

NORTHWEST HILLSBOROUGH COUNTY TRANSIT STUDY

HILLSBOROUGH COUNTY, FLORIDA



Hillsborough MPO
Metropolitan Planning
for Transportation



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FEBRUARY 2017



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HILLSBOROUGH COUNTY, FLORIDA

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SECTION 1 INTRODUCTION

PROJECT DESCRIPTION

The Hillsborough Metropolitan Planning Organization (MPO), in partnership with the Hillsborough Area Regional Transit Authority (HART), requested a study to evaluate the existing transit service and characteristics in the northwest portion of Hillsborough County and identify service improvements intended to tie into the 2017 major update to the Transit Development Plan (TDP). Northwest Hillsborough County has historically been characterized as suburban or rural-suburban. These less-dense growth patterns present difficulties for providing transit services. The current TDP calls for increased local, express, MetroRapid, and flex services within the study area. This study incorporates some improvements previously identified in the TDP, but also looks for new ways to enhance transit service in the area.

The study area limits are the Pasco County line to the north, the Pinellas County line on the west, Hillsborough Avenue (SR 580) to the south, and Dale Mabry Highway (SR 597) to the east (see Figure 1). The study area includes the areas of Egypt Lake, Town 'n' Country, Westchase, Carrollwood, Citrus Park, Northdale, Keystone, and Cheval.

SCOPE OF THE REPORT

This report describes characteristics of Northwest Hillsborough County related to transit service, including existing and future land use and population demographics. The report describes potential transit service improvements for the area and estimates the ridership and operating and capital costs associated with each improvement. Finally, the report evaluates trail and transit connections within the study area and presents recommendations to improve those connections.

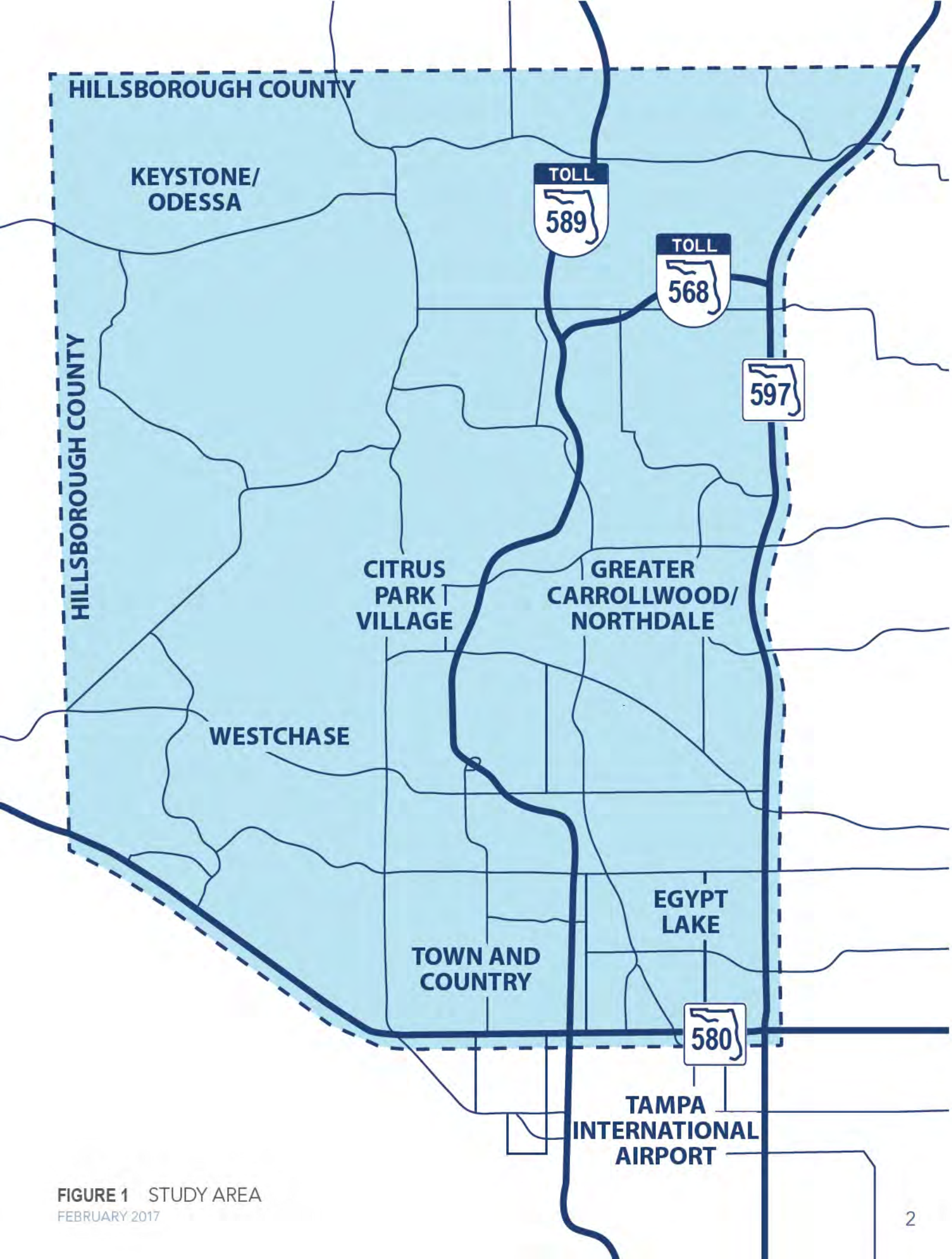


FIGURE 1 STUDY AREA
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SECTION 2 EXISTING CONDITIONS AND TRAVEL MARKET

EXISTING LAND USE

The Northwest Hillsborough County study area is made up of Egypt Lake, Town 'n' Country, Westchase, Carrollwood, Citrus Park, Northdale, Keystone, and Cheval. The existing land use is primarily single-family residential, as seen in Figure 2. Multi-family residential and commercial land uses front the major roadways in the area. There are industrial uses in the southeast corner of the study area, near the Tampa International Airport, and in the Westchase area. In the northwestern portion of the study area, the land use transitions to more rural and natural land uses. Major land use destinations likely to attract transit users include the Citrus Park Mall, St. Joseph's Hospital, and the area's public libraries.

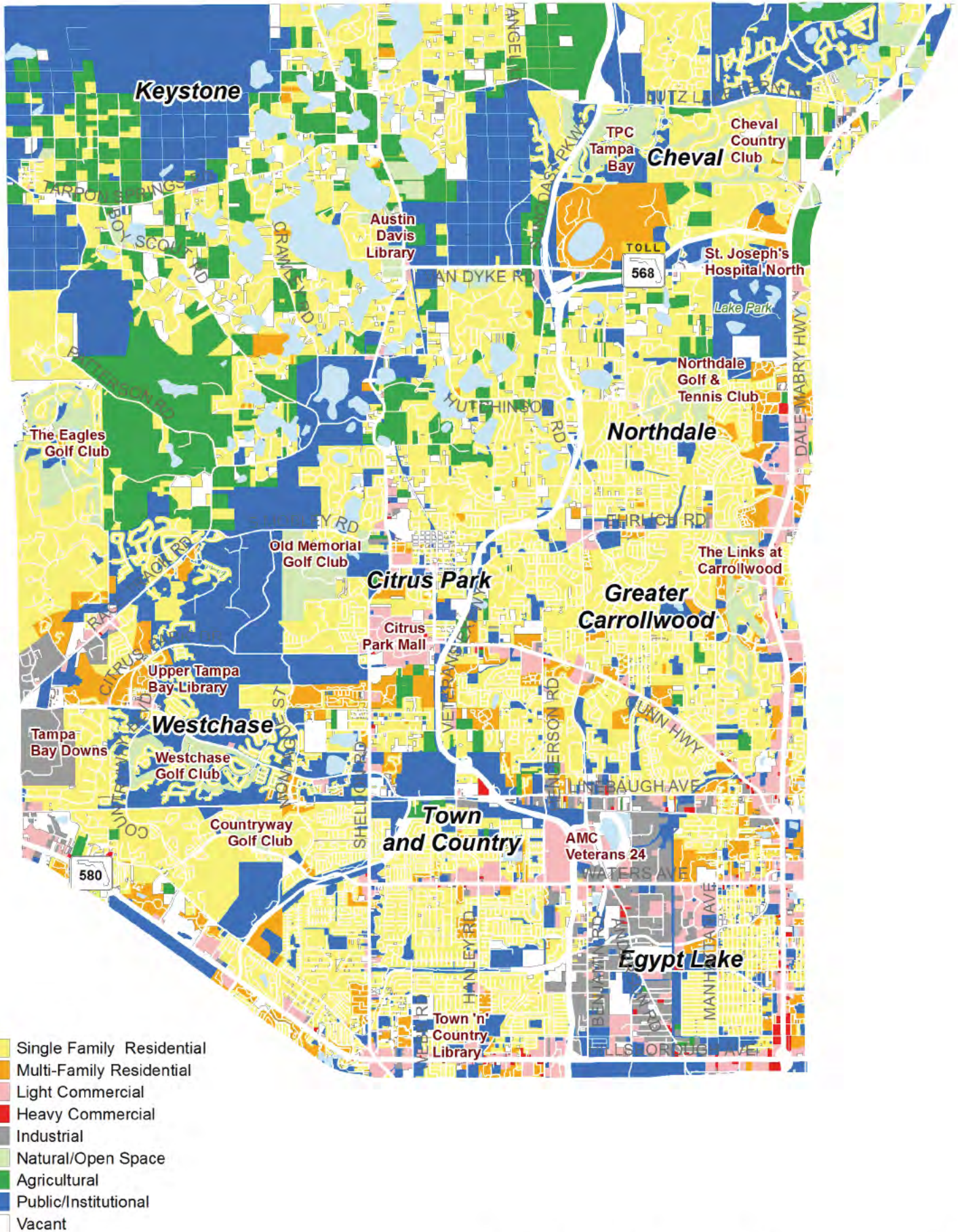
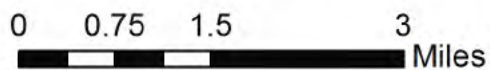
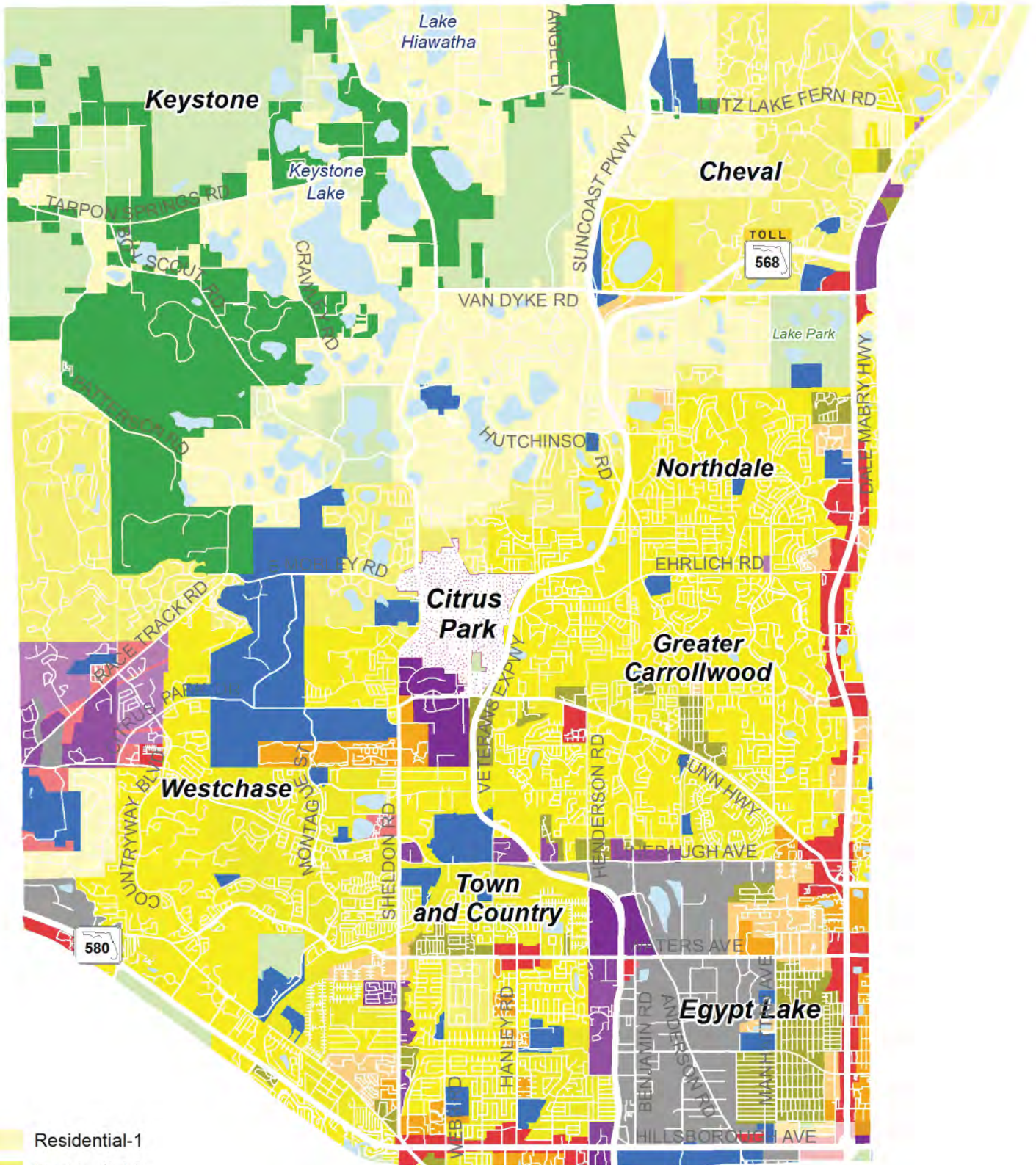


FIGURE 2 EXISTING LAND USE
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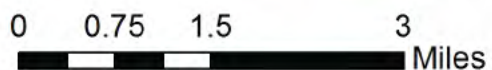
FUTURE LAND USE

The planned future land use is not drastically different from the existing land use, as shown in Figure 3. The study area is expected to remain primarily low-density residential, with higher density residential and commercial uses fronting the major roadways, particularly in the southeast portion of the study area. The industrial land use near the airport is not expected to change. The major change in land use is the increase in mixed-use land uses, particularly in the Citrus Park Village and Westchase areas. The vision for Citrus Park Village is to create a “pedestrian-oriented traditional village that can support a variety of residential, commercial, office, and civic uses” with allowable densities up to 20 housing units per acre. This may create an environment more suitable for transit service. Aside from the future land use designation, there is not yet a documented plan for Westchase; however, the Northwest Area Community Plan, which includes Westchase, sets a vision for traditional neighborhoods and town centers while preserving the area’s greenways and natural resources. If Citrus Park and Westchase develop according to their future land use designations, these areas could become more transit-friendly in the future.



- | | | | |
|----------------|-------------------------|------------------------|---------------------|
| Residential-1 | Residential-20 | Urban Mixed Use | Agricultural Estate |
| Residential-2 | Residential-35 | Community Mixed Use | Natural/ Open Space |
| Residential-4 | Office Commercial | Suburban Mixed Use | Agricultural/Rural |
| Residential-6 | Research Corporate Park | Neighborhood Mixed Use | Public/Semi-Public |
| Residential-9 | Community Commercial | Industrial | Citrus Park Village |
| Residential-10 | | | |
| Residential-12 | | | |

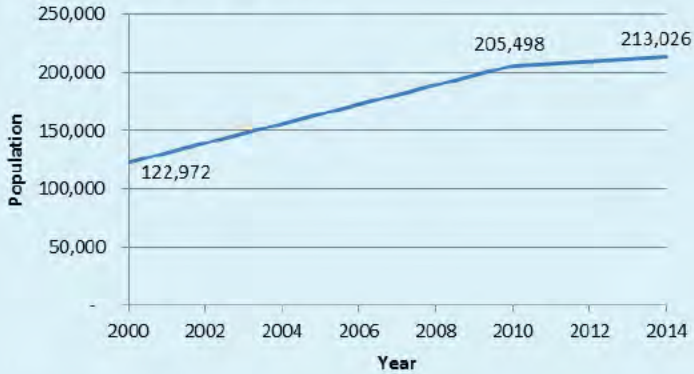
FIGURE 3 FUTURE LAND USE
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POPULATION DEMOGRAPHICS

Northwest Hillsborough County is a fast growing area. The population within the study area has nearly doubled in the past 15 years (see Figure 4).

FIGURE 4 NORTHWEST HILLSBOROUGH COUNTY POPULATION



Source: Census (2000,2010) and American Community Survey (2014)

As shown in Figure 5, the resident population in the study area is concentrated in Town 'n' Country, Egypt Lake, Carrollwood and Northdale. These areas each have population densities higher than 10 residents per acre in some locations. The population density is lower in Westchase, Citrus Park, and Cheval, with population densities no more than 5 residents per acre. The population density continues to decline continuing farther north and west to Keystone, which has an average density of less than one resident per acre.

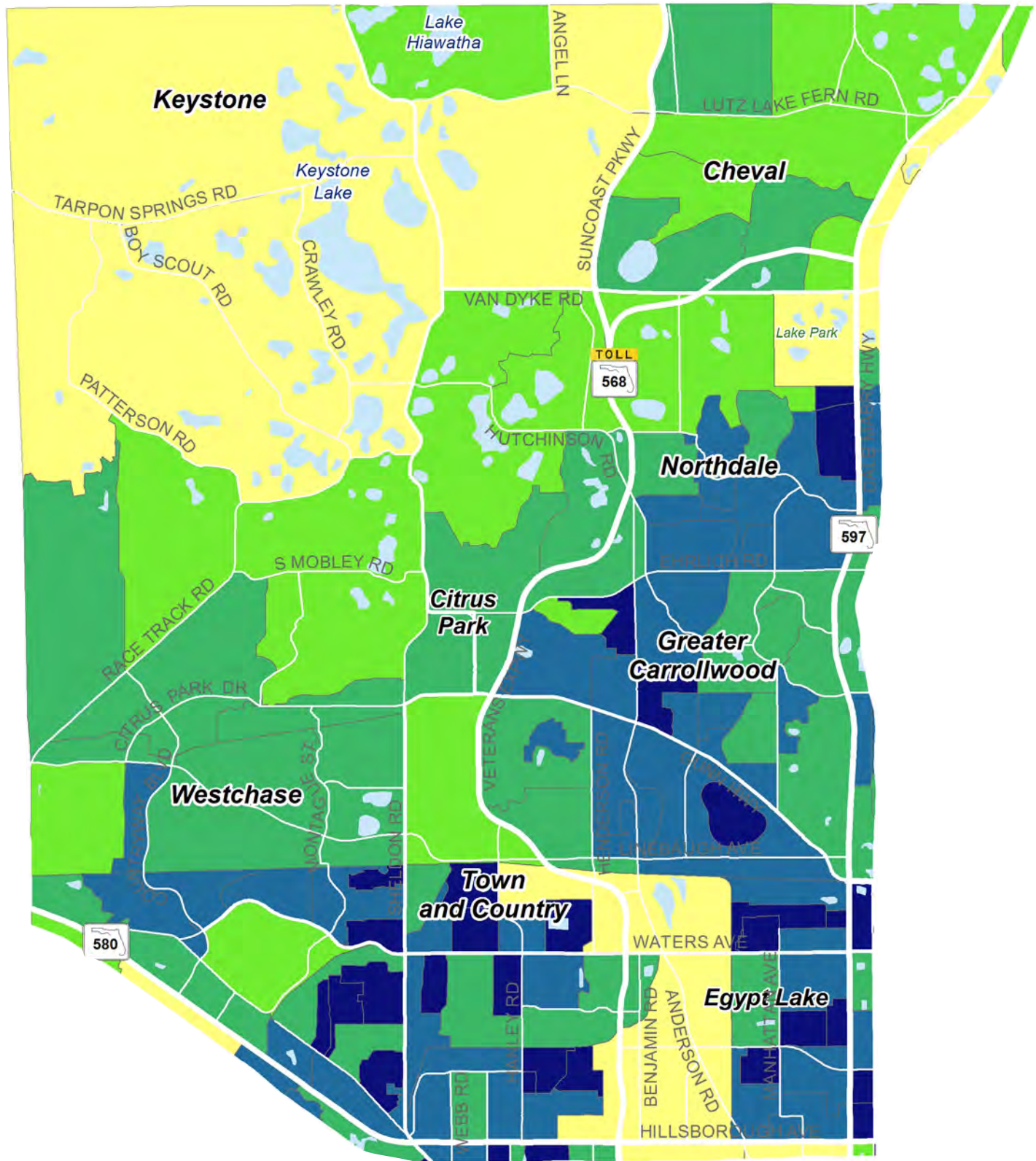


FIGURE 5 POPULATION DENSITY

Source: 2014 American Community Survey
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The existing employment density in the study area was summarized based on the Tampa Bay Regional Planning Model v8.1 (see Figure 6). The employment density follows a similar pattern as population density. The highest concentrations of jobs are along Hillsborough Avenue and Dale Mabry Highway – in the Egypt Lake, Carrollwood, and Town 'n' Country areas. Westchase, Northdale, and Cheval have more limited employment opportunities and there are very few jobs located in Keystone.

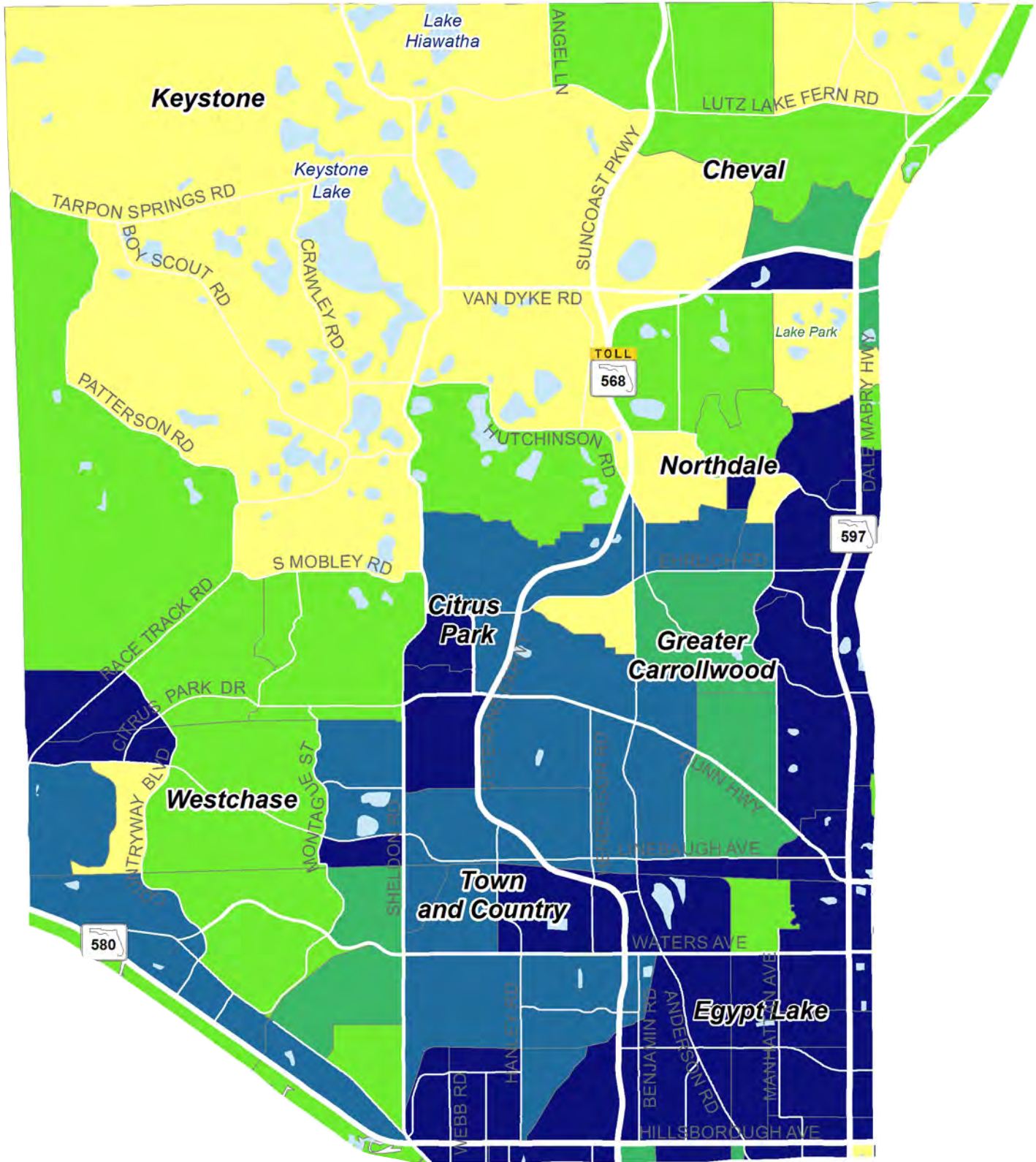
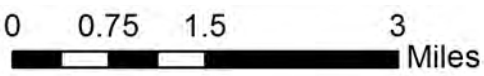


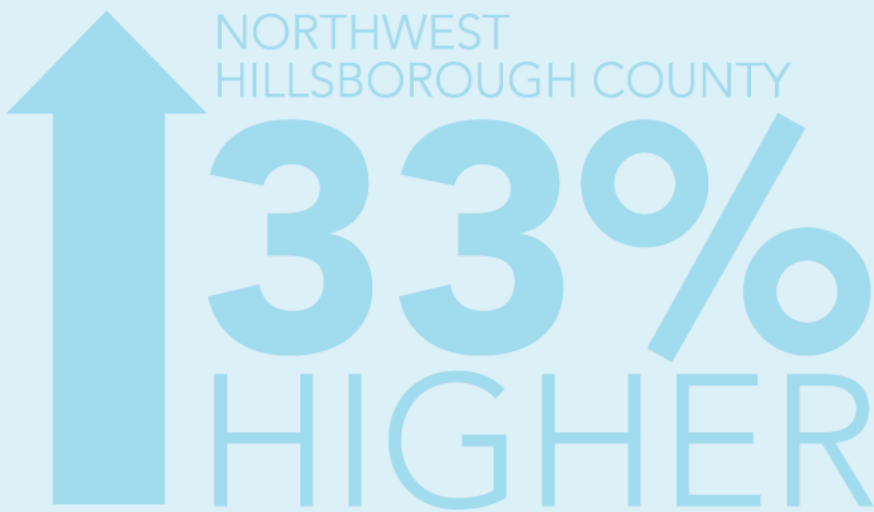
FIGURE 6 EMPLOYMENT DENSITY
 Source: Tampa Bay Regional Planning Model v8.1 (2010)
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The median income for residents of Northwest Hillsborough County is \$66,676 – more than 30% higher than the Hillsborough countywide median income of \$50,122. The income distribution (see Figure 7) follows an approximately inverse relationship to population density. Westchase, Keystone and Cheval have the highest median incomes, while median incomes are somewhat lower in Town 'n' Country, Egypt Lake, and Carrollwood.

MEDIAN INCOME

\$66,676



\$50,122

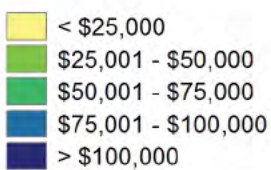
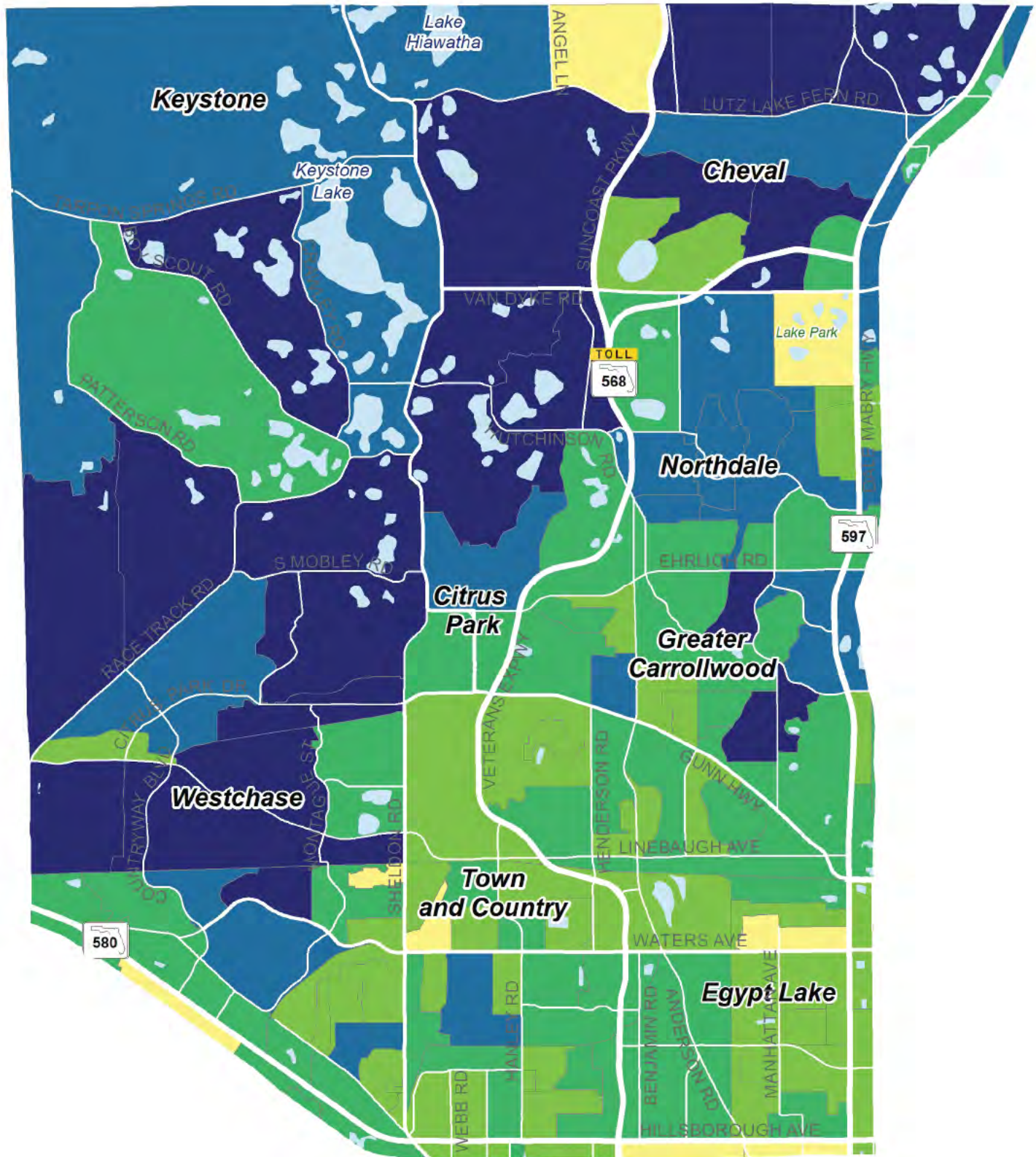
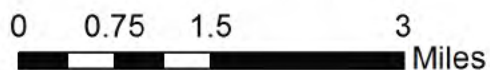


FIGURE 7 MEDIAN HOUSEHOLD INCOME

Source: 2014 American Community Survey
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EXISTING TRANSIT NETWORK

The study area is currently served by six local bus routes, one express route, and two flex routes (see Figure 8). Nearly 4,500 daily boardings take place within the study area. Table 1 summarizes the service characteristics, annual ridership and route productivity for the routes in Northwest Hillsborough County.

Of the routes in the study area, Route 39 (Busch Boulevard) and Route 34 (Hillsborough Avenue) carry the most riders. Route 7 (West Tampa/Citrus Park) and Route 16 (Waters Avenue) are among the most productive routes in the study area. The Town 'n' Country Flex route underperforms when compared to other flex routes in the County and experienced a decrease in ridership between 2014 and 2015. While Route 61LX ranks high among the county's express routes, its annual ridership is low and declining.

TABLE 1 EXISTING TRANSIT PERFORMANCE

Route	Key Destinations Served	Service Hours and Headway			Annual Ridership			Route Productivity, FY 2015	
		Weekdays	Saturday	Sunday	FY 2014	FY 2015	% Change	Passengers per Revenue Hour	Passengers per Revenue Mile
7 - West Tampa/Citrus Park	<ul style="list-style-type: none"> Citrus Mark Mall West Tampa Transfer Center Downtown Tampa 	4:40am - 10:45pm 30-min headway	6:30am - 8:30pm 60-min headway		561,255	544,086	-3.1%	27.35	2.42
16 - Waters Avenue	<ul style="list-style-type: none"> Northwest Transfer Center Yukon Transfer Center 	5:30am - 8:45pm 40-min headway	5:30am - 7:45pm 40-min headway	No Service	255,452	266,760	4.4%	30.49	2.72
30 - Town 'n' Country/ Airport	<ul style="list-style-type: none"> Northwest Transfer Center Tampa International Airport Westshore Downtown Tampa 	4:30am - 1:00am 30-min headway	6:30am - 1:00am 30-min headway		707,004	728,447	3.0%	17.80	1.34
34 - Hillsborough Avenue	<ul style="list-style-type: none"> Northwest Transfer Center netp@rk Transfer Center 	5:00am - 1:00am 30-min headway	6:30am - 10:15pm 30-min headway	6:00am - 10:00pm 60-min headway	867,849	880,576	1.5%	31.30	2.57
36 - Dale Mabry Hwy./ Himes Avenue	<ul style="list-style-type: none"> Raymond James Stadium West Tampa Transfer Center 	5:30am - 10:30pm 30-min headway	6:00am - 9:00pm 60-min headway		633,109	603,284	-4.7%	21.17	1.90
39 - Busch Boulevard	<ul style="list-style-type: none"> Northwest Transfer Center Citrus Park Mall Yukon Transfer Center netp@rk Transfer Center 	4:30am - 12:00am 30-min headway	7:00am - 10:30pm 30-min headway	7:00am - 8:30pm 60-min headway	890,973	897,957	0.8%	27.23	2.12
Local System Average								24.1	1.99
61LX - NW Hillsborough Limited Express	<ul style="list-style-type: none"> Citrus Park Northwest Transfer Center Westshore Downtown Tampa 	2 SB trips in AM 2 NB trips in PM	No Service		12,860	11,277	-12.3%	10.80	0.49
Express System Average								13.04	0.55
Town 'n' Country FLEX	<ul style="list-style-type: none"> Northwest Transfer Center Tampa Community Hospital 	5:15am - 7:00pm 60-min headway	No Service		10,082	9,942	-1.4%	2.94	0.21
Northdale FLEX	<ul style="list-style-type: none"> St. Joseph's Hospital - North 	5:30am - 9:15pm 60-min headway	6:45am - 6:30pm 60-min headway	No Service	39,732	43,660	9.9%	9.56	0.82
FLEX System Average								5.16	0.39

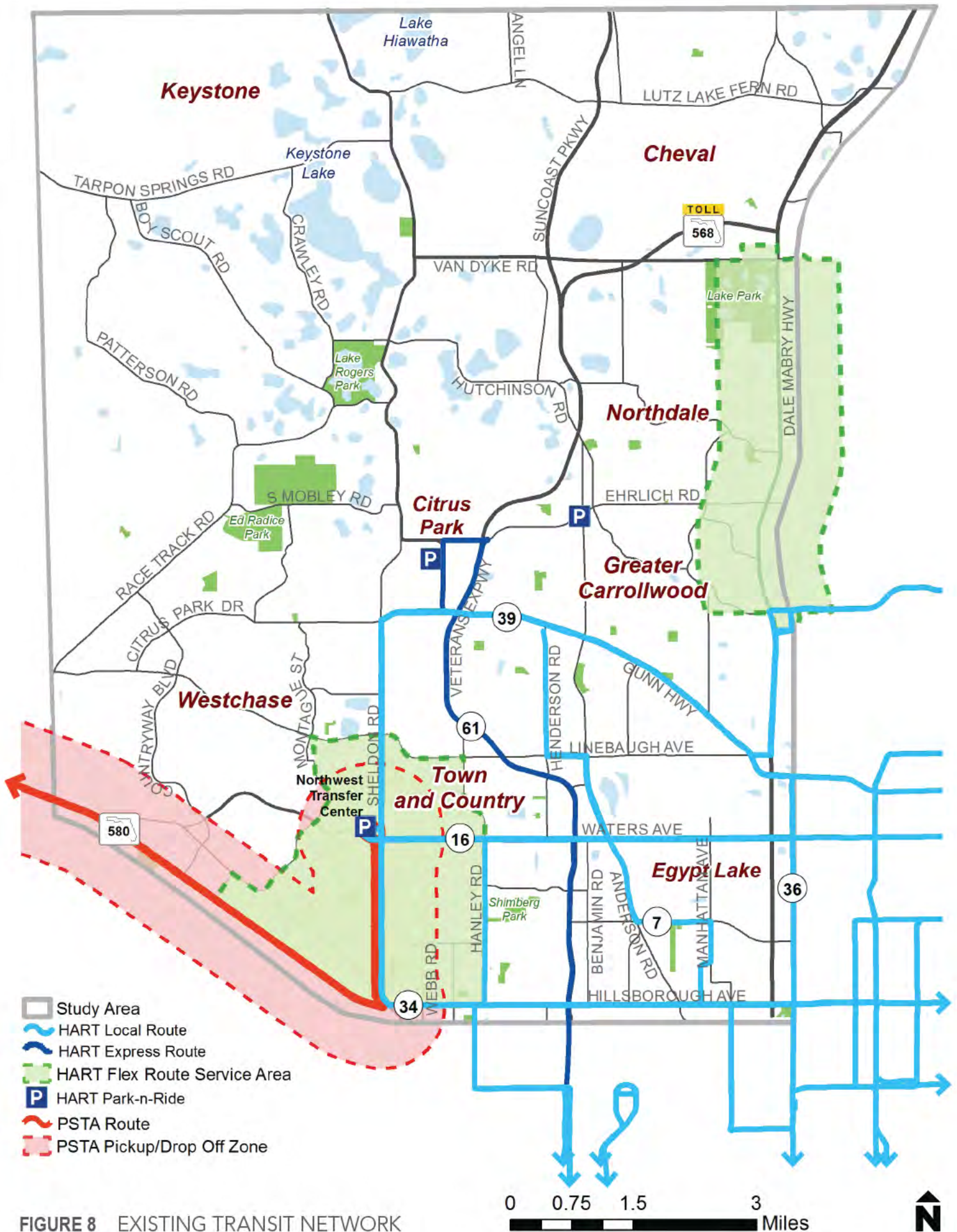
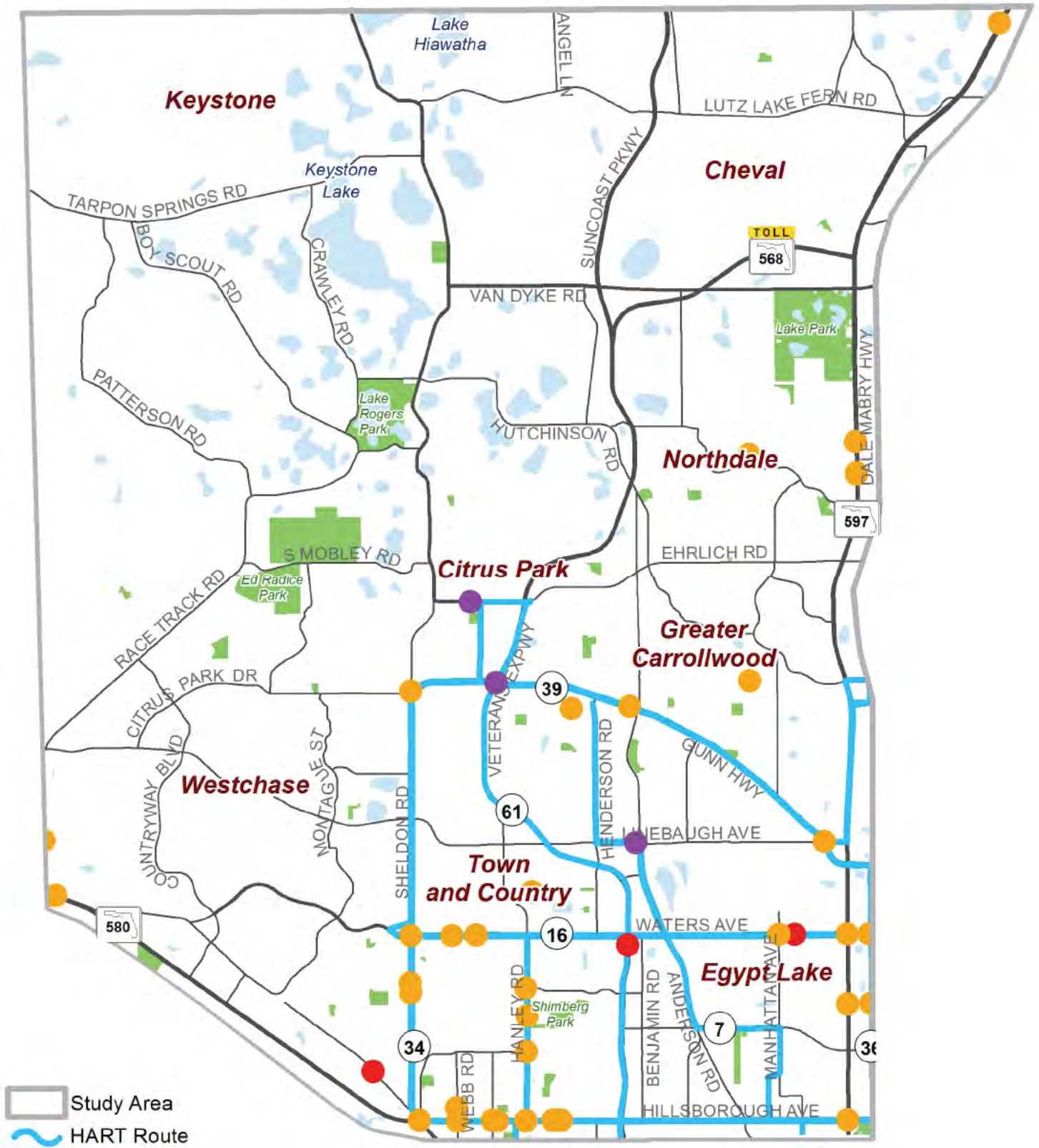


FIGURE 8 EXISTING TRANSIT NETWORK
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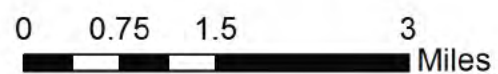
PEDESTRIAN AND BICYCLE SAFETY

Figure 9 shows bicycle and pedestrian crashes reported in the study area between 2010 and 2014. The detailed crash reports were not reviewed as part of this study. While the crashes shown may not have all involved transit users, 30 of the reported crashes occurred along transit routes. The majority of crashes along transit routes (21 of 30) occurred at signalized intersections. The remaining nine crashes occurred at unsignalized intersections or mid-block locations. The highest concentration of bicycle and pedestrian crashes occurred on Hillsborough Avenue between Sheldon Road and the Veterans Expressway.



- Study Area
- HART Route
- Bicycle/Pedestrian Crashes**
 - Fatal
 - Injury
 - No Injury/PDO

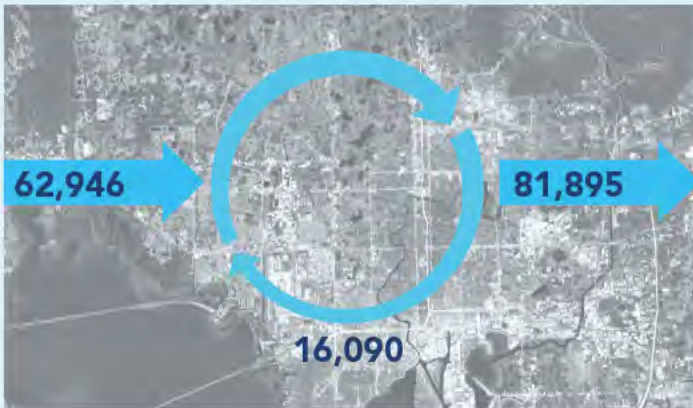
FIGURE 9 BICYCLE AND PEDESTRIAN CRASHES (2010 - 2014)
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TRAVEL DEMAND AND MARKET CHARACTERISTICS

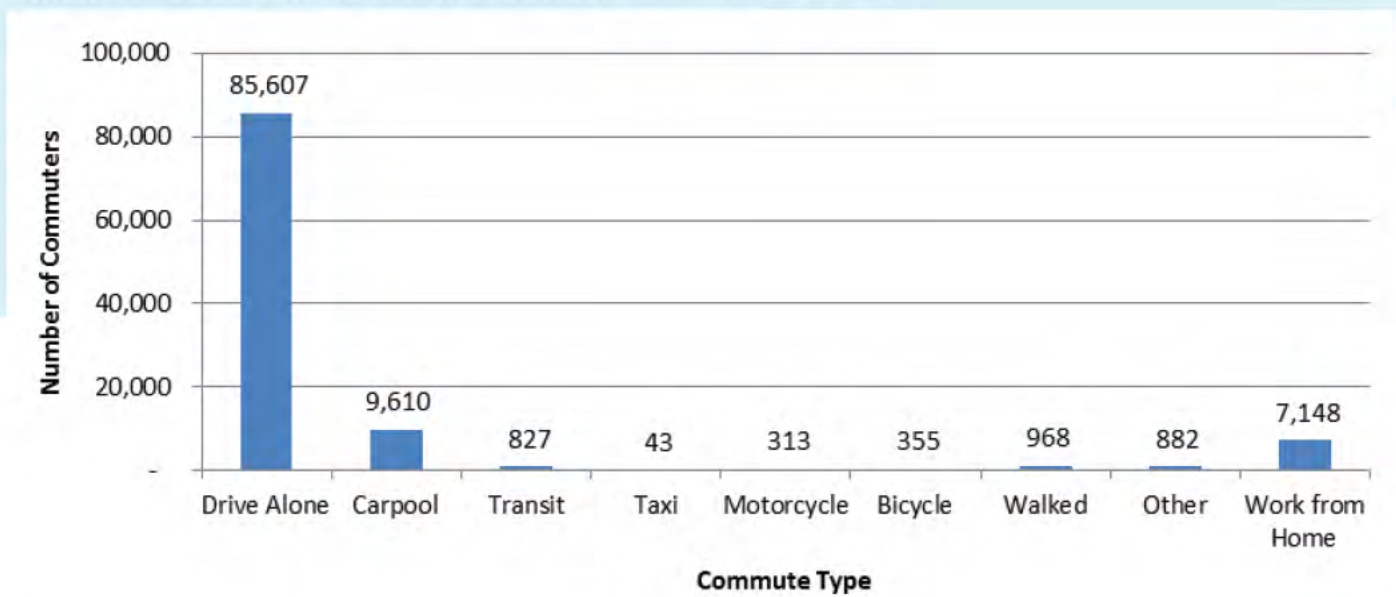
According to a 2014 HART on-board survey, nearly 70% of transit users in the study area are traveling to or from work or school. The U.S. Census Bureau and Department of Labor's Longitudinal Employer-Household Dynamics (LEHD) data were used to help understand commute trip patterns in the study area. The analysis outputs are provided in Appendix A. An estimated 16% of employed residents who live in the study area also work in the study area (see Figure 10). The remaining 84% of employed residents work outside of the study area. Figure 12 and Figure 13 show the work locations of study area residents and the home locations of study area workers, respectively.

FIGURE 10 INFLOW AND OUTFLOW OF EMPLOYEES



Source: Census Bureau and Department of Labor's Longitudinal Employer-Household Dynamics, 2014

FIGURE 11 COMMUTE PATTERN FOR NORTHWEST RESIDENTS



Based on the LEHD analysis, the top employment destinations for study area residents are:

- 1 DOWNTOWN TAMPA
- 2 WESTSHORE
- 3 TOWN 'N' COUNTRY
- 4 OLDSMAR
- 5 PINELLAS COUNTY GATEWAY AREA
- 6 BRANDON
- 7 UNIVERSITY AREA

According to 2014 American Community Survey data, the vast majority of commute trips for study area residents are single-occupant vehicle trips. Today, fewer than 1% of area residents use transit to get to work (see Figure 11).

FIGURE 12 WORK LOCATIONS OF RESIDENTS IN THE STUDY AREA

Source: Census Bureau and Department of Labor's Longitudinal Employer-Household Dynamics, 2014

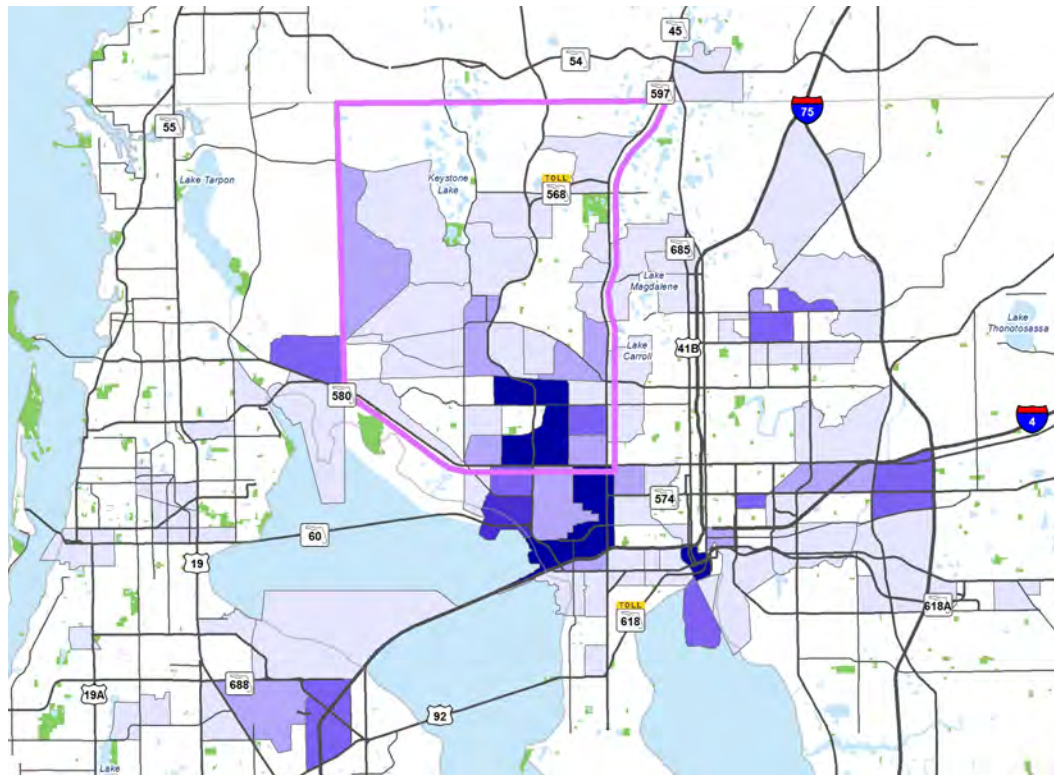
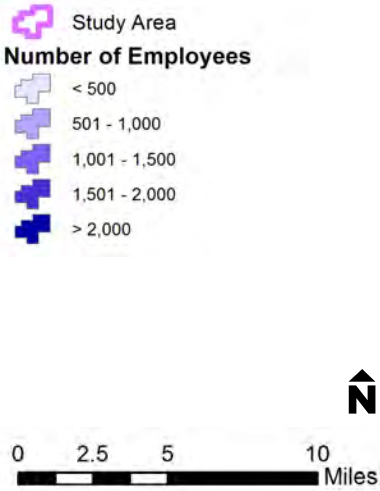
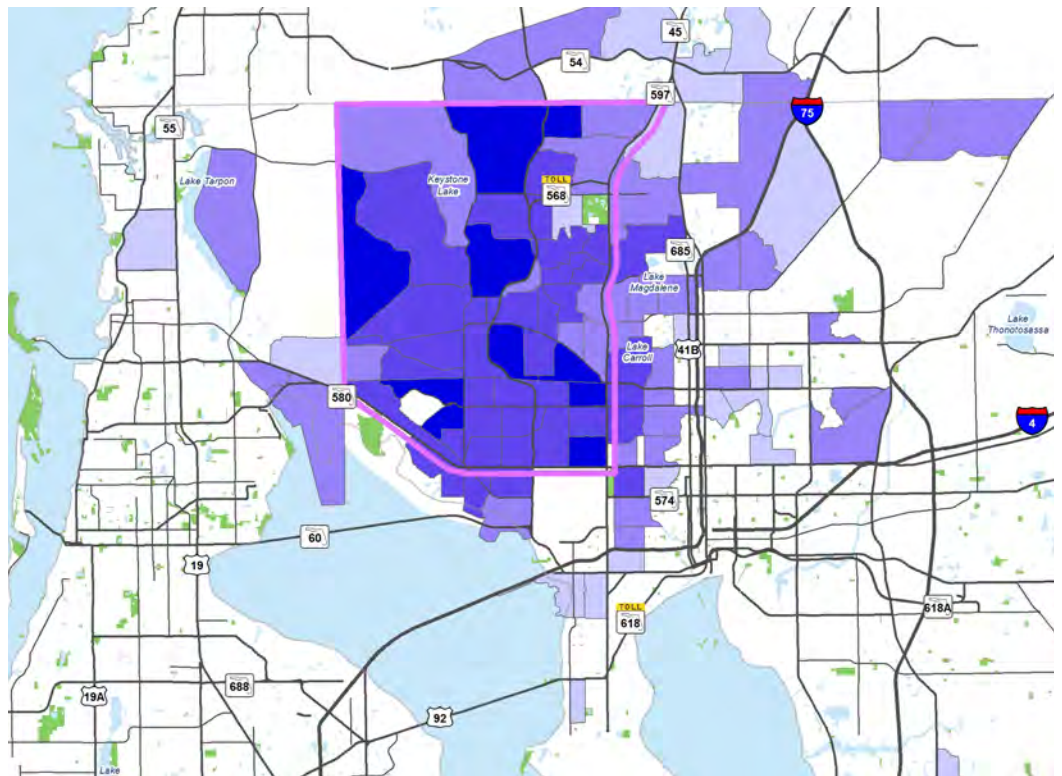
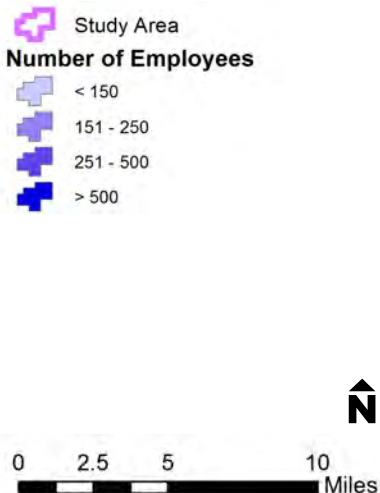


FIGURE 13 HOME LOCATIONS OF WORKERS IN THE STUDY AREA

Source: Census Bureau and Department of Labor's Longitudinal Employer-Household Dynamics, 2014



SECTION 3 SERVICE IMPROVEMENT DEVELOPMENT AND EVALUATION

Despite the relatively low transit mode-split in the study area, there is still a documented need for transit service. A 2014 HART on-board survey found that 59% of transit riders boarding or alighting in the study area are from zero-car households and 91% are from zero- or one-car households. When asked how else they could make their trip, nearly 25% of

respondents said they would not have been able to make the trip without transit. Considering the study area's low-density land use and area residents' relatively high median income, this study focuses on improving the existing system to better serve the area residents who rely on transit service to travel in and around the study area.

PUBLIC INVOLVEMENT

A survey was conducted in October 2016 to get feedback on the potential improvements described later in this section. A summary of the study's public outreach efforts and general information about respondents is provided below. Feedback on specific improvements is provided in the Evaluation of Potential Improvements section.

The following outreach methods were used:

- Conducted outreach at the Northwest Transfer Center, Town 'n' Country Library, and Bravo! Supermarket;
- Survey flyers were left at the Town 'n' Country, Jimmy Keel, Austin Davis, and Upper Tampa Bay Libraries;
- HART staff rode the study area routes and handed out survey flyers to passengers; and
- A link to the survey was posted on the MPO's website and sent to the study area neighborhood associations and community groups.

A total of 88 survey responses were received. Figure 15 shows the distribution of survey responses based on the respondent's zip codes. A majority of respondents (58%) are daily transit users and 78% use transit as a primary means to commute. Most survey respondents (61%) use transit because they do not have access to a vehicle. Two-thirds of survey respondents live in zero- or one-car households. The majority of respondents have personal incomes below \$25,000 (see Figure 14). A copy of the survey and detailed responses are provided in Appendix B.

As part of the 2017 TDP Major Update, the recommended improvements will go through

another round of public involvement. It is recommended that HART engage local business owners and major employers in the study area to get additional feedback.

Based on survey results, the most common transit trips types are:

- | | |
|-------------------|---------------------|
| 1 WORK | 4 EDUCATION |
| 2 SHOPPING | 5 RECREATION |
| 3 MEDICAL | |

FIGURE 14 PUBLIC INVOLVEMENT - RESPONDENT DEMOGRAPHICS



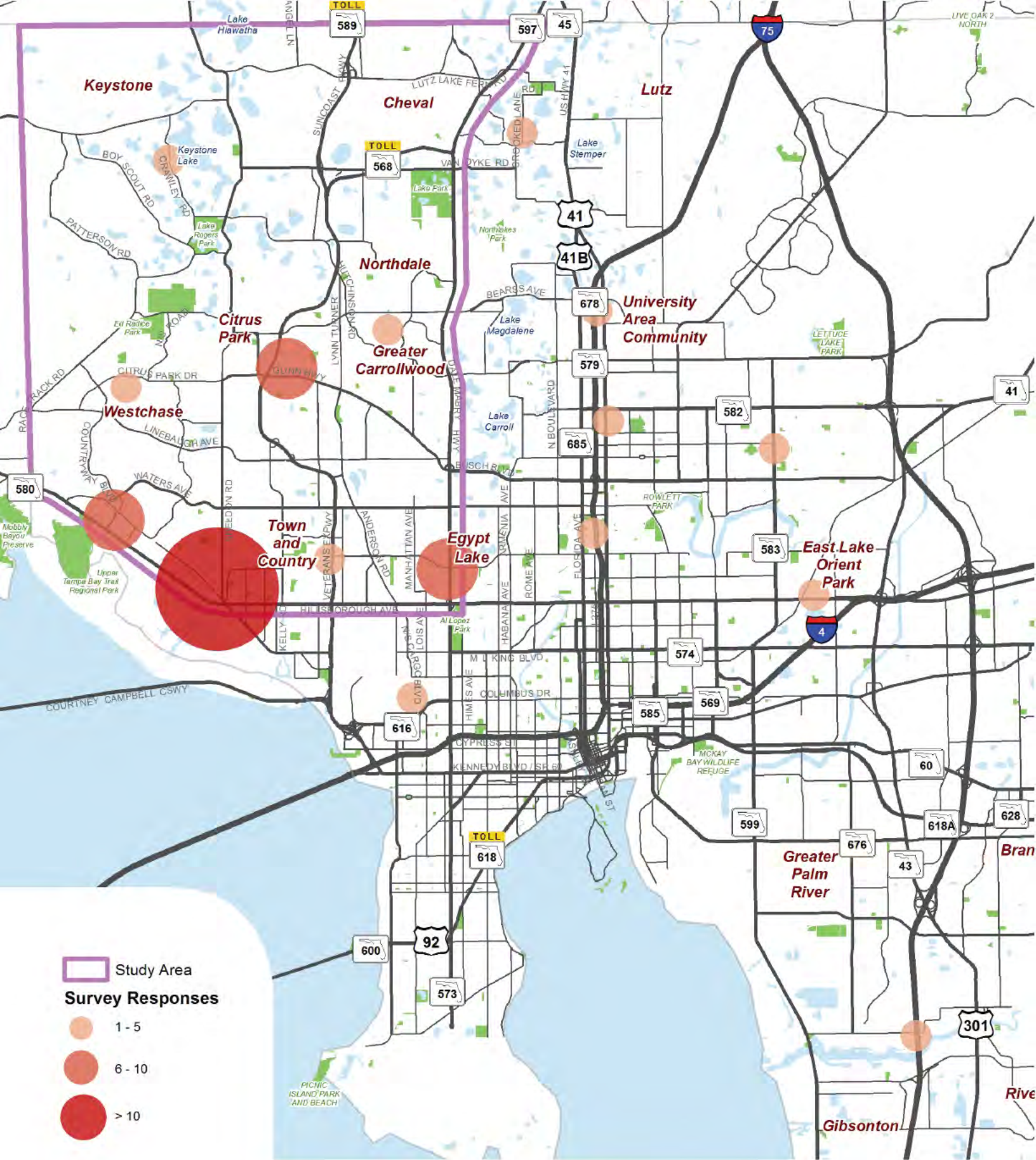


FIGURE 15 PUBLIC INVOLVEMENT - SURVEY RESPONSES BY ZIP CODE



PLANNED IMPROVEMENTS

The FY 2016-2025 HART Transit Development Plan includes an Action Plan, which is limited to HART's status quo funding, and a Go Hillsborough/Vision Plan, which outlines improvements that could be made with additional revenue. Both plans include improvements in the study area, but none of these improvements are currently funded. The Action Plan and Vision Plan maps are provided in Appendix C.



EVALUATION OF POTENTIAL IMPROVEMENTS

IDENTIFICATION OF POTENTIAL IMPROVEMENTS

The study team reviewed the proposed plans for the area and met with the MPO and HART to discuss potential improvements that had not been documented previously. Four primary transit improvements were identified in the study area, with the goal of improving service for existing users and providing better regional mobility to Pinellas and Pasco Counties. The identified improvements include increased service on two existing local routes, an extension of one existing express route, and the development of one new local route. The study also explores different alternatives for the Town 'n' County Flex route and ways to incorporate on-demand transit throughout the study area.

METHODOLOGY

An evaluation was performed for each of the individual improvements to determine its potential ridership and operating and capital costs. Ridership increases for existing routes resulting from frequency or travel time improvements were determined using ridership elasticity factors provided in the Transit Capacity and Quality of Service Manual, Third Edition.¹ Ridership associated with new transit service was analyzed using HART's 2015 validated TBEST model. The TBEST output reports are provided in Appendix D.

The operating and capital costs summarized in Table 2 were provided by HART. Costs for additional paratransit service were estimated based on the percent increase in service area, using 3/4-mile buffers around existing and new transit routes. The costs associated with new and leased park-n-rides were taken from the 2012 FDOT State Park-and-Ride Guide.² The assumed cost for constructing a new park-n-ride was \$9,000 per space for a surface lot. The assumed cost to lease a spot from an existing parking lot was \$12 per space per year.

In general, the cost to construct a concrete landing pad was included at all new stops, as there are very few locations that have an eight-foot sidewalk at the curb. Shelters were assumed to be provided at locations with 20 or more daily boardings.

TABLE 2 OPERATING AND CAPITAL COSTS

Item	Cost
Operating Cost per Vehicle Revenue Hour (Local and Express)	\$96.68/revenue hour
Operating Cost per Vehicle Revenue Hour (Flex)	\$49.81/revenue hour
New bus	\$500,000
New flex route van	\$100,000
Bus Stop Sign	\$1,000
Landing Pad	\$1,000
Shelter	\$25,000

EVALUATION

A summary of each potential service change, including ridership, cost, and public input, is provided in the following pages. A recommendation is provided for each potential service change for incorporation into the next major update of HART's TDP.

¹ Paul Ryus et al., *Transit Capacity and Quality of Service Manual*, Third Edition, Transportation Research Board's Transit Cooperative Highway Research Program, 2013.

² Frederick R. Harris, Inc., *State Park-and-Ride Guide*, Florida Department of Transportation, June 2012.

Performance Measures

The effects of doubling the frequency on the existing route were evaluated, in addition to doubling the frequency in combination with an extension to Oldsmar. The results of the analysis are summarized in Table 3. Doubling the frequency on Route 34, with or without the Oldsmar extension, would require five additional buses. The extension to Oldsmar would require 36 new bus stops, eight of which would have shelters, and assumes the use of nine existing PSTA bus stops along the route. Operating costs for the Oldsmar extension include the cost associated with approximately eight square miles of new paratransit service. In terms of ridership increase, the two improvement options perform very similarly. Doubling the frequency on the existing route is expected to yield slightly higher ridership, compared to doubling frequency in combination with an extension to Oldsmar.

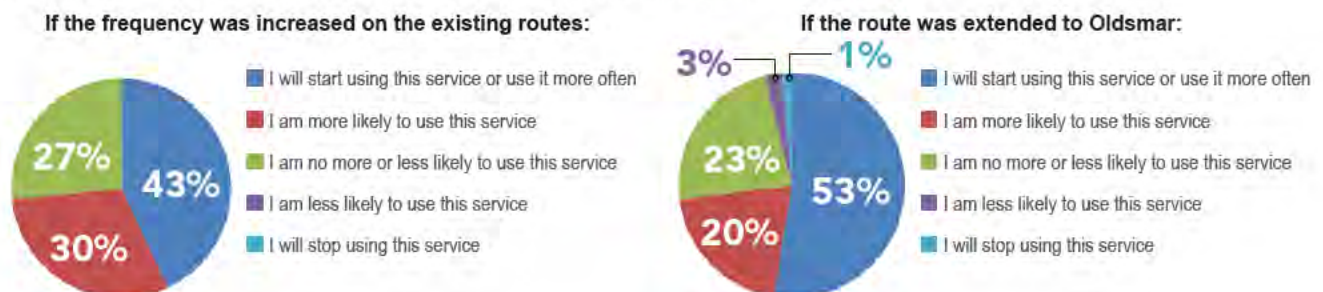
TABLE 3 ROUTE 34 (HILLSBOROUGH AVENUE) PERFORMANCE MEASURES

	Existing Conditions (2016)	Double Frequency	Double Frequency + Oldsmar Extension
Annual Miles	376,350	752,701	967,686
Annual Revenue Hours	30,452	60,904	60,904
Capital Cost	—	\$2,500,000	\$2,756,000
Annual Operating Cost - Fixed Route	\$2,944,099	\$5,888,199	\$5,888,199
Annual Operating Cost - Additional Paratransit	—	—	\$180,217
Daily Ridership (Weekday / Saturday / Sunday)	2,750 / 1,844 / 877	4,375 / 2,637 / 1,254	4,240 / 2,903 / 1,381
Annual Ridership	848,129	1,325,609	1,312,178
Annual Fare Revenue	\$882,054	\$1,378,633	\$1,364,666
Operating Cost per Passenger	\$3.47	\$4.44	\$4.63
Passengers per Revenue Hour	27.8	21.8	21.6
Passengers per Revenue Mile	2.25	1.76	1.36

Public Input

The survey respondents favored the extension to Oldsmar, with more than 50% saying they would start using the route or use it more often, compared to 40% for the frequency increase alone (see Figure 17). Some respondents expressed concern that alternating trips between Oldsmar and the Northwest Transfer Center would make the route difficult to understand.

FIGURE 17 ROUTE 34 (HILLSBOROUGH AVENUE) - PUBLIC INPUT



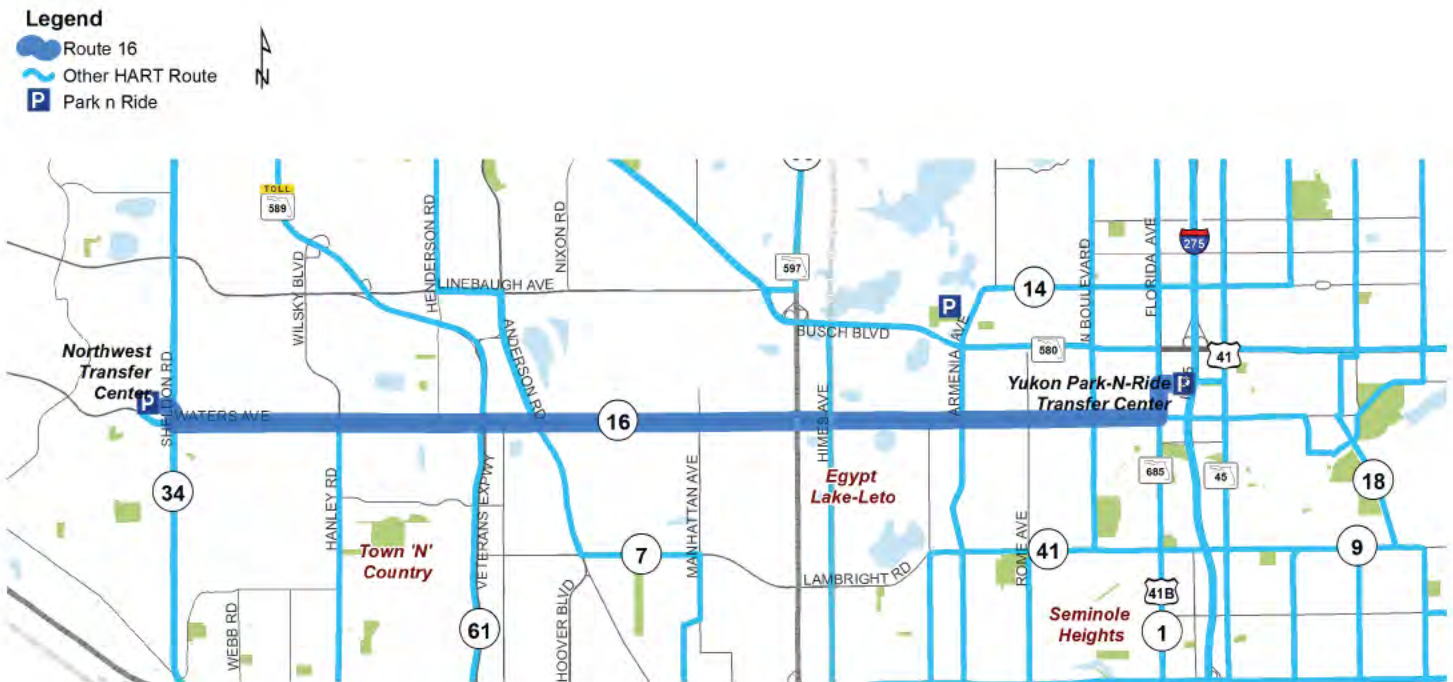
Recommendation: Oldsmar Extension

The extension to Oldsmar provides enhanced regional mobility for HART customers and Pinellas County residents. While increasing the frequency on the existing route may provide slightly higher ridership, it is not enough to outweigh the additional service coverage the extension to Oldsmar would provide. HART could implement the Oldsmar extension as an alternating route or a separate route.

Description

Route 16 runs along Waters Avenue and connects the Northwest Transfer Center and the Yukon Transfer Center (see Figure 18). Route 16 is the most productive route in the study area per revenue mile. The HART TDP previously identified Route 16 for expanded service. The existing route operates at 40-minute headways Monday-Saturday and does not run on Sunday. This study looks at increasing the frequency on Route 16 to 30-minute, 20-minute, and 15-minute service.

FIGURE 18 ROUTE 16 (WATERS AVENUE) POTENTIAL IMPROVEMENT



SURVEY QUOTES

"Great can not wait"

"Waits would be shorter while waiting in hot sun..."

Performance Measures

The results of the Route 16 analysis are summarized in Table 4. Increasing the frequency to 30 minutes results in an increase in overall route productivity per revenue hour. If service frequency is increased to 20 or 15 minutes, productivity declines. Increasing the frequency to 30, 20, or 15 minutes would require an additional one, three, or four buses, respectively.

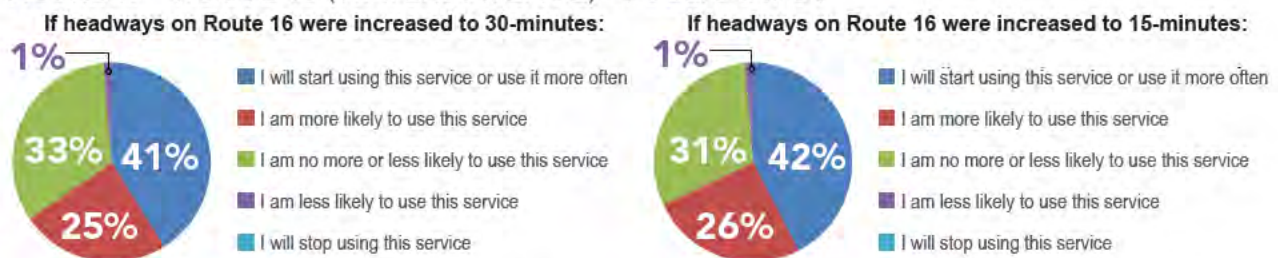
TABLE 4 ROUTE 16 (WATERS AVENUE) PERFORMANCE MEASURES

	40-min Headway (Existing - 2016)	30-min Headway	20-min Headway	15-min Headway
Annual Miles	101,115	148,701	223,051	297,401
Annual Revenue Hours	9,834	13,659	22,765	27,318
Capital Cost	—	\$500,000	\$1,500,000	\$2,000,000
Annual Operating Cost	\$950,751	\$1,320,552	\$2,200,920	\$2,641,104
Daily Ridership (Weekday / Saturday)	888 / 439	1,270 / 628	1,613 / 797	1,818 / 899
Annual Ridership	249,268	356,588	452,769	510,205
Annual Fare Revenue	\$259,239	\$370,851	\$470,880	\$530,613
Operating Cost per Passenger	\$3.81	\$3.70	\$4.86	\$5.18
Passengers per Revenue Hour	25.4	26.1	19.9	18.7
Passengers per Revenue Mile	2.47	2.40	2.03	1.72

Public Input

As part of the survey, participants were asked their opinion on an increase in frequency to 30 or 15 minutes. The study team was looking for a potential tipping point when riders would start using the route more often. In general, the public had a favorable opinion of increasing the service frequency, but there was very little difference in opinion between the 30- and 15-minute headways (see Figure 19).

FIGURE 19 ROUTE 16 (WATERS AVENUE) - PUBLIC INPUT



Recommendation: 30-minute Headways

An increase in frequency to 30 minutes is expected to be more productive than the existing route and has the lowest upfront capital cost of any of the improvement options. Increasing the frequency any further would decrease the route's efficiency, and there is not a strong public desire to do so. The 30-minute headway provides better transfer opportunities for passengers, as it matches the headway of most of HART's other routes. A 30-minute headway also makes it easier for passengers to remember the schedule, as the bus arrives at the same times each hour.

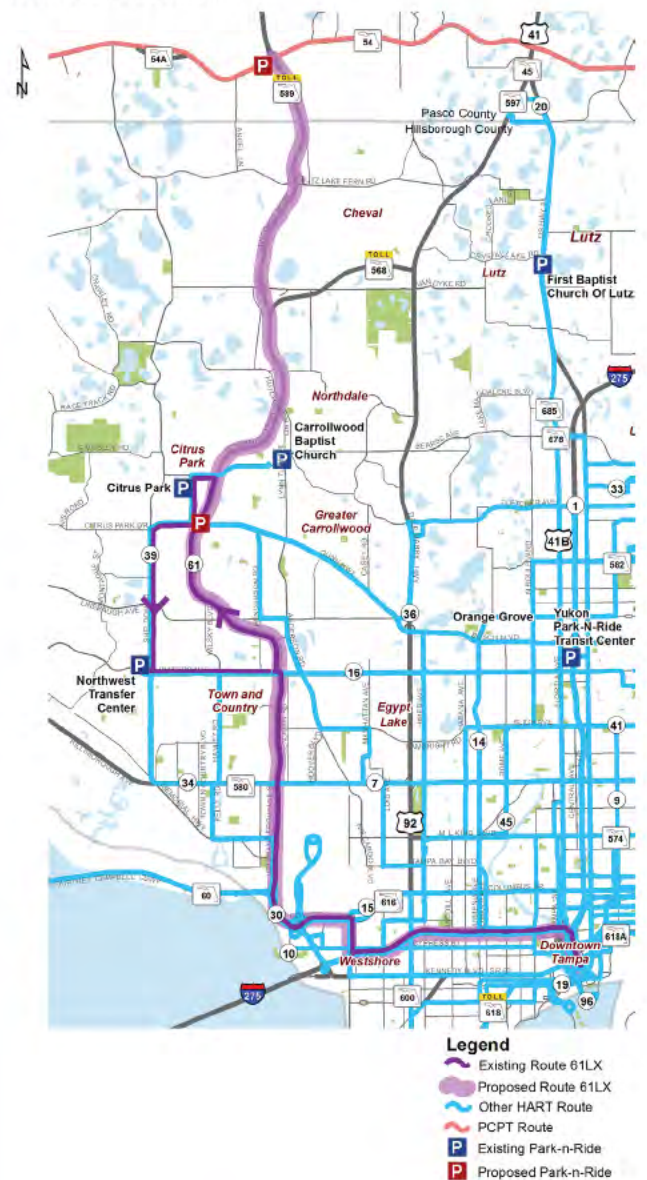
Description

Route 61LX is the only express route in the study area. It currently connects Citrus Park, the Northwest Transfer Center, Westshore and Downtown Tampa. There are two southbound routes during the morning peak period and two northbound routes in the afternoon peak period. The route primarily runs on the Veterans Expressway and Interstate 275. During the morning peak period, the route begins at the Carrollwood Baptist Church and then deviates onto Sheldon Road to serve the Northwest Transfer Center. In the afternoon, the route remains on the Veterans Expressway to serve the Carrollwood Baptist Church, before continuing on to the Northwest Transfer Center. At present, about 20 passengers make the round trip each day.

By 2018, additional express toll lanes will be open on the Veterans Expressway. The price on the new lanes will increase with congestion so that the express lanes can operate at 45 mph or better. Florida's Turnpike Enterprise will allow buses to use the new express lanes without paying the additional toll. Access points to the exclusive lanes will be south of Van Dyke Road and south of Gunn Highway. The proposed service change takes advantage of the new express lanes and removes the deviation on Sheldon Road. Passengers traveling between Carrollwood and Downtown Tampa can expect a 10-minute travel savings in the morning and a 4-minute travel savings in the afternoon with this service change.

The potential service change, shown in Figure 20, consolidates two existing park-n-rides, Carrollwood Baptist Church and Citrus Park, into one park-n-ride at the Veterans Expressway and Gunn Highway interchange. This new park-n-ride would also serve Route 39. In order to maximize travel time savings, the new park-n-ride would be constructed in one of the interchange quadrants. Alternately, HART could look for an existing parking lot to lease. Lastly, the potential service change includes an extension to Pasco County to meet PCPT Route 54 on SR 54. HART may be able to lease parking spaces from an existing shopping center at SR 54, or could construct a new park-n-ride near the interchange. The Gunn Highway park-n-ride and the extension to Pasco County are consistent with TBARTA's recent recommendation for Phase 1 of the Westshore to Crystal River/Inverness Transit Study.

FIGURE 20 ROUTE 61LX POTENTIAL IMPROVEMENT



SURVEY QUOTES

"I have friends who live in Pasco County whom I rarely get to see. This would be a nice change"

"I am less likely to use the service if the Carrollwood Baptist Church Park n Ride is no longer on the route."

Performance Measures

The results of the Route 61LX analysis are summarized in Table 5. The potential service change is expected to increase ridership by approximately 20%. The increased travel speed associated with the change makes the route more productive per revenue mile, but the route would be less productive per revenue hour due to the overall increase in route length and travel time to and from Pasco County. The service change would not require any additional buses. The capital costs associated with this improvement consist of constructing a new 50-space park-n-ride lot at Gunn Highway. A lease agreement is assumed for parking in Pasco County.

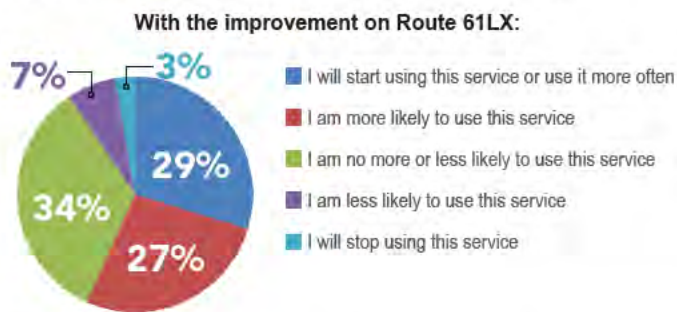
TABLE 5 ROUTE 61LX PERFORMANCE MEASURES

	Existing (2016)	Proposed
Annual Miles	23,023	24,389
Annual Revenue Hours	945	1,223
Capital Cost	—	\$495,800
Annual Operating Cost	\$91,317	\$118,224
Daily Ridership (Weekday)	38	46
Annual Ridership	9,614	11,666
Annual Fare Revenue	\$9,999	\$12,133
Operating Cost per Passenger	\$9.50	\$10.13
Passengers per Revenue Hour	10.18	9.54
Passengers per Revenue Mile	0.42	0.48

Public Input

Overall, the survey respondents had a favorable view of the potential improvement on Route 61LX (see Figure 21); however, there is concern among existing riders who currently board at one of the three park-n-ride locations. They may no longer be able to use the route if the deviation along Sheldon Road is removed.

FIGURE 21 ROUTE 61LX - PUBLIC INPUT



Recommendation: Incremental Improvement

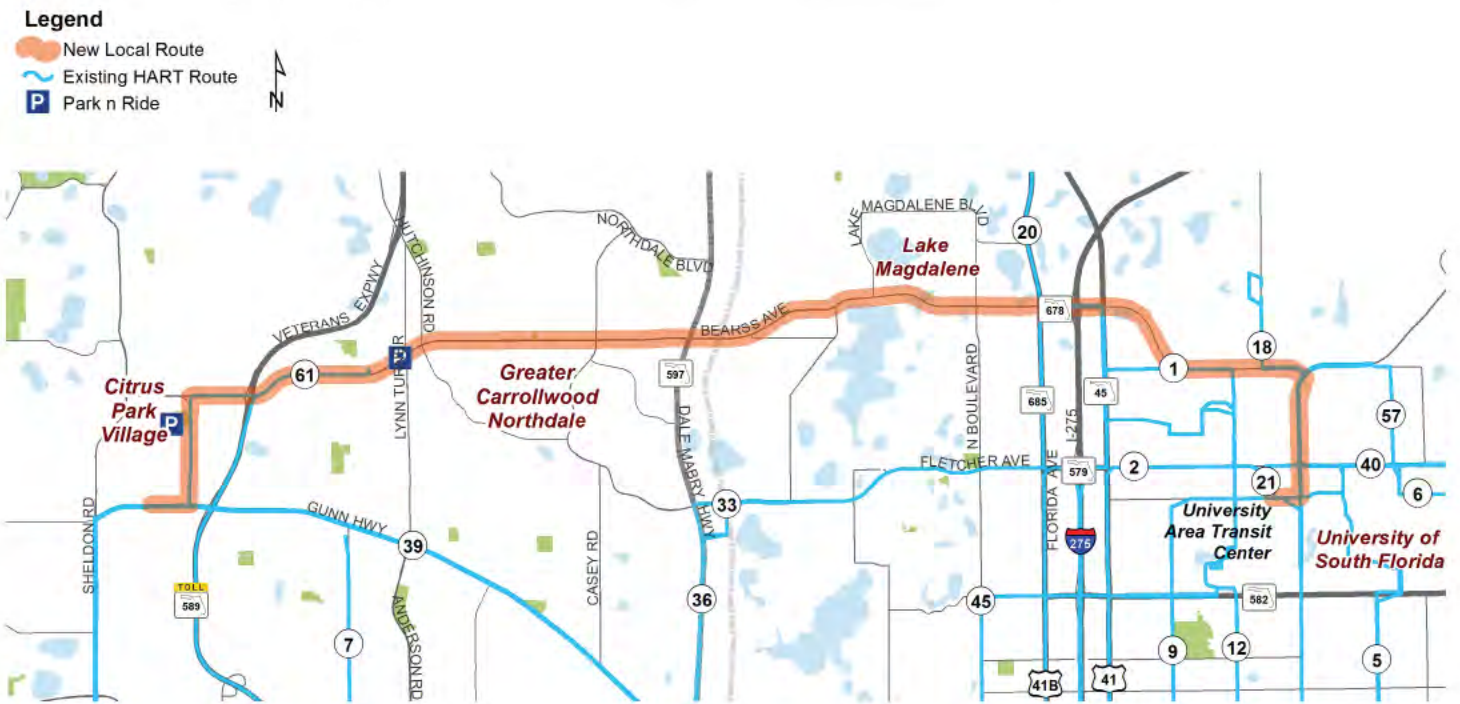
The existing route is one of the least productive on HART's system. While the proposed improvement offers some benefit, it may not be enough to justify the capital cost of constructing a new park-n-ride. In conjunction with the opening of the new express lanes on the Veterans Expressway, HART may want to first consider removing the deviation on Sheldon Road and using one of the existing park-n-ride lots at Citrus Park or the Carrollwood Baptist Church as a starting point for the route. If the travel time savings produce an increase in ridership, HART could then consider expanding the route to Pasco County and constructing a new park-n-ride lot closer to the Expressway.

NEW ROUTE ON EHRlich ROAD/BEARSS AVENUE

Description

Another potential improvement is a new east-west route on Ehrlich Road and Bearss Avenue. This route would connect Citrus Park and the University of South Florida. This improvement would extend HART's service area to the north, as no east-west service is currently provided on Ehrlich Road/Bearss Avenue. The western terminus would be the Citrus Park Mall and the eastern terminus would be the University Area Transit Center (see Figure 22). Service would be provided seven days a week, with 30-minute headways on weekdays and 60-minute headways on weekends. The assumed service hours are 5:00 AM to 8:00 PM, or 15 hours per day. Stops were assumed to be provided at 1,000-foot intervals, the approximate spacing of public access points along Ehrlich Road and Bearss Avenue.

FIGURE 22 POTENTIAL NEW ROUTE ON EHRlich ROAD/BEARSS AVENUE



Performance Measures

The results of the Ehrlich Road/Bearss Avenue route analysis are summarized in Table 6. The new route would require four buses and 98 new bus stops, 11 of which would have shelters. These figures assume the use of 28 existing HART bus stops along the route, particularly on the eastern end of the route. Operating costs include the cost associated with approximately nine square miles of new paratransit service area.

TABLE 6 EHRlich/BEARSS ROUTE PERFORMANCE MEASURES

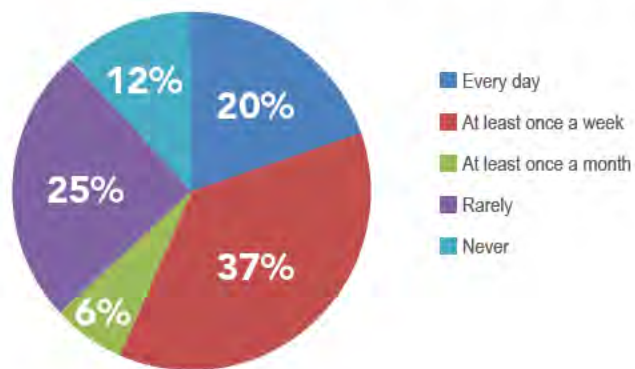
Annual Miles	200,880
Annual Revenue Hours	18,600
Capital Cost	\$2,449,000
Annual Operating Cost - Fixed Route	\$1,798,248
Annual Operating Cost - Additional Paratransit	\$206,434
Daily Ridership (Weekday / Saturday / Sunday)	1040 / 660 / 326
Annual Ridership	318,383
Annual Fare Revenue	\$331,119
Operating Cost per Passenger	\$6.27
Passengers per Revenue Hour	17.12
Passengers per Revenue Mile	1.58

Public Input

Overall, the survey respondents supported the addition of the new route, with nearly 20% saying they would use the route every day and an additional 40% saying they would use the route at least once a week (see Figure 23).

FIGURE 23 NEW EHRlich/BEARSS ROUTE - PUBLIC INPUT

How often would you use a route on Ehrlich Road/Bearss Avenue?



Recommendation: Incorporate in the TDP

This route would enhance east-west travel in the study area, and it is expected to perform at about 70% of the local system average. The route should be considered for incorporation into the upcoming major update to the TDP.

TOWN 'N' COUNTRY FLEX ROUTE

Description

The Town 'n' Country Flex Route is a circular route that currently runs in the clockwise direction only (see Figure 24). Walk-up service is available at any of the designated HART bus stops along the route. Pick-ups and drop offs can be reserved at any location within the Flex zone. Reservations can be made from 2 hours to 3 days in advance of a trip.

The current flex route is only convenient for passengers in one direction of their trip. For example, passengers traveling one stop would need to ride the remainder of the one-hour route on their return trip. The route underperforms in comparison to other flex routes in the County and its ridership is decreasing. This study considered adding a counterclockwise loop and evaluated the feasibility of serving the existing travel demand with on-demand transit service.

FIGURE 24 TOWN 'N' COUNTRY FLEX ROUTE



Performance Measures

The results of the analysis are summarized in Table 7. Adding a counterclockwise loop to the existing flex service is expected to almost double the ridership. Nevertheless, the cost per passenger to operate the flex route would be over \$17. The capital costs associated with this improvement include one new van and 15 new stops.

TABLE 7 ROUTE 61LX PERFORMANCE MEASURES

	Existing (2016)	Proposed
Annual Miles	42,168	84,336
Annual Revenue Hours	3,514	7,028
Capital Cost	--	\$130,000
Annual Operating Cost	\$175,032	\$350,065
Daily Ridership (Weekday)	41	79
Annual Ridership	10,291	19,905
Annual Fare Revenue	\$5,248	\$10,152
Operating Cost per Passenger	\$17.01	\$17.59
Passengers per Revenue Hour	2.9	2.8
Passengers per Revenue Mile	0.24	0.24

An Alternative - On-Demand Transit Service

HART currently operates a taxi-voucher program as a supplement to its paratransit service. For each voucher, HART pays \$16 and the customer pays \$4 for door-to-door service. Serving the existing flex route demand with a similar taxi voucher would be more efficient for HART than operating the existing flex route, which currently costs HART \$17 per customer. HART could likely provide door-to-door trips within the flex route service area with a lower cost voucher than they provide their paratransit customers. Additionally, HART is beginning a first-mile/last-mile pilot program, HyperLINK. Customers who are traveling to or from a designated bus stop can receive up to a three-mile ride. The customer pays \$3 and HART pays \$4. If HART combined these services, they could serve the current flex route demand for \$41,000 - \$164,665 annually, depending on the number of passengers who would qualify for the lower cost HyperLINK trip and assuming use of the higher cost (\$16) taxi voucher.

Recommendation: On-Demand Transit

HART should consider replacing the Town 'n' Country flex route with on-demand transit service. On-demand service would provide the existing customers the same, or better, level of service with a lower annual cost to HART. HART could reassign the current van to improve service on another flex route, or could start a new flex route in another part of the County.

PARATRANSIT SERVICE

In accordance with the Americans with Disabilities Act of 1990, HART operates the HARTPlus paratransit service for people with physical, cognitive, emotional, visual or other disabilities that prevent them from using the HART fixed route bus system. HARTPlus is a door-to-door shared-ride van service offered within $\frac{3}{4}$ -mile of a local fixed route. Figure 25 shows the existing paratransit service area within and around the study area.

The Route 34 extension and proposed new route on Ehrlich Road/Bearss Avenue would trigger the need for additional paratransit service in these new service areas. Figure 25 shows the areas not currently in the paratransit transit service area that would need to be added if these service changes are implemented. The operating costs associated with the new paratransit service area were included as part of the performance measures for the Route 34 and Ehrlich Road/Bearss Avenue service changes, summarized in Table 3 and Table 6, respectively.

Paratransit service is not required along flex routes or express routes; therefore, the proposed service changes to Route 61LX and the Town 'n' Country Flex Route would not affect paratransit service. Similarly, the service change proposed for Route 16 does not affect the route alignment and would not affect the associated paratransit service area.

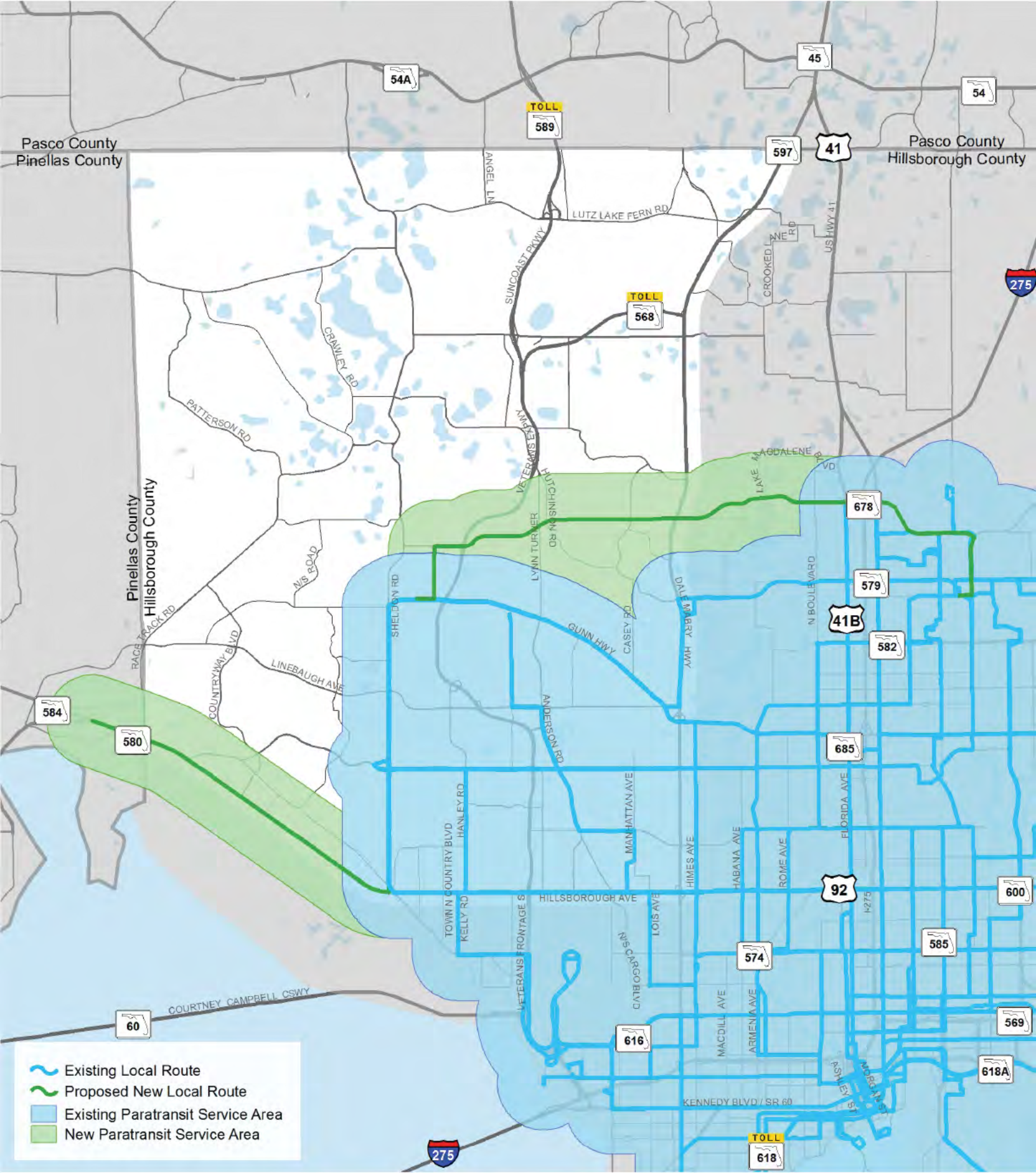


FIGURE 25 PARATRANSIT SERVICE AREA
FEBRUARY 2017



OPPORTUNITIES FOR ON-DEMAND TRANSIT

The identified improvements are focused on areas with the highest population densities and the most transit-supportive land uses. The areas of Westchase, Keystone, and Cheval do not currently exhibit land use characteristics conducive to fixed-route transit. In the future, Westchase may become a more mixed-use community with higher land use densities, but until that time, HART may consider using on-demand transit service to serve these areas. This service could include expansion of HART's taxi voucher program or HyperLINK. HART has seen tremendous success with its taxi voucher program as a way to replace costly paratransit trips. HyperLINK is still in its infancy, but it is expected to provide better connectivity for HART customers to and from their final destinations.

When asked about the expansion of the HyperLINK program, approximately 60% of survey respondents said they would use the service at least once a week (see Figure 26).

FIGURE 26 FIRST-MILE/LAST-MILE (HyperLINK) EXPANSION - PUBLIC INPUT

If the first-mile/last-mile service was offered in your area how often would you use it?



As public policy works to keep up with innovations in transit service, funding and reporting remain ongoing challenges for on-demand transit service. HART is not able to report trips from its taxi voucher or HyperLINK program to the National Transit Database. HART will need to continue to find flexibility in existing funding sources to provide these mobility options to customers.

The following summarizes other on-demand transit service being used in other parts of the country that could be considered in the Northwest study area. Agency contact information is provided in Appendix E.

Dallas Area Rapid Transit Go Pass

To improve the way transit users get to and from bus stops, Dallas Area Rapid Transit (DART) added a feature to its "GoPass" app that allows users to purchase a bus pass and request a ride from Uber, Lyft, or Zipcar in the same app. Previously, users would need to purchase a bus pass in the GoPass app and then open the rideshare app to request a car. DART's partnership with Uber, LYFT, and Zipcar does not provide any new services to transit users – it simply streamlines an existing process.

No money is exchanged between DART and any of the rideshare services, and there are no formal agreements. If a user requests a ride through the GoPass app, they are taken directly to the rideshare services' website or app where the transaction takes place. The only written agreement is between DART and Zipcar for Zipcar's use of DART parking spaces.

DART does not cover any of the cost for the rideshare service. In this case, the program, launched in March 2015, does not require any additional funding aside from app development. Other public agencies, including the City Altamonte in Central Florida, have chosen to subsidize the cost of rideshare service to and from a transit stop.

HART could explore options to streamline transit/rideshare connections for customers who live more than three-miles from a transit stop and do not qualify for the HyperLINK program. Depending on availability of funding, HART could consider offsetting some of the cost of the rideshare trip.

Kansas City Regional Transit – RideKC

Kansas City recently launched a one-year pilot program, RideKC. Kansas City partnered with Bridj, a rideshare service, and Ford, which provided a fleet of 10 vans for the program. Through the Bridj smartphone app, users can request a ride from a 14-passenger Ford van. Users are then given a customized pick-up location. Bridj is constantly optimizing pick-up and drop-off locations and routes based on demand. Typical wait time for a van is 5-10 minutes and each ride is \$1.50.

This was the first time Bridj partnered with a public agency. The program was initiated to increase access to jobs and spur economic development in the area. The goal of the program is to give people using transit more mobility options and give residents better access to job opportunities. HART could consider an on-demand vanpool service to serve residents in more remote areas of the County.

IMPROVEMENT PHASING AND PRIORITIZATION

This report identified improvements that can be implemented in the near-term and improvements that could be implemented in later years of the TDP. HART's maintenance facility is currently at capacity, which prevents HART from adding additional buses to its fleet at this time. There is an ongoing study to identify a new maintenance facility, but any near-term improvement must make use of HART's existing vehicle fleet, either by not requiring additional vehicles, or by reducing service elsewhere in the county and reallocating the vehicle(s) to serve the northwest county.

The following improvements do not require additional vehicles and could be implemented in the near-term:

- **ROUTE 61LX** – The potential realignment of Route 61LX makes use of the existing buses serving the route. HART should consider realigning the route, off of Sheldon Road, in conjunction with the opening of the new express lanes on the Veteran's Expressway.
- **TOWN 'N' COUNTRY FLEX ROUTE** – If HART decides to replace the Town 'n' Country Flex Route with on-demand transit, this would not require any additional HART vehicles.

The following improvements require additional buses and should be added to HART's Action Plan as part of the next major update to the TDP:

- 1 **ROUTE 34 INCREASED FREQUENCY AND EXPANSION TO OLDSMAR**
- 2 **ROUTE 16 INCREASED FREQUENCY**
- 3 **NEW ROUTE ON ERHLICH ROAD/ BEARSS AVENUE**

POTENTIAL FUNDING SOURCES

Potential funding for the expanded service may be obtained from the traditional funding sources that currently finance HART services including capital and operating costs. Capital cost for fixed assets (e.g., buses, station infrastructure, and ancillary facilities such as maintenance facilities) generally comes from different sources than funds applied to operations and maintenance of the service. The specific funding mechanism generally differs even if both the capital and operating costs comes from the same general category (e.g., federal funds).

Funding for transit is derived from two general categories: public sector and private sector. Public sector funding is derived from public tax dollars allocated through federal, state, and local funding mechanisms.

PUBLIC SECTOR FUNDING

FEDERAL TRANSIT ADMINISTRATION

Funds for urban mass transit are available from the Federal Transit Administration (FTA) to qualified transit authorities pursuant to procedures set forth in the Moving Ahead for Progress in the 21st Century Act (MAP-21). The process of obtaining federal capital assistance is initiated by a recipient designated by state and local officials, and by publicly owned operators of mass transportation services – such as HART. Generally, the designated recipient for a service area prepares and submits a regional program of projects to the FTA for approval. Additionally, the recipient is required to file an application with the FTA regional office to be eligible for any FTA program grant.

Federal grants can generally reimburse up to 80 percent of the cost of capital programs and a portion of operating expenses to improve or continue mass transportation service. Federal, state, and local resources provide funding to the HART system. Federal and most of the state programs are not for specific bus transit corridors or routes unless specifically stated.

Urbanized Area Formula Program: Section 5307 – Urbanized Area Formula Grants, Section 5336 – Apportionment of Appropriations for Formula Grants

Urbanized Area Formula Program provides the largest source of federal transit funding. Formula funds are appropriated based on population, transit service provided, and the number of low-income individuals and may be used for capital projects, planning, job access and reverse commute projects and operating costs. The Job Access and Reverse Commute (JARC) program was incorporated into Section 5307 which provides transit service to low-income individuals to access jobs. Funds may be used for operating expenses for urban areas with a population fewer than 200,000 and areas with a population over 200,000 if they operate no more than 100 buses during peak periods.

Section 5339 – Bus and Bus Facilities Formula Grant

Bus and Bus Facilities Formula Grants may be used for capital projects to purchase buses and related equipment and to construct bus facilities.

Section 5310 – Formula Grants for the Enhanced Mobility of Seniors and Individuals with Disabilities

Grants under Section 5310 may be used to plan, design, and carry out public transportation projects to meet the needs of seniors and individuals with disabilities when public transportation is insufficient, unavailable, exceeds the requirements of the Americans with Disabilities Act of 1990, or provides alternative transportation to assist seniors and individuals with disabilities.

STATE PROGRAMS

Available sources from the State of Florida, as identified in the Florida Statutes and/or Florida Department of Transportation Procedures are listed below:

Park and Ride Lot Program

As part of the commuter assistance program to encourage transit and carpools, the Park and Ride Lot Program provides funding to purchase or lease land to construct park and ride lots based on FDOT criteria.

Public Transit Block Grant Program

Established by the Florida Legislature, the Public Transit Block Grant Program provides funds for eligible transit capital and operating costs, consistent with local government comprehensive plans. Funds are awarded to public transit providers eligible to receive funding from the Federal Transit Administration's Sections 5307 and 5311 and to Community Transportation Coordinators.

Public Transit Service Development Program

The Public Transit Service Development Program, also enacted by the Florida Legislature, provides initial funding for special projects that incorporate new or innovative techniques to improve or expand public transit services. Projects may include new technologies, routes, services, or the purchase of special transportation services.

Transit Corridor Program

The Transit Corridor Program provides discretionary funds based on need to support new services within specific corridors that will reduce or alleviate congestion or other mobility issues. These funds may be used for transit capital or operating expenses identified in a Transit Development Plan, Congestion Management System Plan, or other formal study undertaken by a public agency.

Additional state resources may be available to local governments and transit agencies to provide for the local share of project costs.

LOCAL RESOURCES

Local jurisdictions have enacted taxes or earmarked existing taxes specifically for transit operations. Portions of motor vehicle registration fees, portions of local sales tax, and documents taxes for registration of public documents (e.g., deeds and mortgages, licenses, etc.) can be applied to public transit service. Several counties around Florida, including Hillsborough County in 2010 and in 2016, have considered a sales tax surcharge for application to transit service.

Some jurisdictions make use of road and bridge tolls, and potentially managed lane tolls, to support public transportation. While these tolls are generally implemented to cover the cost of constructing, operating, and maintaining the roads and bridges, some cities dedicate as much as 60 percent of the toll revenues to transit operations. Promoting transit reduces congestion levels on the roads making such facilities more attractive and avoiding the cost of expanding such facilities when that is even possible. Increasingly, the public sector is looking at the potential for managed lane tolls to support transit operations.

PRIVATE FUNDING SOURCES

In addition to the traditional funding sources, funds from one or more private sources may be used for capital costs and for operations. These are specific to the private funding provider.

UNIVERSITY PROGRAMS

Many institutes of higher learning have found it advantageous to support a public transit agency by applying student activity fees and other charges to students and then offering unlimited, free use of the transit service. In this way, the educational institution can give mobility to students who may not have access to automobiles and yet avoid the staffing, infrastructure, liability, and specialized knowledge needed to run a transit operation. Service can be scalable, allowing the institution to “purchase” only as much service as is needed while capitalizing on the economies of scale of the existing transit provider. HART sponsors the U-PASS Program with the University of South Florida (USF). With valid USF ID cards, USF students can ride all HART services for free and USF faculty and staff can ride for twenty-five cents. Students pay for this service through an activity fee and HART invoices USF each month based on the number of passengers.

PUBLIC PRIVATE PARTNERSHIPS

A Public-Private Partnerships (PPPs) is a contractual agreement between a public agency and a private entity as a way to accelerate delivery of transportation projects. The private partner may contribute to the design, construction, financing, and operations and maintenance of projects or any combination thereof. PPPs are usually reserved for large infrastructure projects. Central to the success of PPPs is a revenue stream that can repay any initial cost incurred by the private entity. Transit has traditionally found this arrangement challenging as the revenue source, fares, is typically insufficient to provide the necessary revenue. Toll roads built under a PPP arrangement use the tolls as repayment. In some cases, the public sector may simply pay an annual availability pay in lieu of tolls, in effect paying the tolls on behalf of the users.

CORPORATE TRANSIT PROGRAM

HART offers the Corporate Transit Program to encourage the use of public transportation. This program provides nontaxable fare subsidies up to \$240 per employee per month toward the cost of public transportation. Federal law entitles all US employees to this tax-deductible business expense.

SECTION 4 TRAIL AND TRANSIT CONNECTIVITY

METHODOLOGY FOR LINKING GREENWAYS AND TRAILS

The National Center for Transit Research (NCTR) prepared the Methodology for Linking Greenways and Trails with Public Transportation in Florida³ for the Florida Department of Transportation (FDOT). The methodology was created to enhance access and connectivity between public transit service and trails in an effort to improve community livability. The methodology defined three types of transit/trail connections.

SCENARIO 1 TRAIL AND TRANSIT ROUTE INTERSECT AND CONNECT

SCENARIO 2 TRAIL AND TRANSIT ROUTE INTERSECT BUT DO NOT CONNECT

SCENARIO 3 TRAIL AND TRANSIT ROUTE ARE CLOSELY ALIGNED BUT DO NOT INTERSECT

NCTR chose northwest Hillsborough County as a case study for the methodology. In the report, they summarized three transit/trail connections within the study area – one for each scenario. As part of this study, the methodology was applied to the remaining transit/trail connections in the study area. Figure 27 provides the locations of the existing and proposed trails as well as the location of existing transit routes. As shown in the map, there are eight existing transit/trail connections and two proposed connections with the study area.

The following recommendations apply to all transit/trail connections:

- Including trail access points on HART route maps;
- Add trail access points to automatic stop announcements;
- Improve transit information on Hillsborough County trails map, including:
 - Defining the bus icon in the legend,
 - Identifying transit access points with route numbers, and
 - Adding transit information on the back of the map;
- Adding street signs to identify trail to motorists; and
- Providing wayfinding signage between the bus stop and trail access.

³ Sara Hendricks and Martin Catala, *Methodology for Linking Greenways and Trails with Public Transportation in Florida*, National Center for Transit Research, February 2016.

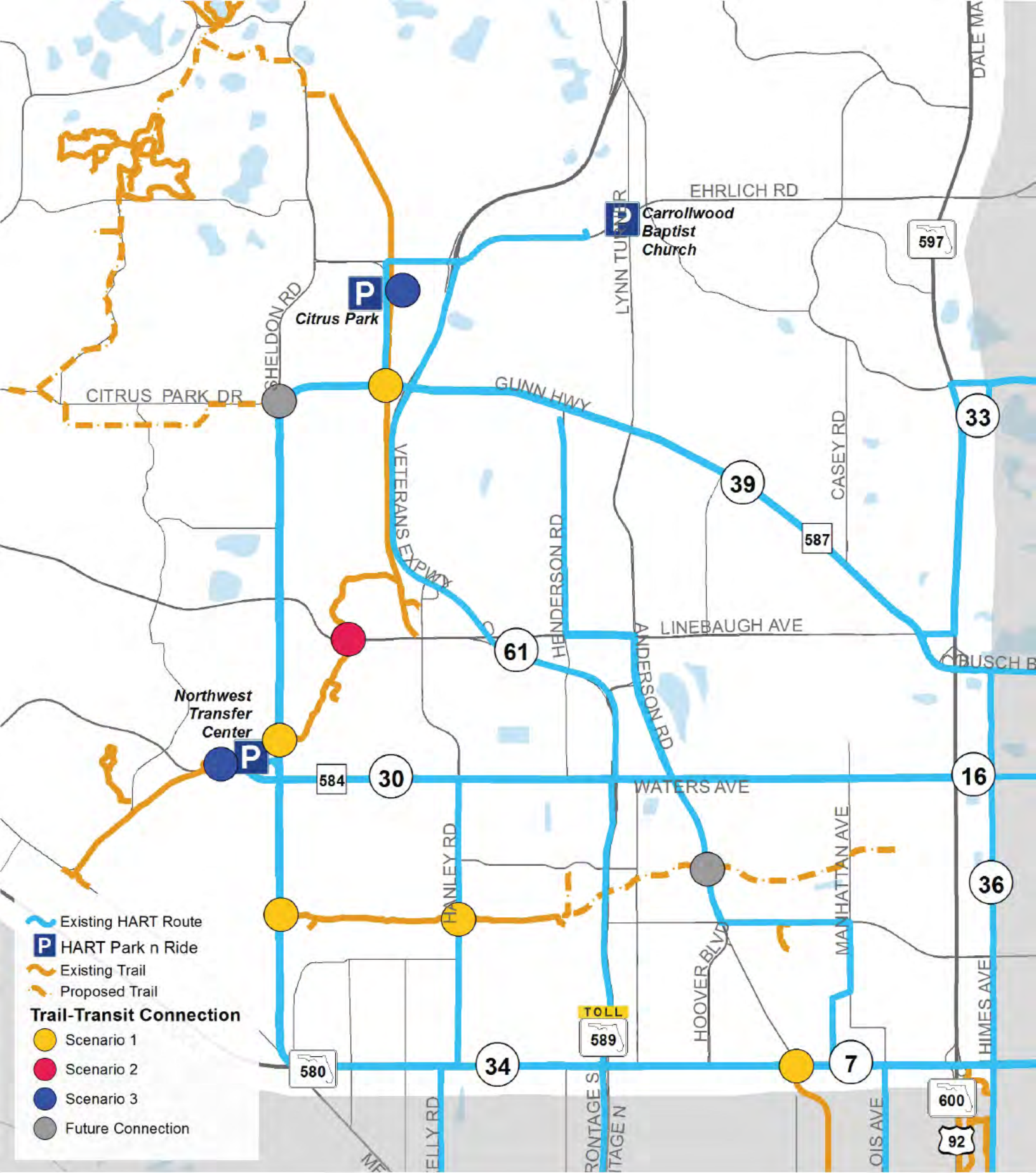


FIGURE 27 TRAIL/TRANSIT CONNECTIONS
FEBRUARY 2017



SCENARIO 1

ROUTE 39/UPPER TAMPA BAY TRAIL AT SHELDON ROAD

The Upper Tampa Bay Trail connects to Route 39 with an at-grade, signalized crossing at Sheldon Road (see Figure 28). There is a bus stop located approximately 500 feet north of the trail. Trail users can directly access the bus stop via the sidewalk or paved shoulder. Transit riders traveling north may be tempted to travel upstream in the northbound lanes to access the trail south of the stop. HART may want to consider the following:

- Relocate the northbound bus stop closer to the trail; or
- Provide a prerecorded announcement that trail users should alight at the bus stop south of the trail.

FIGURE 28 ROUTE 39/UPPER TAMPA BAY TRAIL
AT SHELDON ROAD



SCENARIO 1

ROUTE 34/TOWN 'N' COUNTRY GREENWAY AT SHELDON ROAD

The Town 'n' Country Greenway connects to Route 34 with an at-grade, signalized crossing at Sheldon Road (see Figure 29). The nearest bus stop is located approximately 300 feet north of trail. Trail users can directly access the bus stop via sidewalk or paved shoulder. Transit riders traveling north may be tempted to travel upstream in the northbound lanes to access the trail south of the stop. HART may want to consider the following:

- Consolidate upstream and downstream stops at the trail crossing;
- Relocate the northbound bus stop closer to the trail; or
- Provide a prerecorded announcement that trail users should alight at the bus stop south of the trail.

FIGURE 29 ROUTE 34/TOWN 'N' COUNTRY GREENWAY AT SHELDON ROAD



SCENARIO 1

ROUTE 30/ TOWN 'N' COUNTRY GREENWAY AT HANLEY ROAD

The Town 'n' Country Greenway connects to Route 30 with an at-grade, signalized crossing at Hanley Road (see Figure 30). There is a bus stop located approximately 500 feet north of the trail, at the signalized intersection of Hanley Road and Woodbridge Road. There are sidewalks on both sides of Hanley Road that allow a pedestrian connection between the trail and transit stop. There are sharrows on Hanley Road between the trail crossing and bus stop and signs prompting drivers to share the road with cyclists. Users who are boarding or alighting on the opposite side of the roadway from where they access the trail have two signalized crossing opportunities: at the signalized trail crossing and near the transit stop at the Woodbridge Road intersection. No specific recommendations were identified for this connection.

FIGURE 30 ROUTE 30/ TOWN 'N' COUNTRY GREENWAY AT HANLEY ROAD



SCENARIO 1

ROUTE 34/AIR CARGO ROAD MULTI-USE PATH AT HILLSBOROUGH AVENUE

A multiuse path along Air Cargo Road connects several industrial parcels near the airport to Route 34 with a signalized intersection at Hillsborough Avenue and Air Cargo Road (see Figure 31). There are bus stops serving eastbound and westbound Route 34 within 150 feet of the signalized intersection. Pedestrian trail users can directly access the bus stop via a sidewalk connection from the multi-use path. Cyclists can access the bus stops via the paved shoulder or by walking their bicycles on the sidewalk. No specific recommendations were identified for this connection.

FIGURE 31 ROUTE 34/AIR CARGO ROAD MULTI-USE PATH AT HILLSBOROUGH AVENUE



SCENARIO 1

ROUTE 39/UPPER TAMPA BAY TRAIL AT CITRUS PARK DRIVE

The Upper Tampa Bay Trail connects to Route 39 at the signalized intersection of Citrus Park Drive and Citrus Park Lane (see Figure 32). The trail runs north-south, parallel to Citrus Park Lane, with a pedestrian bridge for trail users wishing to cross Citrus Park Drive. There are bus stops serving eastbound and westbound Route 39 within 200 feet of the signalized intersection. For trail users wishing to access these stops, there is an at-grade multi-use path that pedestrians and cyclists can use to get from the trail to the intersection. No specific recommendations were identified for this connection.

FIGURE 32 ROUTE 39/UPPER TAMPA BAY TRAIL
AT CITRUS PARK DRIVE



SCENARIO 2

TOWN 'N' COUNTRY FLEX ROUTE/ UPPER TAMPA BAY TRAIL AT LINEBAUGH AVENUE

The Upper Tampa Bay Trail intersects the Town 'n' Country Flex route with a below-grade crossing approximately 3,000 feet east of Sheldon Road. There is sidewalk connection from the trail to an at-grade intersection of Linebaugh Avenue. The at-grade crossing location is not currently marked or signalized. The nearest bus stop is located 1/3 mile west of the trail crossing, about midway between the trail crossing and Sheldon Road (see Figure 33).

HART may consider relocating the existing bus stop closer to the trail or adding a bus stop at the trail crossing. The County may want to consider replacing signage at the trail. The signage should include information about bus route connections on Linebaugh Avenue.

FIGURE 33 TOWN 'N' COUNTRY FLEX ROUTE/ UPPER TAMPA BAY TRAIL AT LINEBAUGH AVENUE



SCENARIO 3

NORTHWEST TRANSFER CENTER/UPPER TAMPA BAY TRAIL AT WATERS AVENUE

The Upper Tampa Bay Trail is adjacent to, but separated from, Waters Avenue, near the Northwest Transfer Center. The trail is physically separated from the Transfer Center and Waters Avenue by a flood channel. It would be costly to construct a trail connection over the flood channel. Bike lanes and sidewalks exist over the Waters Avenue bridge, and there is a signalized crossing opportunity at Waters Avenue and the Transfer Center entrance. Pedestrians can access the Transfer Center using the existing sidewalk on Waters Avenue. Cyclists can access the Transfer Center using the bike lane provided on Waters Avenue, but would need to ride in mixed traffic in order to turn left into the Transfer Center. Alternately, cyclists can walk their bicycles along the sidewalk and cross at the signalized intersection with pedestrians.

The existing sidewalk and bike lane infrastructure provide an effective connection between the trail and the Transfer Center (see Figure 34), but the connection is not obvious. In addition to improved wayfinding signage, HART could provide information about the trail access to the kiosk at the Transfer Center.

FIGURE 34 NORTHWEST TRANSFER CENTER/
UPPER TAMPA BAY TRAIL AT WATERS AVENUE



SCENARIO 3

ROUTE 61 LX/ UPPER TAMPA BAY TRAIL AT GUNN HIGHWAY

The Upper Tampa Bay Trail is adjacent to, but separated from, Gunn Highway, near the Citrus Park park-n-ride, which currently serves Route 61LX. The trail is physically separated from the park-n-ride and Gunn Highway by a heavily vegetated buffer. Creating a connection through the landscaping may be costly and would likely require an easement. Today, trail users wishing to access to the park-n-ride can do so via Ehrlich Road, north of the park-n-ride. A wide sidewalk connects the trail to the signalized intersection of Ehrlich Road and Gunn Highway. There is a channelized eastbound right turn lane (see Figure 35) setback from the intersection. In order to remain in a marked space, pedestrians would need to walk approximately 400 feet west of the intersection to get to the sidewalk on the west side of Gunn Highway. Alternately, there is a sidewalk that runs on the east side of Gunn Highway and provides a more direct route, but there is no marked crossing to get trail users to the bus stop on the west side of the roadway. There is no bike facility on Gunn Highway; bicyclists can ride in mixed traffic or walk their bicycle along the sidewalk. As a short-term solution, HART may want to consider working with Hillsborough County to provide a marked crossing in front of the bus stop on Gunn Highway. If this is a more popular connection, the County may consider obtaining an easement to provide a direct connection from the trail to the park-n-ride. This connection would also serve the baseball fields in the area. HART may want to consider providing bicycle parking at the park-n-ride, as bicycles can be seen chained to the tree near the bus stop.

FIGURE 35 ROUTE 61 LX/ UPPER TAMPA BAY TRAIL AT GUNN HIGHWAY



POTENTIAL FUTURE CONNECTIONS

The following proposed trails would connect to existing HART transit routes. Special attention should be paid to these crossings to maximize the connection of the trails to public transit.

ROUTE 7/ TOWN 'N' COUNTRY GREENWAY AT ANDERSON ROAD

A proposed extension of the Town 'n' Country Greenway would cross Anderson Road near Sweetwater Creek, approximately 300 feet north of the transit stop at Crenshaw Street. Depending on how the trail crossing is constructed, trail users will be able to access the bus stop via sidewalk or paved shoulder.

ROUTES 39/ NORTHWEST REGIONAL CONNECTOR TRAIL AT SHELDON ROAD AND CITRUS PARK DRIVE

The proposed Northwest Regional Connector Trail could tie into the Sheldon Road and Citrus Park Drive intersection. The existing signalized intersection could provide a crossing opportunity for trail users wishing to access the eastbound transit stop in the southeast quadrant of the intersection. There are westbound transit stops located within 0.2 miles of the intersection, in either direction, that can be accessed via sidewalk or paved shoulder.

SECTION 5 CONCLUSIONS AND RECOMMENDATIONS

The Hillsborough Metropolitan Planning Organization, in partnership with the Hillsborough Area Regional Transit Authority, requested Kittelson & Associates, Inc. evaluate the existing transit service in northwest Hillsborough County and provide recommendations for inclusion in the next major update to HART’s TDP. The study focuses on improvements to better serve the existing transit riders and improve regional connectivity for HART customers wishing to travel to Pinellas and Pasco Counties. Table 8 provides a summary of the potential improvements and how they perform relative to the existing service, where applicable. The Route 34 extension to Oldsmar could be implemented as an alternating route or a separate

route. In addition to the improvements listed in Table 8, HART could consider replacing the existing Town ‘n’ Country Flex Route with on-demand transit service and expand on-demand transit service to the areas of Westchase, Keystone, and Cheval. Until HART is able to expand or construct a new maintenance facility, any improvements must make use of HART’s existing vehicle fleet, either by not requiring additional vehicles, or by reducing service elsewhere in the county and reallocating the vehicle(s) to the study area. Lastly, this report outlines recommendations for the MPO, HART, and Hillsborough County to improve existing trail/transit connections to further enhance community livability in the area.

TABLE 8 SUMMARY OF IMPROVEMENT RECOMMENDATIONS

Improvement	Annual Ridership	Route Productivity		Annual Operating Cost	Capital Cost
		Per Revenue Hour	Per Revenue Mile		
Route 34 Increased Frequency and Extension to Oldsmar	1,312,178 (+55%)	21.55 (-23%)	1.36 (-39%)	\$6,072,009 (+106%)	\$2,756,000
Route 16 increase from 40-minute to 30-Minute Headways	356,588 (+43%)	26.11 (+3%)	2.40 (-3%)	\$1,320,552 (+39%)	\$500,000
Route 61 LX Realignment and Expansion to Pasco County	11,666 (+18%)	9.54 (-7%)	0.48 (+13%)	\$118,224 (+23%)	\$495,800
New route on Ehrlich Road/ Bearss Avenue	318,383	17.12	1.58	\$1,997,788	\$2,449,000