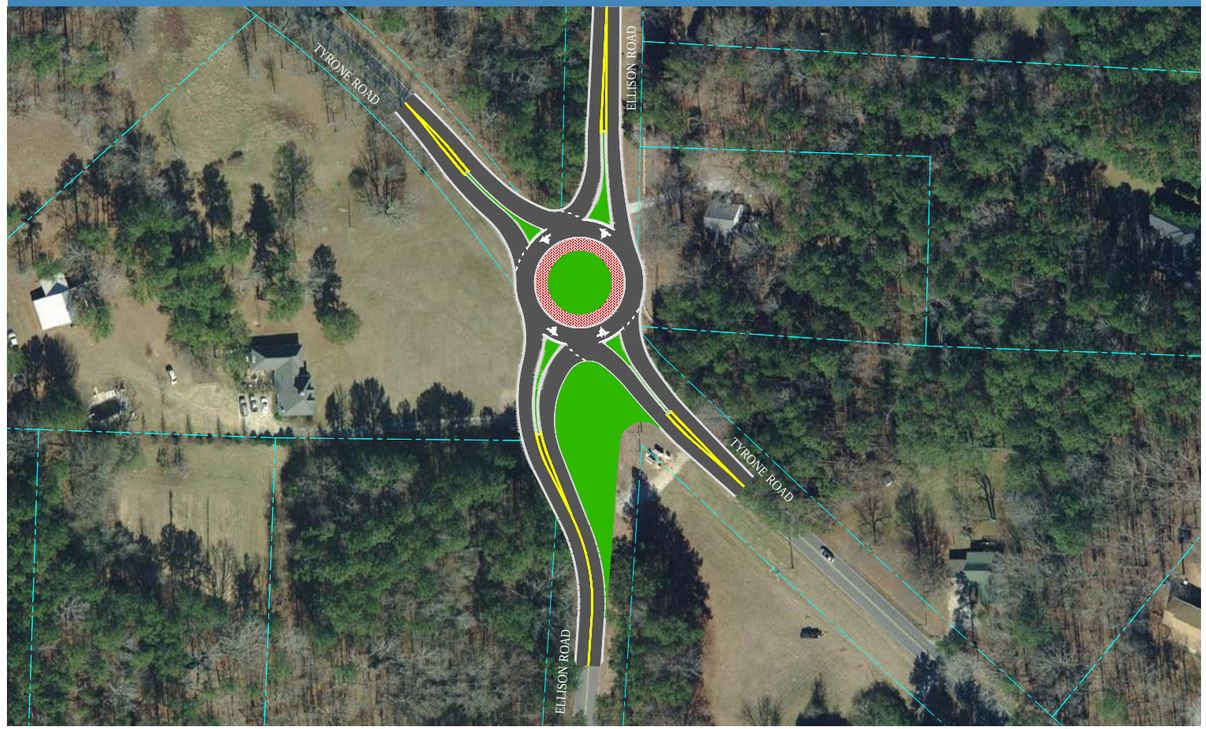
Graphic 4.8 - Concept: Intersection Improvement at Farr Road

3. Concept: Intersection Improvement at Ellison Road

Based on the Needs Assessment and public comments, an intersection improvement at Ellison Road was warranted for additional consideration. The proposed concept is realigning the intersection and installing a roundabout. This project would improve safety and traffic operations at the location.

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

Graphic 4.9 - Concept: Intersection Improvement at Ellison Road



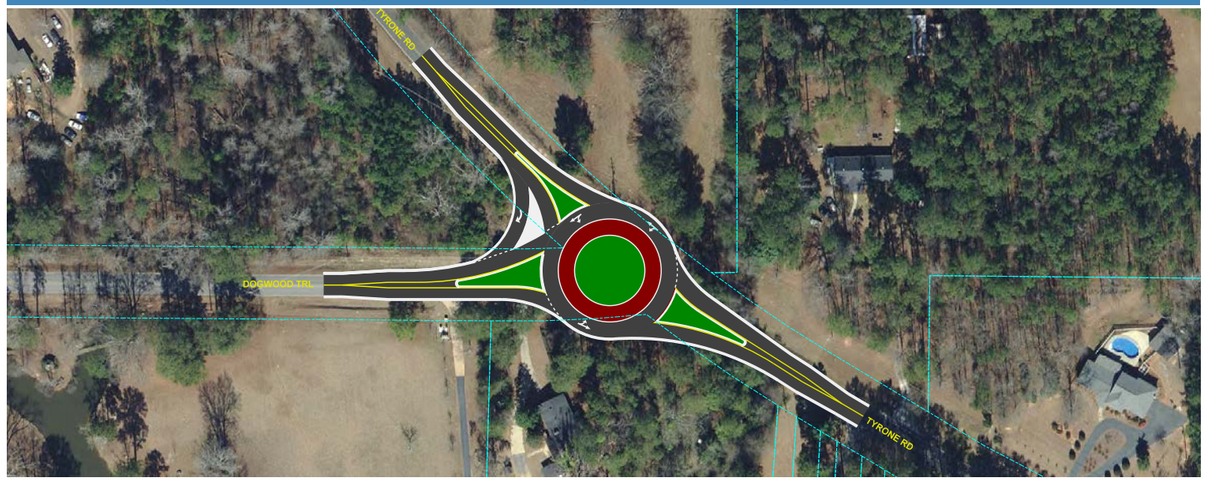
4. Concept: Intersection Improvement at Dogwood Trail

Based on the Needs Assessment and public comments, an intersection improvement at Dogwood Trail was warranted for additional consideration. Two concepts were proposed: the first realigning the intersection and adding turn lanes (Graphic 10) and the second installing a roundabout (Graphic 11). This project would improve safety and traffic operations at the intersection.

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

Graphic 4.10 - Concept: Realignment & Turn Lanes at Dogwood Trail

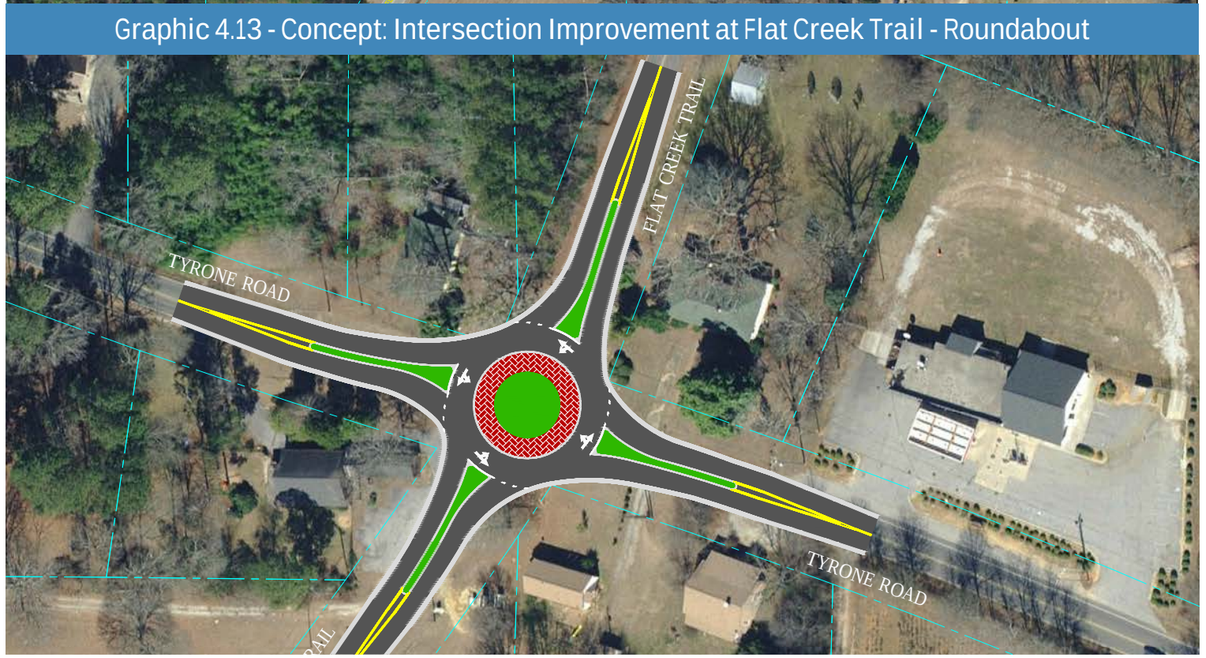
Graphic 4.11 - Concept: Intersection Improvement at Dogwood Trail - Roundabout



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

Graphic 4.12 - Concept: Intersection Improvement at Flat Creek Trail - Traffic Signal

Graphic 4.13 - Concept: Intersection Improvement at Flat Creek Trail - Roundabout



5. Concept: Intersection Improvement at Flat Creek Trail

Based on the Needs Assessment and public comments, an intersection improvement at Flat Creek Trail was warranted for additional consideration. Two concepts were proposed: the first installing a traffic signal (Graphic 4.12) and the second installing a roundabout (Graphic 4.13). This project would improve safety and traffic operations at the intersection.

6. Concept: Intersection Improvement at SR 54

Based on the Needs Assessment and public comments, an intersection improvement at SR 54 was warranted for additional consideration. The proposed concept includes the addition of southbound turn lanes to relieve congestion as well as improve safety and traffic operations.

Average No. Crashes Per Year	2018 LOS (AM/PM)	Time Frame	Benefits	Cost
16	C/C	4 - 5 years	Safety, Operations	$$$

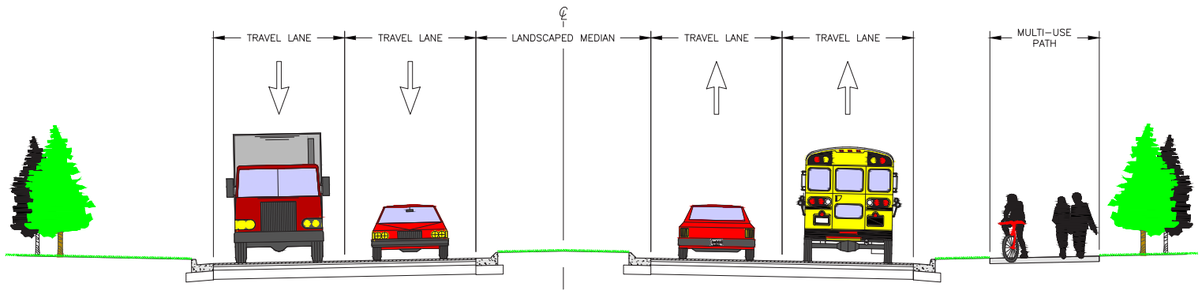
Graphic 4.14 - Concept: Intersection Improvement at SR 54

7. Concept: Widen Corridor to 4-Lanes

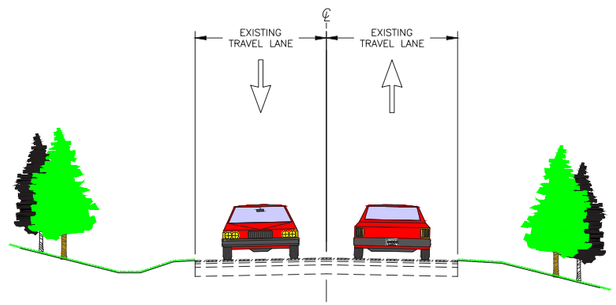
Based on the Needs Assessment and public comments, capacity and safety improvements along Tyrone Road - Palmetto Road warranted additional consideration. The proposed project involves widening the Tyrone Road - Palmetto Road corridor to 4 lanes with a raised landscaped median. The corridor is envisioned to have multi-use path on one side of the 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
65.8	D/D	10 - 20 years	Safety	$$$$$

Graphic 4.15 - Concept: Widen Corridor to 4-Lanes



PROPOSED TYRONE ROAD / PALMETTO ROAD
4-LANE DIVIDED CORRIDOR



EXISTING TYRONE ROAD / PALMETTO ROAD
2-LANE CORRIDOR

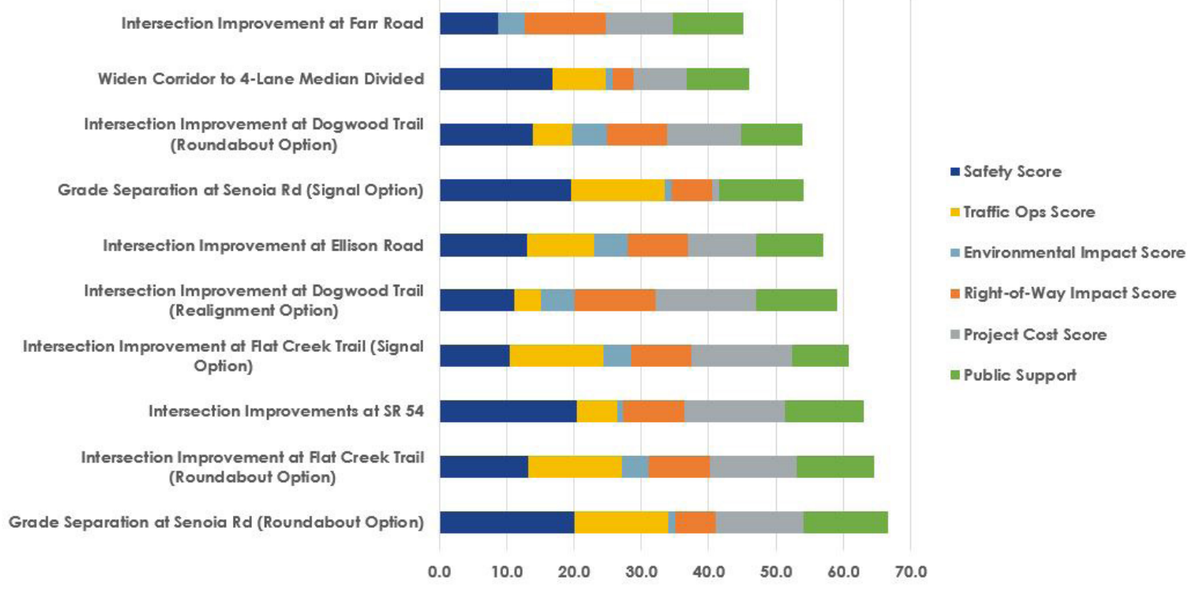
4.5 Evaluation Results

Using the methodology detailed in the previous sections, each concept was evaluated in the Evaluation Matrix for Tyrone Road - Palmetto Road. The results of the scoring matrix are detailed per category in the Table 4.2. The overall project score is shown in a stacked bar in Graphic 4.16.

Table 4.2 - 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)
• Grade Separation at Senoia Rd (Roundabout Option)	20.0	14.0	13.0	Significant	Significant	12.6
• Grade Separation at Senoia Rd (Signal Option)	19.5	14.0	1.0	Significant	Significant	12.6
• Improvement at Farr Road	8.7	0.0	10.0	Minor	Minor	10.5
• Improvement at Ellison Road	13.0	10.0	10.0	Negligible	Moderate	10.0
• Improvement at Dogwood Trail (Realignment Option)	11.1	4.0	15.0	Negligible	Minor	11.9
• Improvement at Dogwood Trail (Roundabout Option)	13.8	6.0	11.0	Negligible	Moderate	9.1
• Improvement at Flat Creek Trail (Signal Option)	10.4	14.0	15.0	Minor	Minor	8.4
• Improvement at Flat Creek Trail (Roundabout Option)	13.1	14.0	13.0	Minor	Moderate	11.5
• Improvements at SR 54	20.4	6.0	15.0	Significant	Moderate	11.7
• Widen Corridor to 4-Lane Median Divided	16.8	8.0	8.0	Significant	Significant	9.2

Graphic 4.16 - Overall Concept Score



The results of the evaluation matrix for the Tyrone Road - Palmetto 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 - Page 56
This section of the report introduces details the recommendations for the Tyrone Road - Palmetto Road corridor and the implementation plan for the preferred alternative.

5.2 Final Recommendations - Page 56
The section details the final recommendations which are divided into recommendations for the corridor's typical section, specific intersection improvements and bicycle and pedestrian improvements.

5.3 Quick Response Recommendations - Page 63
This segment discusses the proposed list of quick response improvements for Tyrone Road - Palmetto Road.

5.4 Implementation Plan - Page 64
The implementation plan for Tyrone Road - Palmetto Road corridor identifies the projects in terms of project costs, project scheduling, responsible parties for project completion, and funding opportunities.

5.5 Phased Recommended Projects - Page 65
This section lists the recommended projects for Tyrone Road - Palmetto Road.

5.1 Introduction

The report details the recommendations for the Tyrone Road - Palmetto 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 Tyrone Road - Palmetto 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 Tyrone Road - Palmetto 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 projects for Tyrone Road – Palmetto Road is broken out into two segments:

1. From Dogwood Trail to SR 54 - the recommended typical section is to widen Tyrone Road to 4-lanes with a raised median and install a shared-use path on one side of the road. The proposed typical section is shown in Graphic 5.2. The following intersection improvements are recommended along this segment as well:

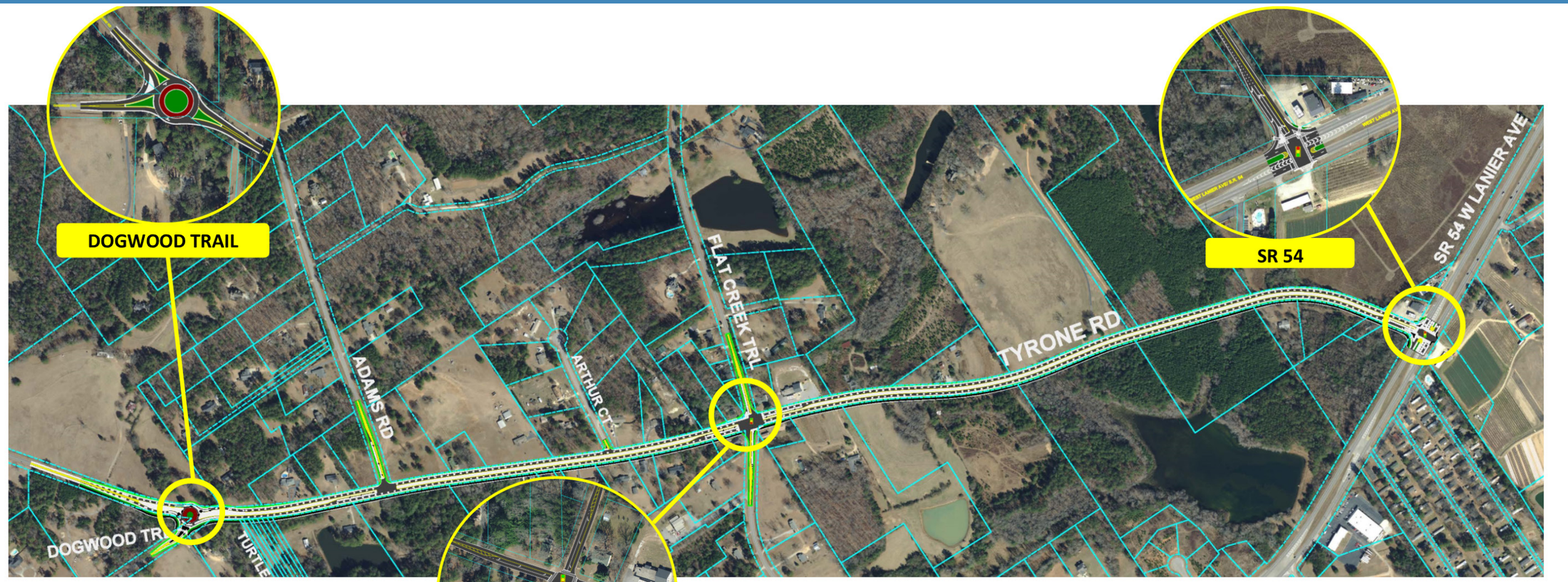
- Intersection Improvement at SR 54
- Install Traffic Signal at Flat Creek Trail
- Install Roundabout at Dogwood Trail

2. From Dogwood Trail to the county line - the recommended typical section is to maintain the two existing travel lanes, complete safety improvements, and add a shared-use path on one side of the road. The safety improvements along the 2-lane section include correcting horizontal and vertical curves where needed based on an evaluation of sight distance availability along the corridor. The proposed typical section is shown in Graphic 5.3. The following intersection improvements are recommended along this segment as well:

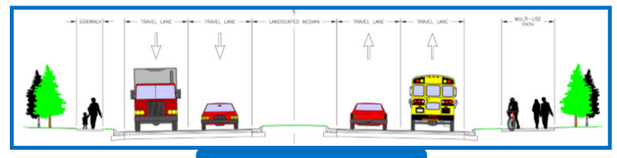
- Roundabout at Ellison Road
- Realign and Install Traffic Signal at Senoia Road
- Tyrone SPLOST project for roundabout at Spencer Lane - Arrowood Road

As part of their current SPLOST program, the Town of Tyrone is planning to install a mini-roundabout at the intersection of Palmetto Road and Spencer Lane-Arrowood Road. This was one of the locations observed during the Road Safety Audit. Given the traffic volumes and vehicle mix (large number of heavy trucks) questions were raised as to the effectiveness of the intersection control afforded by the mini-roundabout. It is recommended that this intersection be re-evaluated prior to moving forward with its reconstruction.

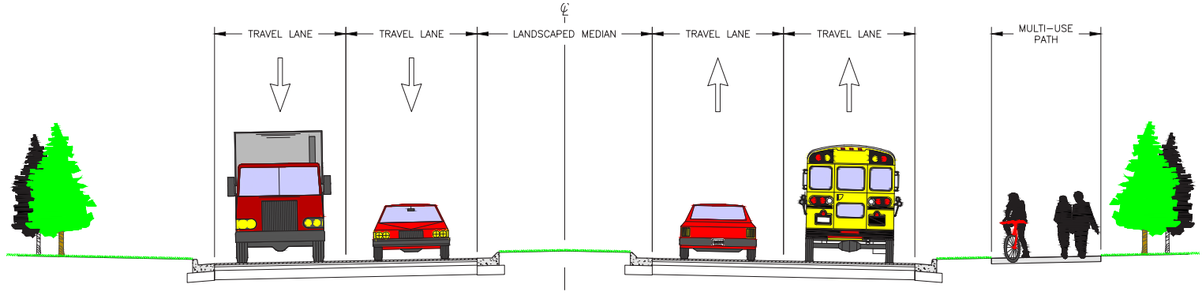
Graphic 5.2 - Typical Section from Dogwood Trail to SR 54



CONCEPTUAL - NOT TO SCALE



TYPICAL SECTION



PROPOSED TYRONE ROAD / PALMETTO ROAD
4-LANE DIVIDED CORRIDOR

Graphic 5.3 - Typical Section from Dogwood Trail to County Line

ARROWOOD RD—SPENCER LN

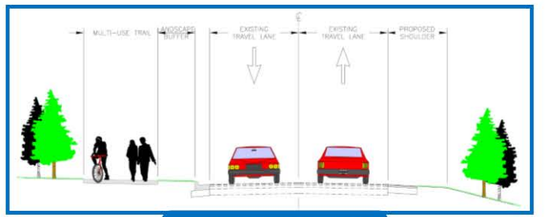
SENOIA ROAD

ELLISON ROAD

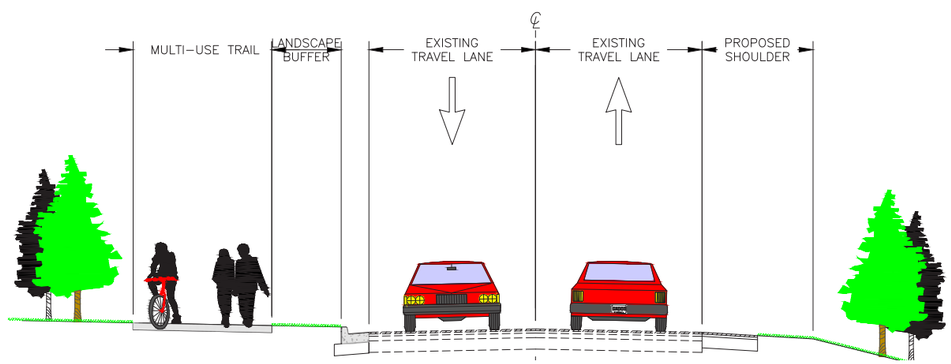
CORRIDOR WIDE SAFETY IMPROVEMENTS

- Correct Vertical and Horizontal Curves
- Advanced Warning Signage
- Roadside Barriers where appropriate
- Striping Improvements

CONCEPTUAL - NOT TO SCALE



TYPICAL SECTION



- **Roadway Recommendations**

Tyrone Road - Palmetto Road is a vital east-west arterial in Fayette County, which provides access to abutting neighborhoods, connects multiple state routes, and serves as a direct route between Fayette County and Coweta County to the northwest. 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.

The Fayette County Comprehensive Transportation Plan (CTP) analyzed key road segments consisting of primary local or regional connectors using the ARC Travel Demand Model during the afternoon peak period to provide an understanding of origins and destinations. The CTP Needs assessment discussed the downtown Fayetteville bottleneck and the need for additional east-west routes.

Tyrone Road – Palmetto Road specifically was identified as a link for traffic from downtown Fayetteville and continuing northwest on Tyrone Road and onto Interstate 85 in Coweta County. Given Tyrone Road-Palmetto Road's connectivity to major routes and Interstate 85, coupled with Fayette County's need for additional east-west routes, widening the corridor to 4-lanes with a raised median provides additional capacity for the region, along the corridor, and improves safety.

1. Truck Route

One of the needs identified in the CTP was to designate new east-west and north-south truck routes throughout the county to mitigate future congestion. Tyrone Road-Palmetto Road was identified as a potential candidate for the east-west truck route. Truck count data indicates that trucks travel heavily along SR 74, which provides access to I-85, the Fairburn intermodal yard, and warehousing/distribution centers along Oakley Industrial Boulevard.

In conjunction with the 4-lane widening recommendation for Tyrone Road, it is also recommended that the corridor be designated as a truck route after it is open to traffic. With Tyrone Road-Palmetto Road being designated as a truck route, it is imperative that all improvements be designed to accommodate truck traffic.

2. Widening from Dogwood Trail to SR 54

The AADT on Tyrone Road for the segment between Dogwood Trail and SR 54 is the highest for the entire corridor; increasing from 5,950 vehicles per day northwest of Dogwood Trail to 10,550 vehicles per day southwest of Dogwood Trail, a 77% increase. This increase can be associated with Dogwood Trail's connection to SR 74 west of Tyrone Road.

The corridor segment was also analyzed using the Atlanta Regional Commission's (ARC) Travel Demand Model (Year 2040) to project future traffic conditions. By 2040, significant delays will be experienced at Flat Creek Trail, LOS "F", and for both peak hour periods deficiencies begin to emerge at Dogwood Trail. Additionally, analyzing the road capacity for 2040, it is observed that Tyrone Road would operate at LOS D.

Given the traffic volume and regional connectivity, Tyrone Road from Dogwood Trail to SR 54, would be the most ideal candidate for widening on the entire Tyrone Road-Palmetto Road corridor in terms of phasing. Extending the widening west of Dogwood Trail should be decided based on road capacity needs and additional analyses in the future, as well as future funding availability.

3. Safety Benefits of Widening

Widening the corridor to 4-lanes with a raised median provides additional capacity along the corridor as well as improves safety. Tyrone Road-Palmetto Road crash rates indicate that its rate of total crashes and crashes involving injuries falls below the statewide average; however, Tyrone Road-Palmetto Road's crash rates for fatal accidents is higher than the statewide average for minor arterials.

Moreover, over the past 5-years along Tyrone Road - Palmetto Road shows that the overall frequency of crashes off-road crashes is substantial. For the purposes of this scoping study, the widening of Tyrone Road - Palmetto 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 Tyrone Road-Palmetto 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.

4. Benefits of Safety Improvements

Correcting horizontal and vertical curvature along Tyrone Road - Palmetto Road is a safety measure that can address the corridor's frequency of off-road crashes. 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 Tyrone Road - Palmetto 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 along Tyrone Road - Palmetto 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.

Intersection Improvement Recommendations

Recommended intersection improvements along Tyrone Road - Palmetto Road are discussed in detailed below. All such improvements are associated with the recommended overall corridor improvements, although some may be implemented in advance of the ultimate corridor wide road improvement project.

1. Intersection Improvement at SR 54

Tyrone Road at SR 54 was one of the top crash intersections along the Tyrone Road – Palmetto Road corridor. At the first public open house, citizens expressed concerns of delays experienced at the intersection.

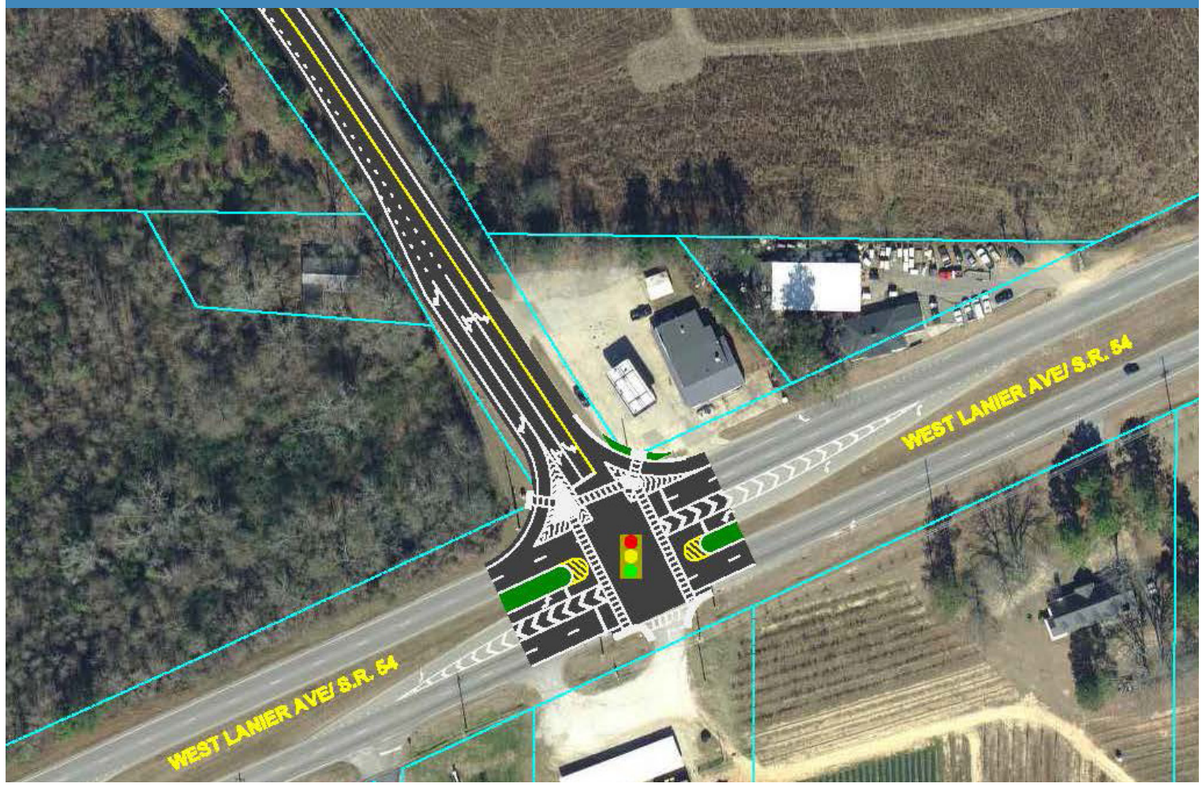
During the Road Safety Audit, southbound trucks turning onto Tyrone Road encroach on eastbound approach. Southbound vehicles turning right on Tyrone Road cannot see pedestrian waiting to crossing. Moreover, pedestrian countdown timers were not working properly on some approaches.

Several alternate intersection designs were evaluated with respect to managing traffic delay and queue lengths, minimizing cost and ROW impacts, and promoting safe and accessible pedestrian and bicycle accommodations. The final recommendation for the intersection of Tyrone Road and SR 54 is to upgrade signal timing and install and additional left turn lane for the eastbound Tyrone Road approach.

Graphic 5.4 shows the proposed concept for Tyrone Road at SR 54 and the table shows the 2040 traffic operations for the No Build for Build conditions.

Intersection	2040 No Build		2040 Build	
	AM Peak	PM Peak	AM Peak	PM Peak
Tyrone Road at SR 54	D (41.1 s)	C (30.3 s)	C (27.7 s)	C (22.4 s)

Graphic 5.4 - Intersection Improvement at SR 54



2. Install Traffic Signal at Flat Creek Trail

Excessive delays at Tyrone Road and Flat Creek Trail were enumerated by several public comments at the first public open house. Citizens expressed concerns of long queues at the all-way stop controlled intersection. By 2040, the traffic operations at the intersection approach LOS F during both the morning and afternoon peak hours.

Several alternate intersection designs were evaluated with respect to managing traffic delay and queue lengths, minimizing cost and ROW impacts, and promoting safe and accessible pedestrian and bicycle accommodations. The final recommendation for the intersection of Tyrone Road and Flat Creek Trail is a traffic signal, to be constructed in conjunction with the recommended widening between Dogwood Trail and SR 54. This intersection improvement is suitable to accommodate the traffic volumes forecasted for the intersection through the 2040 design year.

Graphic 5.5 shows the proposed concept for Tyrone Road at Flat Creek Trail and the table shows the 2040 traffic operations for the No Build for Build conditions.

Intersection	2040 No Build		2040 Build	
	AM Peak	PM Peak	AM Peak	PM Peak
Tyrone Road at Flat Creek Trail	F (146.8 s)	F (176.9 s)	C (31.5 s)	C (30.8 s)

Graphic 5.5 - Proposed Traffic Signal at Flat Creek Trail

3. Intersection Improvement at Dogwood Trail

Concerns of excessive delays for the Dogwood Trail approach at Tyrone Road by several public comments at the first public open house. The current alignment of the intersection creates sight distance issues, and there were a number of rear end crashes at the intersection over the 5-year analysis period.

Several alternate intersection designs were evaluated with respect to managing traffic delay and queue lengths, minimizing cost and ROW impacts, and promoting safe and accessible pedestrian and bicycle accommodations. The final recommendation for the intersection of Tyrone Road and Dogwood Trail, to be constructed in conjunction with the recommended widening between Dogwood Trail and SR 54. This intersection improvement is suitable to accommodate the traffic volumes forecasted for the intersection through the 2040 design year.

Graphic 5.6 shows the proposed concept for Tyrone Road at Dogwood Trail and the table shows the 2040 traffic operations for the No Build for Build conditions.

Intersection	2040 No Build		2040 Build	
	AM Peak	PM Peak	AM Peak	PM Peak
Tyrone Road at Dogwood Trail	D (26.6 s)	C (21.6 s)	B (10.3 s)	A (9.2 s)

Graphic 5.6 - Intersection Improvement at Dogwood Trail

4. Intersection Improvement at Ellison Road

Safety concerns at Tyrone Road and Ellison Road were enumerated by several public comments at the first public open house. Citizens expressed concerns of sight distance issues and speeding along this stretch of Tyrone Road making turning movements at Ellison Road very dangerous. The combination of horizontal and vertical curvature at the intersection present sight distance challenges at the intersection. By 2040, the traffic operations at the intersection for Ellison Road's southbound approach will approach LOS E during the afternoon peak hours.

Several alternate intersection designs were evaluated with respect to managing traffic delay and queue lengths, minimizing cost and ROW impacts, and promoting safe and accessible pedestrian and bicycle accommodations. The final recommendation for the intersection of Tyrone Road and Ellison Road is a single-lane roundabout. This intersection improvement is suitable to accommodate the traffic volumes forecasted for the intersection through the 2040 design year. Graphic 5.7 shows the proposed concept for Tyrone Road at Ellison Road and the table shows the 2040 traffic operations for the No Build for Build conditions.

Intersection	2040 No Build		2040 Build	
	AM Peak	PM Peak	AM Peak	PM Peak
Tyrone Road at Ellison Road (NB/SB)	C (17.2 s) D (27.5 s)	C (17.3 s) E (39.4 s)	A (7.5 s)	A (7.8 s)

Graphic 5.7 - Intersection Improvement at Ellison Road

5. Realign and Install Traffic Signal at Senoia Road

Safety concerns at Palmetto Road and Senoia Road were enumerated by several public comments at the first public open house. The intersection's proximity to the railroad crossing present safety and operational challenges at the all-way stop controlled intersection. During the Road Safety Audit, it was observed that the Shell gas station sign on the southwest corner obstructs sight distance for drivers looking south. Moreover, traffic was observed to back up over the train track for the westbound approach. By 2040, the traffic operations at the intersection approach LOS F during both the morning and afternoon peak hours.

Several alternate intersection designs were evaluated with respect to managing traffic delay and queue lengths, minimizing cost and ROW impacts, and promoting safe and accessible pedestrian and bicycle accommodations. The final recommendation for the intersection of Palmetto Road and Senoia Road is to realign the intersection to the north and install a traffic signal. This intersection improvement is suitable to accommodate the traffic volumes forecasted for the intersection through the 2040 design year. Moreover, the recommended intersection improvement would be a good candidate for federal aid. Graphic 5.7 shows the proposed concept for Palmetto Road and Senoia Road and the table shows the 2040 traffic operations for the No Build for Build conditions.

Intersection	2040 No Build		2040 Build	
	AM Peak	PM Peak	AM Peak	PM Peak
Palmetto Road and Senoia Road	F (109.6 s)	F (159.3 s)	C (30.4 s)	C (33.6 s)

Graphic 5.7 - Intersection Improvement at Senoia Road

- **Pedestrian and Bicycle Accommodations**

There is a pedestrian presence along Tyrone Road - Palmetto Road, and providing bike and pedestrian accommodations for residents to travel along Tyrone Road - Palmetto Road and to downtown Tyrone 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 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.

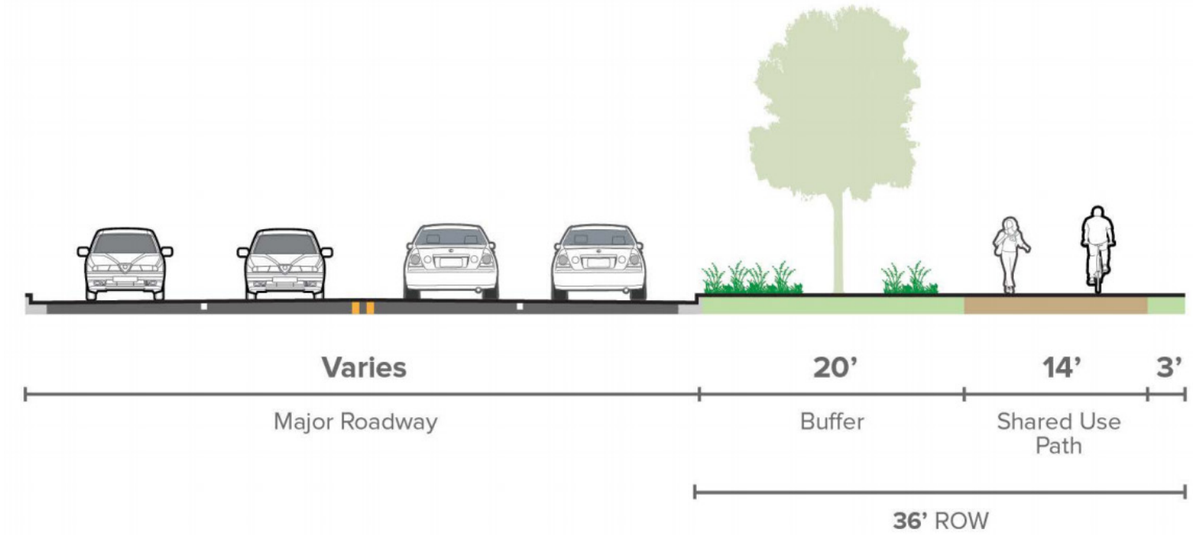
The Master Path Plan specifically recommends the addition of a sidepath along the extent of Tyrone Road - Palmetto Road from the Fayette County line to Ellison Road. Sidepaths, similar to multi-use paths, are trails that can accommodate pedestrians, bicyclists, and golf carts adjacent and parallel to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

In line with recommendations outlined in Fayette County's CTP, a multi-use path is recommended along Tyrone Road - Palmetto Road. The CTP Needs Assessment collected bicycle usage data and Tyrone Road was identified as one of the major commute corridors as well as a prime candidate for multi-use and bicycle lane treatments to accommodate bicyclists already present and to encourage those who are interested but many not feel comfortable riding on the main road.

Given the recommended widening along Tyrone Road-Palmetto Road, the multi-use path is recommended for the full extent of the widening. An initial determination of the preferred side of the path was made based on adjacent land uses, terrain, and desirable opportunities for crossing Tyrone Road - Palmetto Road. Future development and information obtained from more detailed design should ultimately influence the final decision for the alignment.

Graphic 5.8 shows the preferred conditions for a sidepath along a minor roadway as outlined in Fayette County's Path Design Guidelines.

Graphic 5.8 - Side Path Recommendations (CTP Appendix D: Path Design Guidelines)



5.3 Quick Response Recommendations

The proposed list of short-term improvements for Tyrone Road - Palmetto 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 Tyrone Road - Palmetto Road:

1. Clear overgrown vegetation along Tyrone Road - Palmetto 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.

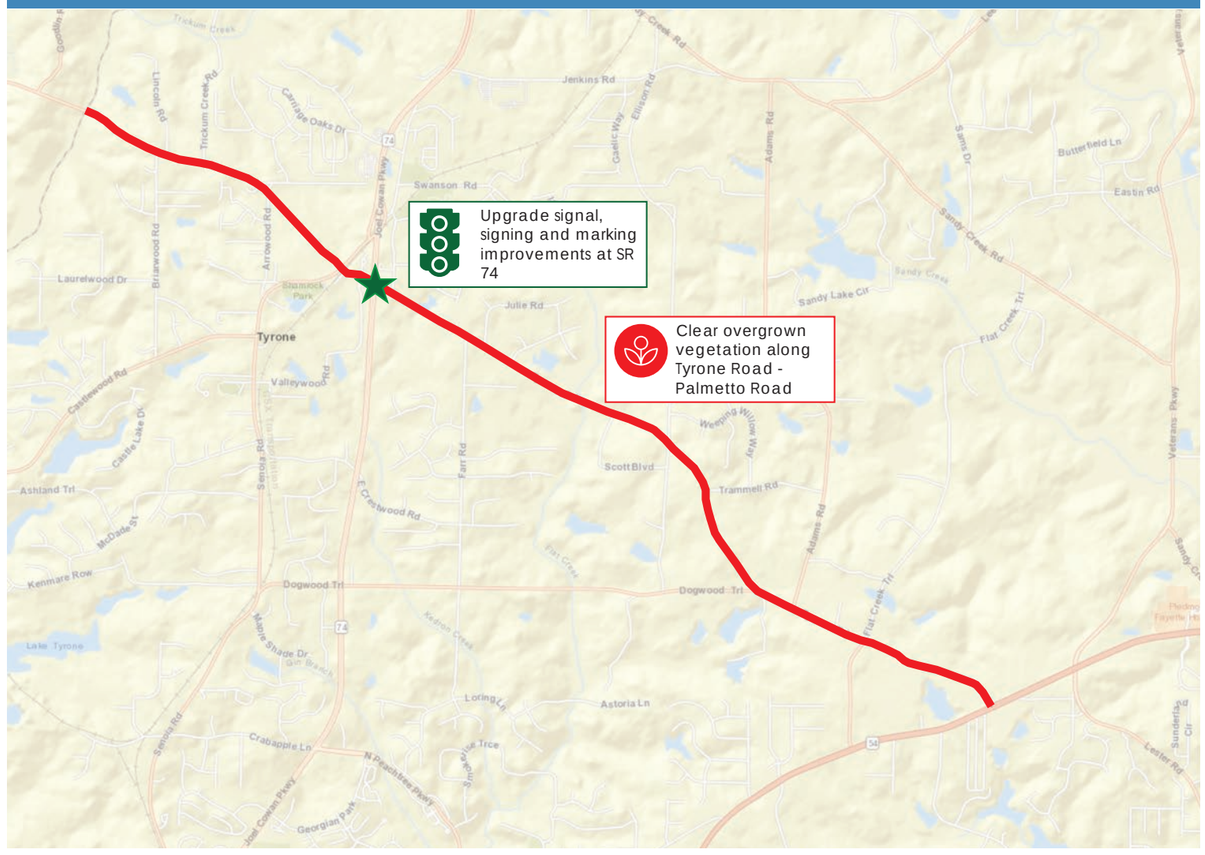
2. Maintenance at SR 74

A request should be made to GDOT to perform routine maintenance at the intersection of SR 74 and Tyrone Road. During the Road Safety Audit, striping on SR 74 approaches were faded and there was no presence of raised pavement markers. Moreover, the westbound left turn phase frequently gapped out during observations while vehicles were still in queue.

Moreover, the pedestrian ramps on the northeast corner are not connected to the rest of the sidewalk network. Quick response recommendations for the intersection include upgrading the signal timing and making signing and marking improvements on all approaches.

Graphic 5.9 shows the the locations of the proposed quick response projects along Tyrone Road - Palmetto Road.

Graphic 5.9 - Quick Response Recommendations On Tyrone Road - Palmetto Road



5.4 Implementation Plan

The implementation plan for Tyrone Road - Palmetto 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, Town of Tyrone, 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.

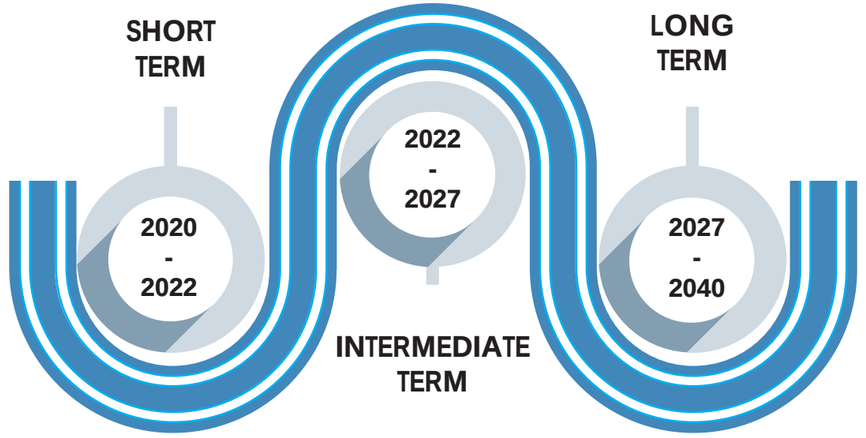
- **Project Scheduling**

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
- 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.

Graphic 5.4 - Project Scheduling



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 Public Comment

Evaluating and recommending potential transportation improvement projects is a multi-pronged process that incorporates technical analyses of existing conditions, travel forecasting, and public engagement. Arriving at the proposed project to widen Tyrone Road-Palmetto Road in phases followed this process.

As part of the project evaluation process, the Town of Tyrone has expressed their desire that Tyrone Road-Palmetto Road not be widened within the Town limits. Elected officials and town residents have identified their reasoning with a primary one being the impact to abutting property owners given the required right-of-way for the widening. With this consideration, it is recommended that the last phase northwest of SR 74 remain as a project but that in the future it be re-evaluated for implementation.

Given the anticipated reduction in crashes, the improvement to Levels of Service with the additional through lane for forecasted volumes, and accommodating the large percentage of truck traffic indicated the roadway widening is the appropriate improvement. However, recognizing that constructing the improvement in one phase is not realistic; thus, this study only recommends the widening from SR 54 to Dogwood Trail, which exhibited the higher need. The subsequent phases are recommended for long term consideration which would allow for more in-depth analysis as these future years are reached.

5.6 Phased Recommended Projects

The following table lists the recommended projects for Tyrone Road - Palmetto 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
TP-1	ROUTINE MAINTENANCE ALONG TYRONE ROAD - PALMETTO ROAD	CLEAR OVERGROWN VEGETATION ALONG TYRONE ROAD - PALMETTO ROAD	SAFETY	TBD	SHORT - TERM
TP-2	INTERSECTION IMPROVEMENT AT SR 74	UPGRADE SIGNAL, SIGNING AND MARKING IMPROVEMENTS AT SR 74	SAFETY, OPERATIONS	TBD	SHORT - TERM
TP-3	INTERSECTION IMPROVEMENT AT ELLISON ROAD	INSTALL ROUNDABOUT AT ELLISON ROAD.	SAFETY, OPERATIONS	$1,400,000	INTERMEDIATE - TERM
TP-4	SENOIA ROAD AT PALMETTO ROAD RE-ALIGNMENT	REALIGN THE INTERSECTION OF SENOIA ROAD AND INSTALL TRAFFIC SIGNAL.	SAFETY, OPERATIONS	$1,325,000	INTERMEDIATE - TERM
TP-5	INTERSECTION IMPROVEMENT AT SR 54	INSTALL TURN LANES AND UPGRADE SIGNAL TIME.	SAFETY, OPERATIONS, CAPACITY	$250,000	INTERMEDIATE - TERM
TP-6	WIDEN TYRONE ROAD FROM SR 54 TO DOGWOOD	WIDEN TYRONE ROAD TO 4-LANES WITH RAISED LANDSCAPED MEDIAN FROM SR 54 TO DOGWOOD TRAIL. PROJECT INCLUDES THE INSTALLATION OF A MULTI-USE PATH ALONG THE SOUTH SIDE OF THE ROAD. INTERSECTION IMPROVEMENT INCLUDE INSTALLING TRAFFIC SIGNAL AT FLAT CREEK TRAIL AND ROUNDABOUT AT DOGWOOD TRAIL.	SAFETY, OPERATIONS, BIKE-PEDESTRIAN IMPROVEMENTS	$14,296,000*	INTERMEDIATE - TERM
TP-7	SAFETY IMPROVEMENTS ON TYRONE ROAD-PALMETTO ROAD FROM COUNTY LINE TO DOGWOOD TRAIL	THE PROJECT WOULD INCLUDE CORRECTING HORIZONTAL AND VERTICAL CURVES, INSTALL ADVANCED WARNING SIGNAGE, ROADSIDE BARRIERS WHERE APPROPRIATE, AND STRIPING IMPROVEMENTS.	SAFETY, OPERATIONS	TBD	INTERMEDIATE - 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.