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# Non-Motorized Plan and Transit Operational Plan Update



Hinesville Area Metropolitan  
Planning Organization

Adopted: February 9, 2017

## ADOPTION RESOLUTION

### HINESVILLE AREA METROPOLITAN PLANNING ORGANIZATION

#### A RESOLUTION ADOPTING THE NON-MOTORIZED PLAN AND TRANSIT OPERATIONS PLAN 2040 METROPOLITAN TRANSPORTATION PLAN

**WHEREAS**, federal regulation for urban transportation planning require that the Metropolitan Planning Organization, in cooperation with participants in the planning process, develop and update the Metropolitan Transportation Plan every five years; and

**WHEREAS**, the Hinesville Area Metropolitan Planning Organization has been designated by the Governor as the Metropolitan Planning Organization for the Hinesville Metropolitan Planning Area; and

**WHEREAS**, the Hinesville Area Metropolitan Planning Organization in accordance with federal requirements for a Metropolitan Transportation Plan, has developed a twenty-year integrated plan for federally-funded highway and transit projects for the Hinesville Metropolitan Planning Area; and

**WHEREAS**, the 2040 Metropolitan Transportation Plan is consistent with all plans, goals and objectives of the Hinesville Area Metropolitan Planning Organization and shall be updated at least every five years with revisions to reflect changes in program emphasis and anticipated funding availability; and

**WHEREAS**, the transportation planning regulations require that the Metropolitan Transportation Plan be a product of a planning process certified as in conformance with all applicable requirements of law and regulations; and

**WHEREAS**, the staff of the Hinesville Area Metropolitan Planning Organization and the Georgia Department of Transportation have reviewed the organization and activities of the planning process and found them to be in conformance with the requirements of law and regulations; and

**WHEREAS**, the locally developed and adopted process for public participation has been followed in the development of the Non-Motorized Plan and Transit Operations Plan as a supplement to the approved 2040 Metropolitan Transportation Plan.

**NOW, THEREFORE BE IT RESOLVED**, that the Hinesville Area Metropolitan Planning Organization Policy Committee endorses the Non-Motorized Plan and Transit Operations Plan as a supplement to the approved 2040 Metropolitan Transportation Plan; and

**BE IT FURTHER RESOLVED**, that the Hinesville Area Metropolitan Planning Organization Policy Committee finds that the requirements of applicable law and regulation regarding urban transportation planning have been met and authorizes the Hinesville Area Metropolitan Planning Organization Executive Director to execute a joint certification to this effect with the Georgia Department of Transportation.

**ADOPTED** this 9th day of February, 2017 by the Hinesville Area Metropolitan Planning Organization Policy Committee.

**SIGNED:**



Mayor Allen Brown, Policy Committee Chair

**ATTEST:**



Jeff Ricketson, AICP; LCPC Executive Director

## PREFACE

As a result of the 2000 Census, the Hinesville Area Metropolitan Planning Organization (HAMPO) was established as a federally designated transportation planning agency to address transportation planning within the urbanized portions of Liberty and Long Counties. According to federal law, the transportation planning process must be carried out by MPOs for designated urbanized areas that exceed a population of 50,000, as well as the area expected to become urbanized within the next 20 years. HAMPO is staffed by the Liberty Consolidated Planning Commission (LCPC) and operates under the leadership of a Policy Committee comprised of elected officials and other decision makers from each participating jurisdiction, the Georgia Department of Transportation, and other state and federal agencies. A Technical Coordinating Committee and Citizens Advisory Committee provide valuable input to the Policy Committee on transportation issues.

As the designated MPO for Liberty County and Urbanized Long County, the HAMPO is responsible for overseeing long range transportation planning within the MPO planning area. The ultimate goal of this planning process is to create an effective public policy framework for mobility and development together with a set of priority transportation investments that will address the area's current and long-term needs and visions.

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The Hinesville Area Metropolitan Planning Organization is committed to the principle of affirmative action and prohibits discrimination against otherwise qualified persons on the basis of race, color, religion, national origin, age, physical or mental handicap, or disability, and where applicable, sex (including gender identity and expression), marital status, familial status, parental status, religion, sexual orientation, political beliefs, genetic information, reprisal, or because all or part of an individual's income is derived from any public assistance program in its recruitment, employment, facility and program accessibility or services.

The Hinesville Area Metropolitan Planning Organization is committed to enforcing the provisions of the Civil Rights Act, Title VI, and all the related requirements mentioned above. The Hinesville Area Metropolitan Planning Organization is also committed to taking positive and realistic affirmative steps to ensure the protection of rights and opportunities for all persons affected by its plans and programs.

The opinions, findings, and conclusions in this publication are those of the author(s) and not necessarily those of the Department of Transportation, State of Georgia, or the Federal Highway Administration.

This document was prepared in cooperation with the Georgia Department of Transportation and the Federal Highway Administration.

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## INTRODUCTION

The purpose of the Hinesville Area Metropolitan Planning Non-Motorized Plan and Transit Operations Plan update is to supplement the multimodal recommendations of the 2040 MTP. As stated in the MTP, significant changes in land use and mobility options within the study area occurred after the adoption of the 2035 LRTP which warranted a comprehensive approach to the 2040 MTP update. These changes include the development of the new Comprehensive Planning Regulations by the Georgia Department of Community Affairs (DCA), the implementation of Liberty Transit fixed route transit system in Hinesville, Fort Stewart and Flemington, the implementation of the Coastal Regional Coaches rural transit system, facility and employment expansions at industrial ports and manufacturing facilities within Liberty County, significant population growth in Long County, and the changing mission and deployment status of Fort Stewart military base.

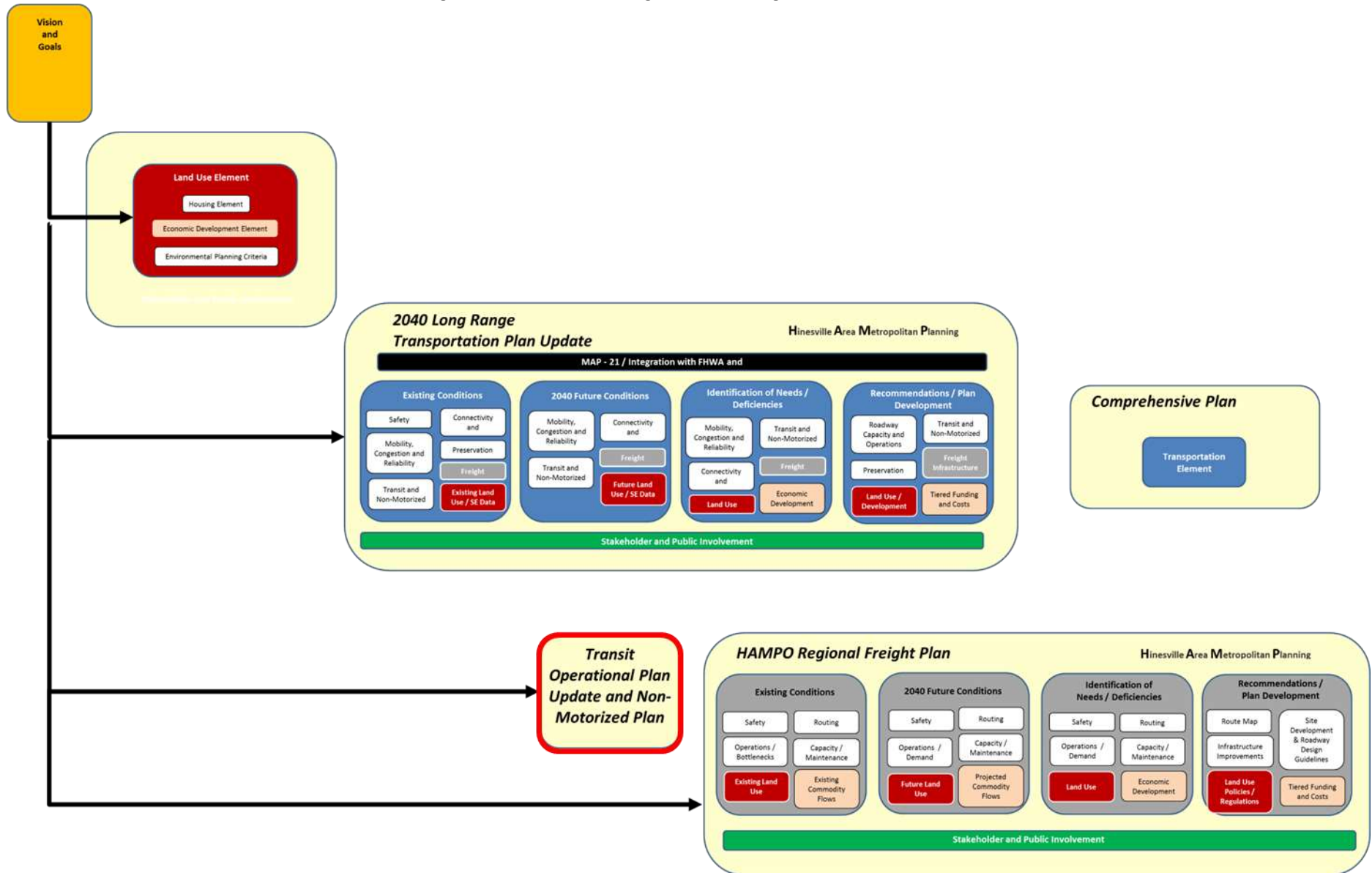
The desire and need to define how these significant changes impact the growth and development of Liberty and urbanized Long Counties and the supporting transportation infrastructure led to the development of an integrated planning approach called *“Forward 40” Progress through Planning*. The Forward 40 study includes the following study components:

- Consolidated Countywide Comprehensive Plan Update – Liberty County
- 2040 Metropolitan Transportation Plan Update
- Transit and Non-Motorized Plan
- HAMPO Regional Freight Plan

The integrated approach to this planning effort establishes a single set of goals and objectives to facilitate coordinated land use and transportation initiatives. A common stakeholder committee was also developed to ensure consistency throughout the planning process. Another significant benefit of the integrated planning approach is the ability to aggregate resources for the planning process rather than repeating data collection, existing conditions analysis, socioeconomic modeling, outreach and committee coordination for each study individually. The figure below demonstrates how the integrated planning approach components function.



Figure 1: Forward 40 Integrated Planning Process

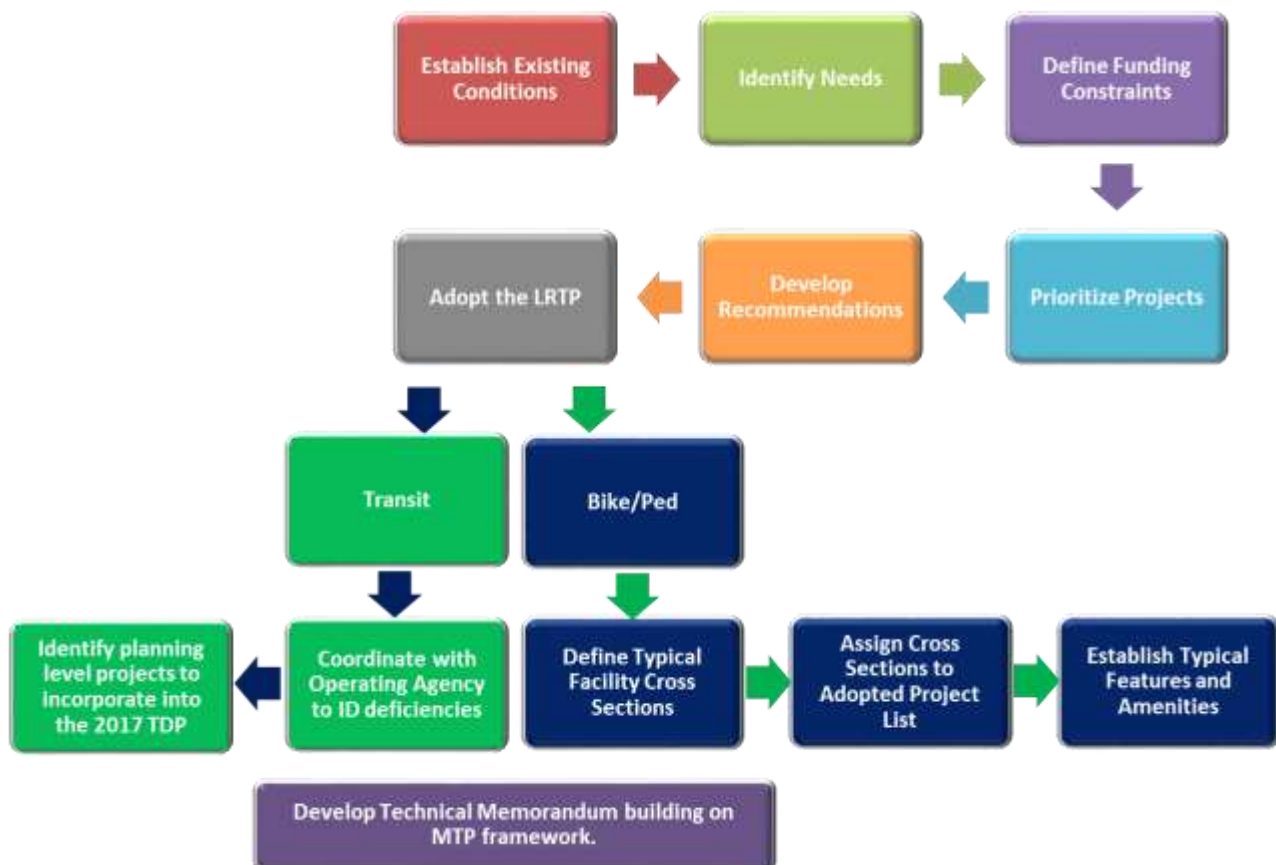


The HAMPO 2040 MTP was adopted September 10, 2016 and included recommendations for various types of surface transportation including streets and roadway projects, bicycle and pedestrian facilities, and transit system improvements. While alternative transportation recommendations were included in these recommendations, the Forward 40 planning process called for a supplemental technical report to be conducted following the adoption of the MTP.

### Planning Process

The process of developing the HAMPO Non-Motorized Plan and Transit Operational Plan Update utilizes the foundation set by the 2040 MTP. The integrated planning model includes comprehensive and consolidated data collection, existing conditions analysis, and public/stakeholder involvement for all study elements. The following figure demonstrates how the non-motorized and transit analysis components relate to the MTP planning process.

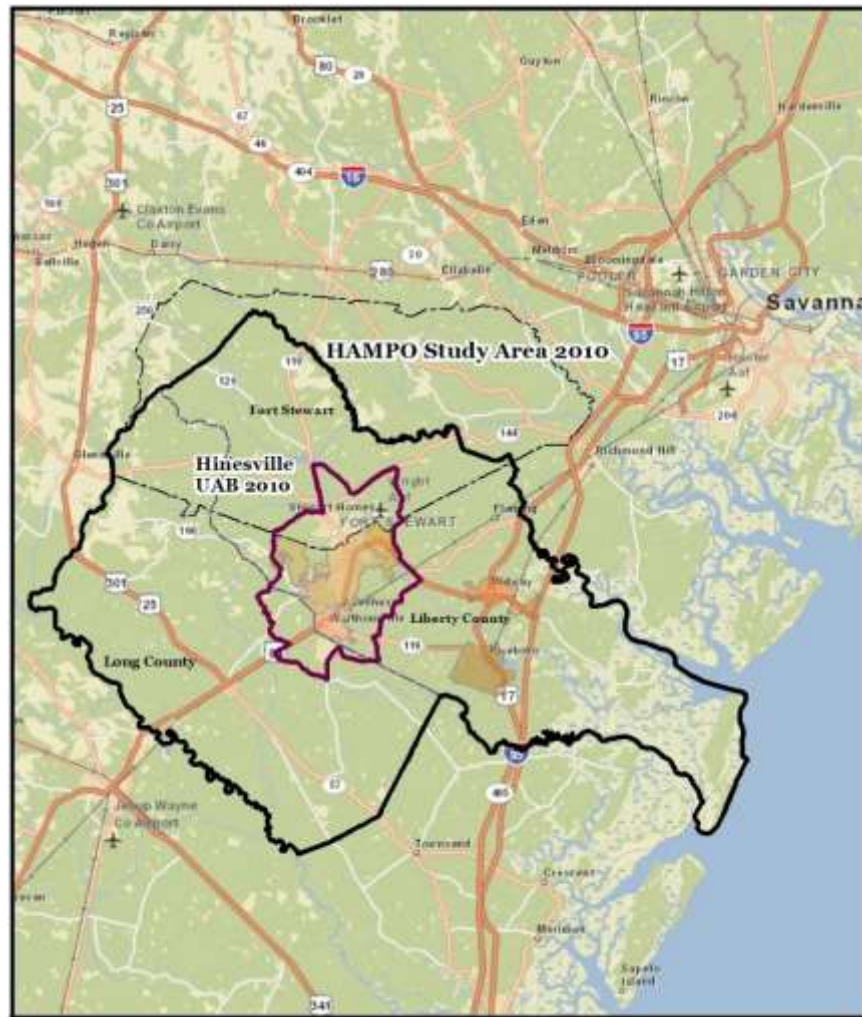
*Figure 2: Non-motorized and Transit Operational Planning Process*



The study area for these plan elements will be consistent with the MTP and will include Liberty County and the urbanized portion of Long County. Figure 3 shows the study area, as well as the geographic relationship to the Metropolitan areas of Chatham County (Coastal Region MPO) and Glynn County (Brunswick Area Transportation Study).



Figure 3: Non-Motorized and Transit Operations Study Area



Source: Hinesville Area MPO

The HAMPO study area is comprised of Liberty County and the urbanized areas of Long County. Liberty County is located along the South Georgia coast and is home to the cities of Hinesville, Walthourville, Midway, Riceboro, Flemington, Allenhurst and Gum Branch. Long County, located along the southwest boundary of Liberty County, is a fast growing community with the single incorporated municipality of Ludowici.

## Goals and Objectives

The goals of the HAMPO Non-Motorized and Transit Operations plans are defined by the goals established by the 2040 MTP. These goals are compliant with the eight (8) Federal planning factors required for inclusion in federally funded planning studies. These factors are as follows:

1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity and efficiency.

2. Increase the safety of the transportation system for motorized and non-motorized users.
3. Increase the security of the transportation system for motorized and non-motorized users
4. Increase the accessibility and mobility of people and for freight.
5. Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns.
6. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.
7. Promote efficient system management and operation.
8. Emphasize the preservation of the existing transportation system.

Building upon the Federal planning factors, HAMPO also incorporated a ninth planning goal focused on improving public information about the planning process and transportation enhancements. The goals and objectives for the integrated plans were developed collaboratively by the Stakeholders committee, members of the public, and the HAMPO Policy, Technical Coordinating, and Citizens Advisory Committees.

Objectives were also established for alternative transportation modes including bicycle, pedestrian and transit system users. These objectives include:

- Establishing a multimodal network that is accessible and connects people to destinations, employment, goods and services.
- Enhance quality of life by providing access to facilities that promote an active lifestyle.
- Improve safety for the traveling public.

These consolidated goals and objectives will guide the Non-motorized and Transit Operations study.

## EXISTING AND FUTURE CONDITIONS

A comprehensive existing and future conditions analysis was conducted and documented as part of the 2040 MTP. Due to the integrated nature of these studies, this report will not restate the findings of the complete Existing and Future Conditions Analysis. The following sections of this report will summarize the findings and highlight elements most pertinent to the non-motorized and transit operational components of the plan.

### Population Densities

Population density is a critical component of the non-motorized and transit study analysis, as concentrations of households represents transportation trip origins. The population of Liberty and Long Counties has maintained an upward growth trend according to the US Census Bureau. The global economic downturn resulted in a deceleration of projected growth in Liberty County, while Long County has experienced exponential growth despite the recession.

In 2010, the US Census reported the population of Liberty County to be 63,453 with a 2014 population estimate of 65,198, a 2.7% increase over the four-year period. The City of Hinesville's 2010 Census

population of 33,437 has experienced an estimated 2.4% population increase over the same four-year period.

The 2010 Census population for Long County was 14,464 with a 2014 population estimate of 17,113, a 15.2% increase. This significant increase in population for Long County is concentrated within the urbanized area directly adjacent to the Liberty County boundary.

As stated in the 2040 MTP, growth in the HAMPO study area is driven by proximity to the interstate, major ports, rail lines, and Fort Stewart/Hunter Army Airfield (HAAF), the largest military installation and strategic projection platform east of the Mississippi River. The employment base and transportation system has been the backbone of growth in the region and will continue to shape how area residents, employees, and visitors live and work.

*The need for alternative transportation infrastructure and investments increases as population densities within the urbanized area increase.*

The need for alternative transportation infrastructure and investments increases as population densities within the urbanized area increase. The HAMPO 2010 urbanized area population is 51,456 with concentrations found within the City of Hinesville, the urbanized areas in Long County, and inside Fort Stewart's cantonment area.

### Employment Densities

In addition to understanding where population concentrations are located within the HAMPO study area, it is also a critical component of the analysis to identify concentrations of employment that will become trip destinations. Comparable to the population distribution within the HAMPO study area, employment is most densely concentrated within the City of Hinesville and Fort Stewart military base. In addition to these primary employment densities, the City of Midway and the City of Riceboro also have a prominent manufacturing and wholesale industry that represents a significant employment base. While Long County's urbanized area has population saturated along the Liberty County boundary, there is a notable lack of employment opportunity within the urbanized area in Long County.

The primary industry in the HAMPO study area is the Service Industry at 64.3% of the total employment. Retail is the second most prominent employment sector with 20.7%, followed by the Manufacturing sector at 11.6% and Wholesale at 3.4%.

According to the US Department of Labor statistics, the unemployment rate for Liberty County in 2014 was 7.9%, representing 2,026 residents actively seeking employment and 7.3% or 485 residents for Long County. The combined employed workforce for both Liberty and Long Counties for 2014 was 29,918.

### Environmental Justice Populations

Environmental Justice (EJ) is a Federal mandate to ensure transportation policy and decision making processes are inclusive of minority and low-income communities, two population groups that are traditionally underserved. Minorities defined as EJ populations include African American, Hispanic, Asian American, American Indian/Alaskan natives, and native Hawaiian/Pacific Island. The following

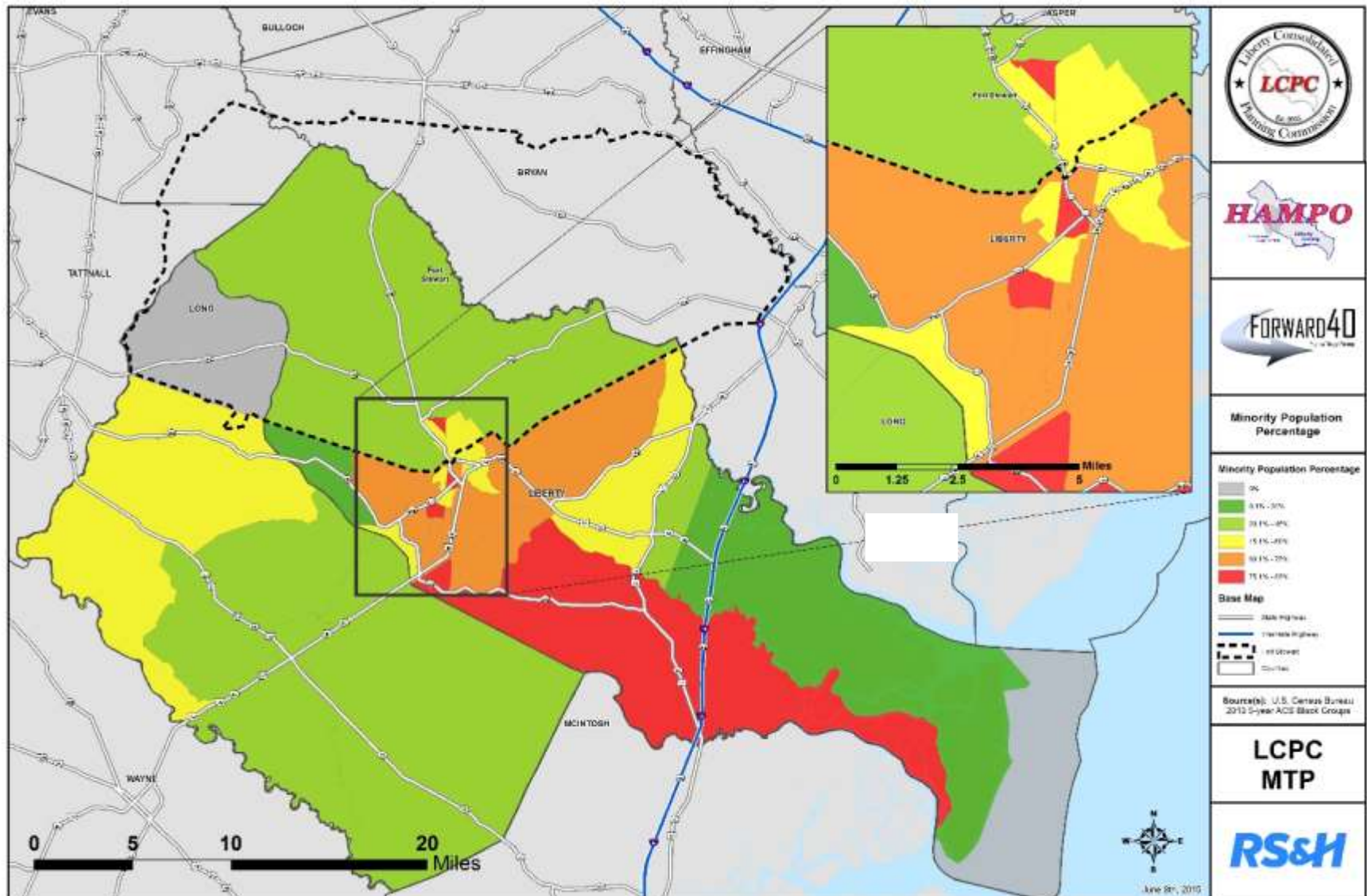
table demonstrates the percentage makeup of EJ populations representing a minimum of 5% of the total population. As stated in the HAMPO 2040 MTP, the demographic populations within Liberty and Long Counties have remained relatively consistent from 2000 to 2013. The most significant increase can be seen in the Hispanic community with an increase of 3.4% in both counties.

*Table 1: Population Groups by Percentage*

<b>Liberty County</b>	<b>2000</b>	<b>2013</b>
White	46.60%	51.10%
African American	42.80%	40.90%
Hispanic	8.20%	11.60%
<b>Long County</b>	<b>2000</b>	<b>2013</b>
White	68.40%	68.10%
African American	24.30%	26.10%
Hispanic	8.40%	11.80%

The following figure shows the geographic distribution of minority populations within the HAMPO region. Concentrations of minority populations are distributed throughout the community, however the most densely concentrated EJ populations are located within the City of Hinesville, Fort Stewart single soldiers housing quarters, the City of Walthourville and the City of Riceboro.

Figure 4: US Census Minority Population Distribution





Environmental Justice populations classified as low income are identified in accordance with the Federal Poverty Level (FPL) thresholds established by the US Census Bureau. The poverty level is based on household income and household size. The following table demonstrates the 2014 FPL thresholds for the 48 contiguous United States, and the District of Columbia.

*Table 2: 2014 Federal Poverty Level*

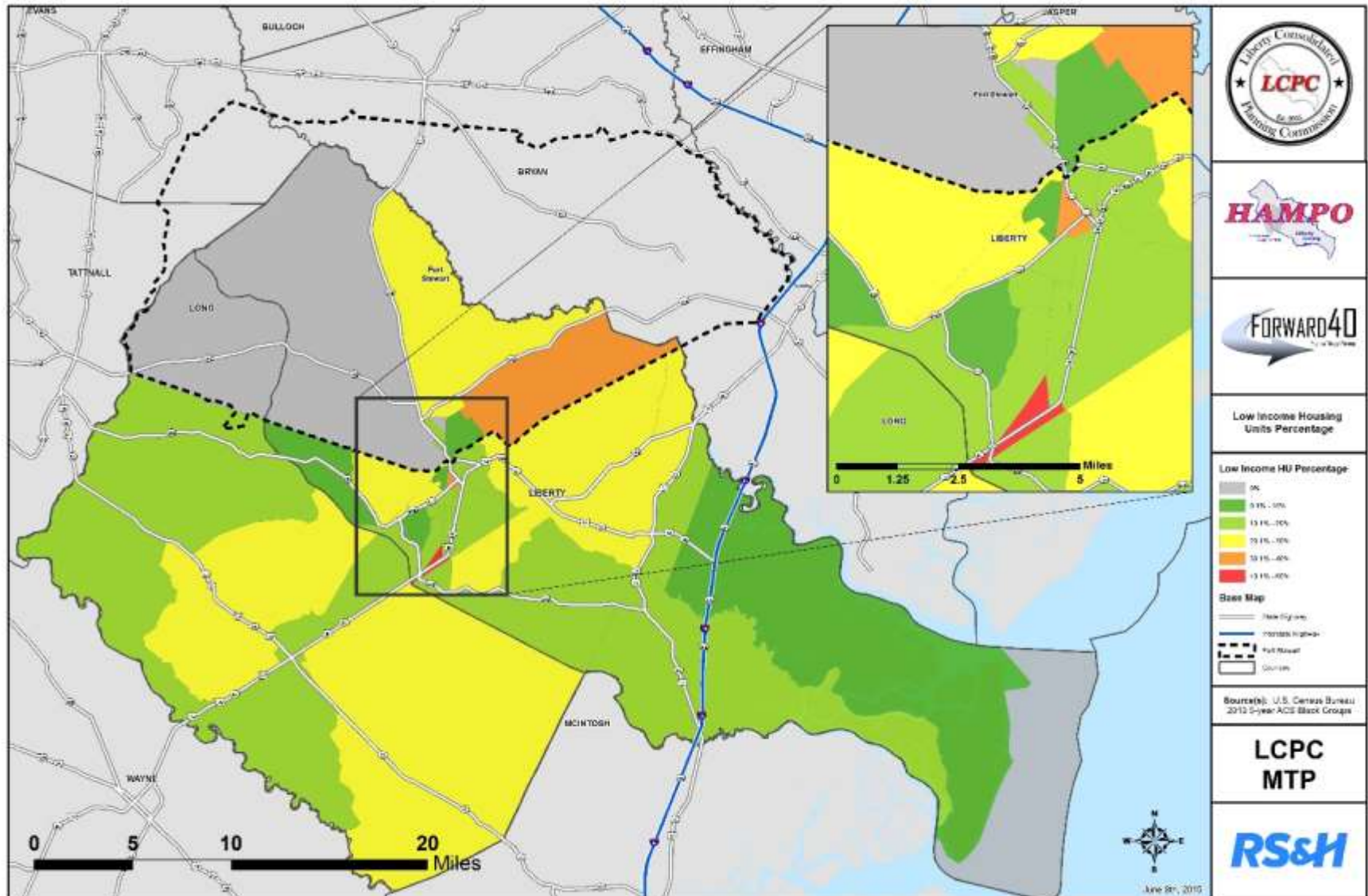
<b>Persons in Household</b>	<b>2014 Federal Poverty Level threshold (100% FPL)</b>
<b>1</b>	\$11,670
<b>2</b>	\$15,730
<b>3</b>	\$19,790
<b>4</b>	\$23,850
<b>5</b>	\$27,910
<b>6</b>	\$31,970
<b>7</b>	\$36,030
<b>8</b>	\$40,090

Source: US Census Bureau

The percentage of the population falling below the federal poverty level in the HAMPO study area have experienced increases from 2000 to 2013, which is consistent with the state and national trends. Liberty County experienced a 5.2 percent increase while Long County experienced a 1.6 percent increase. While both Liberty and Long Counties have realized increases in persons below the poverty level, the rate of increase is lower than the rate of increase for the state at 6.4%. The following figure shows the location of low income populations within the HAMPO study area. The most significant concentrations are located in the City of Hinesville, the City of Walthourville adjacent to US 84, and on the Fort Stewart Military Base adjacent to the 4<sup>th</sup> Infantry Brigade Center.



Figure 5: Low Income Population Distribution

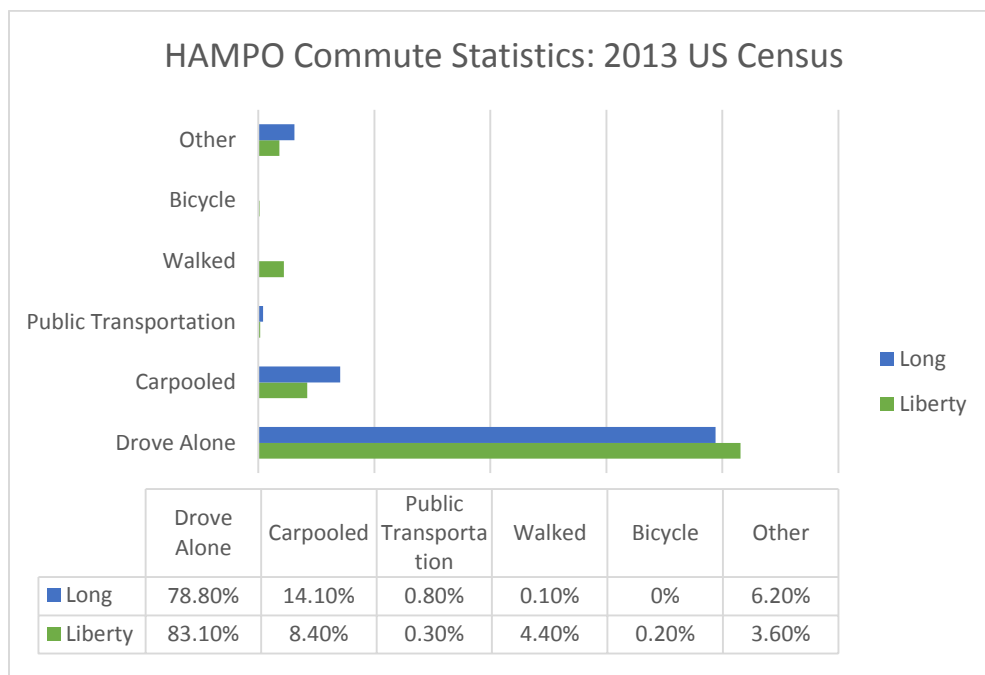


## Multimodal Commute Patterns

As described in the 2040 MTP, HAMPO commute statistics have remained constant over the last 10 year period. According to the US Department of Labor (DOL) in 2013 81% of Liberty County residents were also employed in Liberty County, and 11.1% were employed in Chatham County. Long County's commute patterns are more dispersed than Liberty County's, with 49% employed in Liberty County and only 13.9% in Long County.

In October of 2010, the City of Hinesville and City of Flemington partnered with Fort Stewart to implement a fixed route transit system called Liberty Transit. In addition, a number of bicycle and pedestrian infrastructure projects have been implemented in or connecting to the HAMPO urbanized area. Despite these significant investments and commitment to alternative transportation options, the primary mode of transportation is driving a motor vehicle alone at 83.1%, according to the DOL. The following table was extracted from the MTP report to demonstrate the distribution of commute statistics for the HAMPO area in 2013.

*Table 3: 2013 Census Commute Statistics*



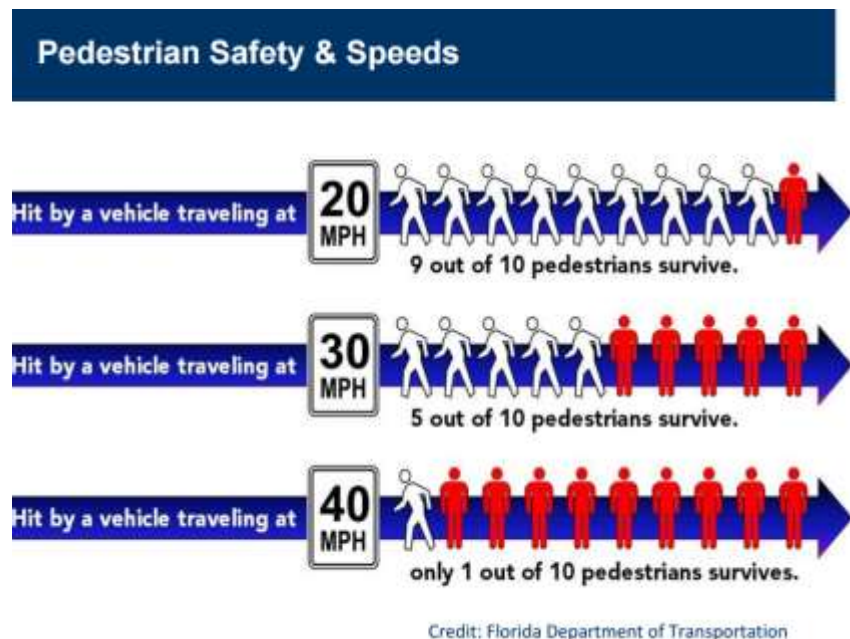
The future population profile for Liberty County includes a significant number of citizens that will be entering an age demographic that traditionally represents an increase in mobility limitations. In addition, a significant increase in population under the age of 16 is also present, resulting in an increase in demand for alternative modes of transportation to facilitate local trips.

## Safety and Security

A significant obstacle in the analysis of bicycle and pedestrian safety is a lack of data to understand the number of users in comparison to those involved in an accident. This analysis will therefore focus on concentrations of accidents within the study area and accident severity.

According to the Georgia Bicycle and Pedestrian Safety Action Plan, bicyclists and pedestrians comprise 10.5 percent of all fatalities in Georgia with the highest concentration of accidents occurring on roadways with speed limits between 25 – 35 mph. Bicyclists and pedestrians are less likely to utilize facilities located along corridors with higher posted speed limits, which results in a lower occurrence of non-motorized crashes. However, most fatalities occur on roads with a posted speed limit of 45 mph because increases in vehicular speeds results in decreased reaction time and stopping distances. The following figure was developed by the Florida Department of Transportation and demonstrates the correlation of vehicular speed to likely survival outcomes when a pedestrian crash occurs. This figure is utilized by HAMPO to educate stakeholders and the public about bicycle and pedestrian safety.

Crash data for the HAMPO study area was collected from the GDOT Georgia Electronic Accident Reporting System (GEARS)<sup>1</sup> web-based repository for traffic accident reports completed by GA law enforcement agencies. Bicycle and pedestrian crash data was extracted for years 2011 – 2014 and mapped by crash type, location, and severity. The following figure shows the aggregated bicycle and pedestrian crashes for Liberty and Long Counties over the five year period. Concentrations of pedestrian crashes are located along US 84/Oglethorpe Highway in Hinesville, SR 196/EG Miles in Hinesville, General Screven Way in Hinesville.



The HAMPO 2040 MTP made safety and security a primary factor in the project prioritization process to ensure that future transportation investments advance the MPO goals to provide a safe and dependable transportation network for all users. Where feasible, bicycle and pedestrian facilities were recommended to accompany highway improvement projects in the fiscally constrained project list to advance safety and security goals for the region.

## Traffic

Vehicular traffic is a primary factor effecting non-motorized travel behaviors. As previously stated, high speed corridors without protected bicycle and pedestrian infrastructure are less comfortable for non-motorized users, and are therefore avoided when possible. These corridors become obstacles or

<sup>1</sup> <https://www.gearsportal.com/Pages/Public/Home.aspx>

transportation barriers for bicyclists and pedestrians in a community. Vehicular traffic volumes and congestion also plays a critical role in the comfort of the non-motorized facility user. Primary corridors, identified during the development of the 2040 MTP, with degraded levels of service and higher occurrences of vehicular traffic congestion are located in HAMPO urbanized area along US 84 / Oglethorpe Highway, SR 196 / EG Miles Parkway, General Screven Way, and General Stewart Way, Veterans Parkway, and South Main Street.

The MTP recognized a number of these corridors as deficient for bicycle and pedestrian infrastructure that would facilitate non-motorized travel in the MPO area. As a result, highway improvement projects were recommended to include access management measures to implement channelized raised medians with landscaping to provide safe crossing opportunities and shade for pedestrians. Access management was also recommended as a tool to improve traffic congestion, by eliminating conflict points for vehicles entering and exiting the roadway, reducing curb cuts, and realigning roadways to create more functional intersections. These projects were recommended for US 84 / Oglethorpe Highway, EG Miles Parkway, and General Screven Way.

## Environmental Factors

As a historic and coastal community, Liberty County has unique opportunities for the citizens and visitors to access educational and recreational amenities such as community dock facilities, fishing piers, nature conservations, tidal creeks, historical and cultural museums, and nature trails. A majority of these significant cultural and environmental assets do not have non-motorized infrastructure available to facilitate access. Accessibility to cultural and environmental destinations was a key theme in the Riceboro Masterplan developed in 2011, which recommended the “Legacy Loop” trail. This concept mirrors the HAMPO commitment to encourage an active and healthy lifestyle and improve the quality of life for the community by providing accessible transportation options for all users.

These community assets also promote economic development through traditional and eco-tourism based industries. The presence of non-motorized infrastructure interconnecting coastal counties improves opportunities for this growing industry and further improving the quality of life for residents in the HAMPO region. This concept is a key element of the Coastal Georgia Greenway that recommends various non-motorized elements along the US 17 corridor through Liberty County, the City of Midway and the City of Riceboro.

In contrast to the educational and recreational opportunities present in Liberty and Long Counties, the environmental and historic resources also pose significant challenges to construction of non-motorized infrastructure. The presence of wetlands, floodplains, mature specimen trees, and historic structures and sites adjacent to roadways and proposed trail alignments can limit the opportunities for

*Cay Creek Wetland Interpretive Center*





implementation of infrastructure. Climate change and rising sea levels should also be considered when planning for future transportation investments. Accessibility improvements must be carefully balanced with the protection of vital community resources.

## Recreational Facilities

The Liberty County Recreation Department maintains a comprehensive list of parks and facilities within the HAMPO study area. This web-based resource includes descriptions of site amenities as well as google maps of the property locations. The parks and facilities listed by the LCRD includes:

- Liberty Independent Troop Park
- James A. Brown Park
- Joseph Miller Park
- Gum Branch Park
- Eve Park
- Briar Bay Park
- Stafford Pavilion
- Jones Creek Park
- Sunbury Dock
- Riceboro Fishing Area
- Riceboro Dock
- Hillery Park
- Jesse Stevens Park
- Holmestown Park
- Irene B. Thomas Park
- Hinesville Swimming Pool
- Midway Swimming Pool
- Skate Park

In addition to these park resources, the individual municipalities within the HAMPO region also own and maintain a number of recreational facilities. These resources were catalogued including:

- Bradwell Park
- Main Street Park
- Jack Carter Park
- Julius Singleton Park
- Victory Park
- Flemington Park
- Wildwood Park
- Bryant Commons

The park facilities range from passive recreational facilities to structured recreation facilities including ball fields, and community meeting centers. The facilities were considered key destinations for multimodal trips and were assessed to determine if adequate non-motorized infrastructure was available to facilitate accessibility to these community resources.

## Bicycle and Pedestrian Facilities

During the development of the HAMPO Non-Motorized Plan, an important step early in the process was to inventory the existing bicycle and pedestrian facilities and conditions in the area to establish a baseline. Like many small urban communities throughout the U.S., the HAMPO region has traditionally focused on planning for, and improving, the vehicular transportation network, while the non-motorized transportation infrastructure lagged in focus and investment.

In order to gain a more robust understanding of the existing conditions and needs within the MPO study area, an extensive survey and analysis of existing infrastructure was conducted and critical gaps identified. This survey began with the collection and analysis of available data, including GIS data, aerial satellite imagery, and studies and plans that were already completed for the HAMPO region.

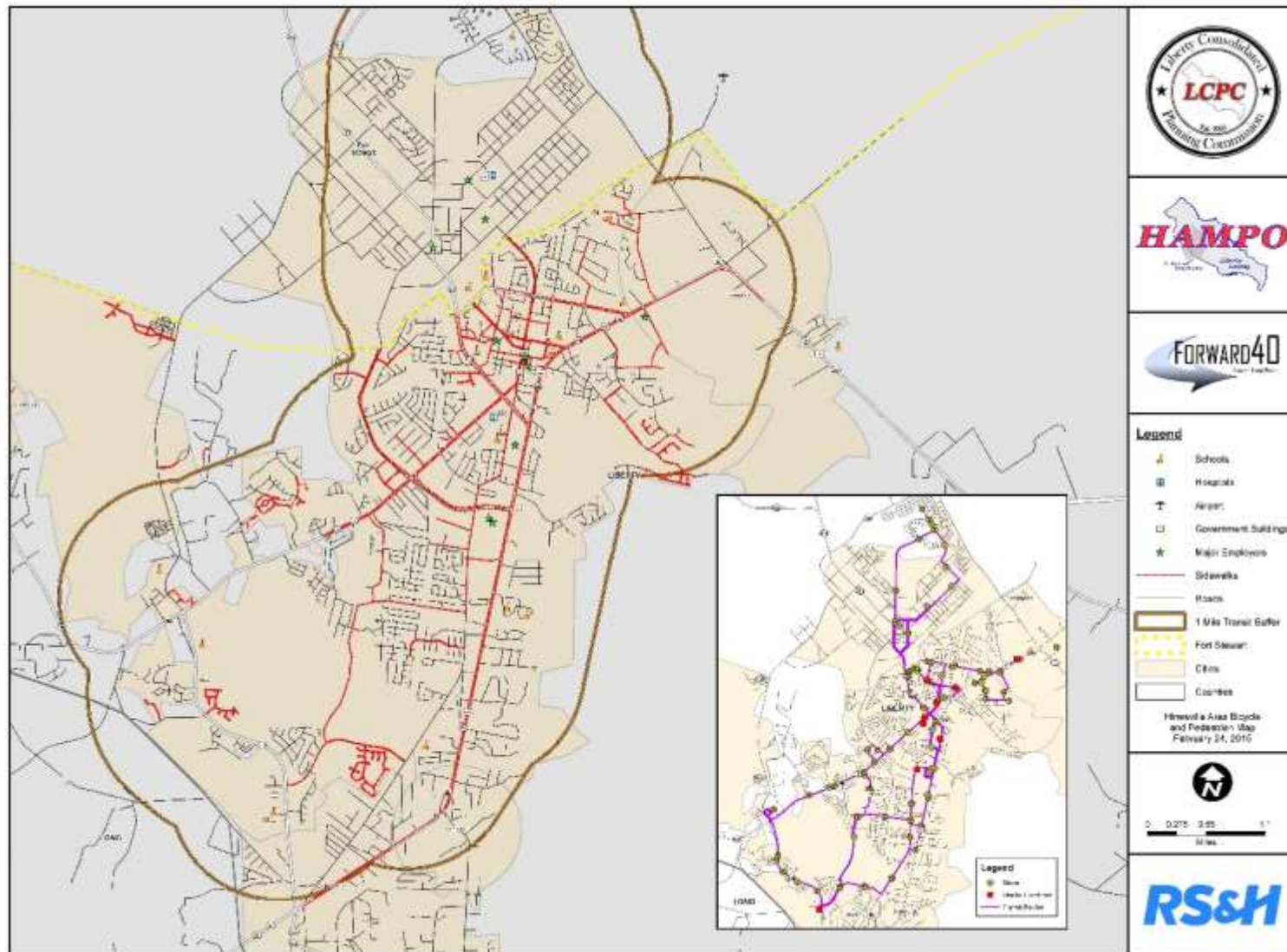
The existing data was compiled and overlaid on satellite imagery in order to identify existing infrastructure and gaps in the bicycle and pedestrian facilities network. During the development of the 2040 MTP, origins and destinations for trip ends were identified for the HAMPO region and were utilized

in the non-motorized analysis to inform where critical connectivity gaps between activity centers were located. The existing and planned service area and route structure for the Liberty Transit urban fixed route system was also a primary factor used to identify critical non-motorized facility gaps in providing access to transit stops. As with all modes of transportation, a trip for the transit user will always begin and end with a bicycle and/or pedestrian trip component. All transit stops were screened to determine if adequate pedestrian facilities were available within  $\frac{3}{4}$  of a mile or connecting major trip generators such as employment, community service and multifamily housing centers. Although  $\frac{1}{4}$  mile is the typical buffer for transit stops, this effort used the  $\frac{3}{4}$  mile buffer due to the transit systems deviated service within  $\frac{3}{4}$  mile of the transit route.

The existing conditions and gap analysis revealed that the majority of existing facilities are located within the HAMPO urbanized area, and specifically in the downtown area of Hinesville. The City of Hinesville has identified the need to improve bicycle and pedestrian infrastructure, especially in the older, disadvantaged portions of the City. As noted previously, the city did not require installation of sidewalks during the development process prior to 1999, and a high percentage of the bus stops that serve housing areas developed within this timeframe are either without sidewalks or have sidewalks that are substandard. The following figure shows the Liberty Transit service area and existing non-motorized infrastructure within the HAMPO urbanized area.



Figure 6. Liberty Transit Service Area and Existing Pedestrian and Bicycle Facilities



Other existing infrastructure includes rural non-motorized facilities, designated primarily along state routes, throughout the planning region, including SR 196/Leroy Coffey Highway and US 17. US 17, located on the East end of Liberty County, serves unincorporated Liberty, the City of Midway, and the City of Riceboro, and is a designated Georgia State bicycle route. US 17 is also a primary component of the Coastal Georgia Greenway (CGG) trails plan that was endorsed by the GDOT Coastal Georgia Regional Bicycle and Pedestrian Plan as the top priority bicycle facility to be developed in the region. The Coastal Georgia Greenway is envisioned as a 155-mile trail system suitable for a variety of non-motorized users, which will connect South Carolina to Florida through Georgia's six coastal counties, and is a component of the larger East Coast Greenway. The regional plan encouraged local governments to identify locations where sidewalks or shared paths may be developed along the US 17 corridor to advance the development of the CGG network.



In addition to the Coastal Georgia Regional Plan, the City of Midway and City of Riceboro have adopted master plans that includes recommendations for bicycle and pedestrian facilities where multimodal gaps are present. These recommendations have all been incorporated into the HAMPO non-motorized facilities analysis as components of the regional bicycle and pedestrian network.

### New Non-Motorized Facilities

Since the adoption of the 2035 Sustainable Mobility Plan, municipalities within the HAMPO urbanized area have taken action to implement various bicycle and pedestrian facilities. Examples of these recent



Source: City of Hinesville

non-motorized capital projects are found in the City of Hinesville, the City of Flemington, and unincorporated Liberty County. These projects have been accomplished through a variety of strategies and funding sources including federal, state, and local. Through a combination of local funding and acquisition of Transportation Enhancement (TE) or Transportation Alternatives Program (TAP) funding administered by the Georgia Department of Transportation and the MPO, the City of Hinesville and City of Flemington have begun the process of investing in non-motorized facilities. The City of Hinesville

successfully acquired TAP funding for non-motorized improvements and enhancements along Memorial Drive from US 84 to Fort Stewart and Central Avenue in the downtown district. These projects incorporated roadway realignment, multipurpose paths for pedestrians and bicyclists, lighting, signage, and landscaping, and were completed in May 2015.

The City of Flemington also leveraged TAP funds for the completion of sidewalks along US 84/Oglethorpe Highway from the existing facilities terminus adjacent to Applebee's to the intersection at Old Hines Road, completed in April 2015. Using Special Purpose Local Option Sales Tax (SPLOST) funds, the Liberty County Board of Commissioners implemented sidewalks, bicycle storage facilities, pedestrian amenities, and landscaping adjacent to their headquarters on North Commerce Street.

Additional non-motorized facilities have been implemented throughout the HAMPO region in conjunction with highway facility projects. These projects are as follows:

- Veterans Parkway widening phase I and II – Multipurpose bicycle and pedestrian paths and crossings
- 119/Airport Road widening – Multipurpose bicycle and pedestrian path and sidewalk with raised center islands
- 196 East/Leroy Coffey Highway widening – Rural non-motorized shoulder facilities

The GDOT has also worked closely with the City of Hinesville and City of Flemington engineers to identify and mitigate non-compliant ADA facilities along state routes within the urbanized area. These efforts took place in 2014 and were focused primarily along US 84/Oglethorpe Highway and SR 196/EG Miles Parkway and included upgrades to handicapped-accessible ramps, the addition of tactile paving panels at crossings, infrastructure repairs, and other modifications. Additional improvements have been implemented throughout the urbanized area as needs are identified.

## Transit

The HAMPO region is currently served by a variety of public and private transportation services with variations in service delivery models. The primary transportation service providers include:

- Fixed route public transportation – Liberty Transit
- Regional demand response rural transit service – Coastal Regional Coaches
- Intercity transit service – Greyhound

These primary service providers are supplemented by private transport companies that provide purchase of service and non-emergency human service trips, taxis, Uber car service, private shuttles, and car/limousine services.

### Fixed Route Transit

Liberty Transit is a fixed-route transit system that began operation in October 2010. The service area for the system includes the municipalities of Hinesville and Flemington, as well as the Fort Stewart military base. Liberty Transit currently operates three fixed routes throughout the service day and runs from approximately 6:00 a.m. to 7:30 p.m. Monday through Friday. The regular fare for one way service is \$1

with discounted rates available for senior citizens and Medicare card holders. Curb-to-Curb demand response service is available for eligible passengers at a rate of \$2.00 for a one way trip. The Liberty Transit system operates a fleet of 9 buses, each equipped with ADA compliant wheelchair lifts and tie downs as well as bicycle racks for multimodal passengers.

The Liberty Transit System is governed by the City of Hinesville Council with oversight and recommendations provided by the Transit Steering Committee (TSC). The TSC is comprised of the Mayor of Hinesville, Mayor of Flemington, Liberty County Board of Commissioners Chairman, and a non-voting Fort Stewart representative. The TSC meets monthly to discuss various aspects of the system such as operational performance, service complaints and issues expressed by citizens, capital improvement projects, and planning efforts. In the initial stages of transit service, there were several factors that limited the growth of the system, including a lack of funding and limited ridership due primarily to lack of information and exposure to the new transportation option.

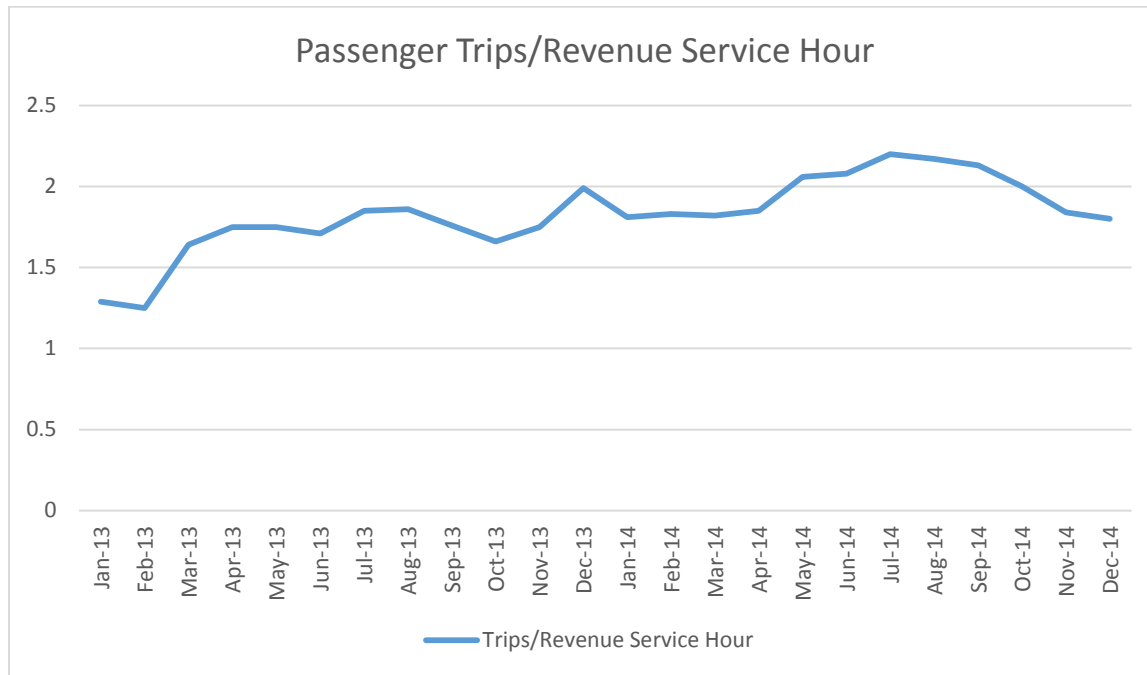
In response to these initial system challenges, the Hinesville MPO completed an update to their Transit Development Plan (TDP) called the Liberty Transit Strategic Plan; which resulted in a revamped route structure and service plan. A Transit Development Plan (TDP) is required by federal and state agencies and provides a five-year capital and operating program and a longer term 10-year guide and planning tool for the transit agency. The components of a TDP update include public involvement, coordination with other state and local transportation plans, an assessment of the existing and future conditions, agency goals and objectives, the development and evaluation of alternative strategies and action steps, a financial analysis, a five-year operating plan, and a 10-year implementation plan for the identified longer term strategies. The following table is the five year financial outlook for the Liberty Transit system, which provides the actual system expenditures for fiscal years 2012 – 2014, along with the 2015 budget and projections for the next five years. The implementation of the 2012 Strategic Plan recommendations can be seen in the significant reduction in system operating expenditures in FY 2013/2014.

	FY 2012 Actual	FY 2013 Actual	FY 2014 Actual	FY 2015 Budget	FY 2016 Estimate	FY 2017 Estimate	FY 2018 Estimate	FY 2019 Estimate	FY 2020 Estimate
<b>Revenues</b>									
Federal & State Funding	639,245	553,367	414,306	462,522	754,929	777,534	800,846	824,895	849,893
Farebox	21,832	14,324	12,995	12,000	12,240	12,485	12,734	12,989	13,248
All Other Revenues	36,017	53,077	10	6,000	6,000	6,000	6,000	6,000	6,000
Flemington Local Match	12,581	3,099	4,214	5,055	6,408	6,900	6,798	7,003	7,214
City of Hinesville Local Match	583,675	143,760	195,494	234,438	297,315	306,195	315,370	324,849	334,647
<b>Total Revenues</b>	<b>\$ 1,293,450</b>	<b>\$ 767,427</b>	<b>\$ 627,019</b>	<b>\$ 720,915</b>	<b>\$ 1,076,897</b>	<b>\$ 1,108,814</b>	<b>\$ 1,141,751</b>	<b>\$ 1,175,736</b>	<b>\$ 1,210,803</b>
<b>Expenses</b>									
Operations Contract	1,129,804	643,376	506,435	554,101	570,724	587,546	605,481	623,045	642,354
Associated Transit Improvements	-	-	-	-	335,715	345,786	356,160	366,045	377,850
Fuel	117,415	63,435	50,935	60,364	62,175	64,040	65,961	67,940	69,978
Administration	2,394	7,577	5,625	11,000	11,000	11,000	11,000	11,000	11,000
Mobility Management	23,945	26,667	40,000	40,000	40,000	40,000	40,000	40,000	40,000
Maintenance	12,106	7,854	889	4,500	4,725	4,961	5,209	5,469	5,742
General Operating	3,089	11,991	15,179	40,000	42,053	44,156	46,364	48,662	51,116
Marketing	4,607	6,427	4,756	10,000	10,500	11,025	11,576	12,155	12,793
<b>Total Expenses</b>	<b>\$ 1,293,450</b>	<b>\$ 767,427</b>	<b>\$ 627,019</b>	<b>\$ 720,915</b>	<b>\$ 1,076,892</b>	<b>\$ 1,108,814</b>	<b>\$ 1,141,751</b>	<b>\$ 1,175,736</b>	<b>\$ 1,210,803</b>
	-	-	-	-	-	(10)	0	0	(10)

Since the implementation of the Strategic Plan recommendations, the service has experienced increased ridership and efficiency, demonstrated in Figure 7. The number of passengers utilizing public

transportation for every hour of service offered by Liberty Transit has increased over the past 24 months.

*Figure 7. Liberty Transit Passenger Trips per Revenue Service Hour*



In February 2014 the transit system implemented a service area expansion to serve more of the low-income, transit-dependent residents of the transit agency's service area. The expanded service area denoted by dashed lines in the Southwestern service quadrant can be seen in Figure 8.



Figure 8. Liberty Transit 2012 Service Expansion Route Map





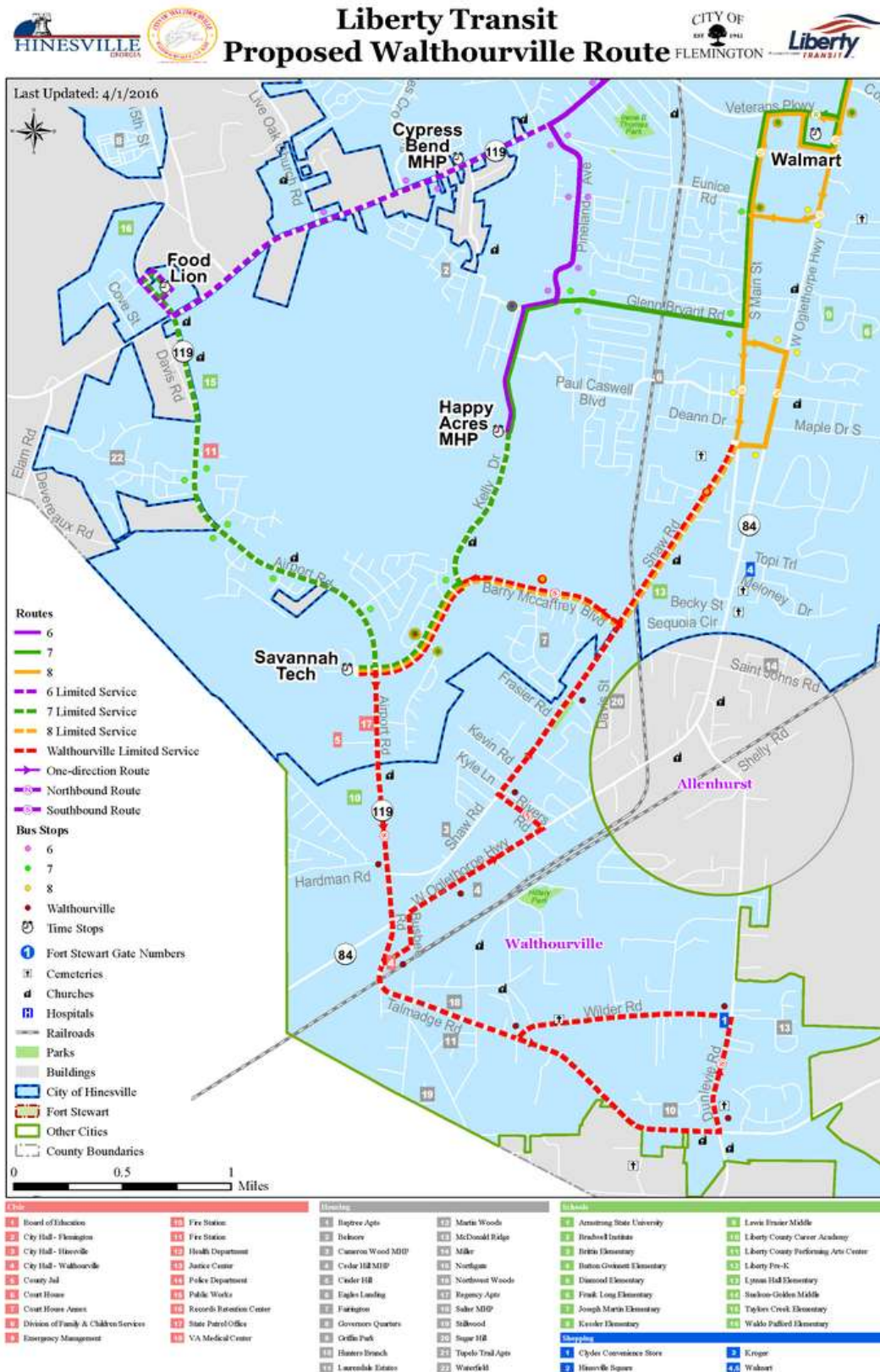
The 2012 Strategic Plan recommendations included the extension of service into the City of Walthourville to access concentrations of disadvantaged populations and provide an affordable and dependable transportation option. The City of Walthourville postponed implementation of service in order to further analyze the availability of fiscal resources for ongoing operational costs and to perform community outreach to ensure local use and support of the service.

Following extensive coordination and negotiation efforts, the City of Walthourville entered into a service agreement with the City of Hinesville, expanding fixed route transit service for a 90 day pilot project beginning September 19, 2016. Open house meetings and public hearings were conducted prior to the service launch to engage with citizens and explain the new service, as well as seek feedback on bus stop locations and scheduled service timepoints. Walthourville is served by an extension of Route 8 (Gold Route) and is offered on a limited schedule with trips three times per day at roughly 8:00 AM, 1:00 PM, and 5:00 PM. Following the 90 day trial period, performance of the service will be analyzed and a determination will be made by the Walthourville City Council to continue offering service or to discontinue the pilot project.

The Liberty Transit System is also in the process of transitioning from a Deviated ADA Transit Service to a Complementary Paratransit Service. Formerly, the Liberty Transit bus would deviate from its fixed route for preschedule ADA eligible trips within  $\frac{3}{4}$  of a mile of the service. The new service will become a standalone paratransit service that will operate a paratransit bus and will follow the recently adopted Liberty Transit Complementary Paratransit Service Plan. These services will be available to all eligible passengers within  $\frac{3}{4}$  of a mile of the fixed route service, including the expanded service areas within the City of Walthourville. Service is scheduled to begin in February 2017.

The following figure shows the newly expanded service area with service to residential areas, community resources including the post office, fire and police departments, city hall, shopping centers, and faith based institutions.

Figure 9. Liberty Transit 2016 Service Expansion Route Map



The Liberty Transit system, in close coordination with HAMPO, has also completed an Associated Transit Improvements Analysis and implemented a program that funds and constructs bicycle and pedestrian infrastructure supporting the last mile accessibility of the transit system.

FTA Circular 9030.1E establishes the “Associated Transit Improvement”<sup>2</sup> project qualifications and eligible project elements. Bicycle and pedestrian paths within a certain distance from a transit stop or station are eligible capital projects and qualify as associated transit improvements. Pedestrian paths located within 0.5 miles of a transit stop or station and bicycle paths located within three miles of a transit stop or station are eligible projects. Projects outside this distance may be eligible if they are within a distance that a person could safely and conveniently walk or bicycle to the stop or station. The analysis utilized the HAMPO non-motorized gap analysis as a framework for identifying projects for further analysis. A stakeholders committee was established and was comprised of Local Officials, Bicycle Community Representatives, Local Municipalities, HAMPO Committee Chairs, Development Authority, Emergency Responders, Planning Commission, Transit Providers, Recreation Department, Schools, Social Services and Technical Advisors.

The committee was convened in April of 2016 to approve a list of 28 proposed sidewalk projects in the City of Hinesville and City of Walthourville. The committee collaboratively established ranking criteria to be used for the prioritization of the proposed projects. The evaluation included ten factors and corresponded to three goals:

Goals:

- Improve accessibility to essential services;
- Provide pedestrian facilities to the underserved/disadvantaged neighborhoods; and
- Maximize the number of potential users of the pedestrian facilities.

Factors:

- Percent population below poverty
- Percent population above age 65
- Percent population below 18
- Percent households without vehicles
- Percent minority
- Population density
- Daytime population density
- Proximity to essential services
- Density of bus stops within 500 feet of the proposed project
- Road functional class of the proposed project

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<sup>2</sup> FTA Circular C 9030.1E – “Associated transit improvements” includes projects or project elements that are designed to enhance public transportation service or use and are physically or functionally related to public transportation facilities. Eligible improvements include historic preservation, rehabilitation, and operation of historic public transportation facilities intended for use in public transportation service; bus shelters; landscape and street-scape, including benches, trash receptacles, and street lights; pedestrian access and walkways; bicycle access, including bicycle storage facilities and installing equipment for transporting bicycle on public transportation vehicles; signage; enhanced access for people with disabilities to public transportation.

A 500' buffer area was applied to all proposed projects and each was analyzed using the ten weighted factors to establish project priority. These prioritized projects will be funded using 5307 "Associated Transit Improvements" <sup>3</sup> funding aggregated from unutilized 5307 transit operating allocations over a four year period.

These projects were included in the non-motorized study as transit supportive infrastructure projects.

#### Rural Transit Service

Coastal Regional Coaches, part of the HAMPO transit network, provides regional rural public transit service to the general public. The Coastal Regional Commission (CRC) offers service within the Georgia counties of Bryan, Bulloch, Camden, Chatham, Effingham, Glynn, Liberty, Long, McIntosh, and Screven. Coastal Regional Coaches is a demand-response, advance-reservation service that operates Monday through Friday from 7:00 A.M. until 5:00 P.M. The fare per rider is \$3 per boarding (one-way) within the county of residence. For travel outside the county of residence, the fare will vary based on the number of counties traveled. By rule, the Coastal Regional Coaches cannot provide transportation from one urban area to another urban area. However, a potential traveler may find an address nearby that is considered rural and be picked up and returned to that location; for example, many people from Hinesville (urban) need transportation to Savannah (also urban). The Applebee's restaurant in Hinesville is located in a designated rural area, so if passengers can get to that location, they can be picked up and returned there. All CRC transit service vehicles are fully equipped for handicapped and wheelchair passengers.



The CRC rural transit system is funded through a combination of federal, state, and local funds. Annual federal grant funding sources used to offset the capital and operational deficits include the Enhanced Mobility of Seniors and Individuals with Disabilities program (Title 49 U.S.C section 5310), and the Rural Transit Assistance Program (Title 49 U.S.C section 5311). Additional discretionary grant sources are pursued on an annual basis including the American Recovery and Reinvestment Act (ARRA) 5307 capital grant. The CRC also partners with Liberty Transit for purchase of service transportation for eligible participants.

#### Intercity Transit Service

Greyhound intercity bus service is offered in Liberty County, with one station located at Fleming Food Mart on Hwy 196. Tickets are available for purchase during the operating business hours of the convenience store:

- Monday – Friday >> 6:00 AM – 8:00 PM
- Saturday >> 6:00 AM – 9:30 AM
- Holidays >> 6:00 AM – 8:00 PM

## EXISTING PLANS AND INITIATIVES

Liberty County and HAMPO have undertaken a number of local transportation and land use studies that would influence planning for future bicycle and pedestrian infrastructure. These plans were reviewed and the recommendations screened for incorporation into this analysis. The summaries in the following table provide an overview of the findings and recommendations included in these studies.

*Table 4: Summary of Existing Plans*

Existing Local Plans	
1	<p><u>Downtown Hinesville Circulation Study - 2008</u></p> <p>The Downtown Hinesville Circulation Study analyzes the existing state of the area's transportation and land use networks, identifies operational and infrastructure deficiencies, and recommends improvements for traffic circulation, pedestrian facilities, and access to the transit system. The study area for this plan was limited to the "core downtown" area within the City of Hinesville. Recommendations from this study were reviewed for current status and assessed for validity given current conditions.</p> <p><a href="http://thelcpc.org/wp-content/uploads/2013/08/Downtown-Hinesville-Circulation-Study.pdf">http://thelcpc.org/wp-content/uploads/2013/08/Downtown-Hinesville-Circulation-Study.pdf</a></p>
2	<p><u>Multimodal Plan: Transit Coordination and Bicycle/Pedestrian Facilities - 2008</u></p> <p>This study builds on the previous transit planning efforts for the HAMPO region and focuses on the integration of other alternative modes with transit service. The study area for this plan included Liberty County and the local municipalities. Recommendations from this study includes prioritized bicycle and pedestrian facilities which were reviewed for current status and assessed for validity given current conditions.</p> <p><a href="http://thelcpc.org/wp-content/uploads/2013/08/HAMPO-Bike-Pedestrian-Plan.pdf">http://thelcpc.org/wp-content/uploads/2013/08/HAMPO-Bike-Pedestrian-Plan.pdf</a></p>
3	<p><u>Coastal Georgia Greenway Trails Master Plan – Ongoing</u></p> <p>The Coastal Georgia Greenway, Inc. (CGG) is a volunteer organization working to build a 155 mile network of trails from South Carolina to Florida through six Georgia coastal counties. Approximately 20 miles of the proposed greenway are located within Liberty County. The proposed alignment published in 2011 follows US 17 with connections to the City of Midway, City of Riceboro and Liberty County historic and ecological attractions. The CGG also recommends support facilities at various locations along the trail including trail head structures and signage. A trailhead structure is currently located at the City of Riceboro fishing pier.</p> <p><a href="http://coastalgeorgiagreenway.org/wp-content/uploads/2011/02/liberty.jpg">http://coastalgeorgiagreenway.org/wp-content/uploads/2011/02/liberty.jpg</a></p>

US 84 Corridor Study - 2008

- 4 This study was conducted concurrently with the Liberty County Comprehensive Plan. This study established existing and future conditions along the US 84 corridor from I-95 in Midway to the Long County Boundary west of Walthourville, assessed traffic conditions and contributing landuse access issues. The study included a safety assessment for non-motorized facility users and established a multimodal level of service for bicyclists and pedestrians traveling along the corridor. Recommendations from this study were included in the 2040 MTP in Band 1 priority projects and include bicycle and pedestrian improvement projects.

<http://thelcpc.org/wp-content/uploads/2013/08/US-84-Corridor-Study-RS-H.pdf>

Riceboro Master Plan - 2010

- 5 The master plan includes recommendations for future development densities, land conservation, and expansion of public amenities. The plan calls for multimodal connectivity projects as a means of transportation and recreation, and also for economic development through eco-tourism and regional bicycle tourism. The recommended trail network was called the “Legacy Loop” and was incorporated into the HAMPO Non-Motorized Plan.

<http://cityofriceboro.com/government/master-plan/>

Liberty Transit Strategic Study - 2012

- 6 The Strategic Study was initiated after the first 18 months of service to evaluate the need for public transportation within current service areas, identify performance metrics, and identify alternative strategies to meet the community’s transportation needs. The study recommended reallocation of transit service to better meet the needs of the community while eliminating underperforming service areas. Implementation of the Strategic Study recommendations resulted in greater system efficiency and cost savings for the local provider. Recommendations from this study were reviewed for completion status and incomplete elements were reviewed for validity given current conditions.

<http://thelcpc.org/wp-content/uploads/2013/08/Liberty-Transit-Strategic-Study-RSH-2012.pdf>

In addition to the review of local plans, the following regional, state and federal resources were screened for guidance and incorporated in the framework of this plan.

- GDOT Pedestrian and Streetscape Guide – 2003
- GDOT Intermodal Statewide Bicycle Facilities – 2010
- Coastal Georgia Regional Bicycle and Pedestrian Plan – 2005



- FHWA Statewide Pedestrian and Bicycle Planning Handbook – 2014

## Public and Stakeholder Involvement

Public and stakeholder involvement is one of the most critical elements of the Forward 40 Integrated Planning Process. As a component of the integrated plan, public involvement efforts for the Non-motorized and Transit Operations plans were fully integrated with the MTP and Comprehensive Planning efforts. The public involvement strategies emphasize the importance of coordination among the various agencies, interested stakeholders, businesses, and community members and Environmental Justice populations. The integrated public participation plan also provides strategies for disseminating information for public consumption and providing forums for public input and comment. Some of the significant components of these outreach efforts include:

**Public Involvement Workshops** – For the 2040 Metropolitan Transportation Plan, three rounds of public involvement workshops were held in order to solicit feedback and comment from the public. In addition to public workshops, over 35 opportunities for information dissemination and comment were provided at HAMPO committee meetings throughout the planning process. A summary of these meetings is detailed within this chapter and meeting materials can be found in the Appendix to the MTP. Prior to the adoption of the Plan by the Policy Committee, a thirty 30 public comment period was held in accordance with HAMPO’s Public Participation Plan. Comment period documentation for this document can be found in Appendix B.

**Website** – Various informational items regarding the plan update have been posted on the LCPC/HAMPO website throughout the plan development process.

**Survey** – A survey was developed and administered to get general feedback on an array of topics including bicycle and pedestrian travel preferences, issues and opportunities. The results of the survey are further detailed later in this report.

**Stakeholders Advisory Committee** – Targeted stakeholders integral to the transportation planning process were invited to participate in a committee in order to solicit input and provide information to the community.

## Public and Stakeholder Involvement

A series of public meetings and workshops with varying focus topics were organized in accessible locations throughout the planning area in order to encourage maximum participation. Each of the meeting locations were identified based on accessibility by all populations, as well as proximity to transit and environmental justice communities.

The first round of public input meetings were held at the following locations and times:

Liberty County Community Complex, Midway - Monday, April 21st ► 5:00 – 7:00 PM

Historic Liberty County Courthouse, Hinesville - Tuesday, April 22nd ► 5:00 – 7:00 PM

Ludowici City Hall, Ludowici - Wednesday, April 23rd ► 5:00 – 7:00 PM

Participants were provided with an overview of the study and a survey, and large format maps were available for markup and comments. Significant feedback was obtained at the Hinesville and Midway

meetings and a summary of comments pertinent to the Non-motorized and Transit Operations Plans are provided below:

- Medians are a great idea for US 84 and are needed for pedestrian and auto safety.
- Transit: a substation is needed for the City of Midway with service provided approximately three times per day.
- Transit: Full fixed-route service should be considered for Midway and Riceboro by 2040.
- Signage for public parking in Hinesville is needed (both way-finding and public parking signs).
- Improved signage for parks is needed (way-finding and park signs).
- Improved streetscapes in Downtown Hinesville are needed (Memorial Drive provided as example of desired cross section).
- Reinstate an Amtrak stop with park-n-ride facilities.

The second round of public meetings focused on the non-motorized aspects of the plan and were held at the following locations and times:

- Liberty County Community Complex, Midway - February 24<sup>th</sup> ► 5:30 – 6:30 PM
- Historic Liberty County Courthouse, Hinesville - February 25<sup>th</sup> ► 5:30 – 6:30 PM

Participants were provided with large format maps demonstrating draft MTP highway projects and non-motorized projects, presentation slides describing the non-motorized planning process and analysis results, and comment forms.

The comments received were focused primarily on the US 84 safety and access management projects and all comments were in favor of the improvements. Participants felt that the multipurpose path approach was favorable and that the community would benefit from these improvements.

## Public Survey

A public survey was developed and circulated throughout the HAMPO study area via electronic and paper copy distribution. The survey was circulated to all local universities, Liberty and Long county schools, the City of Hinesville housing authority and homeless coalition, the local ministerial alliance, all local municipal and county staff, public libraries, Fort Stewart, the Chamber of Commerce, the Liberty County Development Authority, and all members of the HAMPO committees and Forward 40 Stakeholders Committee. In addition to direct distribution, fliers and quick response codes were posted at public facilities and commercial destinations and the survey was posted on the HAMPO website. Survey responses were collected over a five month period and resulted in 241 total responses. A summary of the responses is provided below.

Generally, the majority of survey respondents were:

- Between the ages 55 – 64 (46%)
- Female (50.2%)
- College graduate (28.1%)
- Annual household income of \$50,000 - \$75,000 (30%)
- Typically make a trip utilizing a motor vehicle (98.1%)

The respondents were asked a series of questions about their travel patterns, their priorities for transportation investments, and how they would rate various aspects of the transportation system.

The largest percentage of respondents felt that the overall HAMPO transportation system was fair (45.2%), followed by good at 33%, while 19% felt that the system was poor. The areas of greatest concern were availability of sidewalks, recreational trails and paths, and bicycle facilities. This concern was also expressed by the Stakeholder Advisory Committee with “Lack of Transportation Options” being one of the primary areas of dissatisfaction. The top four priorities for investment were reduction of traffic congestion, maintenance of roadways, pedestrian safety improvements and intersection improvements.

When asked why utilizing modes of non-motorized transportation may be considered undesirable in the HAMPO area, 69.2% of respondents reported that they felt unsafe due to lack of lanes and paths, followed by safety concerns and lack of support facilities such as storage racks. The following table shows the breakdown of survey responses regarding undesirable conditions for non-motorized travel within the HAMPO study area.

*Table 5: Public Survey Responses*

Please select any of the reasons why riding a bicycle is undesirable in your community	
Feel unsafe on streets due to lack of lanes/paths	69.2%
Feel unsafe due to speed of vehicles	44.2%
Nowhere to park or store bicycle at destination	31.3%
I do not wish to ride a bicycle	22.6%
Feel uncomfortable due to climate	8.2%
Other	8.2%
Already feel comfortable	7.0%
Cost of bicycle	1.4%

The survey responses were presented to the HAMPO committees, as well as the Stakeholders Advisory Committee in order to provide insight to the committee members on public opinion and concerns.

## Plan Development and Analysis

### Overview

In developing a multimodal transportation plan, it is important to recognize the effects and impacts these improvements have on the traveling public in the areas of land use, mobility and safety. In addition, the assessment must identify trip origins and destinations and use connectivity between these areas as the founding principles for developing an integrated bicycle, pedestrian and transit system. To serve as an alternative mode of transportation, a bicycle and pedestrian system should provide access to the primary activity centers that residents currently use motorized vehicles to access.

An understanding of the effect of mobility on bicyclists and pedestrians within the current infrastructure is important in determining the need for improvement to existing facilities, as well as in locating new facilities to be included in the multimodal network. As roadways become more congested and level of service (LOS) decreases for motorized vehicles, the roadways become less used by bicyclists and pedestrians, especially when inadequate space for bicyclists and surfaces for pedestrians are provided. As improvements in mobility for pedestrians and bicyclists are addressed, it is also imperative to continuously review connectivity between service areas. If a continuous route with logical termini is not provided, then the facility will likely not be utilized by citizens.

In addition to improving safety of conditions at non-motorized facility and roadway intersections, safety must be at the forefront when developing the design details of proposed bicycle and pedestrian infrastructure corridors. Safety infrastructure elements encourage multimodal travel behaviors for choice riders and improve conditions for existing facility users. Another element to consider during the evaluation of safety and security of the non-motorized network is criminal activity. Utilizing the principles of Crime Prevention through Environmental Design (CPTED), opportunities for criminal behavior can be reduced and an environment that encourages users to be aware of their surroundings and to be aware of those within their surroundings can be created.

This chapter will discuss the typical alternative transportation user for which this study will analyze and recommend transportation improvements, elements in a community that function as trip generators and attractors for alternative transportation users, the assignment of transportation modal elements incorporated in project cross sections, and issues/opportunities for each alternative mode of transportation within the study area.

### Alternative Transportation Users

The following section provides an overview of multimodal facility users as described by industry experts. The descriptions are stratified by mode, demonstrating varying levels of proficiency and characteristics of these typical user travel behaviors. The alternative transportation user will be described according to their mode and will include Bicyclists, Pedestrians, and Transit Riders.

The AASHTO has established Guidelines for the Development of Bicycle Facilities, in which are defined three nationally recognized types of cyclists. They are Type A, Type B, and Type C Cyclists.

### **Type A Cyclist**

This describes an advanced adult cyclist, skilled in and comfortable with maneuvering in vehicular traffic. Typically, this cyclist is a commuter more interested in reaching a destination quickly than in scenery or the safety of less-traveled routes. This cyclist will use any facility legally open to bicycles, but prefers roadway bike lanes/shoulders, wider travel lanes without a designated bike lane, and fewer obstacles. This user prefers a roadway bike lane/shoulder over a separate shared-use trail or path, unless the trail or path were of significant length (5 or more miles) and consisted of little or no roadway crossings to interfere with travel.

### **Type B Cyclist**

This describes a typical adult cyclist who knows the rules of the road and how to ride a bike, yet is less confident on roadways with a lot of vehicular traffic. This cyclist uses roadways for transportation purposes other than just recreation, but prefers longer, less-traveled routes to those that are shorter and more congested. This user more likely selects a separate shared-use trail or path over a roadway bike lane/shoulder.

### **Type C Cyclist**

This is a child cyclist who is possibly very skilled, but most likely not very familiar with the rules of the road. This cyclist rides for both recreational and transportation purposes, the most common destinations being schools and parks. This user travels strictly along separate shared-use trails or paths and avoids roadway bike lanes/shoulders at all costs.

The FHWA identifies typical pedestrian types categorized as Adult Pedestrians, Child Pedestrians, Disabilities Pedestrians with, and Environmental Justice Community Pedestrians.

### **Adult Pedestrian**

Adults use pedestrian facilities primarily for commuting, recreation and exercise. Adult pedestrians are comfortable around vehicular traffic; however, they typically have difficulty crossing high-speed, multi-lane roadways.

### **Child Pedestrian**

A child is typically not aware of their surroundings in the same ways as an adult, therefore they are not as comfortable along roadways. Child pedestrians are usually more intimidated by vehicular traffic and may have trouble judging distances and speeds.

### **Pedestrian with Disabilities**

Persons with disabilities have an impairment such as blindness, deafness, or mobility limitations that impact their ability to utilize bicycle or pedestrian facilities without accessible accommodations. They depend on facilities that are in compliance with the ADA. This includes measures such as audible indicators of when to cross the street and handicap ramps on sidewalks.



## Environmental Justice Community Pedestrian

There are areas within the HAMPO study area where there are minority populations and concentrations of new residents to the United States. The residents in these areas may not know the English language well or may not have access to a car. Those who do not use a car should have easy access to bicycle, pedestrian and transit facilities as alternative modes of transportation connecting residential areas to employment, commercial and vital service centers.

## Transit Rider

The public transportation user is traditionally described as belonging to one of two categories for analysis purposes, Transit Dependent Populations and Choice Riders.

The Federal Transit Administration defines transit dependent persons as those

- 1) without private transportation,
- 2) elderly (over age 65),
- 3) youths (under age 18), and
- 4) persons below poverty or median income levels defined by the U.S. Census Bureau.

Public Transportation Choice Riders are those that have a means of transportation, beyond public transit, yet uses public transportation because it is their preferred mode of travel. There are no definitive factors that influence choice ridership, however research from industry experts <sup>4</sup> suggests that walkable communities with fast, safe, dependable, and frequent public transportation service attracts higher rates of choice riders within a community. It is critical to understand the transit travel sheds within a community in order to correlate needed bicycle and pedestrian infrastructure to facilitate the “first and last mile” <sup>5</sup> of the trip.

## Trip Generators and Attractors

Trip generators and attractors within the study area were identified during the development of the Integrated Plan’s Socio-economic Data effort. Trip generators are defined as household locations based on US Census Data, and the attractors are identified by a combination of parcel data, local landuse knowledge, Bureau of Labor and Statistics data, and US Census Data. These trip attractors were evaluated to determine if they had a High, Medium, or Low likelihood of generation as a non-motorized trip destination. The following table provides examples of trip destinations stratified by likelihood of trip generation.

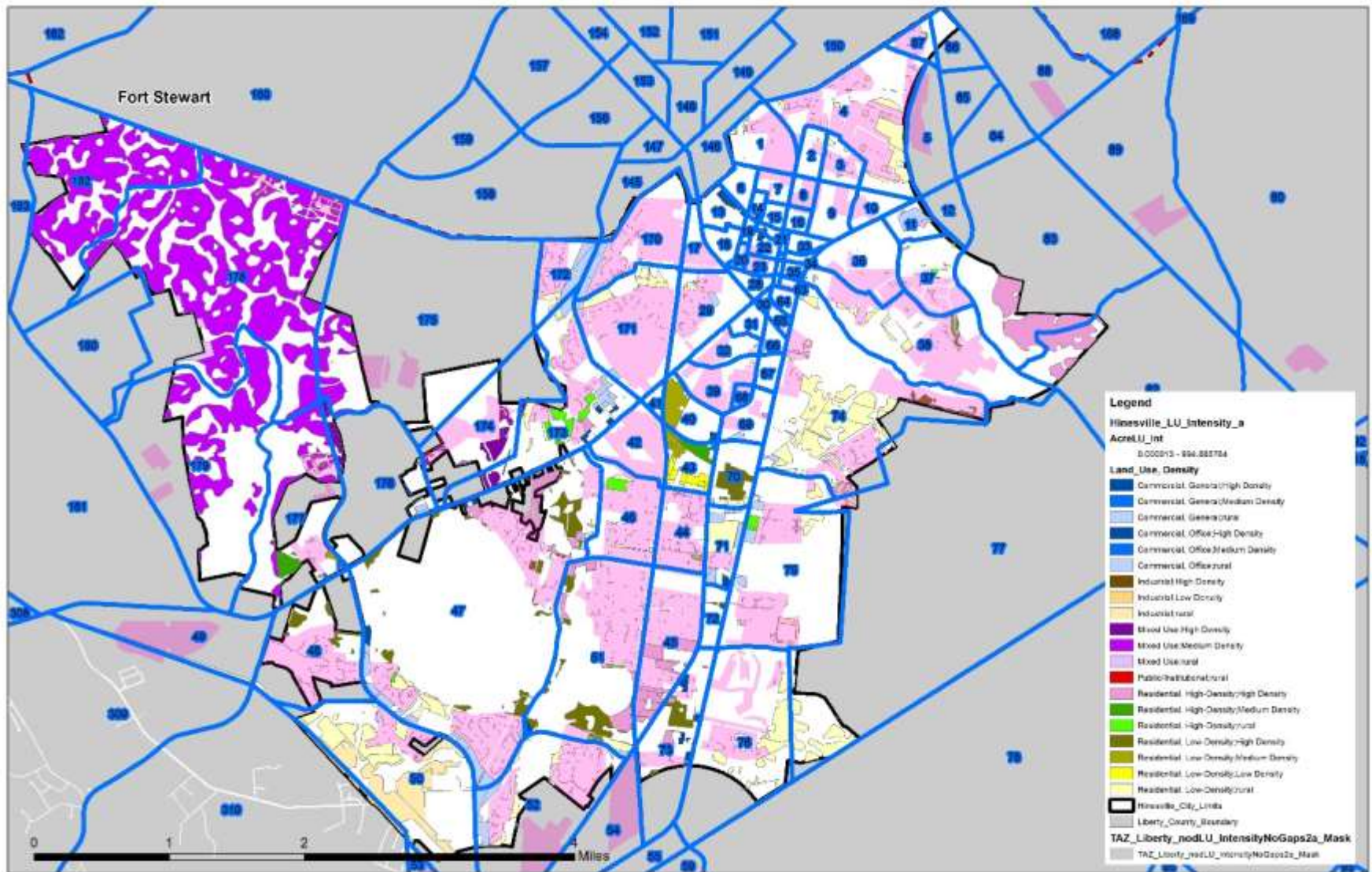
Table 6: Bicycle and Pedestrian Trip Generation

<sup>4</sup> [http://www.apta.com/resources/statistics/Documents/transit\\_passenger\\_characteristics\\_text\\_5\\_29\\_2007.pdf](http://www.apta.com/resources/statistics/Documents/transit_passenger_characteristics_text_5_29_2007.pdf)

<sup>5</sup> First and/or Last mile is a term used in transportation planning to describe the movement of people and goods to and from a transportation hub and final destination.

LIKLIHOOD OF NON-MOTORIZED TRIP GENERATION	DESTINATIONS
HIGH GENERATORS	UNIVERSITY CAMPUS
	TRANSIT STOPS / STATION
	RECREATIONAL FACILITIES
	LARGE SHIFT / RETAIL EMPLOYERS
MEDIUM GENERATORS	K-12 SCHOOLS
	RETAIL / ENTERTAINMENT
	COMMUNITY SERVICES
	MEDICAL / HOSPITAL
LOW GENERATORS	TOURISM / EVENT VENUES
	PLACES OF WORSHIP
	ISOLATED EMPLOYMENT
	LOCATIONS

Figure 10: Trip Origin and Destination Analysis



Source: HAMPO, LCPC

Landuse by type, residential and employment densities, and likelihood of trip generators were mapped using the HAMPO Traffic Analysis Zone (TAZ) structure to identify trip origin and destination “hot spots” shown in Figure 10.

## Facility Types

Following the identification of trip generators and attractors, the next step was to assign connections by facility type. Alternative transportation facility features vary significantly based on existing and future conditions, transportation objectives, local travel behaviors, climate, available resources, and local community character. This section provides the foundation for typical facility cross sections, features, and amenities for bicycle, pedestrian and transit infrastructure within the HAMPO study area. A comprehensive Cross Section Resource Guide was developed for distribution to the technical sub-committee and staff and is included in Appendix A of this report. Every transit trip begins and ends as a bicycle or pedestrian trip, however for the purposes of this section, facilities specific to transit operations are listed in the Transit Facilities sub-chapter.

### Bike/Ped

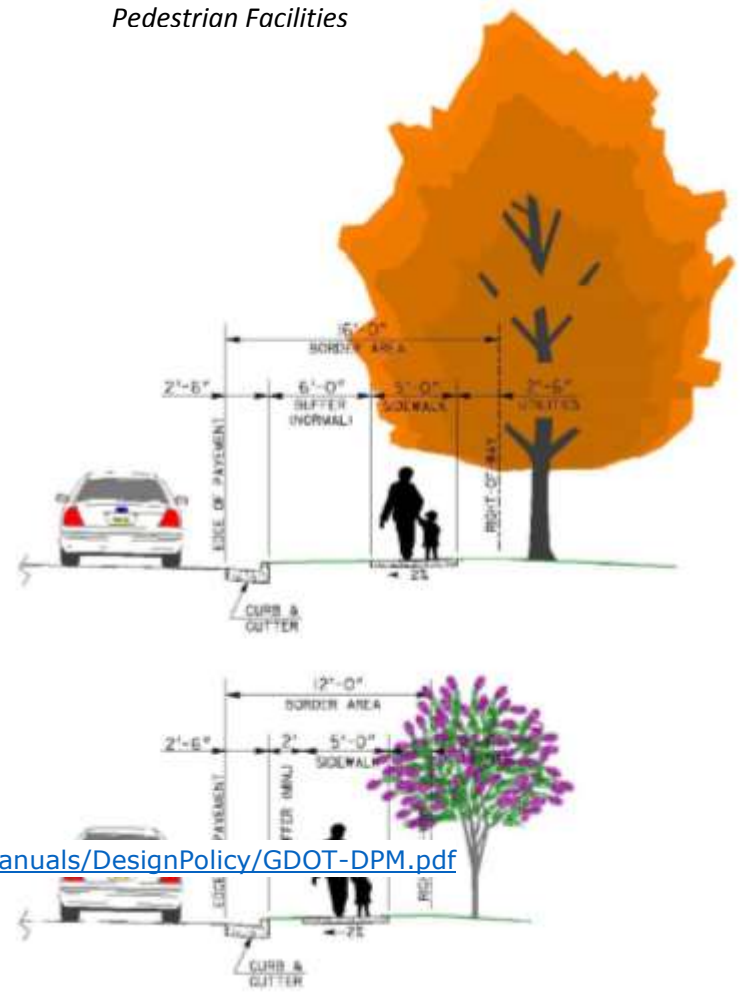
There are a significant number of publications available from industry experts regarding standards and application of facility cross sections and features. These resources were assessed based on three typical project types, Urban facilities, Rural facilities, and Trails.

### Urban Facilities

Urban non-motorized facilities are generally adjacent to roadways with higher vehicular volumes and speed, and are typically accessible to greater densities of potential users. The Georgia Department of Transportation provides typical cross sections and complete street guidance sourced from the State of Georgia Department of Transportation Design Policy Manual<sup>6</sup>. Typical sections of both two- and four-lane roadways with urban bicycle and pedestrian facilities are shown in the adjacent Figures.

When designing urban facilities, it is recommended that separation of non-motorized facilities and vehicular travel lanes be implemented. Employment of access management strategies, such as consolidated driveways, should also be strongly considered to minimize the number of potential intersection related conflicts between

*GDOT Typical Cross Sections – Urban Pedestrian Facilities*



<sup>6</sup> <http://www.dot.ga.gov/PartnerSmart/DesignManuals/DesignPolicy/GDOT-DPM.pdf>

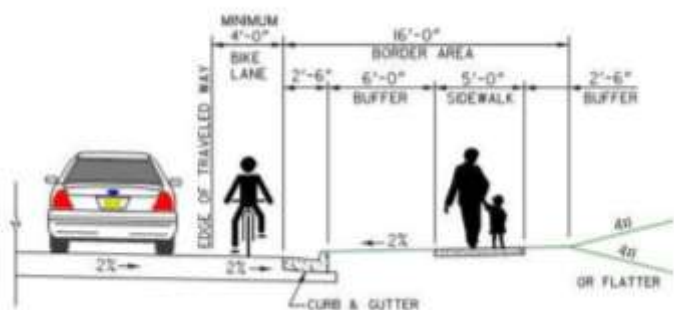
motorists and pedestrians/bicyclists. During project design, intersections and mid-block crossings should be evaluated for implementation of safety infrastructure such as curb extensions or “bulb-outs”, signage, pavement markings and crossing devices.

There are a number of variations to select from when designing bicycle lane facilities including Bike Lanes and Cycle Tracks. Proximity and configuration of on-street parking facilities, curb gutter and sidewalk, and landscape features are variables that are not discussed within the context of this report, but are provided in the Cross Section Resource Guide in Appendix A.

Cycle Tracks include a physically separated bicycle lane, combining the function of a separated trail with the on-street infrastructure of a conventional bike lane. A cycle track is intended to be used exclusively for bicycles and can be one-way or two-way facilities. Features typically include a curb or median separating motor vehicle traffic, colored pavement, physical barriers such as bollards, and pavement markings. Cycle tracks offer a higher level of security than bike lanes due to the separation from vehicular and pedestrian traffic.

Bike Lanes include a striped lane for one-way bike travel directly on the roadway. Bike lanes are typically 4 to 5 feet wide and delineated from the motor vehicle travel lane by a solid white stripe. They serve to separate motor vehicle and bicycle traffic and provide for more predictable movements by each. Bike lanes should be considered in corridors where there is significant non-motorized demand, or a

*GDOT Typical Cross Section – Bike Lane on Urban Roadway*



Source: GDOT-DPM Complete Streets Design Policy

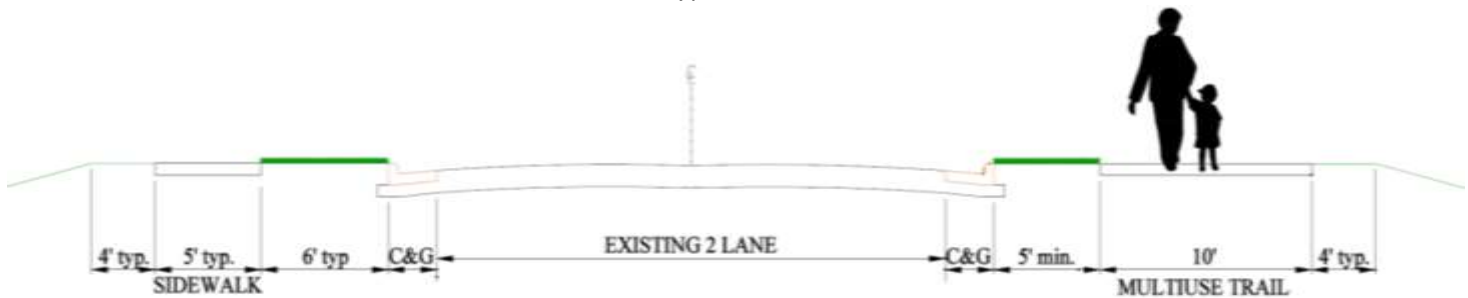
primary transportation connector from dense housing to major employment centers or critical goods and service centers.

On-Street Bike Routes accommodate shared use of the roadway by bicycle and motor vehicles. These facilities are usually designated by signage and permanent pavement markings such as “sharrows” that indicate to drivers that bicyclists are legitimate users of the travel lane. On street routes are typically designated on roadways with low levels of motor vehicle traffic and speeds below 35 mph.

Where separation of bicycle and pedestrian facilities is not feasible due to right of way limitations or lack of demand, multiuse paths should be considered. The following Figure shows a typical Multiuse Path/Trial cross section and accompanying infrastructure.



### Multiuse Trail/Path Typical Cross Section

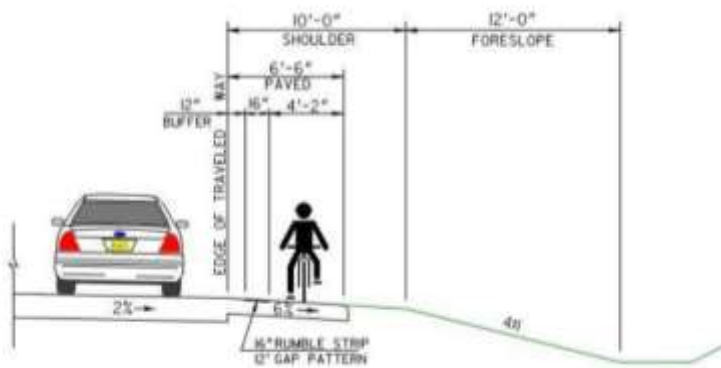


### Rural Facilities

Rural bicycle and pedestrian facilities are typically implemented along corridors designated as Rural Roadway. These rural facilities are generally designed as walkable / bikeable shoulders and should

comply with the Georgia Department of Transportation's Complete Streets Design Policy described as:

#### GDOT Typical Cross Section – Rural Non-Motorized Facility



"Rural Roadways: the 4-ft bicycle lane (or paved shoulder) is incorporated into the overall width of a 6.5-ft wide paved shoulder which includes a 16-in rumble strip offset 12-in from the traveled way. The shoulders are designed with a skip pattern rumble strip to allow bicyclists to smoothly enter and exit the bicycle lane." The adjacent image depicts a rural paved shoulder with rumble strips, consistent with the GDOT facility specifications.

Source: [www.fhwa.dot.gov](http://www.fhwa.dot.gov)

The cross sections and facility features are provided to demonstrate infrastructure elements appropriate for typical project implementation. However, it is critical to recognize that not every corridor will reflect typical conditions and will therefore require project specific recommendations during the design phase of the project.

### Trails

A Trail is a non-motorized facility that is ideally stand-alone and separate from vehicular traffic with a vegetative buffer separating the facility from adjacent uses. Trails will range from major (between 10 and 14 feet in width) and minor (between 8 and 10 feet) depending on available right of way and demand. Trails also include graded shoulders and slopes (minimum three-foot wide) as required by

AASHTO. Because this type of facility is either off-road or contains a significant buffer from roadway traffic, it can safely accommodate pedestrian and bicycle travel in both directions.

Trail amenities should be incorporated where appropriate to ensure user comfort and safety. Amenities can include features such as trail markers and signage, rest facilities such as benches, and parking facilities at trail heads. Trail head facilities may also include more intensive supporting infrastructure such as restrooms, bicycle storage, water fountains, changing areas, showers, information centers with emergency contacts, brochures, trail maps, and trail regulations/codes of conduct.

For trail facilities that are included in a state, regional, or local designated trail corridor, the recommended facilities should be recognized and every effort should be made to comply with the preferred cross sections and amenities.

### **Safety and Security**

Design and implementation of safety features along non-motorized facilities is another key element for safe and efficient multimodal travel. Proposed non-motorized facilities should be evaluated individually during the design phase to determine which safety features are appropriate. These features may include one or more of the following elements:

1. Rectangular Rapid Flashing Beacon (RRFB)
2. Pedestrian Hybrid Beacons (PHB) / High-Intensity Activated crossWalk (HAWK)
3. Flashing crossing beacons
4. Lighting
5. Signage
6. Tactile road crossing notification pavers
7. Traditional intersection crossings
8. Pavement markings

Other considerations should be made for visibility along trail facilities and adequate police enforcement to ensure safety and security for users.

### *Transit*

When implementing new transit service or considering upgrades within existing service areas to improve the user experience, a number of infrastructure elements should be considered. The following section will describe the transit specific infrastructure elements that interface with bicycle and pedestrian facilities.

### **Shelters and Amenities**

The typical transit rider is encouraged to arrive at their bus stop location 15 minutes prior to the scheduled pick up time. This time buffer allows for variations in the transit schedule but also results in extended periods of time when the user is exposed to natural weather elements such as heat, cold, and rain. Transit Shelters are critical to ensuring the rider transitioning from bicycle or pedestrian mode has a safe and comfortable area to wait.

*Liberty Transit Bus Shelter*

In addition to protection from natural elements, bus shelters also provide a key location for information sharing via posted signage, and an opportunity for transit riders to dispose of food and beverages not permitted on the bus. A national transit ridership survey study conducted by the American Public Transit Association demonstrates that shelter facilities are proven to increase ridership within ½ mile and improve customer satisfaction.



Source: LCPC

Liberty Transit has developed a typical bus shelter specification that includes pavement pad, decorative iron shelter with a hip style roof, advertisement panel, bench, and trash can. Shelter installation criteria was developed following GDOT and Federal Transit Administration guideline and is utilized by Liberty Transit to identify locations appropriate for implementation of a shelter. The Transit Steering Committee reviews staff recommendations and approves the implementation of new bus shelters on an as-needed basis.

### **Safety/Security**

As described in the previous section, multimodal transportation users can be isolated at bus stop locations for extended periods of time. Safety and security of the rider can become challenging during daylight savings time when transit service operates after sun-set. Transit stops that are isolated and/or located in areas that do not have existing security infrastructure should be upgraded to include lighting and emergency contact information. In addition to infrastructure investments, adequate enforcement and police presence is key to ensuring the safety of the user.

### **Communication Infrastructure**

Bus stop locations are key points where non-motorized users access the transit system. It is critical that bus stop locations be clearly marked and bus route information made available for new transit riders. Key transfer locations also present opportunities for addition communication infrastructure such as variable message systems, real time transit information screens, and static message boards for key system information such as upcoming events and service changes.

### **Transit Propensity Analysis**

The transit propensity analysis conducted during the development of the Integrated Metropolitan Transportation Plan identified a number of areas supportive of hourly transit service. Understanding the magnitude of riders attracted to and served by transit is vital to helping transit systems meet the mobility needs of the community it serves.

One important aspect of transit demand is evaluating where and whether population and employment densities are sufficient to support transit service. *The Transit Capacity and Quality of Service Manual* states, "The more people and the more jobs that are within easy access distance of transit service, the more potential customers there are to support high-quality service."

Transit-supportive population density thresholds of three units per gross acre are considered sufficient for hourly bus service; about 4.67 units per gross acre to support buses every 30 minutes, and 10 units per gross acre to support buses every 10 minutes. Alternatively, four jobs per gross acre would support hourly bus service. Operating transit service balances tradeoffs between the provision and utilization of service, which depend in large part on density.

Census data from the 2010 Census was used to determine the relative propensity to use transit service by block group. The propensity analysis uses a technique based upon Transit Cooperative Research Program (TCRP) "Report 28: Transit Markets of the Future" to weight eight demographic characteristics that influence transit use. This approach highlights the relative "need" for transit service within the service area. To identify the areas exhibiting a propensity for transit, the demographic factors used in this analysis were identified. These consist of Households without Cars, Poverty, Minority, Female, Disability, Mobility Limitations, and Workers 65 and Older. Four of these demographic factors were available at the block group level. The most detailed level available for the other four factors was the tract level.

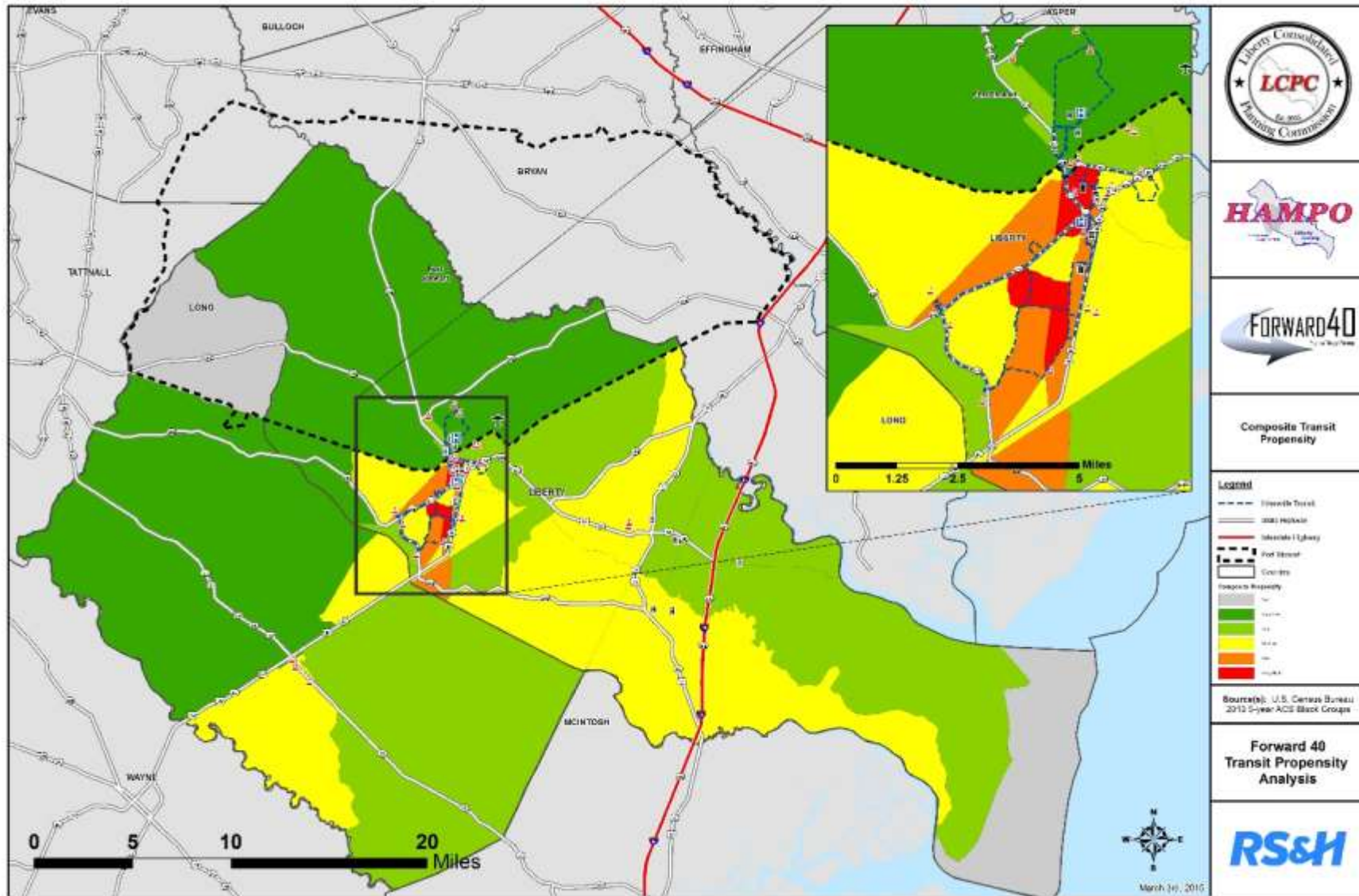
- Households without Cars: Census Table B25044 Tenure by Vehicles Available contains the total number of occupied housing units and households with no vehicle available (owner occupied and renter occupied) at the block group level.
- Poverty: Census Table B17017 Poverty Status in the Past 12 Months by Household Type by Age of Householder contains the data of total households and income in the past 12 months below poverty level at the block group level.
- Minority: Census Table B03002 Hispanic or Latino Origin by Race contains the data of total population and population white alone, not Hispanic or Latino at the block group level. The percentage of population not "white alone, not Hispanic or Latino" was calculated.
- Female: Census Table B01001 Sex by Age contains the data of total population and female population at the block group level.
- Disability: Census Table C18120 Employment Status by Disability Status contains total population and population with a disability (by "employed in the labor force", "unemployed in the labor force", and "not in the labor force") at the tract level.
- Mobility Limitation: Census Table B18105 Sex by Age by Ambulatory Difficulty contains total civilian noninstitutionalized population 5 years old and over and "with an ambulatory difficulty" by age cohort at the tract level.
- Workers 65 Years Old and Older: Census table B23004 Work Status in the Past 12 Months by Age by Employment Status for the Civilian Population 65 Years and Over contains "worked in the past 12 months, 65 to 74 years" and "worked in the past 12 months, 75 years and over" at the tract level. Because the universe for this table is civilian population 65 years and over, the number of other workers was borrowed from Census table C18129. The percentage of workers that are 65 years old or over was calculated.
- Density: Distinct from the transit supportive densities above, the composite transit propensity utilizes a population density factor. Density was calculated from the Tiger/LINE block group shapefiles. The total area was calculated from the land area and water area attributes to derive percent land area. The area in square miles of each block group was calculated via Calculate Geometry, and the percent land area was applied to obtain square miles of land. Population was then divided by square miles of land to obtain the density value.

- Composite Propensity: Factors that were only available at the tract level were spatially joined from the tract to constituent block groups, resulting in all factors residing at the block group level. The percentage of households or population of each demographic factor (except for older workers) together with the population density in persons per square mile were each individually indexed to rate each block group's factor on a scale from one to 100. The factors were then weighted according to the accepted methodology.

Areas in the City of Hinesville, City of Flemington and Fort Stewart military installation with density sufficient to support hourly bus service are all served by the current bus system. One area that demonstrated higher concentrations of populations in need of transit service not served by Liberty Transit was within the City of Walthourville along US 84 and SR 119. Since the completion of the transit propensity analysis, Liberty transit successfully expanded service into the City of Walthourville. The transit propensity analysis results are shown in Figure 11.



Figure 11: Transit Propensity Analysis Results



### Transit Steering Committee

The Liberty Transit Steering Committee was engaged during the planning process and provided insights regarding operational issues and opportunities. The Liberty Transit General Manager also participated in a visioning workshop where detailed goals and strategies were established that would set the framework for the study analysis and recommendations. The issues and opportunities identified include the following generalized categories:

- Ridership
- System Performance
- Federal and State Compliance
- Education
- Infrastructure Investments / Upgrades

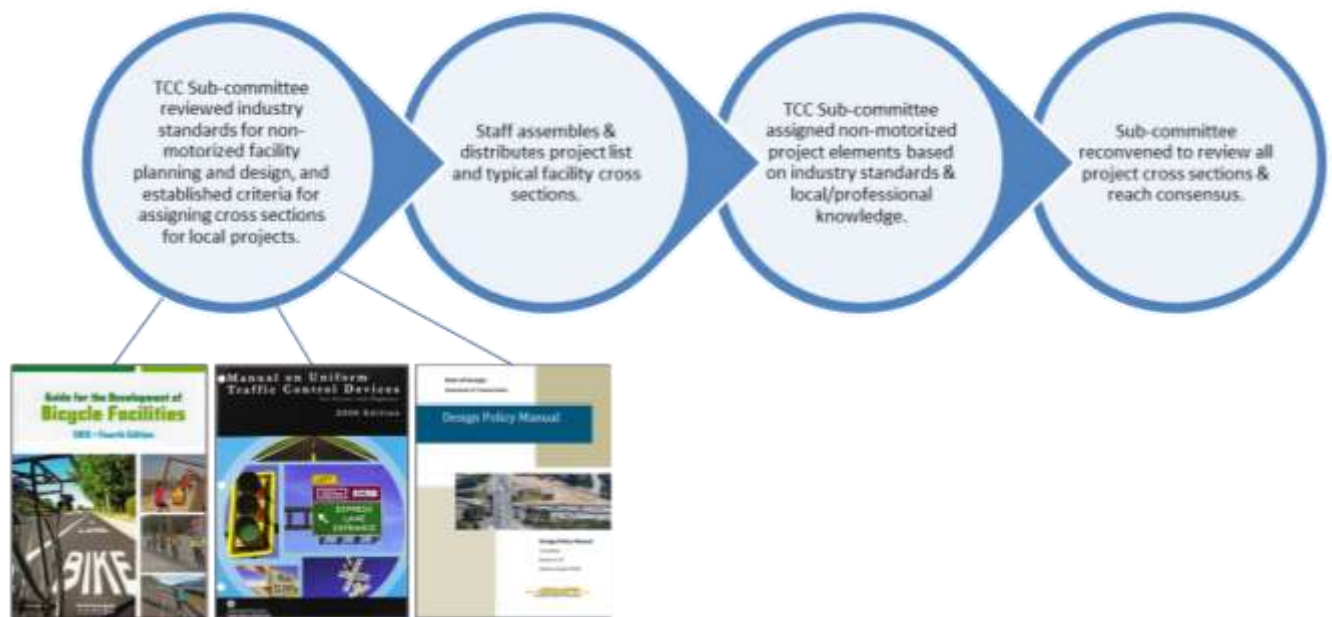
The City of Hinesville, with guidance from the Hinesville Area MPO and Transit Steering Committee also identified the following areas of focus for implementation during the horizon of the 2040 MTP:

- Continue to expand ridership through strategic route modifications and targeted outreach.
- Continue to explore opportunities to partner with municipalities in the HAMPO urbanized area to expand transit service where transit supportive densities have been identified.
- Maintain the existing fixed-route transit fleet and analyze opportunities for procurement of vehicles right sized for Liberty Transit ridership.
- Continue to coordinate with local planning agencies to identify opportunities for service expansions/modifications to support new transit-oriented developments and employment destinations.
- Prepare for the update to the 2012 TDP through procurement of 5307 transit capital planning funding in Fiscal Years 2016 and 2017.
- Complete shelter installation efforts and procure additional shelters for prioritized stop locations within the service area.
- Identify key non-motorized infrastructure improvement projects within the transit service area and implement utilizing 5307 transit capital funding.

### TCC Sub-Committee for Non-Motorized Projects

In order to assess the draft project list adopted during the development of the 2040 MTP, and to assign cross sections to each project, the HAMPO Technical Sub Committee was reconvened. The subcommittee is comprised of the HAMPO TCC Chair and Vice Chair, City and County Municipal Engineers, Planning Commission and HAMPO Executive Director, and representatives for Fort Stewart and the City of Flemington. The subcommittee held kick off meeting on in August of 2016 where a review strategy was developed. The committee reviewed typical cross sections, performed a cursory review of proposed projects, established a planning process and set a process timeline. The following figure describes the collaborative planning process established by the subcommittee.

*Figure 12: TCC Subcommittee Planning Process*



The subcommittee reviewed the project list and incorporated additional projects recommended through the *5307 Transit Supportive Infrastructure Analysis* and the *Non-Motorized Gap Analysis*. The committee then assessed each project for facility elements considering the following factors:

#### Functional Classifications

- Traffic Volumes
- Continuity of facilities
- Length of trip
- Design speed
- Existing conditions

#### Community Context

- Types of transportation activities to be supported
- Target speeds
- Existing and future conditions for landuse and transportation
- Accessibility for disadvantaged populations
- Transit system accessibility

#### Physical Context

- Ability to construct
- Right of Way Constraints
- Impacts to existing utilities
- Proximity of historic and natural resources

The recommended cross sections were then reviewed by the committee and consensus was reached for facility assignments to projects. Cost estimates were updated to include the revised project elements and the updated project list was presented to the MPO committees for consideration.

## BICYCLE AND PEDESTRIAN RECOMMENDATIONS

### Projects

Combining the results of the bicycle and pedestrian facility gap analysis, existing plans and studies, recommendations from the Liberty Transit 5307 Associated Improvements Process, linkages to future service areas identified in the 2040 Transit Propensity Analysis, and input from stakeholders and citizens, the HAMPO Non-Motorized project list was developed. The proposed network of non-motorized facilities for the HAMPO region is composed of several different types of facilities that were developed by identifying service areas such as schools, parks, residential areas, and business centers and connecting them with sidewalks, multipurpose paths, bicycle facilities, and trails.



The determination of appropriate facilities was based on location within or outside of the urbanized area of the HAMPO region, available right of way, safety and security, and anticipated use based on existing and anticipated land uses.

The project list includes stand-alone bicycle and pedestrian improvement projects and does not reflect improvements recommended for concurrent implementation with highway projects recommended in the HAMPO 2040 MTP. The project list was evaluated by the HAMPO TCC technical subcommittee and presented to the full TCC and CAC committees for review and recommendation to the HAMPO Policy Committee. The projects are listed by jurisdiction and do not reflect project priority.

Coastal Georgia Greenway includes various improvements through the US 17 corridor that are in various stages of preliminary scope and design phases. The project list recognizes the CGG project alignment, but does not identify the individual elements as these are yet to be determined. The cost estimates associated with these improvements has been provided by the CGG Executive Director and is inclusive of bicycle and pedestrian infrastructure, bridges, signage, and trail amenities.

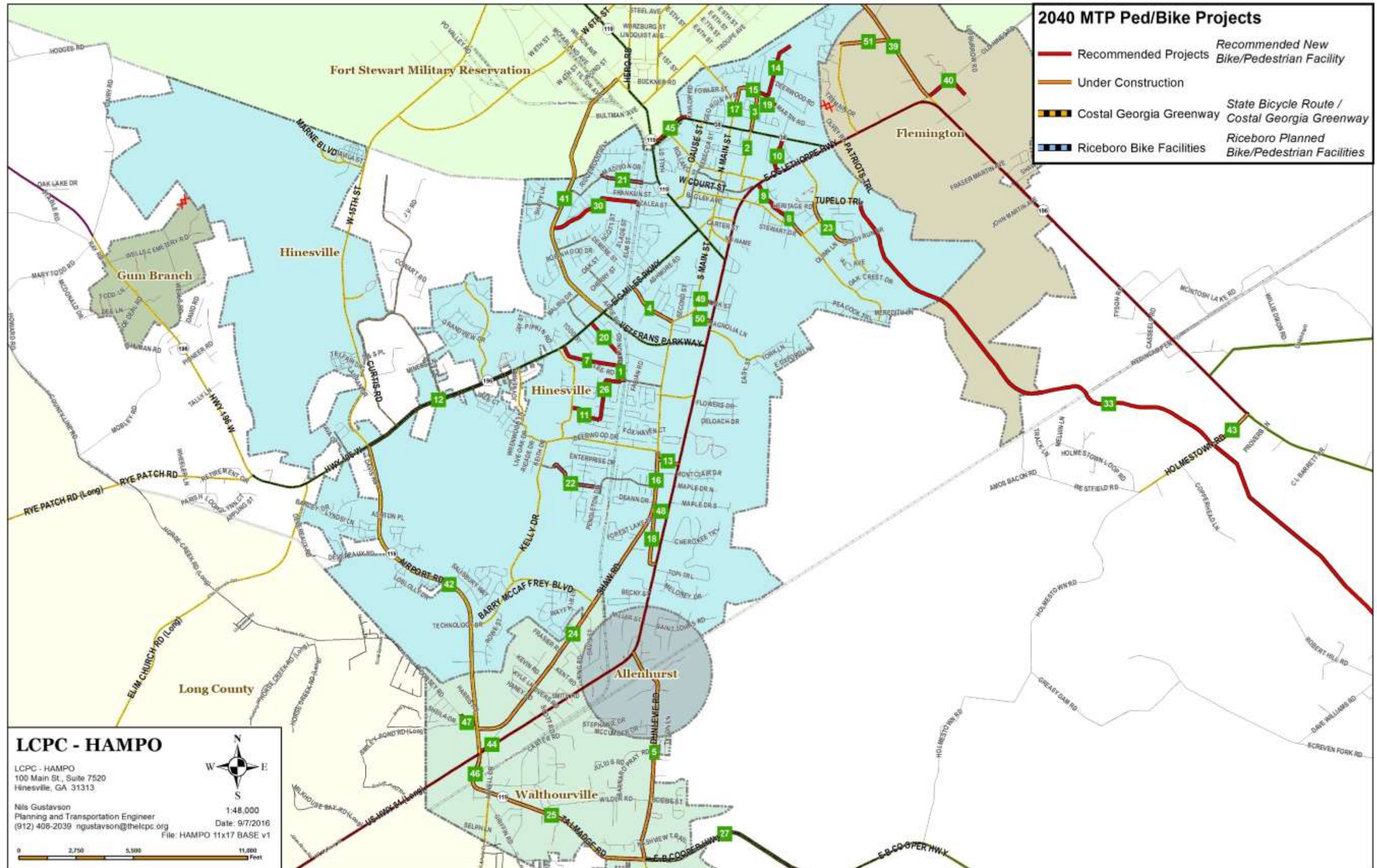
The following table and Figure 13 details the projects recommended by the HAMPO Non-Motorized Plan. Projects are listed alphabetically, not in priority order, and costs are in 2016 dollars.

Table 7: HAMPO Non-Motorized Project List and Cost Estimates

map index	project	multiuse	sidewalk	drainage	bike shoulders	1 side only	estimated cost
FLEMINGTON							
40	F} Old Hines Rd: Old Sunbury to Arts Center:		\$ 84,000	\$ 120,000			\$ 204,000
39	F} Old Sunbury Rd: Hines to Fort Stewart Boundary:		\$ 221,760	\$ 316,800			\$ 538,560
51	F*) J Martin Rd: Old Sunbury to W Martin:		\$ 123,900	\$ 177,000			\$ 300,900
HINESVILLE							
1	H} Bacon: McDowell to Varnedoe:		\$ 40,670	\$ 58,100			\$ 98,770
2	H} Bradwell: Martin to E Mills:		\$ 21,700	\$ 31,000			\$ 52,700
3	H} Bradwell: Lakeview to E General Stewart:		\$ 66,290	\$ 94,700			\$ 160,990
48	H*) Darsey: US84 to South Main:		\$ 25,900	\$ 37,000			\$ 62,900
4	H} Deal: E G Miles to South Main:		\$ 91,000	\$ 130,000			\$ 221,000
6	H} Eunice: Bacon to South Main:		\$ 46,200	\$ 66,000			\$ 112,200
30	H} Evergreen Park: Veterans to Azela:		\$ 140,525	\$ 60,225			\$ 200,750
7	H} Flemming: E G Miles to Bacon:		\$ 108,500	\$ 155,000			\$ 263,500
8	H} Forest: Fraser to Gray Fox:		\$ 70,210	\$ 100,300			\$ 170,510
9	H} Fraser: West Oglethorpe to Forest:		\$ 44,345	\$ 63,350			\$ 107,695
10	H} Harrison: E General Stewart to East Oglethorpe:		\$ 63,000	\$ 90,000			\$ 153,000
11	H} Honey Ridge: Pineland to Varnedoe:		\$ 53,550	\$ 76,500			\$ 130,050
13	H} Kacey: South Main to West Oglethorpe:		\$ 36,960	\$ 15,840			\$ 52,800
14	H} Kings: Lakeview to Snelson-Golden Middle:		\$ 98,000	\$ 140,000			\$ 238,000
15	H} Lakeview: North Main to Martin:		\$ 51,800	\$ 74,000			\$ 125,800
48	H*) Link: US84 to Main:		\$ 31,430	\$ 44,900			\$ 76,330
16	H} Main: Olmstead to Lakeview:		\$ 38,850	\$ 16,650			\$ 55,500
17	H} Main: Glenn Bryant to Darsey:		\$ 99,785	\$ 142,550			\$ 242,335
18	H} Main St Ext: Darsey to West Oglethorpe:		\$ 101,850	\$ 145,500			\$ 247,350
19	H} Martin: Lakeview to Jacks Hill:		\$ 22,225	\$ 9,525			\$ 31,750
50	H*) MacArthur: US84 to South Main:		\$ 40,530	\$ 17,370			\$ 57,900
20	H} McDowell: EG Miles to Bacon:		\$ 73,500	\$ 105,000			\$ 178,500
21	H} Olive: Ex west of Cheerydale to Ex on Madison:		\$ 73,920	\$ 105,600			\$ 179,520
22	H} PaulCaswell: Ex on Debbie to Desert Storm:		\$ 105,000	\$ 45,000			\$ 150,000
23	H} SandyRun: Tupelo Trail to Club:		\$ 105,070	\$ 150,100			\$ 255,170
45	H*) General Stewart: Taylor to Screven:	\$ 82,250		\$ 117,500		yes	\$ 199,750
12	H} SR196: Citation Boulevard to Airport:		\$ 275,345	\$ 118,005			\$ 393,350
26	H} Varnedoe: Bacon to Honey Ridge:		\$ 90,545	\$ 129,350			\$ 219,895
LIBERTY COUNTY							
27	LC} Fort Morris: Interstate 95 to Fort Morris:	\$ 1,293,600		\$ 1,848,000		yes	\$ 3,141,600
b39	LC} Costal Greenway US 17: N to S County Lines:	\$ 6,874,560		\$ 13,094,400		yes	\$ 50,000,000
43	LC} Holmestown: US 84 to Peacock Creek Canal:		\$ 60,060	\$ 132,000			\$ 192,060
33	LC} Peacock Trail: Holmestown to James Brown Park:		\$ 2,115,960	\$ 10,882,080			\$ 12,998,040
MIDWAY							



map index	project	multiuse	sidewalk	drainage	bike shoulders	1 side only	estimated cost
28	M) Cay Creek Ext: US 84 to Cay Creek:	\$ 78,540		\$ 224,400		yes	\$ 302,940
29	M) Edgewater: East Oglethorpe to Liberty Elementary:		\$ 51,744	\$ 236,544			\$ 288,288
32	M) Martin: US 17 to US 84:		\$ 116,424	\$ 266,112			\$ 382,536
RICEBORO							
b35	R) BarringtonFerry: Sandy Run to E B Cooper:		\$ 185,900	\$ 858,000			\$ 1,043,900
b36	R) EB Cooper: Barrington Ferry to US 17:		\$ 108,106	\$ 498,950			\$ 607,056
b37	R) LeConte: Barrington to Rail - Trail:		\$ 500,780	\$ 715,400			\$ 1,216,180
b38	R) Rail - Trail Connector: US 17 to S County Line Line:		\$ 855,610	\$ 1,222,300			\$ 2,077,910
b34	R) SandyRun: Barrington Ferry to US 17:		\$ 792,785	\$ 1,132,550			\$ 1,925,335
WALTHOURVILLE/ALLENHURST							
25	W) Talmadge: West Oglethorpe to Dunlevie :		\$ 189,420	\$ 541,200			\$ 730,620
24	W) Shaw: Darsey to Airport :		\$ 486,010	\$ 694,300			\$ 1,180,310
5	W/A) Dunlevie: West Oglethorpe to Talmadge :		\$ 182,952	\$ 836,352			\$ 1,019,304
	* added by TCC sub-committee						



## Funding

The development of the Non-Motorized Cost Feasible Plan was integrated into the framework of the HAMPO 2040 MTP, with the ultimate goal of including the bicycle and pedestrian projects as part of the overall financial plan. The MTP includes a non-motorized funding set aside for each of the constrained cost bands. These set aside funding totals were established by projecting the overall federal, state and local revenues through the plan horizon. Based on historical non-motorized funds awarded within the HAMPO study area for bicycle and pedestrian facilities, the MPO established a 1% non-motorized financial set aside. These funds were then distributed across the three planning bands. The financial bands and non-motorized transportation funding set asides are shown in the following table.

*Table 8: HAMPO 2040 MTP Non-Motorized Funding by Band*

Band 1 (2015 – 2020)	Band 2 (2021 – 2030)	Band 3 (2031 – 2040)
\$421,243	\$358,587	\$795,009

With over \$25 million in non-motorized projects defined for the HAMPO region, it is critical to explore all available funding sources. In general, there are four primary sources of funding including federal, state local, and alternative sources for non-motorized infrastructure projects.

It is typical for the pursuit of infrastructure funding to have a degree of challenge, which should be considered prior to establishing a non-motorized project funding strategy. These challenges may include elements such as a competitive grant process, which places significant requirements on local staff time and resources. In addition, grant funding may limit the eligibility of various project elements such as design, right of way acquisition, and implementation of facility amenities. Many sources require the use of funds for capital projects and do not support the ongoing operational and maintenance costs of the facility. The following revenue sources have been stratified into Local, State, Federal and Other, and describes the categories of funding available within each of these revenue streams.

### Local Funding

Local sources of funding for non-motorized transportation improvements vary from one community to the next. The following funding categories identify potential avenues to generate local revenues for bicycle and pedestrian projects, and are not reflective of current programs operated in Liberty and Long Counties.

- **Special Purpose Local Option Sales Tax (SPLOST):** A 1% sales tax levied at the City or County level. With voter approval, the local sales tax rate can be increased and used for specific capital outlays including transportation projects. The revenue generated by SPLOST cannot be used for maintenance projects or towards operating expenses.
- **General Funds:** The General Fund is an accounting mechanism used by government agencies and non-profit entities to budget for revenues not specifically designated to be accounted for by



any other fund. The general fund provides resources to maintain day-to-day functions and pays for administrative and operating expenses. The primary sources of revenue for local government General Funds are property taxes. Funding for transportation investments from local government general funds often varies from one budget cycle to another and depends heavily on local priorities and available resources. General fund resources are most commonly used for operations and maintenance of local transportation facilities.

- **Developer Impact Fees:** One-time fees applied to new developments assessed by local governing authorities, impact fees are a financial tool used to reduce the gap between available resources and funding needed to provide additional public facilities. More commonly, developers may contribute right of way, or contribute to the cost of certain improvements in the vicinity of a development voluntarily or as an exaction during the development review process. Under State Law O.C.G.A. § 36-71, exactions must be relatively proportional to the anticipated impact of the development and the funds collected cannot be used for operation, maintenance, repair, alteration or replacement of existing capital facilities.
- **Improvement Districts**
  - **Community Improvement District (CID)** - A CID is a limited taxing mechanism with a specific geographical area used for funding certain governmental services including street and road construction, maintenance, and public transportation systems. The additional tax revenues created by a CID are spent on area improvements within the defined district. A CID can be administered by a city governing authority and can levy taxes, fees and assessments not to exceed 2.5 percent of the assessed value of the real property used for non-residential purposes. Georgia law regulates the creation of CIDs by requiring voluntary participation by a certain portion of property owners with a certain portion of the tax value in the area.  
Although the tax is collected by the County Tax Commissioner, a CID is created under state law by a majority of the area's property owners, not by the county.
  - **Business Improvement District (BID)** – Within a BID, businesses agree to pay an additional tax or fee in order to fund improvements within the area. While sharing similar goals with CIDs, BIDs are voluntary assessments on businesses only and do not have the ability to leverage state and federal monies for infrastructure construction and improvements.
  - **General Improvement District (GID)** - The purpose of a GID is to provide municipal services to an area that does not wish to incorporate with a City in order to acquire the full range of services. The implementation of a GID is most effective when used in an area that will require ongoing operation and maintenance of the facilities chosen for implementation. County Commissioners have significant authority in determining whether or not a GID can be formed considering the necessity of the district for public convenience and the economic feasibility of the district. Methods for obtaining finances

for a GID are fairly broad and include levying ad valorem taxes, fees, special assessments, borrowing and/or issuing securities such as bonds.

- Tax Increment Financing (TIF) is a method to use future gains in taxes to subsidize current improvements. In this approach, a special district, called a Tax Allocation District (TAD), is created and improvements are made within the district. For Cities to designate an area a TAD, a specific geographic area must be identified that has the potential for redevelopment, but which suffers from blight or “economically or socially distressed” conditions. Generally, improvements implemented using TIF funding will stimulate private sector development increasing the value of surrounding real estate and therefore generating additional tax revenue. Before development begins or improvements are made, the tax rate within the taxing district is frozen. Taxes continue to be paid but the difference between the original assessed tax and the tax on assessed value after the improvements (the tax increment) is deposited into an account that is used to pay off the bonds that were sold to finance the improvements. The tax increment funds collected can be leveraged for more improvements within the district.
- Voluntary Assessments: Voluntary Assessment Fees, also known as Project Investment Fees, function as a supplemental sales tax. This tax is typically imposed on a voluntary basis by landlords on their tenants. An example of this funding mechanism is a voluntary tax assessment imposed by a shopping center to fund project-area infrastructure improvements.

### State Funding

The following State programs provide funding for bicycle and pedestrian projects in Georgia.

- State Road and Toll Authority (SRTA): A revolving infrastructure investment fund was established by House Bill 1019 in April 2008 and policies approved by SRTA’s Board of Directors on June 29, 2009 to provide grants and loans to Community Improvement Districts (CIDs), state, regional and local government entities. These funds are used to support transportation improvement projects throughout the state through a competitive application process. The objectives of this grant program are to increase viability for projects limited by traditional funding sources, advance and accelerate projects with a strong match component, add transportation and economic value to the State and encourage innovation. Thus far the program has awarded over \$20 million in grants and loans to CIDs and Local Governments for a variety of capital improvement projects. The average award for the SRTA/GTIB grant is \$1 million dollars and includes a strong match. While all phases of a project are eligible, the most competitive project applications are construction/capital improvement based.
- Quick Response Project Funding: The quick response project program funds improvements that can be implemented in a short period of time to improve safety and security of the traveling

public. Generally, projects are under \$500,000 and typically include restriping, intersection improvements, turn lane additions and extensions, lighting, and signage.

- **Local Maintenance and Improvement Grant (LMIG):** The Local Maintenance and Improvement Grant (LMIG) program includes a formula funding component for local governments to utilize for transportation projects. These funds are distributed utilizing a formula based on 2/3 paved and unpaved centerline miles and 1/3 population for each local government in the State. Eligible projects under the LMIG program include including patching, widening, turn lanes, rehabilitation, intersections, traffic signals, safety upgrades, culvert/bridge repair, and sidewalk/bike lane improvements that are within the roadway right of way.
- **Public Private Partnership (P3):** A contractual agreement between a public and private entity used to facilitate the development of new transportation facilities or improvement of existing facilities. P3s are growing in interest and generating resources for transportation infrastructure by leveraging the limited state transportation funds through partnerships with the private sector. P3 project funding takes many forms including special taxing districts, land or cash donations, impact fees and other arrangements. There is also a diverse range of partnership agreement types.
- **State Appropriations:** In 2016 the Georgia State Legislature approved \$100,000 for capital investment in the Coastal Georgia Greenway trails projects, subsequently approved by Governor Nathan Deal. These funds have been allocated to “shovel ready” projects for construction in Fiscal Year 2017.

### Federal Funding

A significant portion of public funding for bicycle, pedestrian and trails projects is derived from a core group of federal programs including the National Highway Performance Program (NHPP), Surface Transportation Program (STP), Transportation Alternatives Program (TAP), Highway Safety Improvement Program (HSIP) and the Congestion Mitigation Air Quality (CMAQ) programs. Apportionment funding for the Federal-aid Highway Programs are apportioned to each state by formula and then further apportioned to Metropolitan Planning Organizations such as HAMPO.

The federal transportation law, Moving Ahead for Progress in the 21st Century, (MAP-21) consolidated many of the dedicated funding streams for active transportation projects such as Transportation Enhancements, Safe Routes to School, and Recreational Trails, into a single program. MAP-21 also increased the Highway Safety Improvement Program clarifying that the safety of all modes of transportation should be improved, not just motorists.

In December 2015, President Barack Obama signed into law the FAST (Fixing America’s Surface Transportation) Act, authorizing federal transportation funding through 2020. While much of the funding categories from MAP-21 remain in effect, modifications to the Transportation Alternative Program (TAP) was repealed from the US Code. The FAST Act estimates approximately \$800 Million per year in national apportionments for non-motorized projects that will be allocated by formula to state DOT agencies.



Liberty County and urbanized Long County's designation as an MPO meets the criteria for both STP and TAP funding, however CMAQ funds are not available to HAMPO as they are not designated as a non-attainment area.

Additional federal funding sources includes:

- **Transportation Investment Generating Economic Recovery (TIGER):** Discretionary Grant program, provides funding for the U.S. Department of Transportation to invest in road, rail, transit and port projects. In order to be selected, TIGER grant funded projects must demonstrate an ability to achieve critical national transportation objectives. The TIGER grant is a competitive application process with popularity amongst applicants. Successful applications typical include elements that are multi-modal, multi-jurisdictional or considered challenging to fund through traditional funding programs.
- **Urbanized Area Formula Program (5307):** The 5307 Urbanized Area Formula Funding program makes federal funds available to urbanized areas for transit capital, operating and planning assistance. Bicycle and pedestrian infrastructure and education programs are eligible expenses. This funding source is currently being utilized by Liberty Transit to implement non-motorized connections to the fixed route transit system.
- **Federal Lands Transportation Program (FLTP):** Funds Projects that improve access within national forests, national parks, national wildlife refuges, national recreational areas, and other federal public lands. Funds can also be used for transportation facilities in the national federal lands transportation inventory, which are owned and maintained by the federal government.
- **Enhanced Mobility of Seniors and Individuals with Disabilities (5310):** Funds programs to serve transit dependent populations beyond traditional public transportation services and ADA para-transit services. Sidewalk construction and safety enhancements are eligible expenditures for this program.
- **Federal Lands Access Program:** Provides funding for construction or enhancement projects that improve access to transportation facilities on or adjacent to federal lands. Eligible activities include multimodal provisions.
- **Tribal Transportation Program (TTP):** This program was established to address tribal government's transportation needs under 23 USC 202. Bicycle and pedestrian facility development and education are eligible expenditures.
- **Land and Water Conservation Fund:** The National Park Service program funds acquisition or development of land and facilities that provide or support public outdoor recreation. The program is administered by the department of Parks and Recreation at the state level.

- **Rivers, Trails, and Conservation Assistance:** The Rivers, Trails and Conservation Assistance Program is the community assistance department of the National Park Service. The program provides technical assistance to communities working to preserve open space and develop trails.
- **Community Development Block Grants:** The Department of Housing and Urban Development (HUD) provides funding for community improvement projects that help to revitalize neighborhoods. Bicycle and pedestrian facilities may be eligible if they can demonstrate contributions to community revitalization.

### Other Funding

In addition to the primary grant sources listed, there are a number of additional competitive application grant sources available at the regional, state, and federal level, as well as private grant revenue sources. Each of the funding sources identified requires a local project sponsor and grant matching funding through cash or in-kind sources; therefore the HAMPO non-motorized projects have not been fiscally constrained or prioritized. Local municipalities within the HAMPO region will continue to utilize local funding as match for federal, state, and private grants to advance the non-motorized transportation network.

### Prioritization

The HAMPO Region is comprised of nine (9) local governments, the Fort Stewart Military Installation, the Liberty and Long County School Boards, Liberty County Development Authority, local transit providers, and peer agencies. The individual priorities relating to non-motorized infrastructure vary based on individual municipal and organization goals and objectives. The variability of funding sources and requirements for project sponsorship limits the ability to prioritize standalone non-motorized projects. The intent of the HAMPO Non-Motorized Plan is to develop a comprehensive non-motorized network to facilitate pursuit of funding and implementation by the individual agencies that comprise the HAMPO.

HAMPO staff provides support to individual municipal partners for project selection using a project prioritization protocol. The criteria used for prioritization is based on the HAMPO Non-Motorized and Transit Operational study goals and incorporates the study principles such as connectivity to activity centers, geographic location of the improvement, economic development, and accessibility for minority and low income populations. For consistency throughout the HAMPO region, scoring criteria should include:

1. Safety
2. Access to destinations and essential services
3. Closure of infrastructure gaps
4. Feasibility of implementation
5. Links to other alternative transportation modes (such as transit)

Additional ranking criteria that should be considered for Title VI and Environmental Justice compliance including accessibility for concentrations of:

1. Population below Federal Poverty Level
2. Population above age 65
3. Households without vehicles
4. Minority population
5. Population with Limited English Proficiency

A priority selection form is provided in Appendix A.

## Next Steps

In addition to advancing the goals and objectives of the Non-Motorized Plan through implementation of bicycle and pedestrian supportive infrastructure, there are a number of additional opportunities and next steps that will help garner support and set the framework for implementation within the study area.

## Education

Educating the public about safety, healthy transportation options, and positive quality of life impacts associated with non-motorized transportation are critical to gaining public support for investment and limiting preventable crashes.

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**“...the man was texting while crossing the road when he was struck”**

-WTOC 9.28.2016

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There are a number of existing programs in place that promote education and active lifestyle such as the state funded Safe Routes to Schools program, which promotes educational programs for students, faculty, and staff regarding safe multimodal practices, and provides capital resources for construction of safe non-motorized facilities that improve access to education facilities. Local staff should identify opportunities to leverage resources from established programs like Safe Routes to Schools to facilitate community engagement and garner support for non-motorized project implementation in their community. Educating minors about bicycle and pedestrian safety can also result in a reduction in non-motorized crashes, as public awareness and education improves the safe travel behaviors of the community.

Additional opportunities for public engagement are available during local events. Large public events that support active mobility should be leveraged as a platform for public awareness and education about multimodal initiatives. Examples of events most effective for non-motorized education and engagement are local races such as the Healthy Hinesville 5K Run/Walk <sup>7</sup> and the Bike Ride Across Georgia

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<sup>7</sup> <http://www.cityofhinesville.org/388/Healthy-Hinesville-5K-RunWalk>



(BRAG) host city event. Providing information and gathering feedback from visitors and citizens that are engaging in related activity, such as running or bicycling, can help local officials gain valuable insights to the needs and desires of the community while raising awareness and support for local multimodal programs. Public events, where multimodal education and outreach would be most effective, should be identified on an annual basis. Educational materials about local bicycle and pedestrian projects and initiatives should be developed and provided for inclusion in race participant packets and where feasible, distributed by staff to garner dialogue and feedback.

### Policy Framework

During the development of the Non-Motorized Plan, a number of local ordinances and development standards were identified that prohibit the advancement of non-motorized mobility within the study area. A thorough review of local codes and ordinances should be conducted to ensure prohibitive regulations are identified and revised. This review also provides the opportunity to include new requirements and design standards that can further advance the implementation of the non-motorized network. This review should be a collaborative effort with HAMPO, the Liberty Consolidated Planning Commission, local municipalities, and other key planning partners. The finding of the analysis and recommendations should then be presented to local governing agencies for consideration.

### Coordination

Investment in the non-motorized network will be made over time and by various partners, so engagement must be continuous, comprehensive and coordinated. The recent development of the Associated Transit Improvements Task Force should be utilized as a foundation to continue to advance bicycle and pedestrian initiatives through a technical, policy, stakeholder and citizen driven process.

In addition, State, Regional and Federal partners should be engaged to garner support and build a network of resources. A bicycle and pedestrian communications list serve should be established and maintained for use in establishing open lines of communication about non-motorized projects, implementation strategies, and distribution of pertinent information.

### Data Collection and Performance Monitoring

A primary challenge in analyzing the bicycle and pedestrian transportation modes is a lack of documentation on usage and demand. Without demand and usage figures, it is difficult to set performance metrics and analyze the performance of the infrastructure following implementation. The FAST Act maintains the MAP-21 focus on performance based planning for transportation investments, therefore establishing a baseline for latent demand in the HAMPO region will be critical.

Consideration should be given to implementing annual bicycle and pedestrian count collection procedures. A number of methods should be considered to effectively capture adequate samples including manual counts, procurement of automatic count equipment for high volume corridors, and contracted count collections.

Support for implementing bicycle and pedestrian count collection programs is available from a number of sources including the National Bicycle and Pedestrian Documentation Project (NBPD). The NBPD recommends count equipment for use in non-motorized data collection and offers free report generation if one year of automatic count data is provided. <http://bikepeddocumentation.org/>

## TRANSIT RECOMMENDATIONS

The Liberty Transit System is preparing for the update of the Transit Development Plan (TDP). The Georgia Department of Transportation's Intermodal Department along with the Federal Transit Administration depends on local transit agencies to reevaluate their TDPs every five years as a prerequisite for the receipt of federal and state funding. The TDP update process provides transit agencies with the opportunity to define public transportation needs, solicit input from stakeholders and the public, identify capital and operational deficiencies, and define courses of action to advance the mission and goals of the transit agency.

The results of the Transit Operations Analysis should form the foundation for the development of the TDP.

### Service Modifications

The recent service expansion into the City of Walthourville and the upcoming transition from Deviated ADA Service to Complementary Paratransit Service absorbs the existing capacity for major transit service modifications. These service changes should be fully implemented and monitored at regular intervals within the first 12 months of service to ensure adjustments are made as ridership data is gathered.

A significant number of new residential and commercial developments have occurred since the last major transit system evaluation. While propensity for transit ridership outside of the existing service area does not support system expansion, new developments within the service area should be evaluated for potential service modifications. Major employment centers and multifamily housing developments should be targeted for incorporation. A concurrent evaluation should be completed for underperforming service areas where modifications may be needed.

During the transit operations evaluation it was determined that on-time performance has become challenging due to service adjustments and vehicular traffic congestion changes within the service area. The system must be thoroughly evaluated to identify segments of service that require schedule modifications. Reliability and safety of transit service are two primary factors that impacting ridership, and both are strained by time point schedules that do not reflect current conditions.

### Fare Structure Analysis

Liberty Transit has been operating since October of 2010 and has not undergone a fare structure analysis. It is imperative that this evaluation be completed during the TDP update. Comparison to peer systems with comparable community demographics and service structure should form the foundation of this analysis. This recommendation does not suggest that the Liberty Transit fare structure should be modified, rather that it should be analyzed.

### Enhanced Marketing and Outreach

Liberty Transit incorporates marketing and customer outreach within City of Hinesville Public Relations Department and the responsibilities of the system's General Manager and support staff. A comprehensive marketing plan should be developed to provide guidance to staff tasked with improving system ridership and customer satisfaction through marketing and outreach. The plan should develop

marketing strategies that provide direction for both existing as well as future riders. Providing these types of information about the system, its use, and the use of technology enhances the chances of increased ridership from choice users. Liberty transit is currently developing GTFS data for incorporation into the Google Transit platform. Additional technological advancements should be evaluated for feasibility to increase customer access to real-time transit information.

To facilitate additional input from the public regarding desired transit service modifications, a regularly scheduled public transit forum should be established. This framework allows citizens to voice desires and grievances and provides a structured format for consideration of service modifications. These public meetings should be held at least once a year to ensure citizens have opportunity to engage.

#### Federal and State Compliance

With the recent passage of the FAST Act, new regulations and rulemaking have been issued. Liberty Transit must stay abreast of new Federal and State reporting requirements including Asset Management and Safety Planning. The TDP 5 year fiscally constrained plan should incorporate these planning efforts to ensure resources are available to maintain compliance with the Federal Transit Administration.



## Appendix A: Cross Sections Resource Guide

## Appendix B: Public Participation Documentation

# CROSS SECTIONS RESOURCE GUIDE

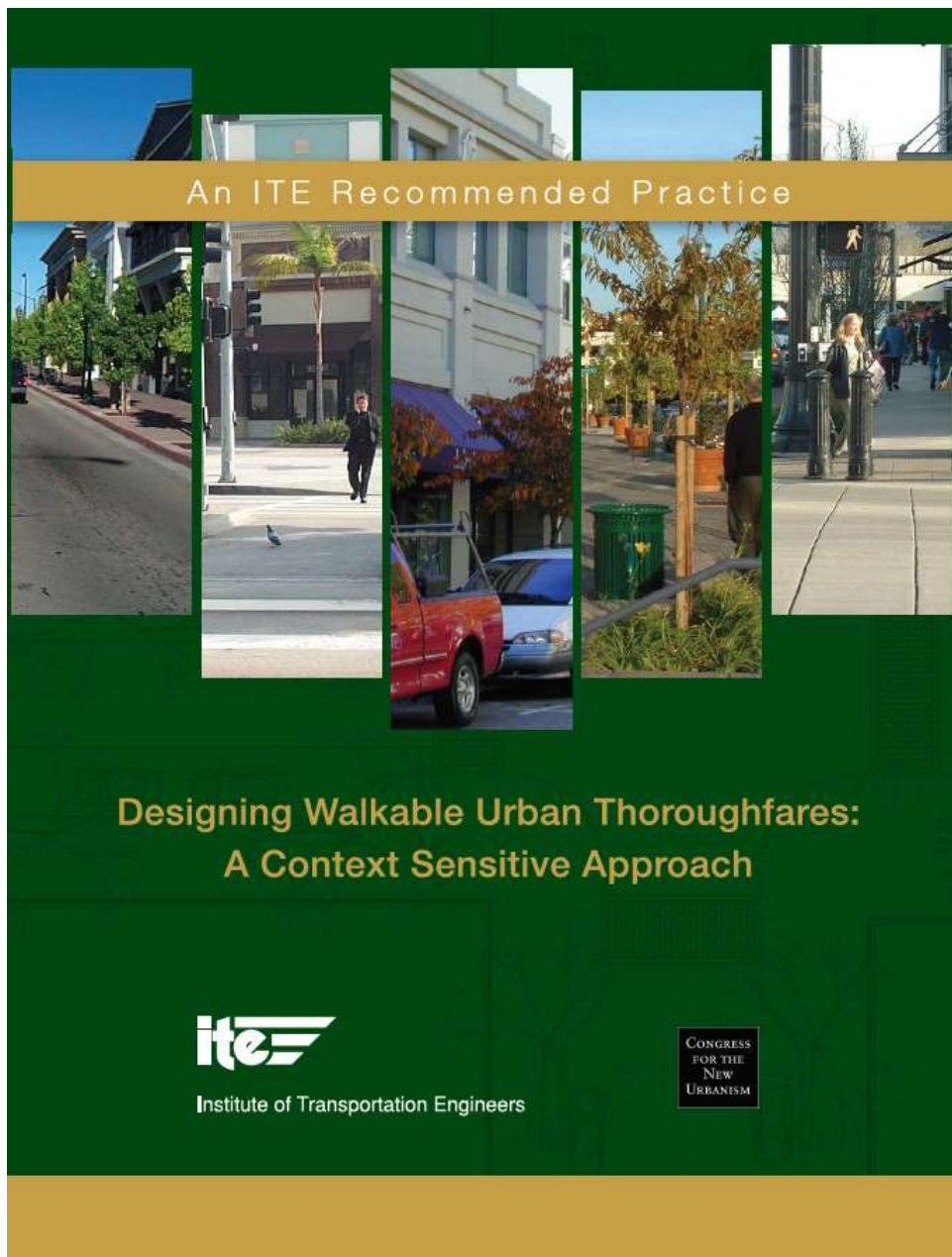
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## Designing Walkable Urban Thoroughfares: A Context Sensitive Approach: An ITE Recommended Practice

FHWA endorsed publication guiding the appropriate application of various bicycle and pedestrian improvements. Includes design characteristics for walkable corridors.

[http://contextsensitivesolutions.org/content/reading/designing\\_walkable\\_urban\\_thorou/](http://contextsensitivesolutions.org/content/reading/designing_walkable_urban_thorou/)



## Guidelines

**Table 5.2 Minimum Recommended Streetside Dimensions for Thoroughfares in Walkable Areas Under Constrained Conditions**

<b>Streetside Zone</b>	<b>Minimum Dimension</b>
<b>Residential (All Context Zones)</b>	
Edge and Furnishing Zone (Planting Strip, utilities, etc.)	3 feet
Clear Pedestrian Travel Way	5 feet
Frontage Zone	1 foot
<b>Total Minimum Streetside Width:</b>	<b>9 feet</b>
<b>Commercial with Ground Floor Retail (All Context Zones)</b>	
Edge and Furnishing Zone (Treewell <sup>1</sup> , utilities, bus stops, etc.)	4 feet
Clear Pedestrian Travel Way	6 feet
Frontage Zone	2 feet
<b>Total Minimum Streetside Width:</b>	<b>12 feet</b>

<sup>1</sup> Plant only small caliper trees (4" diameter when mature) in 4-foot treewells.

The minimum recommended streetside dimensions for thoroughfares in other areas (such as vehicle-oriented areas) should be based on the designer's understanding of the community's objectives, the future desired traversability of the area, the future potential redevelopment of the adjacent property and the need to accommodate all users.

**Table 6.2 Selected Characteristics of Walkable Thoroughfares**

<b>Characteristic</b>	<b>Walkable Thoroughfares</b>	<b>Vehicle-Oriented Thoroughfares</b>
Target speed range	From Table 6.4.	25–35 mph.
Pedestrian separation from moving traffic	Curb parking and streetside furnishing zone.	Optional, typically separation achieved with planting strip.
Streetside width	Minimum 9 feet (residential) and 12 feet (commercial) to accommodate sidewalk, landscaping and street furniture.	Minimum 5 feet.
Block lengths	200–660 feet.	Up to one-quarter mile.
Protected pedestrian crossing frequency (pedestrian signals or high-visibility markings at unsignalized crossings)	200–600 feet.	As needed to accommodate pedestrian demands.
Pedestrian priority at signalized intersection	Pedestrian signals and pedestrian count-down heads, adequate crossing times, shorter cycle lengths and median refuges for very long crossings.	Vehicle priority; may have longer cycle lengths and require two cycles for slower pedestrians to cross wide streets with medians.
Pedestrian crossings	High-visibility crosswalks shortened by curb extensions where there is on-street parking.	Full street width.
Median width	6 feet minimum width at crosswalk, if used as pedestrian refuge, plus 10 feet for left-turn lane, if provided. 14 foot total width for left-turn lane if no refuge needed.	14–18 feet for single left-turn lane; 26–30 feet for double left-turn lane.
Vehicular access across sidewalks	24 feet or less, except if specific frequent design vehicle requires added width.	As needed.
Curb parking	Normal condition except at bus stops and pedestrian crossings.	None.
Curb return radius	10–30 feet; low-speed channelized right turns where other options are unworkable.	30–75 feet; high-volume turns channelized.



**Table 6.3 Design Elements Influenced by Functional Classification**

Characteristic	Arterials	Collectors
<b>Network Characteristic</b>		
Continuity	Longer, extending intercity, interarea or serving major corridors.	Shorter, connecting neighborhoods and providing local connections to activity centers; usually 1–2 miles.
Trip lengths	Longer (local and regional).	Shorter (local only).
Role in bicycle network	Designated bikeway with bike lanes or shared lanes depending on context and target speed.	Bike lanes, signed routes, or shared facilities.
<b>Segment Characteristic</b>		
Target speed range (see Table 6.4)	30–35 mph.	25–30 mph.
Traffic volumes (daily)	10,000–50,000.	1,000–10,000.
Transit	Major regional fixed guideway corridor, express, or local bus routes.	Local bus service only, where provided.

**Table 6.4 Design Parameters for Walkable Urban Thoroughfares**

Thoroughfare Design Parameters for Walkable Mixed-Use Areas									
	Suburban (C-3)						General Urban (C-4)		
	Residential			Commercial			Residential		
	Boulevard [1]	Avenue	Street	Boulevard [1]	Avenue	Street	Boulevard [1]	Avenue	Street
Context									
Building Orientation (entrance orientation)	front, side	front, side	front, side	front, side	front, side	front, side	front	front	front
Maximum Setback [2]	20 ft.	20 ft.	20 ft.	5 ft.	5 ft.	5 ft.	15 ft.	15 ft.	15 ft.
Off-Street Parking Access/Location	rear, side	rear, side	rear, side	rear, side	rear, side	rear, side	rear	rear, side	rear, side
Streetside									
Recommended Streetside Width [3]	14.5–16.5 ft.	14.5 ft.	11.5 ft.	16 ft.	16 ft.	15 ft.	16.5-18.5 ft.	14.5 ft.	11.5 ft.
Minimum sidewalk (throughway) width	6 ft.	6 ft.	6 ft.	6 ft.	6 ft.	6 ft.	8 ft.	6 ft.	6 ft.
Pedestrian Buffers (planting strip exclusive of travel way width) [3]	8 ft. planting strip	6–8 ft. planting strip	5 ft. planting strip	7 ft. tree well	6 ft. tree well	6 ft. tree well	8 ft. planting strip	8 ft. planting strip	6 ft. planting strip
Street Lighting	For all thoroughfares in all context zones, intersection safety lighting, basic street lighting, and pedestrian-scaled lighting is recommended. See Chapter 8 (Streetside Design Guidelines) and Chapter 10 (Intersection Design Guidelines).								
Traveled Way									
Target Speed (mph)	25–35	25–30	25	25–35	25–35	25	25–35	25–30	25
Number of Through Lanes [5]	4–6	2–4	2	4–6	2–4	2	4–6	2–4	2
Lane Width [6]	10–11 ft.	10–11 ft.	10–11 ft.	10–12 ft.	10–11 ft.	10–11 ft.	10–11 ft.	10–11 ft.	10–11 ft.
Parallel On-Street Parking Width [7]	7 ft.	7 ft.	7 ft.	8 ft.	7-8 ft.	7-8 ft.	7 ft.	7 ft.	7 ft.
Min. Combined Parking/Bike Lane Width	13 ft.	13 ft.	13 ft.	13 ft.	13 ft.	13 ft.	13 ft.	13 ft.	13 ft.
Horizontal Radius (per AASHTO) [8]	200–510 ft.	200–330 ft.	200 ft.	200–510 ft.	200–510 ft.	200 ft.	200–510 ft.	200–330 ft.	200 ft.
Vertical Alignment	Use AASHTO minimums as a target, but consider combinations of horizontal and vertical per AASHTO Green Book.								
Medians [9]	4–18 ft.	Optional 4–16 ft.	None	4–18 ft.	Optional 4–18 ft.	None	4–18 ft.	Optional 4–16 ft.	None
Bike Lanes (min./preferred width)	5 ft./6 ft.	5 ft./6 ft.	5 ft./6 ft.	5 ft./6 ft.	5 ft./6 ft.	5 ft./6 ft.	5 ft./6 ft.	5 ft. / 6 ft.	5 ft. / 6 ft.
Access Management [10]	Moderate	Low	Low	High	Moderate	Low	Moderate	Low	Low
Typical Traffic Volume Range (ADT) [11]	20,000–35,000	1,500–25,000	500–5,000	20,000–50,000	1,500–35,000	1,000–10,000	10,000–35,000	1,500–20,000	500–5,000
Intersections									
Roundabout [12]	Consider urban single-lane roundabouts at intersections on avenues with less than 20,000 entering vehicles per day, and urban double-lane roundabouts at intersections on boulevards and avenues with less than 40,000 entering vehicles per day.								
Curb Return Radii/Curb Extensions and Other Design Elements	Refer to Chapter 10 (Intersection Design Guidelines)								

**Table 6.4 Notes:**

1. Multiway boulevards are a special form of boulevards. Generally they add one-way, 16–20 foot wide access lanes adjacent to the outer curb and separated from the through traffic lanes by a longitudinal island at least 6 ft. wide (10 ft. if accommodating transit stops). Access lanes have curb parallel parking plus one moving traffic/bike lane with a target speed of 15–20 mph. All vehicular traffic on the access lanes is local. See Chapter 6 section on multiway boulevards for additional information.
2. For all context zones with predominantly commercial frontage, this table shows the maximum setback for buildings with ground floor retail. In suburban contexts, office buildings are typically set back 5 ft. further than retail buildings to provide a privacy buffer. In general urban and urban center/core areas, office buildings are set back 0–5 ft. Setback exceptions may be granted for important civic buildings or unique designs.
3. Streetside width includes edge, furnishing/planting strip, clear throughway, and frontage zones. Refer to Chapter 8 (Streetside Design Guidelines) for detailed description of sidewalk zones and widths in different context zones and on different thoroughfare types. Dimensions in this table reflect widths in unconstrained conditions. In constrained conditions streetside width can be reduced to 12 ft. in commercial areas and 9 ft. in residential areas (see Chapter 5 on designing within constrained rights of way).
4. Desired target speeds on avenues serving C-4 and C-5/6 commercial main streets with high pedestrian activity should be 25 mph.
5. Six lane facilities are generally undesirable for residential streets because of concerns related to neighborhood livability (i.e., noise, speeds, traffic volume) and perceptions as a barrier to crossing. Consider a maximum of four lanes within residential neighborhoods.
6. Lane width (turning, through and curb) can vary. Most thoroughfare types can effectively operate with 10–11 ft. wide lanes, with 12 ft. lanes desirable on higher speed transit and freight facilities. Chapter 9 (Traveled Way Design Guidelines) (lane width section) identifies the considerations used in selecting lane widths. Curb lane width in this report is measured to curb face unless gutter pan/catch basin inlets do not accommodate bicycles, then it is measured from the edge of travel lane. If light rail transit or streetcars are to be accommodated in a lane with motor vehicles, the minimum lane width should be the

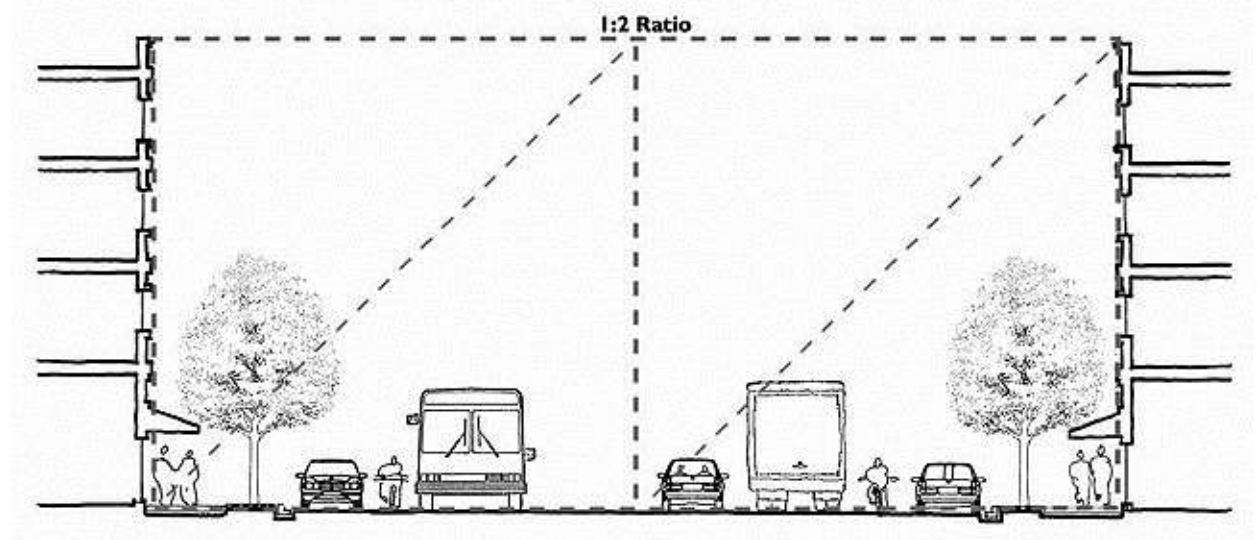
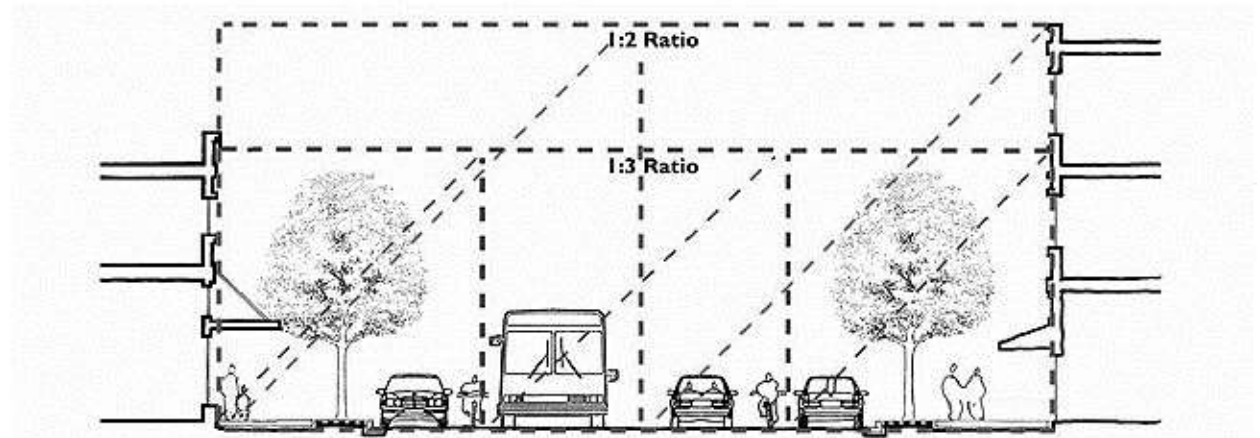
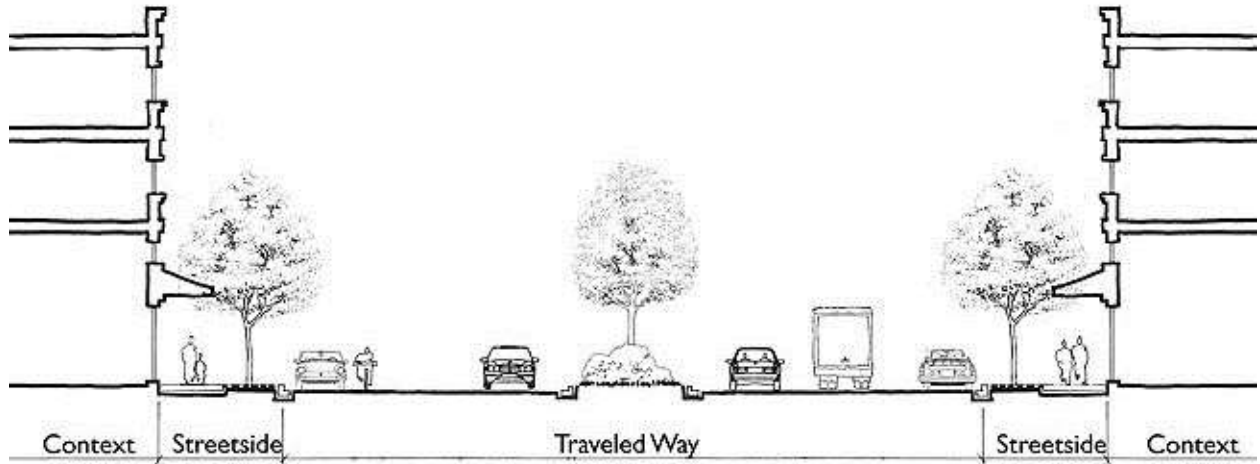
**Table 6.4 Design Parameters for Walkable Urban Thoroughfares (continued)**

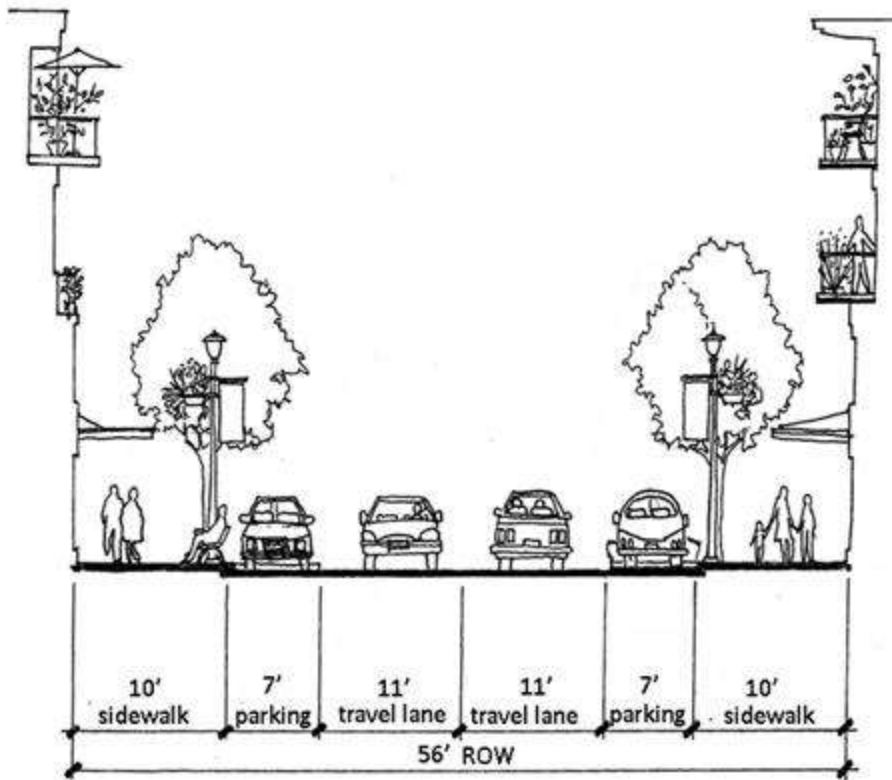
Thoroughfare Design Parameters for Walkable Mixed-Use Areas									
	General Urban (C-4)			Urban Center/Core (C-5/6)					
	Commercial			Residential			Commercial		
	Boulevard [1]	Avenue	Street	Boulevard [1]	Avenue	Street	Boulevard [1]	Avenue	Street
Context									
Building Orientation (entrance orientation)	front	front	front	front	front	front	front	front	front
Maximum Setback [2]	0 ft.	0 ft.	0 ft.	10 ft.	10 ft.	10 ft.	0 ft.	0 ft.	0 ft.
Off-Street Parking Access/Location	rear, side	rear, side	rear, side	rear	rear	rear, side	rear	rear	rear, side
Streetside									
Recommended Streetside Width [3]	19 ft.	16 ft.	16 ft.	21.5 ft.	19.5 ft.	16 ft.	21.5 ft.	19.5 ft.	16 ft.
Minimum sidewalk (throughway) width	8 ft.	6 ft.	6 ft.	10 ft.	9 ft.	6 ft.	10 ft.	9 ft.	6 ft.
Pedestrian Buffers (planting strip exclusive of travel way width) [3]	7 ft. tree well	6 ft. tree well	6 ft. tree well	7 ft. tree well	6 ft. tree well	6 ft. tree well	7 ft. tree well	6 ft. tree well	6 ft. tree well
Street Lighting	For all thoroughfares in all context zones, intersection safety lighting, basic street lighting, and pedestrian-scaled lighting is recommended. See Chapter 8 (Streetside Design Guidelines) and Chapter 10 (Intersection Design Guidelines).								
Traveled Way									
Target Speed (mph)	25–35	25–30 [4]	25	25–35	25–30	25	25–35	25–30 [4]	25
Number of Through Lanes [5]	4–6	2–4	2–4	4–6	2–4	2–4	4–6	2–4	2–4
Lane Width [6]	10–12 ft.	10–11 ft.	10–11 ft.	10–11 ft.	10–11 ft.	10–11 ft.	10–11 ft.	10–11 ft.	10–11 ft.
Parallel On-Street Parking Width [7]	8'	7–8 ft.	7–8 ft.	7 ft.	7 ft.	7 ft.	8 ft.	8 ft.	7–8 ft.
Min. Combined Parking/Bike Lane Width	13 ft.	13 ft.	13 ft.	13 ft.	13 ft.	13 ft.	13 ft.	13 ft.	13 ft.
Horizontal Radius (per AASHTO) [8]	200–510 ft.	200–330 ft.	200 ft.	200–510 ft.	200–330 ft.	200 ft.	200–510 ft.	200–330 ft.	200 ft.
Vertical Alignment	Use AASHTO minimums as a target, but consider combinations of horizontal and vertical per AASHTO Green Book.								
Medians [9]	4–18 ft.	Optional 4–18 ft.	None	4–18 ft.	Optional 4–16 ft.	None	4–18 ft.	Optional 4–18 ft.	None
Bike Lanes (min./preferred width)	5 ft. / 6 ft.	5 ft. / 6 ft.	5 ft. / 6 ft.	5 ft. / 6 ft.	5 ft. / 6 ft.	5 ft. / 6 ft.	5 ft. / 6 ft.	5 ft. / 6 ft.	5 ft. / 6 ft.
Access Management [10]	High	Low–Moderate	Low–Moderate	Moderate	Low–Moderate	Low–Moderate	High	Low–Moderate	Low–Moderate
Typical Traffic Volume Range (ADT) [11]	15,000–50,000	1,500–30,000	1,000–15,000	15,000–30,000	1,500–20,000	500–5,000	15,000–40,000	1,500–30,000	1,000–15,000
Intersections									
Roundabout [12]	Consider urban single-lane roundabouts at intersections on avenues with less than 20,000 entering vehicles per day, and urban double-lane roundabouts at intersections on boulevards and avenues with less than 40,000 entering vehicles per day.								
Curb Return Radii/Curb Extensions and Other Design Elements	Refer to Chapter 10 (Intersection Design Guidelines)								

width of the transit vehicle plus 1 ft. of clearance on either side. Most modern streetcars or light rail vehicles (LRT) can be accommodated in an 11 or 12 ft. wide lane but designers need to consider the LRT vehicle's "dynamic envelope" when designing on horizontal curves and intersections.

7. An 8 ft. wide parking lane is recommended in any commercial area with a high turnover of parking.
8. For guidance on horizontal radius—see AASHTO's "green book" section on "Minimum Radii for Low Speed Urban Streets—Sharpest Curve Without Superelevation." Dimensions shown above are for noted target speeds and are found on Exhibit 3–16 (Page 151) in *A Policy on Geometric Design of Highways and Streets* (2004), assuming a superelevation of –2.0 percent reflecting typical cross slope. Depending on design vehicle, horizontal curves may require lane widening to accommodate large vehicle off-tracking. See AASHTO's section on "Traveled Way Widening on Horizontal Curves" for guidance.
9. See also Chapter 9 for additional detail on medians. For curb to curb intersection crossing distances of 60 ft. or more, medians should be at least 6 ft. wide to serve as a pedestrian refuge, otherwise the median should be at least 4 ft. wide. Where left turn lanes are to be provided, median widths should be increased by the width of the turn lane(s). Where left turn lanes are not needed (e.g., long blocks) median widths may be as little as 4 ft.
10. Access management involves providing (i.e., managing) access to land development in such a way as to preserve safety and reasonable traffic flow on public streets. Low, moderate and high designations are used for the level of access restrictions. A high level of access management uses medians to restrict mid-block turns, consolidate driveways and control the spacing of intersections. A low level of access management limits full access at some intersections, but generally uses minimal measures to restrict access.
11. These ranges of typical traffic volumes are intended to help determine the characteristics of thoroughfares. Volumes can fluctuate widely on all thoroughfare types. These ranges are not intended to establish guidelines or upper bounds for designing thoroughfares.
12. Double-lane roundabouts are not recommended in urban areas with high levels of pedestrians and bicyclists.

## Cross Sections







# GDOT Design Manual (Complete Streets Policy)

<http://www.dot.ga.gov/PartnerSmart/DesignManuals/DesignPolicy/GDOT-DPM.pdf>

**State of Georgia**

**Department of Transportation**

## Design Policy Manual



### **Design Policy Manual**

7/21/2016

Revision 4.15

Atlanta, Georgia 30308





## Pedestrian Warrants

**Standard** – Pedestrian accommodations shall be considered in all planning studies, and be included in all reconstruction, new construction, and capacity-adding projects which include curb and gutter as part of an urban border area (See Figure 6.3). Pedestrian accommodations shall also be considered along roadways with rural shoulders, which meet any of the following conditions:

1. along corridors with pedestrian travel generators and destinations (i.e. residential neighborhoods, commercial areas, schools, public parks, transit stops and stations, etc.), or
2. areas where such generators and destinations can be expected prior to the design year of the project;
3. where there is evidence of pedestrian traffic (e.g., a worn path along roadside);
4. where pedestrian crashes equal or exceed a rate of ten for a ½-mile segment of roadway, over the most recent five years for which crash data is available; and
5. where a need is identified by a local government, MPO or regional commission through an adopted planning study.

**Guideline** – Pedestrian accommodations should be considered on projects that are located in areas with any of the following conditions:

1. within close proximity (i.e., a 1 mile radial distance) of a school, college, university, or major public institution (e.g., hospital, major park, etc.);
2. within an urbanized area; or area projected to be urbanized by an MPO, regional commission, or local government prior to the design year of the project;
3. where there is an occurrence of pedestrian crashes; and any location where engineering judgment, planning analysis, or the public involvement process indicates a need.

## Bicycle Warrants

**Standard** – Bicycle accommodations shall be considered in all planning studies and shall be included in all reconstruction, new construction, and capacity-adding projects that are located in areas with any of the following conditions:

1. if the project is on a designated (i.e., adopted) U.S., State, regional, or local bicycle route;
2. where there is an existing bikeway along or linking to the end of the project alignment (e.g., shared lane, paved shoulder, bike lane, shared-use path, or cycle track);
3. along project alignments with bicycle travel generators and destinations (i.e. residential neighborhoods, commercial centers, schools, colleges, scenic byways, public parks, transit stops/stations, etc.);
4. on all new and widened bridges;
5. on retained bridges where a bridge deck is being replaced or rehabilitated and the existing bridge width allows for a wide enough shoulder for bike accommodations (i.e.  $\geq 5$  ft) without eliminating (or precluding) needed pedestrian accommodations – reference Title 23 United States Code, Chapter 2, Section 217, Part (e); and

6. where there is an occurrence of reported bicycle crashes which equals or exceeds a rate of five for a 1-mile segment of roadway, over the most recent five years for which crash data is available.

**Guideline** – Bicycle accommodations should be considered on projects that are located in areas with any of the following conditions:

1. within close proximity (i.e., a 3 mile radial distance) of a school, college, university, or major public institution (e.g., hospital, major park, etc...);
2. where a project will provide connectivity between two or more existing bikeways or connects to an existing bikeway;
3. where there is an occurrence of bicycle crashes;
4. along a corridor where bicycle travel generators and destinations can be expected prior to the design year of the project;
5. any location where engineering judgment, planning analysis, or the public involvement process indicates a need.

On resurfacing projects, GDOT will consider requests from local governments to narrow or reduce the number of travel lanes in order to restripe the roadway to add bicycle lanes. Restriping that includes narrowing of the travel lanes will be considered where space is available and where the motor vehicle crash rate for sideswipe crashes (for the most recent five years for which data is available) does not exceed the statewide average for the same functional classification. A marked shared lane may be considered if sufficient width is not available for a bicycle lane and motor vehicle travel speeds are 35 mph or less.

## Bicycle and Pedestrian Cross Sections

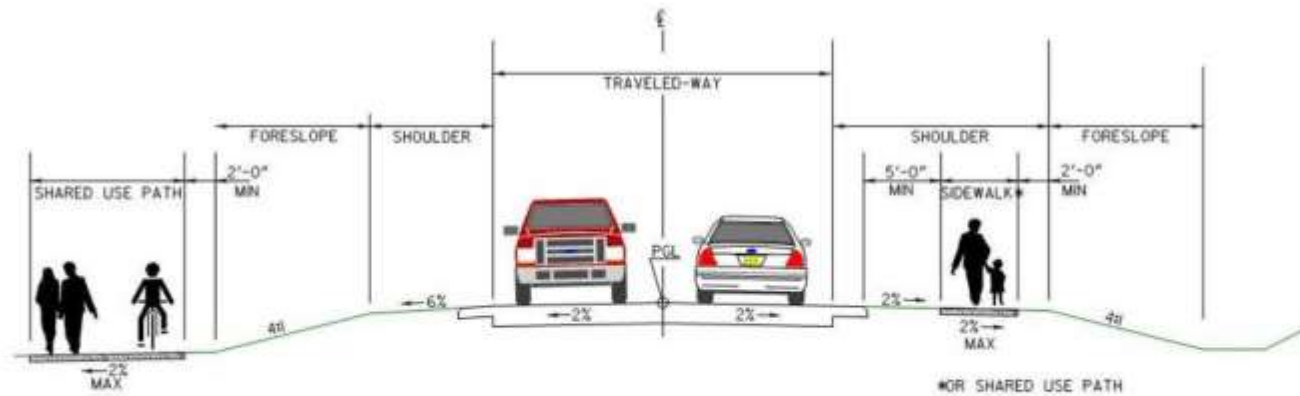


Figure 9.7b Illustrations of Pedestrian Accommodations on a Rural Shoulder

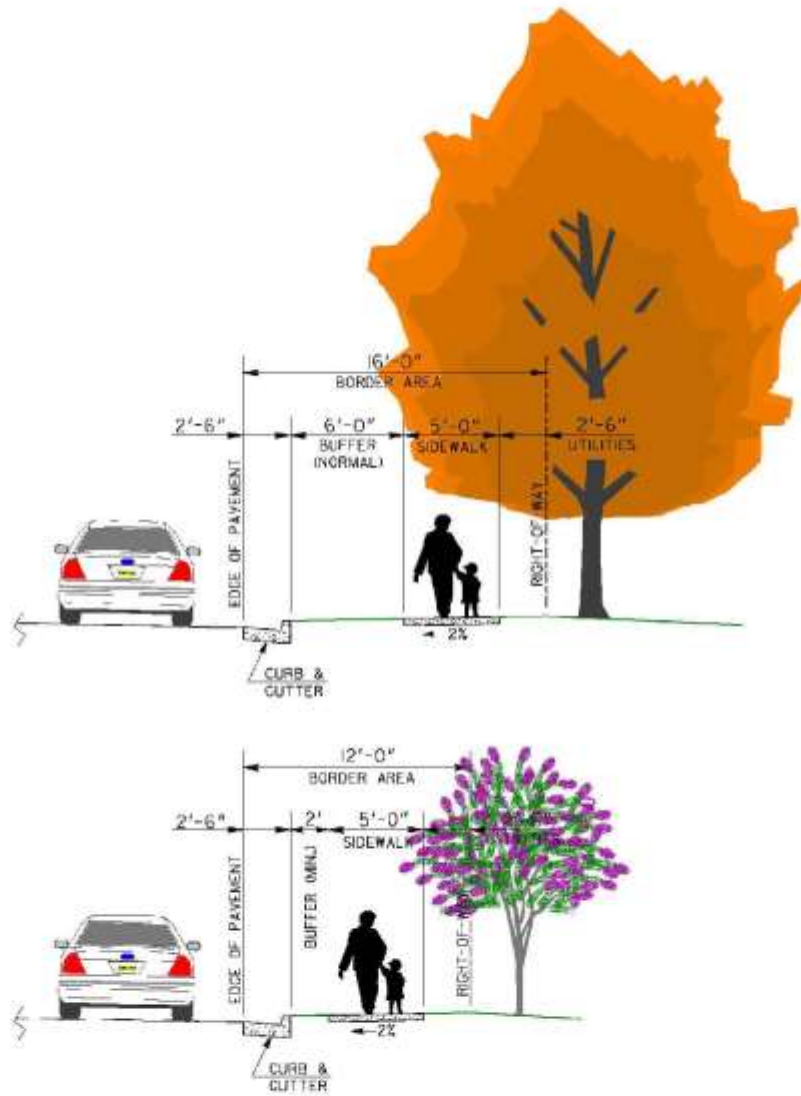


Figure 9.7a Illustrations of Pedestrian Accommodations on an Urban Shoulder

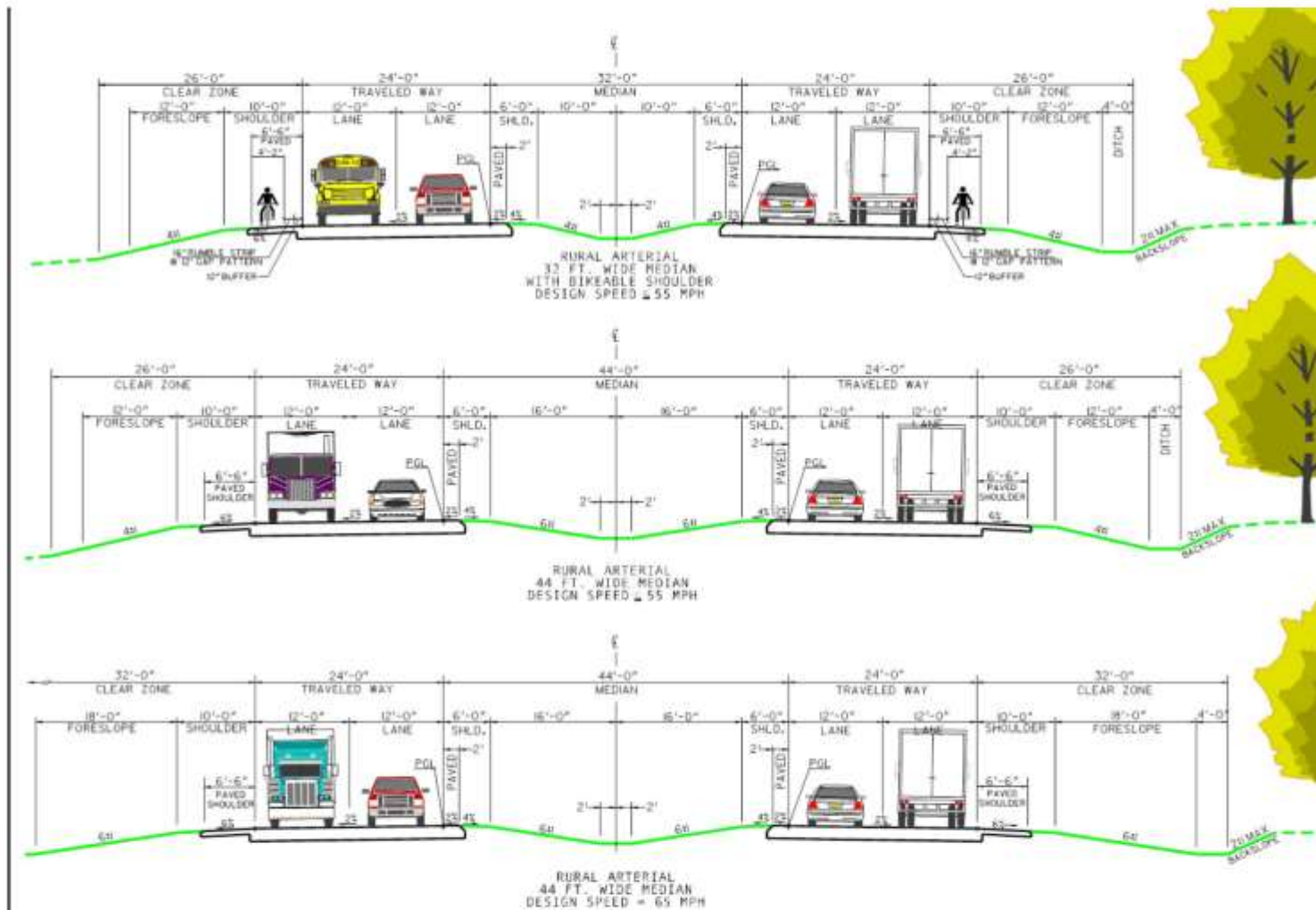


Figure 6.6. Illustration of Typical Dimensions for Collector and Arterial Roadways

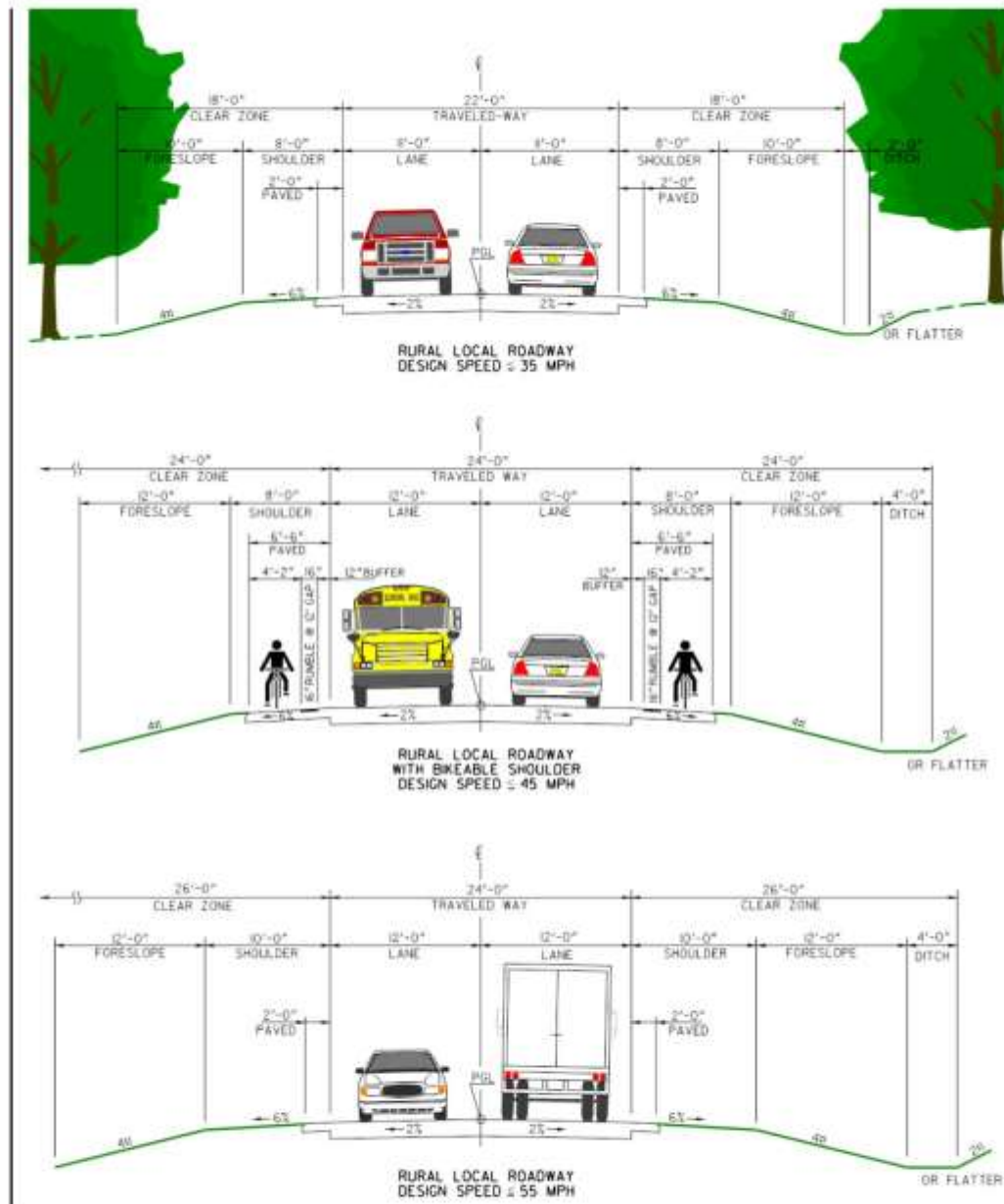


Figure 6.5. Illustration of Typical Dimensions for Rural Local Roadways





**Figure 9.8 Illustrations of a Bikeable Shoulder and a Bicycle Lane.**

# FHWA On-Street Bicycle Facility Guidance

<http://www.fhwa.dot.gov/publications/research/safety/pedbike/05085/chapt15.cfm>

## Cross Sections

### Typical Bike Lane Cross Sections

Bicycle lanes serve the needs of all types of cyclists in urban and suburban areas by providing them with a dedicated travel lane within the street space. The minimum width of a bike lane will vary based on the roadway cross section (see figure 15-1). For roadways with no curb and gutter, the minimum width of a bike lane should be 1.2 m (4 ft). If parking is permitted, the bike lane should be placed between the parking area and the travel lane, and have a minimum width of 1.5 m (5 ft). Where parking is permitted but a parking stripe or stalls are not utilized, the shared area should be a minimum of 3.3 m (11 ft) without a curb face and 3.5 m (12 ft) adjacent to a curb.

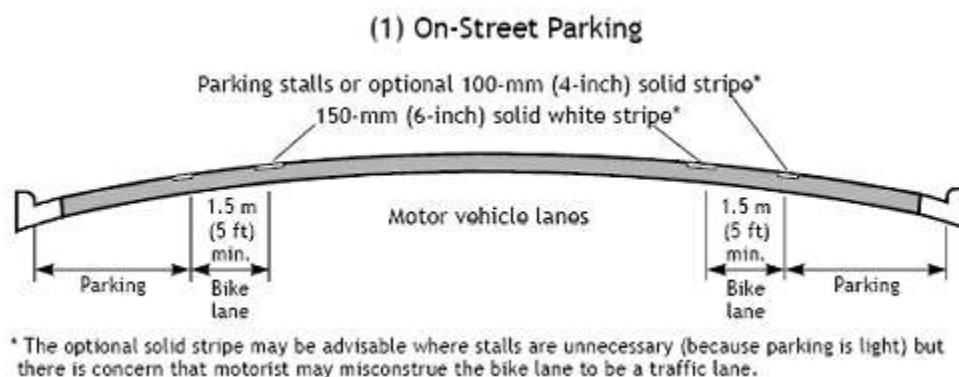
The recommended width of a bike lane is 1.5 m (5 ft) from the face of a curb or guardrail to the bike lane stripe. This 1.5-m (5-ft) width should be sufficient in cases where a 0.3–0.6 m (1–2 ft) gutter pan exists, given that a minimum of 0.9 m (3 ft) of rideable surface is provided and the longitudinal joint between the gutter pan and the pavement surface is smooth. If the joint is not smooth, 1.2 m (4 ft) of rideable surface should be provided.

Since bicyclists usually tend to ride a distance of 0.8–1.0 m (32–40 in) from the curb face, it is very important that the pavement surface in this zone be smooth and free of structures. Drain inlets and utility covers that extend into this area cause bicyclists to swerve, resulting in a reduction of usable lane width. Where these structures exist and the surface cannot be made smooth, the bike lane width should be adjusted accordingly. Regular maintenance is critical for bike lanes (see lesson 16).

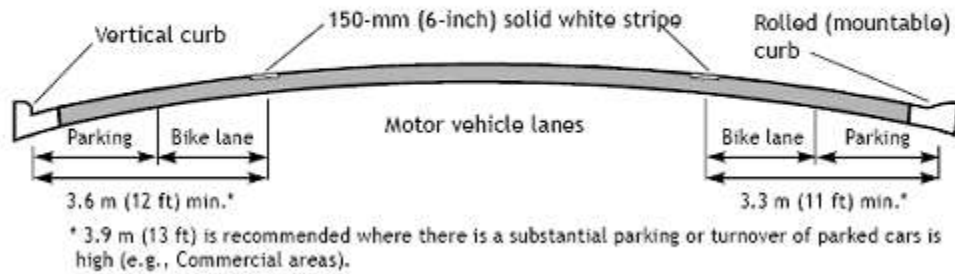
Bicycle lanes are always located on both sides of the road on two-way streets. Since bicyclists must periodically merge with motor vehicle traffic, bike lanes should not be separated from other motor vehicle lanes by curbs, parking lanes, or other obstructions. Two-way bike lanes on one side of two-way streets create hazardous conditions for bicyclists and are not recommended. The problems associated with two-way bike lanes are discussed in more detail in section 15.8.

On one-way streets, bicycle lanes should be installed on the right-hand side, unless conflicts can be greatly reduced by installing the lane on the left-hand side. Left-side bicycle lanes on one-way streets may also be considered where there are frequent bus or trolley stops, unusually high numbers of right-turning motor vehicles, or if there is a significant number of left-turning bicyclists.

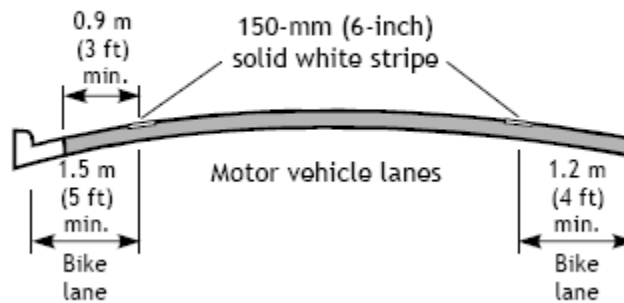
**Figure 15-1. Illustrations. Typical bike lane cross sections**



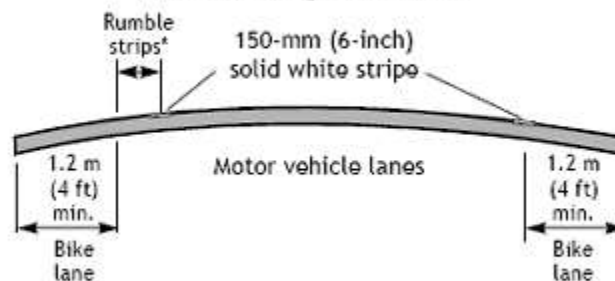
## (2) Parking Permitted without Parking Stripe or Stall



## (3) Parking Prohibited



## (4) Typical Roadway in Outlying Areas Parking Protected



\* If rumble strips exist there should be 1.2 m (4 ft) minimum from the rumble strips to the outside edge of the shoulder.

Source: American Association of State Highway and Transportation Officials (AASHTO)

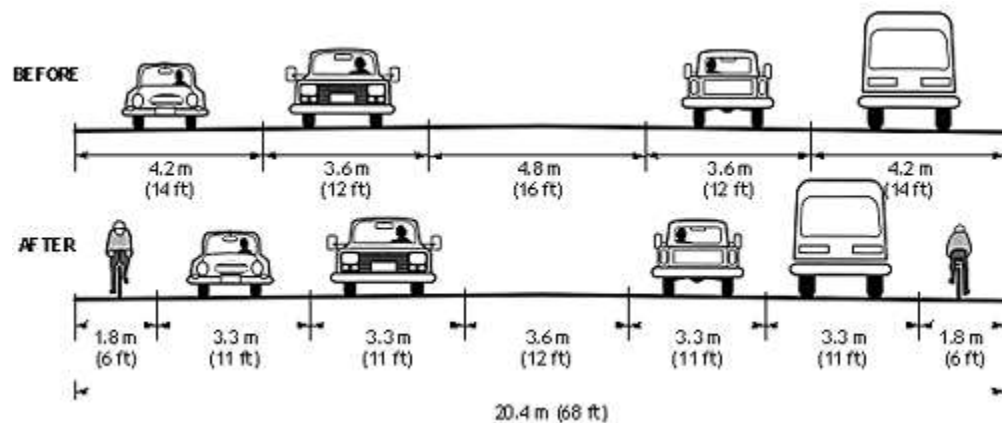
## Retrofitting Bicycle Lanes on Existing Streets

While bike lanes may be desirable in many urban locations, designers face the reality that space is limited on most urban streets. Unless plans call for a roadway widening project, the extra width for bike lanes is often very difficult to find in retrofit situations. In central business districts, roadway widening for bike lanes is usually not a desired option, since it could cause problems for pedestrians by further reducing sidewalk space. This section discusses possible options to consider when retrofitting bicycle lanes into limited space on existing streets. Where existing street width does not permit desirable roadway cross-section dimensions to be used, it may be possible to modify elements of the roadway to accommodate bike lanes.

### *Reduction of Travel Lane Widths*

The need for full-width travel lanes decreases with speed (see figure 15-2):

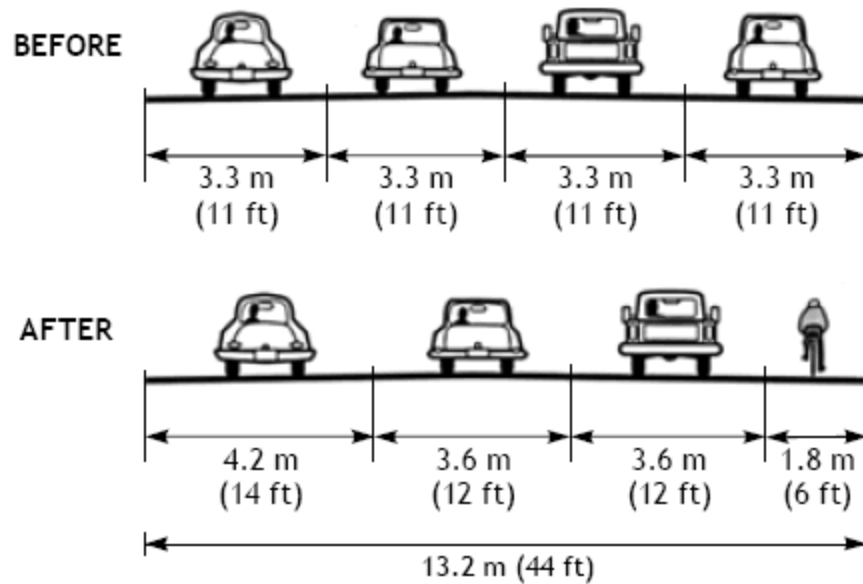
- Up to 40 km/h (25 mi/h), travel lanes may be reduced to 3.0 or 3.2 m (10.0 or 10.5 ft).
- From 50 to 65 km/h (30 to 40 mi/h), 3.3-m (11-ft) travel lanes and 3.6-m (12-ft) center turn lanes may be acceptable.
- At 70 km/h (45 mi/h) or greater, try to maintain a 3.6-m (12-ft) outside travel lane and 4.2-m (14-ft) center turn lane if there are high truck volumes.



**Figure 15-2. Illustration. Retrofitting bike lanes by reducing travel lane widths.**

### *Reduction of the Number of Travel Lanes*

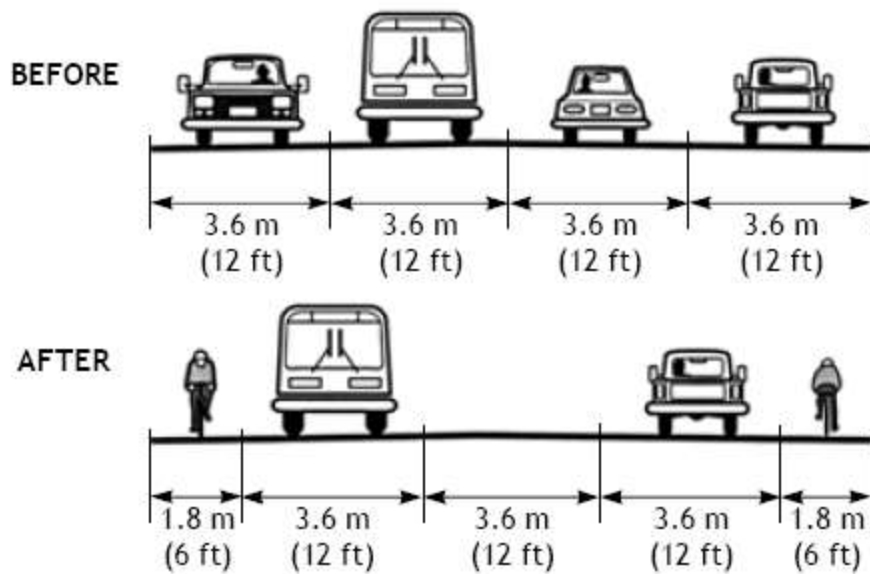
Many one-way street pairs were originally two-way streets. This can result in an excessive number of travel lanes in one direction. A traffic capacity study will determine if traffic can be handled with one less lane



**Figure 15-3. Illustration. Reducing the number of travel lanes on a one-way street.**

On two-way streets with four travel lanes and a significant number of left-turn movements, restriping for a center turn lane, two travel lanes, and two bike lanes can often improve traffic flow (see figure 15-4). This type of street reconfiguration is referred to as a road diet and is considered to be effective at calming traffic and providing space for bicyclists while still providing a reasonable vehicle LOS. Burden and Lagerway summarize the street and location criteria that can be used to identify potential candidates for road diets.<sup>(5)</sup>

- Moderate volumes (8,000–15,000 ADT).
- Roads with safety issues.
- Transit corridors.
- Popular or essential bicycle routes/links.
- Commercial reinvestment areas.
- Economic enterprise zones.
- Historic streets.
- Scenic roads.
- Entertainment districts.
- Main streets.



**Figure 15-4. Illustration. Road diet: retrofitting bike lanes by reducing the number of travel lanes.**

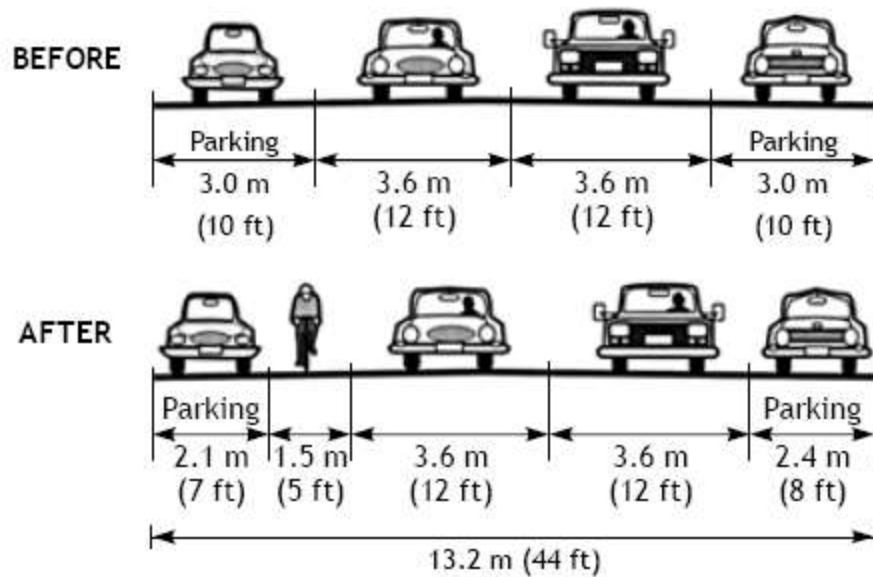
#### *Removal, Narrowing or Reconfiguration of Parking*

A roadway's primary function is to move people and goods rather than to store stationary vehicles. When parking is removed, safety and capacity are generally improved. Removal of parking will require negotiations with the local governing body (such as the city council), affected business owners, and residents. To reduce potential conflicts, careful research is needed before making a proposal, including:

- Counting the number of businesses and residences and the availability of both on-street and off-street parking.
- Selecting which side of the roadway would be less affected by removal (usually the side with fewer residences or businesses, or the side with residences rather than businesses in a mixed-use neighborhood).
- Proposing alternatives such as:
  - Allowing parking for church or school activities on adjacent lots during services or special events.
  - Promoting shared use by businesses.
  - Constructing special parking spaces for residents or businesses with no other options.

Instead of removal of all on-street parking, several other options can be pursued. Parking can be narrowed to 2.1 m (7 ft) (see figure 15-5), particularly in areas with low truck parking volumes.

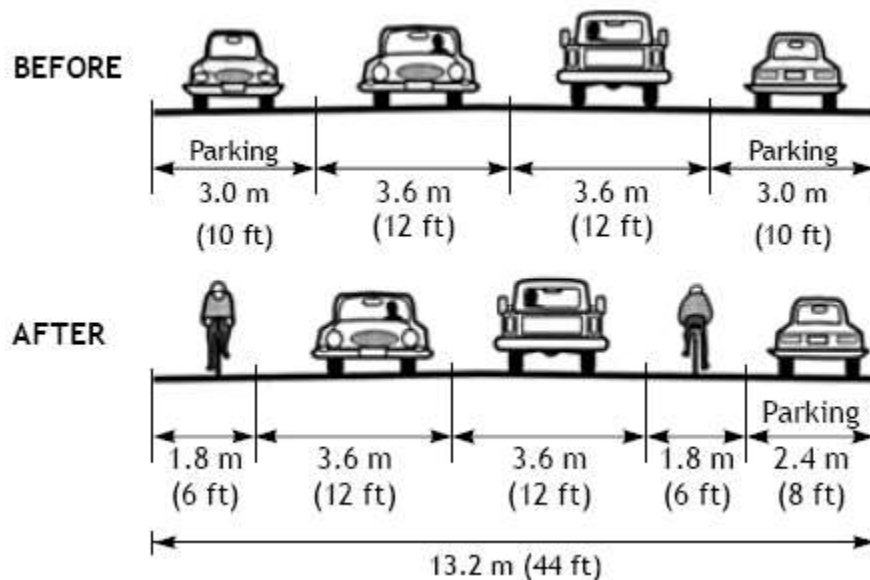




**Figure 15-5. Illustration. Narrowing parking on a one-way street.**

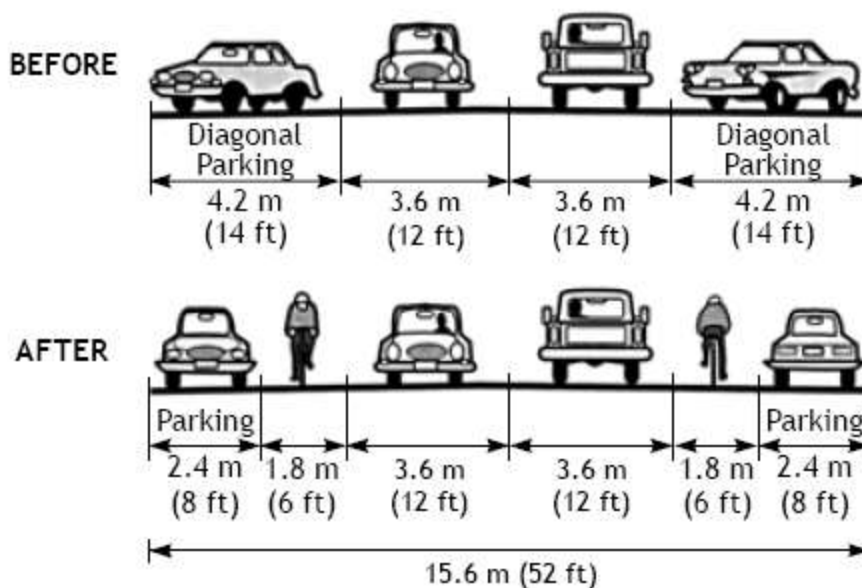
Bicycle lanes next to on-street parking can be problematic if enough space is not provided to prevent bicyclists from riding into an opened door. The AASHTO *Guide* recommends a combined width of 3.9 m (13 ft) for combined width of parking and bike lanes (see figure 15-1).

In some cases, parking may be needed on only one side to accommodate residences and/or businesses (see figure 15-6). Note that it is not always necessary to retain parking on the same side of the road through an entire corridor.



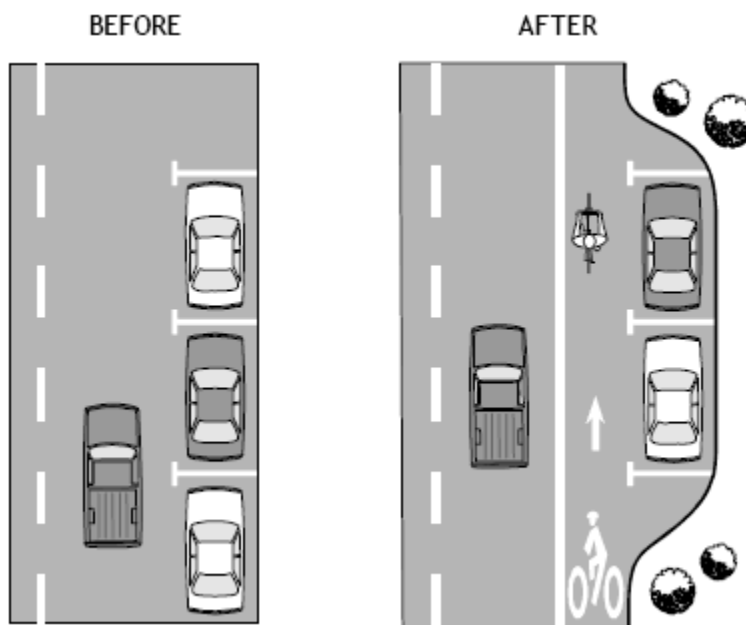
**Figure 15-6. Illustration. Parking removed on one side of a two-way street**

Diagonal parking takes up an inordinate amount of roadway width relative to the number of parking spaces provided. It can also be hazardous, as drivers backing out cannot see oncoming traffic. Changing to parallel parking reduces availability by less than one-half (see figure 15-7). On one-way streets, changing to parallel parking on one side only is sufficient; this reduces parking by less than one-fourth.



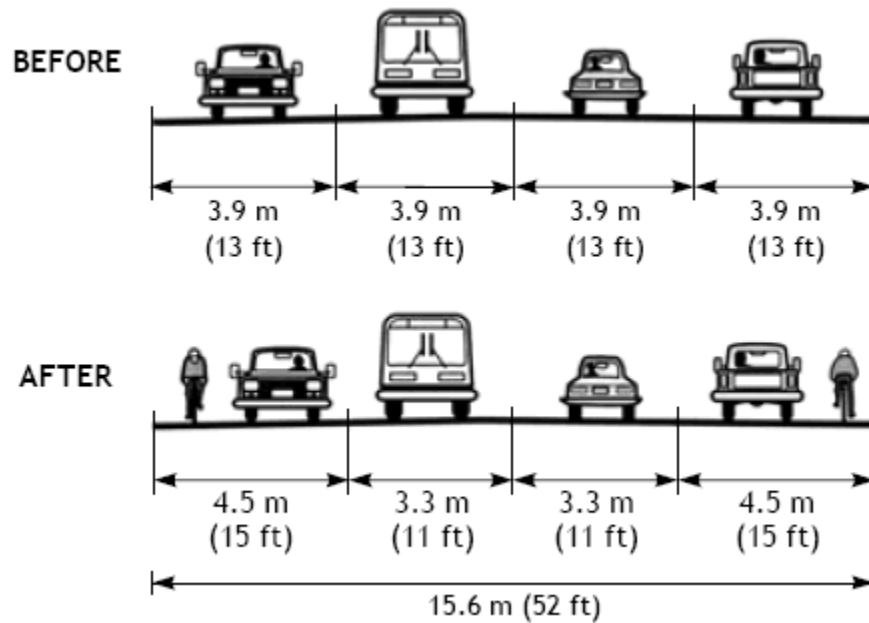
**Figure 15-7. Illustration. Changing from diagonal to parallel parking on a two-way street.**

Where all of the above possibilities of replacing parking with bike lanes have been pursued, and residential or business parking losses cannot be sustained, innovative ideas should be considered to provide parking, such as off-street parking. Other uses of the right-of-way should also be considered, such as using a portion of a planting strip where available (see figure 15-8).



### Other Design Options

Not all existing roadway conditions will be as simple to retrofit as those listed previously. In many instances, unique and creative solutions will have to be found. Width restrictions may only permit a wide curb lane (4.2–4.8 m (14–16 ft)) to accommodate bicycles and motor vehicles (see figure 15-9). Bike lanes must resume where the restriction ends. It is important that every effort be made to ensure bike lane continuity. Practices such as directing bicyclists onto sidewalks or other streets for short distances should be avoided, as they may introduce unsafe conditions.

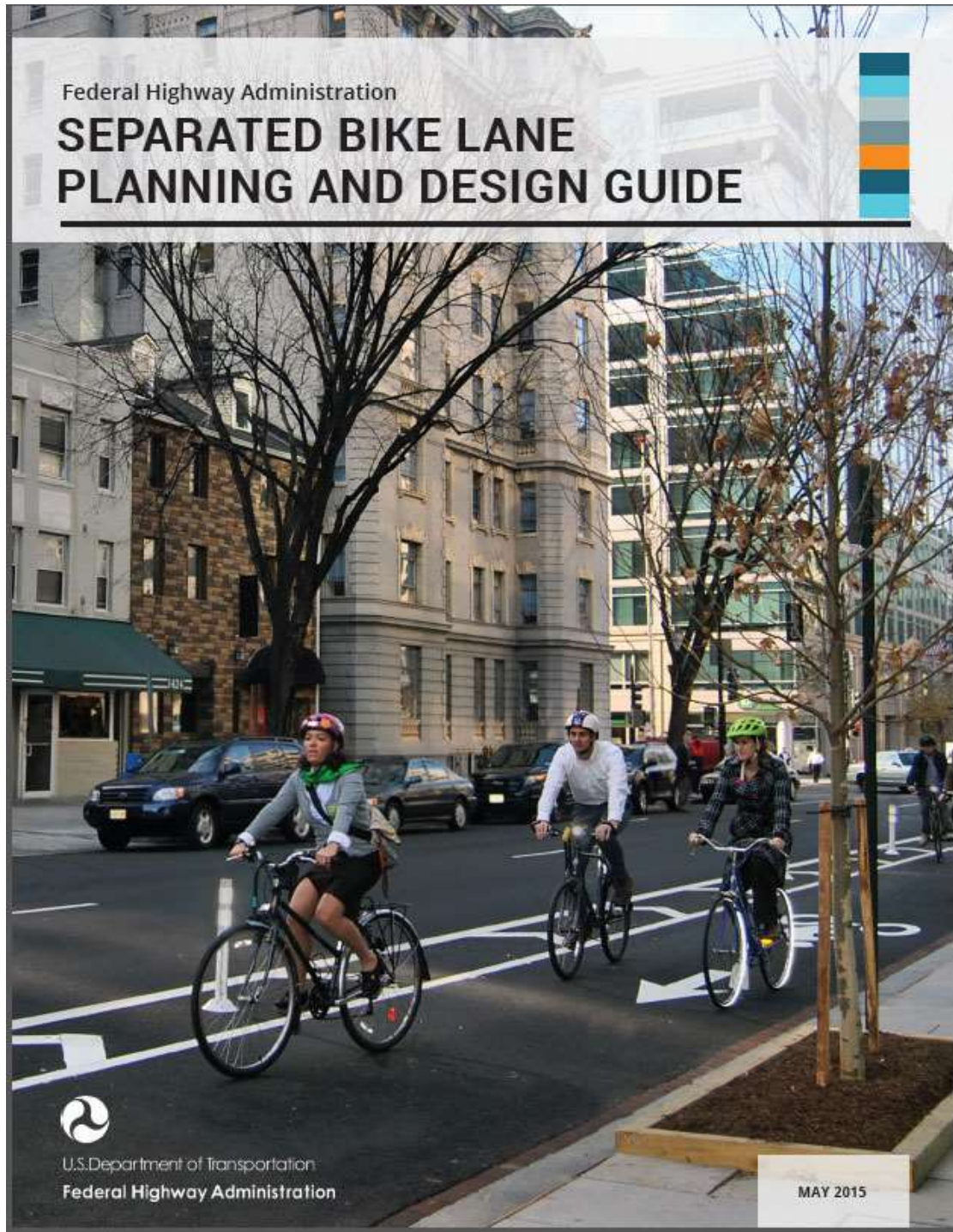


**Figure 15-9. Illustration. Restriping for a wide curb lane.**

## FHWA Separated Bike Lane Planning and Design Guide

FHWA provides recommended guidance as a resource for State and local governments to support the implementation of best practices:

[http://www.fhwa.dot.gov/environment/bicycle\\_pedestrian/guidance/](http://www.fhwa.dot.gov/environment/bicycle_pedestrian/guidance/)



## Criteria

The selection of separated bike lane width and directional characteristics depends on a combination of factors that are most often determined by the existing street and surrounding network characteristics. The most critical considerations are to reduce conflicts with turning vehicles, provide sufficient width for safe operations and ease of maintenance, and ensure predictable behavior by the street users.

### STEP 1: Establish Directional and Width Criteria

- The decision of one-way and two-way separated bike lanes should be based on traffic lane configurations, turning movement conflicts, parking requirements, and surrounding bicycle route network options and destinations.
- Width considerations include expected bicycle volumes, required buffer width, and maintenance requirements.
- Alignment decisions for running the separated bike lane on the right-side, left-side, or in the center of the road, include transit stop conflicts, intersection and driveway conflicts, locations of destinations, and parking placement.

### STEP 2: Select Forms of Separation

- Separation type decisions should be based on the presence of on-street parking, street width, cost, aesthetics, maintenance, motorized traffic volumes and speeds.

### STEP 3: Identify Midblock Design Challenges AND Solutions

- There are several potential conflicts that may occur at midblock locations along a separated bike lane.
- Transit stops occurring on the same side of the street as the separated bike lane present a challenge due to interactions among cyclists, transit vehicles, and those accessing transit stops.
- Locating accessible parking spaces may require additional design adjustments.
- Loading zones should be well-located and designed to minimize conflicts.
- Driveways present concerns due to challenges with sight distance and driver expectations that can be minimized through design treatments and driveway consolidation.

### STEP 4: Develop Intersection Design

- Intersection design should focus on the safety of all users with additional consideration on delay, queuing, user expectations, motorized traffic volumes and speeds.
- Sufficient sight distance for all street users at intersection approaches should be provided.
- Designs should protect or provide safe interactions between separated bike lane users and conflicting turning movements.
- Signs and markings should be included to appropriately guide and prompt safe behaviors through intersections.

## Cross Sections

### One-Way Separated Bike Lane on a One-Way Street

1. One-way separated bike lanes should have a minimum width of 5 ft. Wider separated bike lanes provide additional comfort and space for bicyclists and should be considered where a high volume



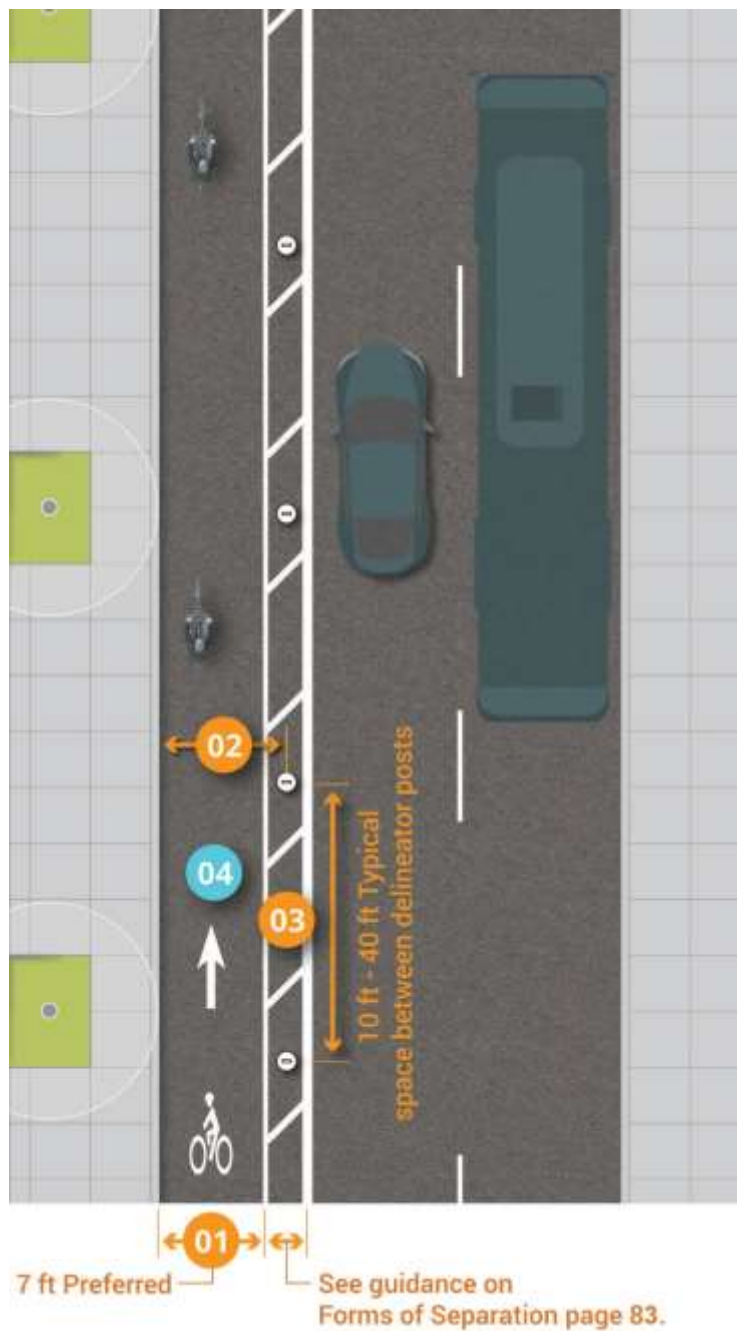
of bicyclists is expected. Widths of 7 ft and greater are preferred as they allow for passing or side-by-side riding. Additional care should be taken with wider lanes such that the separated bike lane is not mistaken for an additional motor vehicle lane.

2. Total clear width between the curb face and vertical element should be at least the fleet maintenance (sweeping or snowplow) vehicle width. Widths (inclusive of the gutter pan and to the vertical buffer element) narrower than 7 ft will often require specialized equipment. Consultation with a Public Works department is recommended during the planning process.
3. A minimum 3 ft buffer should be used adjacent to parking. For further guidance on buffer selection and installation, see page 83.
4. For further guidance on typical signs and markings for separated bike lanes, see page 127

One way Separated Bike Lane on a One-Way Street (Left-Side Running)

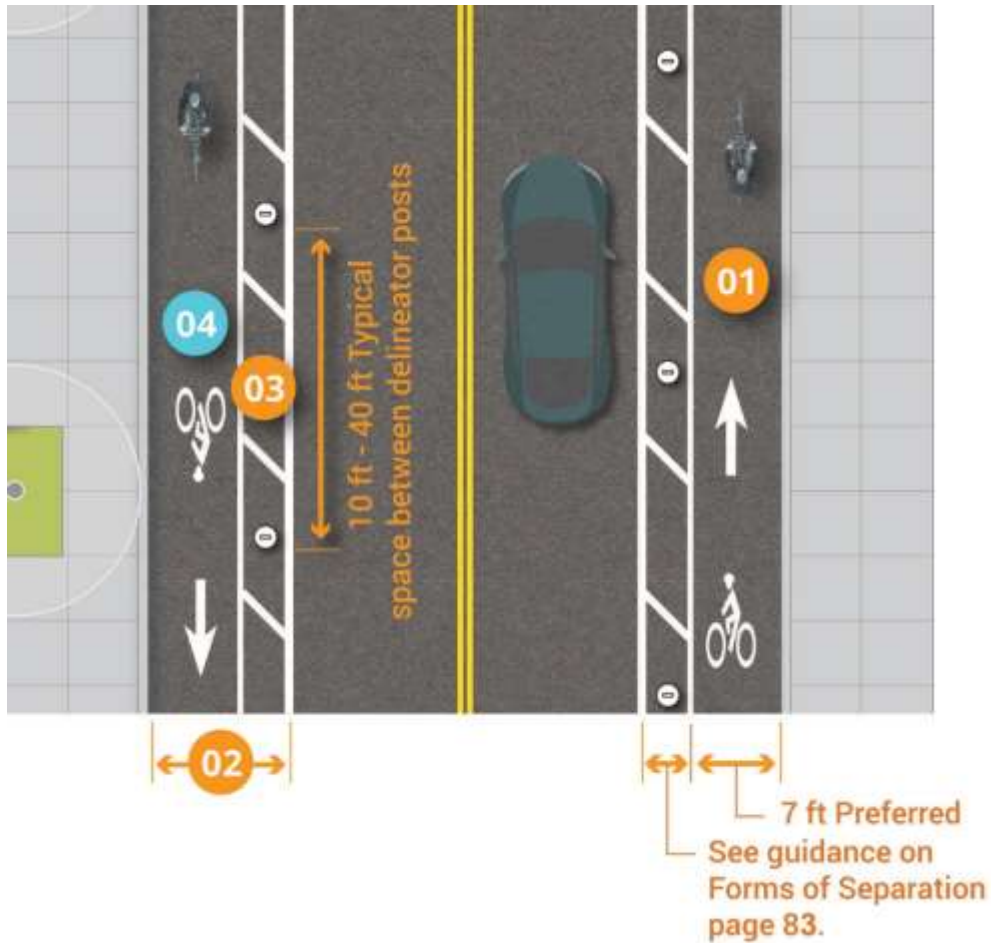






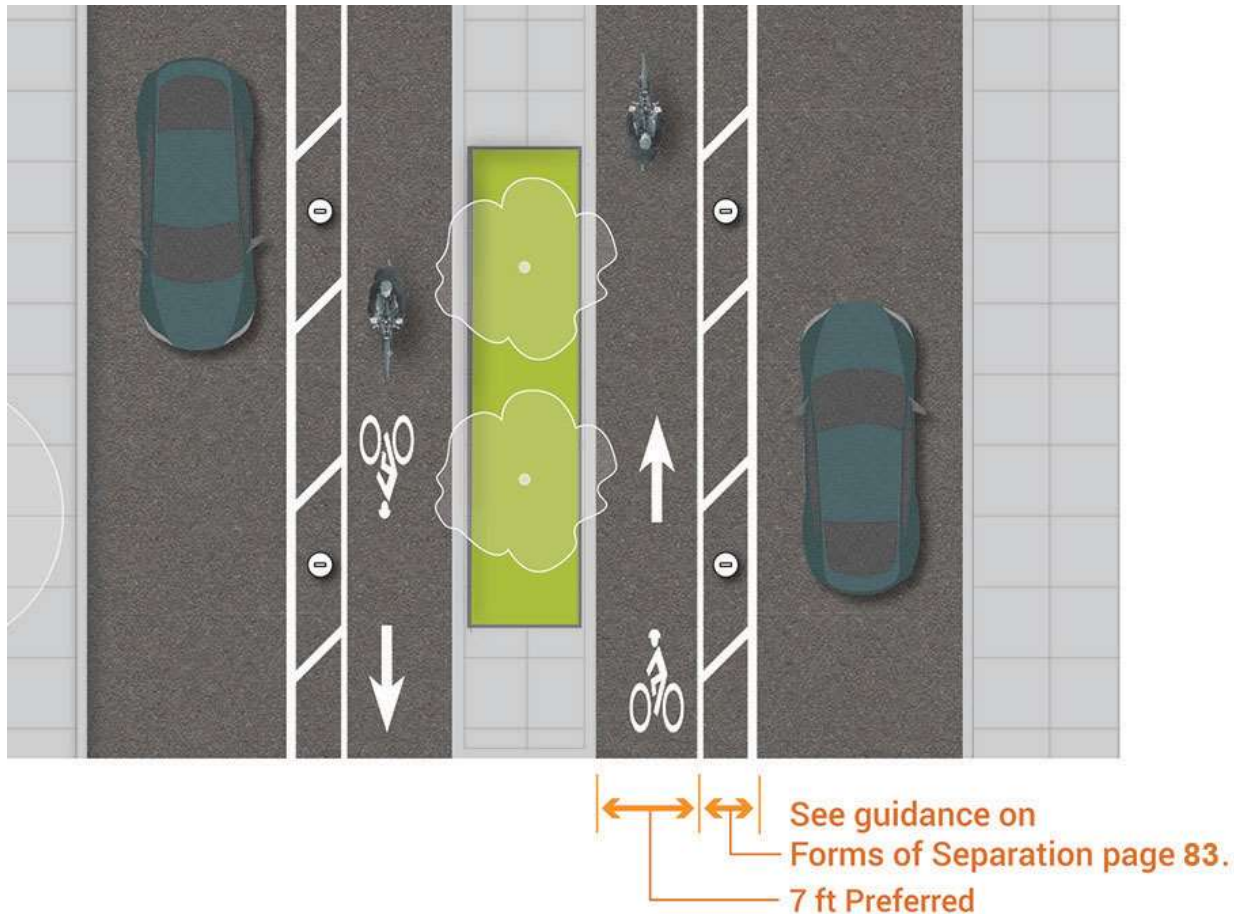
### One-Way Separated Bike Lane on a Two-Way Street

1. Bike symbols should be placed periodically in the lane.
2. Drainage grates and gutter seams should generally not be included in the usable width.
3. For further guidance on buffer selection and installation, see page 83.
4. For further guidance on typical signs and markings for separated bike lanes, see page 127



### Central Median Alternative

An alternative design places separated bike lanes adjacent to a median. This design can be considered when there are significant conflicts due to turning movements, transit activity, or other conflicting curbside uses. Depending on the width of the median, this design may result in intersection design challenges, particularly in how bicyclist right- and left-turns are made.



### Two-Way Separated Bike Lane on Right-Side of One-Way Street (2 Lanes)

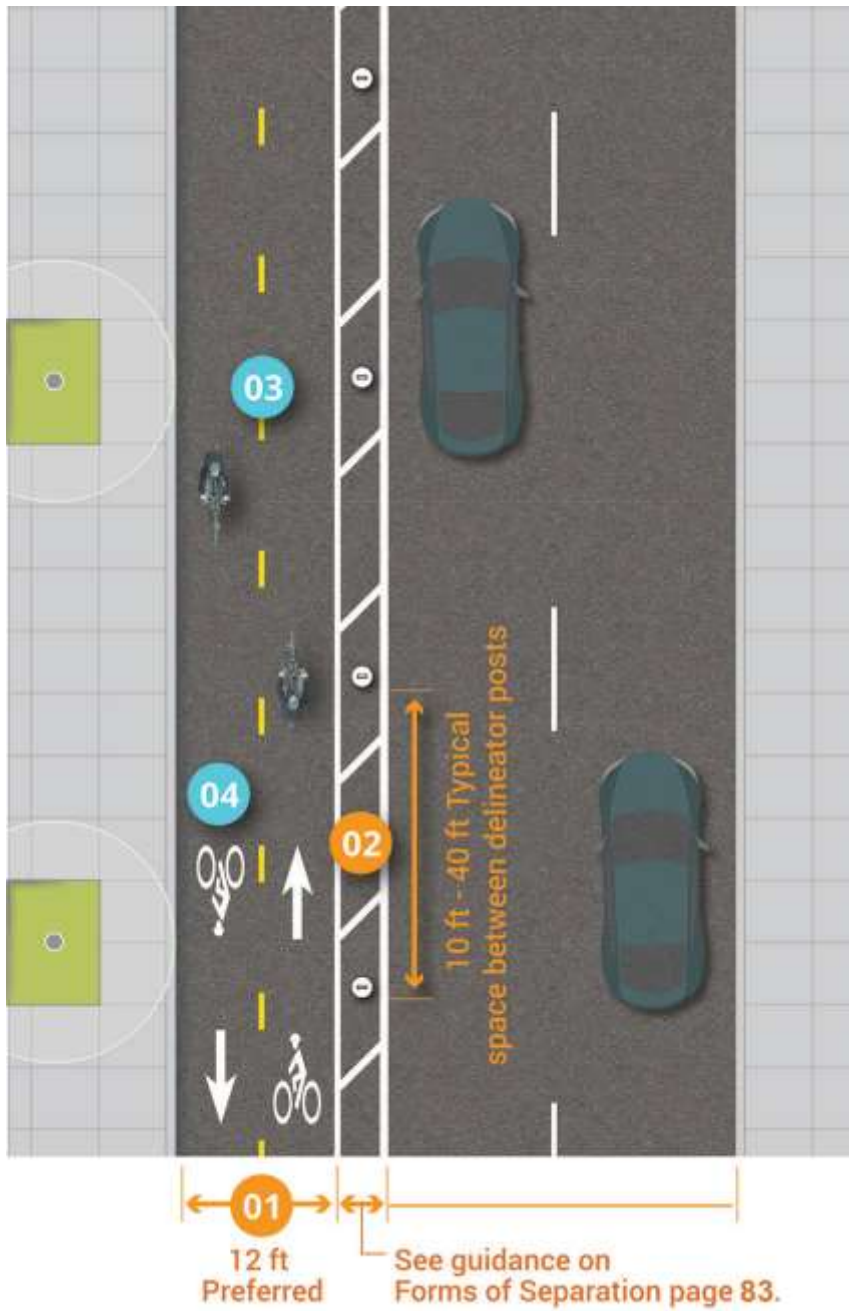
Providing a two-way separated bike lane on a one-way street may be desirable under certain circumstances. This design couples a separated bike lane with a contraflow bike lane in order to route bicyclists in the most direct or desirable way given the street network and destinations. However, this design can create some challenges for roadway user expectancy at intersections and driveways, which could be mitigated by signage suggesting to look both ways for pedestrians. Additionally, certain intersection designs are not possible.

### Left-Side Running Alternative

Consider a left-side running separated bike lane under the following conditions:

- The corridor includes a high frequency transit route resulting in potential conflicts with transit vehicles, stops, and transit riders.
- There are fewer driveways, intersections, or other conflicts on the left-side of the street.
- The most likely destinations for bicyclists are on the left side of the street.

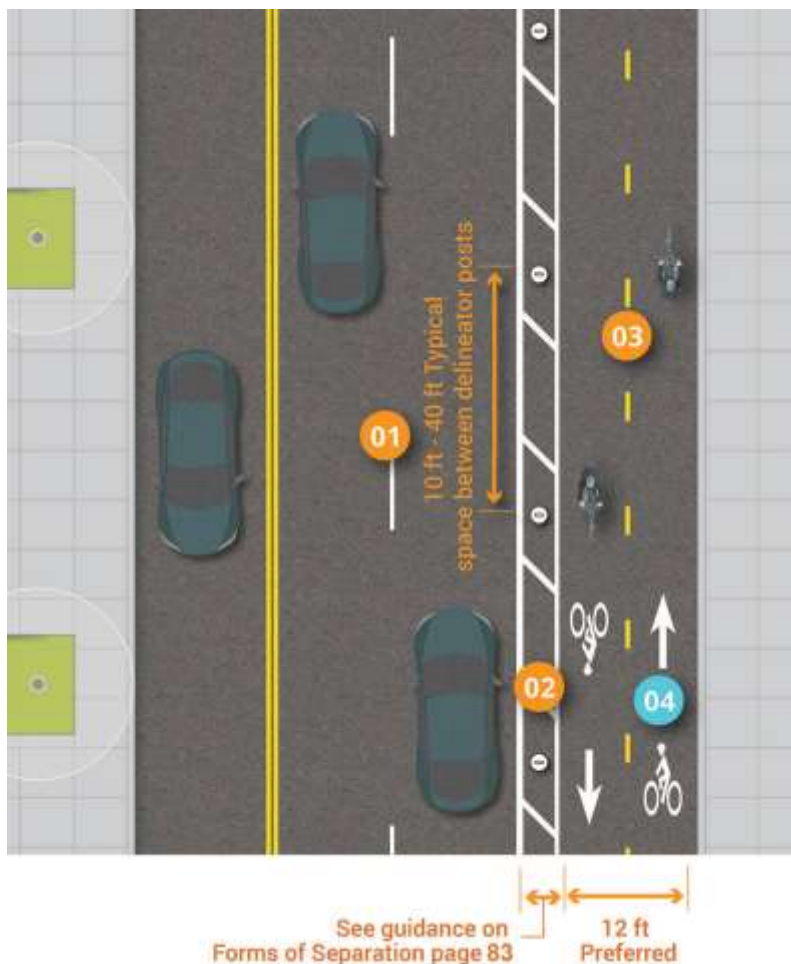
- On-street parking is located on the right side of the street.
1. Two-way separated bike lanes should have a preferred combined width of at least 12 ft. Given this total width, clear signs and markings should be provided such that the separated bike lane is not mistaken for an additional motor vehicle travel lane.
  2. For further guidance on buffer selection and installation, see page 83.
  3. A centerline to separate the two-way bicycle traffic marked in accordance with the MUTCD (2009).
  4. For further guidance on typical signs and markings for separated bike lanes, see page 127.



## Two-Way Separated Bike Lane on Right-Side of Two-Way Street

Providing a two-way separated bike lane on a two-way street may be desirable under certain circumstances such as minimizing conflicts on high frequency transit corridors or along corridors with a higher number of intersections or driveways on one side of the street (such as along a waterfront). This design does, however, create some challenges for roadway user expectancy at intersections and driveways. Additionally, the design limits intersection design options.

1. Due to operational and user expectations, this design is best used when there is no room for separated bike lanes on both sides of the street.
2. For further guidance on buffer selection and installation, see page 83.
3. A centerline to separate the two-way bicycle traffic marked in accordance with the MUTCD (2009).
4. For further guidance on typical signs and markings for separated bike lanes, see page 127



## Center Orientation Alternative

An alternative design places a two-way separated bike lane in the center of the street. This design is uncommon and can be considered when there are significant conflicts due to turning movements, transit activity, or other conflicting curbside uses. Depending on the width of the roadway and the amount of space that can be allocated to the separated bike

lane and buffer, this design may result in intersection design challenges, particularly on how bicyclist right- and left-turns are made.

1. A continuously raised buffer is preferred to reduce the chance of U-turns across the separated bike lane.

For further guidance on buffer selection and installation, see page 83.

2. A centerline to separate the two-way bicycle traffic marked in accordance with the MUTCD (2009).
3. For further guidance on typical signs and markings for separated bike lanes, see page 127.



**Note: This resource guide does not include guidance on Trails or Coastal Georgia Greenway recommendations.**

<http://coastalgeorgiagreenway.org/>



## Hinesville Area Metropolitan Planning Organization

### Non-Motorized Plan and Transit Operations Plan

Comments are always appreciated; please leave your contact information so we may follow-up:

PUBLIC MEETING #1, JAN 10 @ CAC

*all*  
HAMPO 1/10/17

JOE WEST (CITIZEN)

CAC: C Collins, R Collins, Dr KADAILIE & L GRIFFEN  
(Quorum)

PUBLIC MEETING #2, JAN 24, 2017

DUS GUSTAVSON (no public)

*all*  
HAMPO 1/24/2017

COUNTER SEPS - NO COMMENTS *all* HAMPO 2/10/2017

EMAIL, PHONE, COMMITTEES, WALKIN - NO COMMENTS *all*

APPROVED BY HAMPO PC 2/9/2017 *all*

## Non-Motorized Plan and Transit Operations Plan Public Notice

The 30 day public comment period for the Hinesville Area Metropolitan Planning Organization Non-Motorized Plan and Transit Operations Plan Update begins on January 8, 2017. The document is available at Hinesville City Hall, Liberty County Annex, Liberty County Libraries, LCPC/HAMPO office, and <http://thelcpc.org/hampo-plans-and-documents/>.

The first public meeting will be hosted by the Citizens Committee on January 10th at 5:30 PM in Room 2100 at the Historic Court House, 100 Main Street, in Hinesville. The second meeting will in Riceboro's City Hall on January 24th from 4:30 to 5:30.

Please contact Nils Gustavson ([ngustavson@thelcpc.org](mailto:ngustavson@thelcpc.org)) 408-2035 with any questions or comments.

igible, organizations not funded in 2016 must submit a pre-application no later than 4:00 pm, February 10, 2017. Additionally, all interested agencies must attend a mandatory sub-recipient workshop on Tuesday, March 7, 2017 from 9:00 am to 2:00 pm in order to submit an application. The workshop is a valuable organizational capacity building training initiative provided at no cost to participants.


Both pre-applications and applications may be picked up in the Community Development Department from 8:30 am until 4:30 pm Monday –Friday, except holidays. Electronic versions may be obtained by emailing [commdevelop@cityofhinesville.org](mailto:commdevelop@cityofhinesville.org). If you have any questions or require additional information please contact Ms. Teanessa Fabain at 912-876-3164.

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Hinesville Family Dentistry, formerly known as Liberty Family Dental is very pleased to announce that we have a new dentist to serve the community in Hinesville, GA. Dr. Carlos Martinolas has acquired the practice formerly owned by Dr. Charles Lyon.

We know that you'll enjoy meeting Dr. Martinolas and that he will provide you and your family with the very best dental care possible. Dr. Martinolas, alongside



## Hinesville Area Metropolitan Planning Organization

100 Main Street, Suite 7520 Hinesville, Georgia 31313  
Phone: 912-408-2030 Fax: 888-320-8007

Mayor Allen Brown, Policy Committee Chair

Jeff Ricketson, AICP, Director

### MEMORANDUM

DATE: January 4, 2017  
TO: Agency Consultation and Coordination  
FROM: Hinesville Area Metropolitan Planning Organization  
RE: Non-Motorized and Transit Operations Plan

=====

The Hinesville Area Metropolitan Planning Organization is submitting for your review and comments its **Non-Motorized and Transit Operations Plan** in accordance with our Public Participation Plan. A copy of the legal notice and other information provided to the public will be mailed directly to the local and state resource agencies at the same time that it is circulated to the public.

This plan supplements the multi-modal recommendations of the 2040 Metropolitan Transportation Plan and maybe reviewed or downloaded from our website:

<http://thelcpc.org/hampo-plans-and-documents/>

The public comment period will close February 8th, 2017.

Respectfully,

Nils Gustavson, Planner III  
Hinesville Area Metropolitan Planning Organization  
100 Main St., Suite 7520  
Hinesville, GA 31313

(912)408-2035 [ngustavson@thelcpc.org](mailto:ngustavson@thelcpc.org)

Mailed 1/4/2017  
*[Signature]*  
HAMPO



## Hinesville Area Metropolitan Planning Organization

100 Main Street, Suite 7520 Hinesville, Georgia 31313  
Phone: 912-408-2030 Fax: 888-320-8007

Mayor Allen Brown, Policy Committee Chair

Jeff Ricketson, AICP, Director

### PUBLIC NOTICE:

#### Non-Motorized Plan and Transit Operations Plan Public Notice

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Please contact Nils Gustavson ([ngustavson@thelcpc.org](mailto:ngustavson@thelcpc.org)) 408-2035 with any questions or comments.

Dates of publication: Sunday January 8 and Sunday January 22, 2017

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