TECHNICAL ADVISORY COMMITTEE (TAC)

OF THE HERNANDO/CITRUS METROPOLITAN PLANNING ORGANIZATION (MPO)

Hernando County Building Training Facility
1661 Blaise Drive, Brooksville, Florida

Regular Meeting

Agenda

Wednesday, March 22, 2023 - 10:00 A.M.

A. CALL TO ORDER

1. Please Silence Electronic Devices
2. Please Confirm Attendees Completed Sign-in Sheet
3. Moment of Silence
4. Pledge of Allegiance
5. Committee Members and MPO Staff Introductions
6. Enter Proof of Publication into the Record
7. Declaration of Quorum to Conduct Business

B. APPROVAL/MODIFICATION OF AGENDA (Limited to Board and Staff)

C. ANNUAL ELECTION OF COMMITTEE CHAIR AND VICE CHAIR

D. APPROVAL OF MINUTES – DECEMBER 14, 2022

E. AMENDMENT TO THE 2023-2027 ADOPTED TRANSPORTATION IMPROVEMENT PLAN
An amendment to add project number 257165-4 (US 41 (SR45) from S of Withlacoochee Trail Bridge to N of N Sportsman Point).

F. COMPREHENSIVE OPERATIONS ANALYSIS OF CITRUS COUNTY TRANSIT – DRAFT FINAL REPORT PRESENTED BY JOANNE GRANGER, CITRUS COUNTY TRANSIT DIRECTOR

G. CRYSTAL RIVER/TURKEY OAK DRIVE BYPASS STUDY – DRAFT FINAL REPORT

H. 2050 LONG-RANGE TRANSPORTATION PLAN (LRTP) SCOPE B PROPOSAL

I. CITIZEN COMMENTS

J. COMMITTEE MEMBER COMMENTS

K. HERNANDO/CITRUS MPO STAFF COMMENTS

L. ADJOURNMENT

UPCOMING MEETING:
The next regular meeting of the Technical Advisory Committee is tentatively scheduled for Wednesday, April 26, 2023, beginning at 10:00 a.m., in the Lecanto Government Building, 3600 W. Sovereign Path, Room 166, Lecanto, Florida. The meeting agenda and back-up material are available online at http://www.hernandocitrusmpo.us.

APPROVAL OF MINUTES

Attached are the Minutes of the December 14, 2022, meeting of the Technical Advisory Committee (TAC) for review and approval.

Staff Recommendation: It is recommended the TAC review and approve the December 14, 2022, Minutes.

Hernando/Citrus
Metropolitan Planning Organization
Technical Advisory Committee (TAC)
Regular Meeting Minutes

December 14, 2022

CALL TO ORDER
Vice-Chair Hermann called the meeting to order at 10:00 a.m. on Wednesday, December 14, 2022, at the Hernando County Building Division Training Room, 1661 Blaise Drive, Brooksville, Florida. The meeting was advertised in the Hernando Sun and the Citrus County Chronicle, and the agenda was available online at: www.hernandocountyus/hernandocitrusmpo.com.

Attendee Name	Title
Brian Herrmann	Vice-Chair, Planning and Community Development Services Director, City of Crystal River
Todd Crosby	Alternate, Assistant County Engineer, Hernando County Public Works
Dave Peters	Alternate, Planning and Zoning Coordinator, City of Brooksville
Joanne Granger	Director, Citrus County Transit
Chris Mundell	Assistant Transportation Director, Hernando County Schools
Cayce Dagenhart	Alternate, Hernando County Planning Department

Others in Attendance

Robert Esposito	Executive Director, Hernando/Citrus MPO
Carlene Riecss	Transportation Planner III, Hernando/Citrus MPO
Mary Elwin	MPO Coordinator, Hernando/Citrus MPO
Sean Arnold	Hernando County Schools
Suzanne Monk	MPO Liaison, Florida Department of Transportation
Siaosi Fine	MPO Liaison, Florida Turnpike Enterprise

- Introductions were made.
- Proofs of publication of the Notice of Public meeting were entered into the record by Ms. Riecss.
- A quorum was declared.

APPROVAL/MODIFICATION OF AGENDA (Limited to Board and Staff)
Mr. Chris Mundell made a motion to approve the agenda as presented. Ms. Cayce Dagenhart seconded the motion and it passed unanimously.

APPROVAL OF MINUTES
Ms. Joanne Granger made a motion to approve the minutes of the October 26, 2022, TAC meeting. Mr. Chris Mundell seconded the motion and it passed unanimously.

PRESENTATION/INFORMATIONAL ITEMS
Florida Department of Transportation (FDOT)–Tentative Five-Year Work Program (FY 2024-FY 2028) Presentation

Ms. Suzanne Monk, MPO Liaison, FDOT, provided an update on the proposed changes to the new Tentative Five-Year Work Program. Ms. Monk provided the web page for public comment which will be open through December 23, 2022.

Florida Turnpike Enterprise (FTE)-Tentative Five-Year Work Program (FY 2024-FY 2028) Presentation

Mr. Siaosi Fine, MPO Liaison, FTE, provided an update on the proposed changes to the new Tentative Five-Year Work Program.

CITIZEN COMMENTS

There were no citizen comments.

COMMITTEE/STAFF COMMENTS

There were no committee/staff comments.

ADJOURNMENT

Vice-Chair Hermann adjourned the meeting at 10:44 a.m.

UPCOMING MEETING

The next regular meeting of the Technical Advisory Committee (TAC) will be held on Wednesday, January 25, 2023, at 10:00 a.m. at Hernando County Building Division Training Room, 1661 Blaise Drive, Brooksville, Florida.

Subsequent to the meeting, the January 25, 2023, and February 22, 2023, meetings were cancelled. The next meeting of the Technical Advisory Committee (TAC) is March 22, 2023.

The meeting agenda and backup materials are available online at: www.hernandocounty.us/hernandocitrusmpo.

AMENDMENT TO THE 2023-2027 ADOPTED TRANSPORTATION IMPROVEMENT PLAN

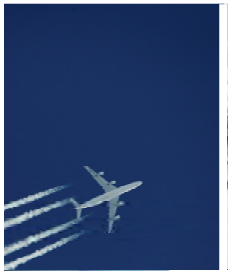
Attached is an amendment to add project number 257165-4 (US 41 (SR45) from S of Withlacoochee Trail Bridge to N of N Sportsman Point) for the review and recommendation to the Hernando/Citrus Metropolitan Planning Organization Board (MPO).

Staff Recommendation: It is recommended the TAC review the amendment and recommend approval by the MPO Board.









TRANSPORTATION IMPROVEMENT PROGRAM

Fiscal Years 2023-2027

Prepared By:

Hernando / Citrus Metropolitan Planning Organization

Adoption Date: July 7, 2022
Amendment date: April 6, 2023 (Anticipated)

TABLES

Amended April 6, 2023 to reflect 2023 MPO Board Members

HERNANDO/CITRUS METROPOLITAN PLANNING ORGANIZATION (MPO) BOARD MEMBERS

Hernando County

Commissioner Jerry Campbell, Vice-Chair
Commissioner Elizabeth Narverud~~, Chairman~~
Commissioner John Allocco
Commissioner Steve Champion
~~Commissioner Jeff Holcomb~~
Commissioner Brian Hawkins~~Wayne Dukes~~, Alternate

Citrus County

Commissioner Ruthie Davis Schlabach, ~~Vice~~ Chair~~man~~
Commissioner Jeff Kinnard~~,~~
Commissioner Rebecca Bays,~~Scott Carnahan,~~ Alternate
~~Commissioner Holly Davis, Alternate~~

City of Brooksville

~~Vice~~ Mayor Blake Bell
Council Member Christa Tanner, Alternate

City of Crystal River

Council Member Pat Fitzpatrick
Mayor Joe Meek, Alternate

City of Inverness

Council Member Cabot McBride
Council Member Jacquie Hepfer, Alternate

Florida Department of Transportation, Nonvoting Advisor

David Gwynn P.E., Secretary, District 7

APPENDIX A: TIP/STIP AMENDMENTS

Date	Revision #	Change Type	Explanation of the change
4-6-2023	1	Amendment	Updated funding amounts for project 257165 4, US 41 (SR 45) from S. of the Withlacoochee Trail Bridge to N. of N. Sportsman Point to align with the current State Improvement Plan (STIP) to meet Planning consistency requirements for Federal HighwayAdministration (FHWA)/National Environmental Policy Act (NEPA) approval which will be submitted late spring/early summer.

Information for Item Number: 257165 4 (MPO Amended 4-6-23)

PROJECT DESCRIPTION:	US 41 (SR 45) FROM S OF WITHLACOOCHEE TRAIL BR TO N OF N SPORTSMAN PT *NON-SIS*	COUNTY:	CITRUS
TYPE OF WORK:	ADD LANES & RECONSTRUCT	DISTRICT:	07
EXTRA DESCRIPTION:	2 TO 4 LANES	PROJECT LENGTH:	1.232MI
LRTP 2045 REFERENCE:	GOAL 3, OBJECTIVES 4 & 7		

Table 9: Item Number: 257165 4 Project Detail by Phase, Fund Code and Fiscal Year (2023 – 2027)

PHASE / RESPONSIBLE AGENCY	FUND CODE:	<2023	2023	2024	2025	2026	2027	>2027	ALL YEARS
RIGHT OF WAY / MANAGED BY FDOT	ACCM-ADVANCE CONSTRUCTION (CM)		$240,873						$240,873
RIGHT OF WAY / MANAGED BY FDOT	ACSM-STBG AREA POP. W/ 5K TO 49,999			$110,865					$110,865
RIGHT OF WAY / MANAGED BY FDOT	ACSN-ADVANCE CONSTRUCTION (SN)		$834,486						$834,486
RIGHT OF WAY / MANAGED BY FDOT	DDR-DISTRICT DEDICATED REVENUE	~~$2,586,815~~	$1,503,000	$490,718					**$1,993,718** ~~$2,586,815~~
RIGHT OF WAY / MANAGED BY FDOT	DIH-STATE IN-HOUSE PRODUCT SUPPORT	$7,468 ~~$84,397~~	$76,929	$100,000					**$184,397** ~~$84,397~~
RIGHT OF WAY / MANAGED BY FDOT	DS-STATE PRIMARY HIGHWAYS & PTO	~~$1,531,423~~	$573,718						$573,718 ~~$1,531,423~~
RIGHT OF WAY / MANAGED BY FDOT	SM-STBG AREA POP. W/ 5K TO 49,999			$286,385					**$286,385**
RIGHT OF WAY / MANAGED BY FDOT	SN-STP, MANDATORY NON-URBAN <= 5K		$1,542,842	$1,301,013					**$2,843,855**
CONSTRUCTION / MANAGED BY FDOT	CM-CONGESTION MITIGATION - AQ				$1,671,995 ~~$1,716,245~~				**1,671,995** ~~$1,716,245~~
CONSTRUCTION / MANAGED BY FDOT	DDR-DISTRICT DEDICATED REVENUE				9,268,626 ~~$9,513,921~~				9,268,626 ~~$9,513,921~~
CONSTRUCTION / MANAGED BY FDOT	DIH-STATE IN-HOUSE PRODUCT SUPPORT				$341,984 ~~$351,034~~				$341,984 ~~$351,034~~
CONSTRUCTION / MANAGED BY FDOT	DS-STATE PRIMARY HIGHWAYS & PTO	$9,366	$849		$405,771 ~~$416,509~~				$415,986 ~~$416,509~~
CONSTRUCTION / MANAGED BY FDOT	SA-STP, ANY AREA				$8,648,508 ~~$8,877,391~~				$8,648,508 ~~$8,877,391~~
CONSTRUCTION / MANAGED BY FDOT	SN-STP, MANDATORY NON-URBAN <= 5K				$619,805 ~~$636,208~~				$619,805 ~~$636,208~~

Totals	**Item: 257165 4 Totals**	**$16,834** ~~**$4,202,635**~~	**$4,772,697**	**$2,288,981**	**$20,956,689** ~~**$21,511,308**~~				**$28,035,201** ~~**$25,713,943**~~

Table 10: Item 257165 4 Phase Totals by Fiscal Year (2023 – 2027)

PHASE	<2023	2023	2024	2025	2026	2027	>2027	ALL YEARS
RIGHT OF WAY	$7,468 ~~$4,202,635~~	$4,771,848	$2,288,981					$7,068,297 ~~$4,202,635~~
CONSTRUCTION	$9,366	$849		$20,956,689 ~~$21,511,308~~				$20,966,904 ~~$21,511,308~~
Item: 257165 4 Phase Totals	**$16,834** ~~**$4,202,635**~~	**$4,772,697**	**$2,288,981**	**$20,956,689** ~~**$21,511,308**~~				**$28,035,201** ~~**$25,713,943**~~

COMPREHENSIVE OPERATIONS ANALYSIS OF CITRUS COUNTY TRANSIT – DRAFT FINAL REPORT PRESENTED BY JOANNE GRANGER, CITRUS COUNTY TRANSIT DIRECTOR

Attached is the draft of the final report on the Comprehensive Operations Analysis of Citrus County's Transit system for the review and recommendation to the Hernando/Citrus Metropolitan Planning Organization Board (MPO). The project was completed by Benesch and Associates, General Planning Consultant, and this report will be presented to the Citrus County Board of County Commissioners at their regular meeting on April 25, 2023.

Staff Recommendation: It is recommended the TAC review the draft final report and recommend approval by the MPO Board.

Citrus County Transit

Comprehensive Operations Analysis

January 2023

Prepared by

benesch

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1.0 INTRODUCTION

The Hernando-Citrus MPO (MPO) is conducting a Comprehensive Operations Analysis (COA) for Citrus County Transit (CCT). The COA is designed to examine and evaluate the current transit network and to identify improvements to make transit operations more effective and efficient across the network. It is important to note that a COA differs from a visioning effort; the most significant difference is that a COA is primarily a data-driven analysis of an existing network's performance. The outcomes are used as a tool to improve operations in the short-term with service modifications that include some input from riders, staff, and stakeholders. Conversely, a visioning effort involves a comprehensive public involvement effort to include community needs and interests to help guide the future growth and evolution of a transit system. This distinction is important to understand and the context within which the recommendations are made.

There can be numerous reasons for the effectiveness or ineffectiveness of each route, just as there can be many different solutions to the issues that need to be addressed. Working with CCT staff, data were collected to document and assess the pertinent conditions and establish a base level of data needed for completing additional tasks, as well as to familiarize the project team with the surrounding communities and operating environment.

This report summarizes the information gathered, analysis undertaken, and recommendations formulated from the COA effort.

2.0 EXISTING SERVICES

Fixed Route Service

CCT provides fixed route bus service on four routes (Crystal River, Beverly Hills, Hernando, Floral City) through the Orange Line Bus where passengers can request a deviation within ¼-mile of the route at least one hour in advance. The transit service operates Monday through Friday from 6:00 AM to 5:20 PM with variable headways.

CCT's current system can be observed below in Map 2-1, which highlights the fixed route network, as well as areas where the current fixed route deviates to designated stops along the routes throughout Citrus County.

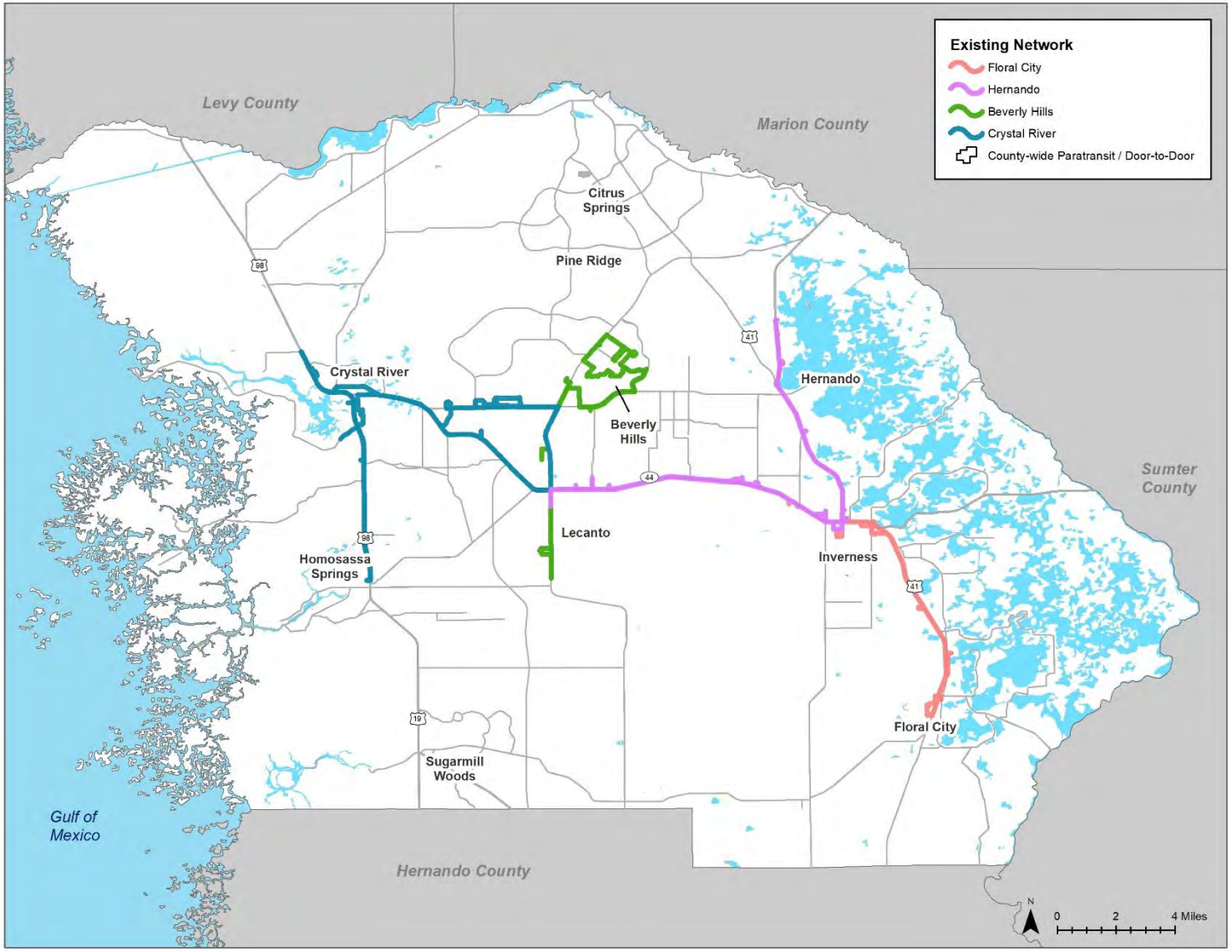
Paratransit (Door-to-Door) Service

In addition to the fixed route service, CCT currently provides paratransit (door-to-door) services throughout Citrus County to all residents for appointments, employment, groceries/supplies, and prescription pick-up. In addition, CCT also operates cross county paratransit trips three days a week, offering travel between Tampa, Gainesville, and The Villages. The current service is offered to all residents unable to access the fixed route network. The daily operating span varies based upon residents' locations within Citrus County, but typically ranges from 6:00 AM to 6:00 PM. Riders are currently able to request rides up to 14 calendar days in advance, with a deadline of 12:00 PM two business days prior to the trip requested.

Paratransit Eligibility Requirements

The service is available to all riders; however, to qualify for the State-funded Transportation Disadvantaged (TD) reduced fare riders must be prequalified. To be eligible, riders must meet one of the following: income (less than $1,200 a month), age (60 and above), disability status, or Medicare. The fare is $3.00 each way (free on the fixed routes) and transfers are $1.00.

Map 2-1: Existing Fixed Route Network



3.0 FIXED ROUTE AND SYSTEMWIDE PERFORMANCE REVIEW

This section includes an assessment of how efficiently CCT supplies deviated fixed route and paratransit service and how effectively the services meet the needs of the area, as well as trends in ridership and critical performance indicators aimed at understanding existing performance.

Fixed Route Performance Statistics

The operating statistics provided by CCT staff for FY 2022 (October 2021 to September 2022) are shown in Table 3-1. CCT's four deviated fixed routes carry an average of 62.25 riders per day, or 1.55 riders per revenue hour. The Beverly Hills route has the lowest average daily ridership at 12.34, while the Hernando route has the highest with 18.92.

Table 3-1: Fixed Route Operating Statistics (FY 2022)

Measure	Crystal River	Beverly Hills	Hernando	Floral City	Total
Service Days	248	248	248	248	**248**
Revenue Hours	2,547	2,460	2,432	2,528	**9,968**
Deadhead Hours	215	296	269	230	**1,010**
Service Hours	2,763	2,756	2,701	2,758	**10,978**
Revenue Miles	50,942	42,253	47,521	55,807	**196,523**
Deadhead Miles	2,817	1,545	5,342	5,464	**15,168**
Service Miles	53,759	43,798	52,863	61,271	**211,691**
Total Riders	3,874	3,060	4,693	3,812	**15,439**
Average Riders / Day	15.62	12.34	18.92	15.37	**62.25**
Average Riders / Revenue Hour	1.52	1.24	1.93	1.51	**1.55**
Average Riders / Revenue Mile	0.08	0.07	0.10	0.07	**0.08**

Source: CCT, 2022.

Systemwide Farebox Data/Fare Structure

Table 3-2 illustrates the trends fare structure and farebox recovery rate observed for CCT. The data were derived from the validated National Transit Database (NTD) over a 5-year period from 2017 to 2021. Validated NTD data for 2022 has not yet been published; however, to identify any system-wide recovery post COVID-19 pandemic, data provided by CCT was utilized for the year of 2022. Table 3-2 shows a decrease in the average fare from 2017 to 2020. In 2021, CCT did not collect fares, the first full fares were collected in 2022, which is also reflected in Table 3-2. In addition, it should be noted that CCT began offering free paratransit (door-to-door) services during the COVID-19 pandemic in 2020, which attributes to the 12% (fixed route) and 49% (demand response) reductions in average fares between 2019 and 2020. Also shown in Table 3-2 is a 31% and 60% reduction in farebox recovery between 2019 to 2020 for fixed route and demand response, respectively.

This study will examine improving headways on higher-performing routes or transit supportive corridors, which may generate more demand and increase awareness within the community and ultimately attract discretionary riders. Increasing discretionary ridership by improving routes will increase the farebox recovery.

Table 3-2: Average Fare and Farebox Recovery (2017 – 2022)

Measure	2017	2018	2019	2020	2021	2022
Avg. Fare (Fixed Route)	$0.21	$0.17	$0.17	$0.15	$0.00	$0.11
Avg. Fare (Demand Response)	$1.18	$1.36	$1.26	$0.64	$0.00	$1.79
Farebox Recovery (%)	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Fixed Route	1.72%	1.28%	1.26%	0.87%	0.00%	0.28%
Demand Response	3.76%	2.82%	2.52%	1.05%	0.00%	2.57%

Source: NTD

Note: CCT was using 5311 CARES Act funding through 2022 and is receiving 5307 CARES Act funding through December 2024.

Systemwide Performance Indicators

Performance indicators help paint the picture of the overall trajectory of the transit agency and can be useful for identifying and addressing negative trends before impacts to the agency become more burdensome. Validated NTD data for 2022 has not yet been published; however, to identify any system-wide recovery post COVID-19 pandemic, data provided by CCT was utilized for the year of 2022. The indicators reviewed reveal CCT is experiencing declining performance in several key areas like other transit systems around the US. For example, most transit agencies have struggled with ridership losses of varying degree since about 2015, further compounded by the COVID-19 pandemic that began in March 2020. As the agencies lose ridership, staff often attempt to "right the ship" by slightly restructuring the network, often resulting in more miles and/or hours of service that correspondingly drive up the operating costs. As ridership continues to drop on certain routes, key metrics continue to reflect lower effectiveness and efficiency because transit demand has not kept pace with the system changes intended to generate more demand.

In CCT's case, many key metrics reflect a decrease and/or increase in productivity due to changes in the network: miles of service increased, while hours have decreased. Based on data received from CCT for 2022, fixed route revenue miles were low in 2020 and 2021, due to the COVID-19 pandemic, but are trending back up in 2022 at a rate higher than 2017 and 2018. During this time, CCT suspended the Orange Line and provided free demand response in place of fixed routes. As a result, 2020 and 2021 revenue hours and revenue miles for the fixed route system decreased and demand response increased (Table 3-3). In addition, from 2021 to 2022 data shows revenue hours and revenue miles trending upward for fixed route, while the data for demand response is trending downward.

Table 3-3 General Performance Indicators Measures (2017 – 2022)

Fixed Route	2017	2018	2019	2020	2021	2022
Passenger Trips	55,239	47,189	45,994	19,498	1,278	15,168
Revenue Miles	170,430	219,761	217,656	104,353	28,001	196,523
Revenue Hours	13,338	12,352	11,781	5,755	1,481	9,968
Total Operating Expense	$676,213	$640,851	$616,505	$348,053	$81,827	$589,293
Demand Response	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Passenger Trips	25,401	22,886	21,293	20,393	26,018	23,883
Revenue Miles	223,125	223,708	198,756	240,028	319,366	278,527
Revenue Hours	14,631	13,629	11,963	15,548	20,372	16,800
Total Operating Expense	$800,585	$1,102,963	$1,064,465	$1,250,417	$1,691,008	$1,663,661

Source: NTD and CCT

To assess how efficiently CCT supplies fixed route and paratransit service and how effectively those services meet the needs of the area, a trend analysis of passenger trips per revenue mile and hour was conducted. Over the six-year period, the passenger trip demand has not responded sufficiently to the improvements to the system prior to the COVID-19 pandemic (Table 3-4).

Table 3-4 Effectiveness Measures (2017 – 2022)

Fixed Route	2017	2018	2019	2020	2021	2022
Passenger Trips per Mile	0.32	0.21	0.21	0.19	0.05	0.08
Passenger Trips per Hour	4.14	3.82	3.90	3.39	0.86	1.52
Demand Response	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Passenger Trips per Mile	0.11	0.10	0.11	0.08	0.08	0.09
Passenger Trips per Hour	1.74	1.68	1.78	1.31	1.28	1.42

Source: NTD and CCT

As a result of staff efforts to control costs, it is apparent that CCT is trying to move in the right direction by focusing on operational efficiency and effectiveness. The operating expense per passenger mile measure reflects the efficiency of the agency's service in terms of its operating outlay for each passenger mile of service consumed by its patrons. This measure considers the impact that trip length has on performance since, based on the nature and layout of any given transit agency, it is the case that some riders will make long trips while others will make shorter ones. Overall, the cost per passenger mile metric has decreased over the six-year period for the fixed route network, despite the increase in 2020 and 2021 due to the pandemic. However, the cost per passenger mile metric for the paratransit service has drastically increased over the five-year period, which reflects riders making longer trips.

Operating expense per passenger trip is similar to the prior cost measure involving passenger miles in that it measures the general cost efficiency of transporting riders, but this trip-based metric does not account for the variability in trip length to help explain costs. This measure is often considered a key indicator of comparative performance since it reflects both the efficiency with which service is delivered and the market demands for the service. Both services show a steady increase in cost per passenger trip which illustrates a deficiency in service and a service that is not meeting demands. A good example is comparing operating expense per passenger trip between 2019 and 2022, as shown in Table 3-5.

Another key metric is operating expense per revenue hour, which is one of two key cost measures that examines the efficiency with which service delivery is occurring for an agency. A stable or decreasing trend in this measure ensures that transit service is being delivered efficiently on a per-revenue hour basis while controlling the costs associated with its provision. The revenue hour component of the measure is determined by the total number of hours that an agency's transit vehicles are available to pick up, transport, and drop off passengers for a fare (i.e., in revenue service), including any scheduled layovers between trips. Over the last six years, this metric has continued to increase at a steady rate which shows that the service, as currently provided, is not being delivered efficiently.

For this reason, a major goal for the COA effort is to take a fresh look at the existing routes and network structure to see how to move the agency's performance indicators in a positive direction once again. These efficiency measures are highlighted in Table 3-5.

Table 3-5 Efficiency Measures (2017 – 2022)

Fixed Route	2017	2018	2019	2020	2021	2022
Operating Expense per Vehicle	$84,527	$58,259	$123,301	$87,013	$20,457	$109,870
Operating Expense per Rev Mile	$3.97	$2.92	$2.83	$3.34	$2.92	$2.24
Operating Expense per Passenger trip	$12.24	$13.58	$13.40	$17.85	$64.03	$28.47
Operating Expense per Rev Hour	$50.70	$51.88	$52.33	$60.48	$55.25	$44.10
Demand Response	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Operating Expense per Vehicle	$57,185	$73,531	$96,770	$104,201	$105,688	$103,979
Operating Expense per Rev Mile	$3.59	$4.93	$5.36	$5.21	$5.29	$5.97
Operating Expense per Passenger trip	$31.52	$48.19	$49.99	$61.32	$64.99	$69.66
Operating Expense per Rev Hour	$54.72	$80.93	$88.98	$80.42	$83.01	$99.03

Source: NTD and CCT

Recent and Planned Service Changes

A key component of the COA is understanding both recent and future (planned) service changes to the CCT network and/or operations. CCT implemented several service changes over the last few years, including removing service to Homosassa and splitting the Inverness route into the current Floral City and Hernando routes. These two routes use the north-bound and south-bound directions of SR 44, overlapping the SR 44 corridor through downtown Inverness. CCT is also currently consolidating and restructuring bus stops along the fixed routes.

4.0 LOCAL PLANS REVIEW

A review of CCT's 10-year Transit Development Plan and the MPO's 2045 Long-Range Transportation Plan was conducted to examine local policies that may impact CCT services in the future. Key takeaways or implications for the COA from these plans can be found in Table 4-1.

Table 4-1: Plans Review

Plan Title	Agency	Plan/Program Overview	Key Considerations/Implications for COA
Citrus County Transit Development Plan (Major Update 2021-2030)	Hernando/ Citrus MPO Citrus County Transit	The State of Florida Public Transit Block Grant (PTBG) Program, enacted by the Florida Legislature to provide funding for public transit requires public transit service providers to adopt a 10-year TDP per FDOT requirements. Major updates must be completed every five years, while progress reports are provided annually.	Key service improvements listed in the 10-year service improvements were established through identifying priorities and financial resource consideration: • Enhance existing services with addition of Saturday services on all existing routes 8:00 am – 5:00 pm • Extension of service hours to 9:00 pm on weekdays • Addition of local microtransit (Homosassa Microtransit) to reconnect this area with the CCT network through an app based designated zone of service • Addition of regional connections- Ocala Express and Tampa Bay Express, both with two trips during peak hours in the morning and evening • Implementation of a bus locater application • Established park-and-ride facilities to better connect the regional transit routes. One at Suncoast parkway/SR44 and the other in an area near US-41 in Inverness. • Expansion of marketing and awareness campaign to encourage greater usage
Long Range Transportation Plan (LRTP) 2045	Hernando/ Citrus MPO	The LRTP is a 25-year vision for Hernando/Citrus MPO for the two county's needs. The LRTP is updated every five years and responds to various trends that the MPO and community have discussed for several years.	Within the 2045 cost feasible transit plan listed in the LRTP Citrus County is to maintain existing services within all listed timeframes of the LRTP. Aspirational transit needs listed that need funding: • Express regional bus services connecting to Tampa and Ocala • Additional deviated route coverage in Citrus Springs

5.0 RIDERSHIP, ORIGIN-DESTINATION AND TRANSFER ANALYSIS

This section presents stop-level ridership for to highlight the performance challenges it faces, as well as the transfer analysis, origin-destination analysis, and on-time performance review.

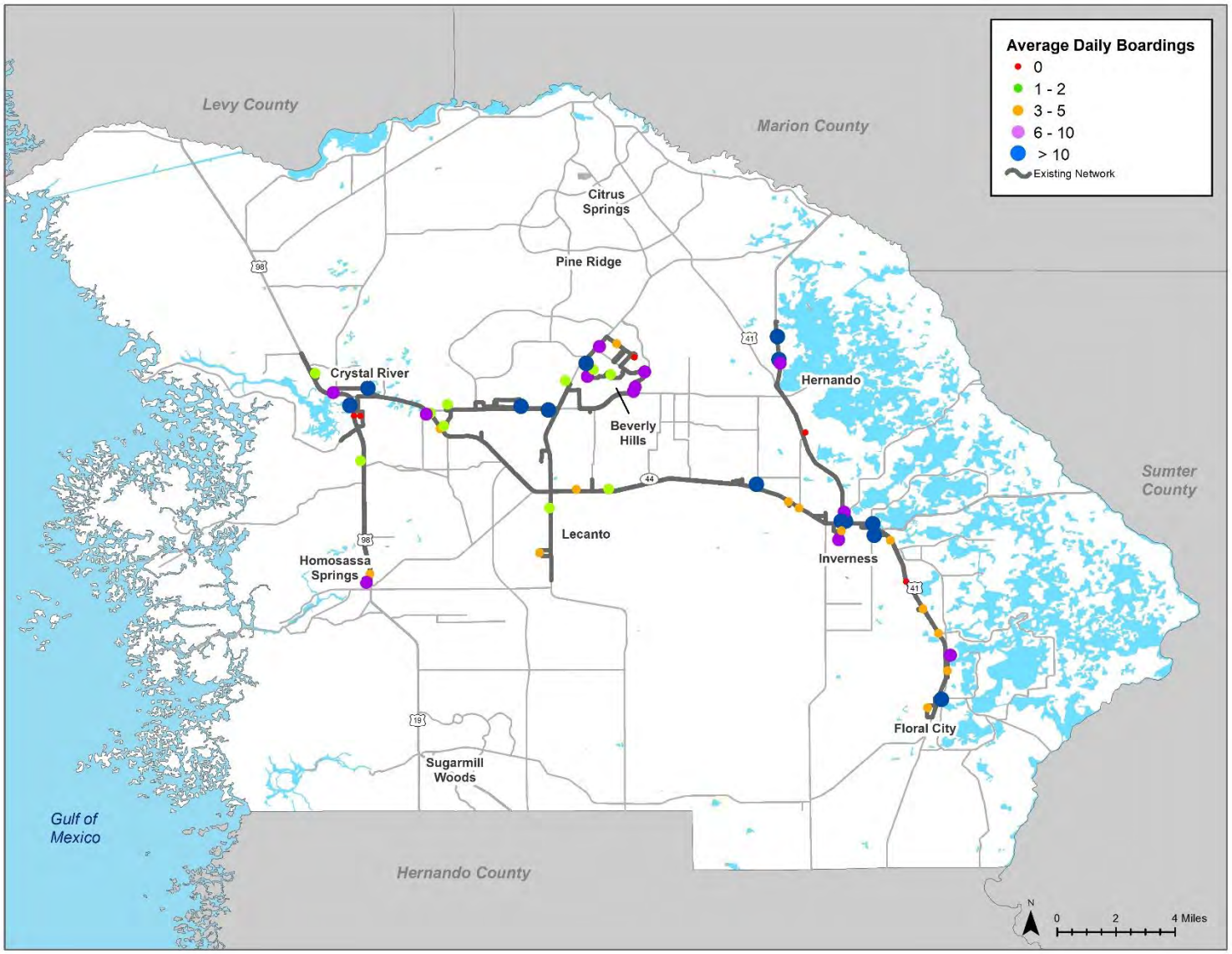
Fixed Route Stop Level Boardings

Map 5-1 illustrates average daily boardings at the stop-level prior to the COVID-19 pandemic using 2019 data provided by CCT. In 2019, the data shows that US 41 has some of the highest average daily boardings within Citrus County, as well as areas of downtown Crystal River and eastern portions of County Road 486 near Beverly Hills. Overall, the highest number of average daily boardings occur near Hernando, downtown Inverness, and at the Walmart near Beverly Hills. Map 5-2 highlights the stops with zero average daily boardings based on 2019 data. The stops with zero average daily boardings are located south of Crystal River, northeast Beverly Hills, and along US 41 between Hernando and Floral City.

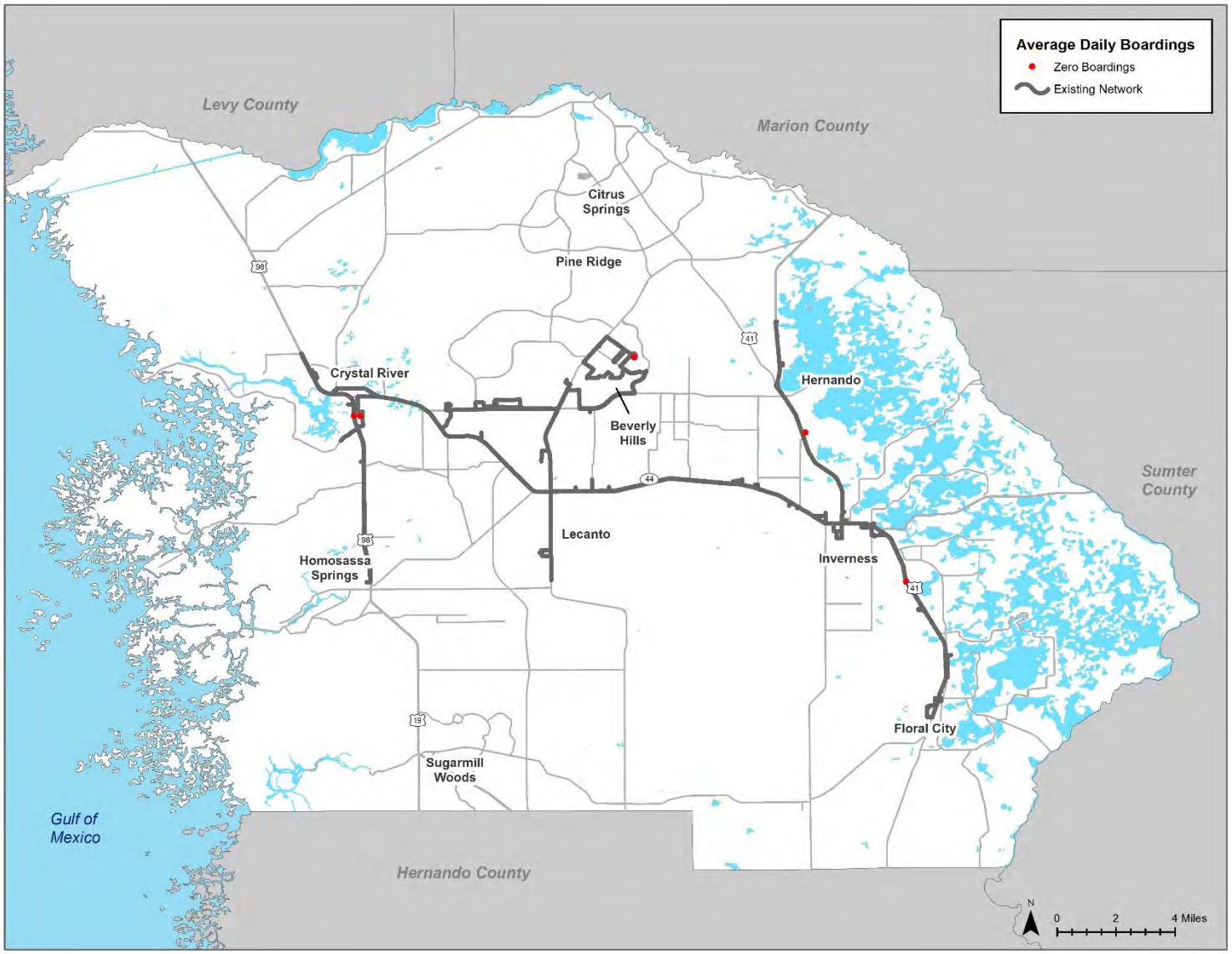
Map 5-3 illustrates average daily boardings at the stop-level using 2022 data provided by CCT. Ridership has recovered for some major transit stops; however, it can be observed that ridership is not near pre pandemic levels. Overall, the stops with the highest number of daily boardings remains consistent with the 2019 data. However, it is also apparent that a significant number of stops have an average daily boarding of less than one, as shown in Map 5-4. These stops are located throughout the service area but can be generally observed between Inverness and Floral City, as well as south of Crystal River and throughout Beverly Hills.

The COA will examine these segments in greater detail to streamline routing, eliminate redundancy, preserve stops that have significant average daily boardings, and introduce on-demand service concepts where regular fixed route services may not be suitable.

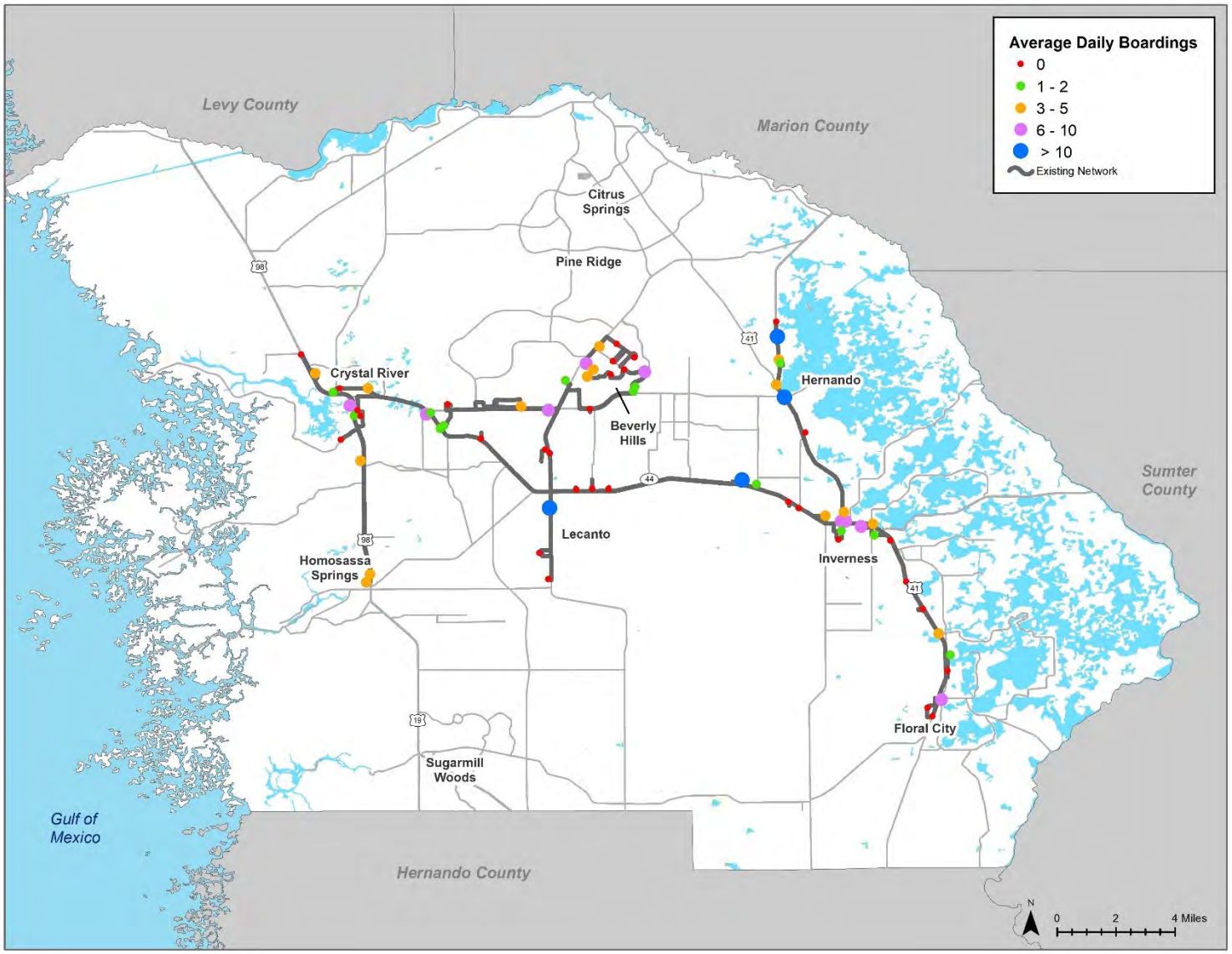
Map 5-1: Fixed Route Average Weekday Boardings by Stop, 2019



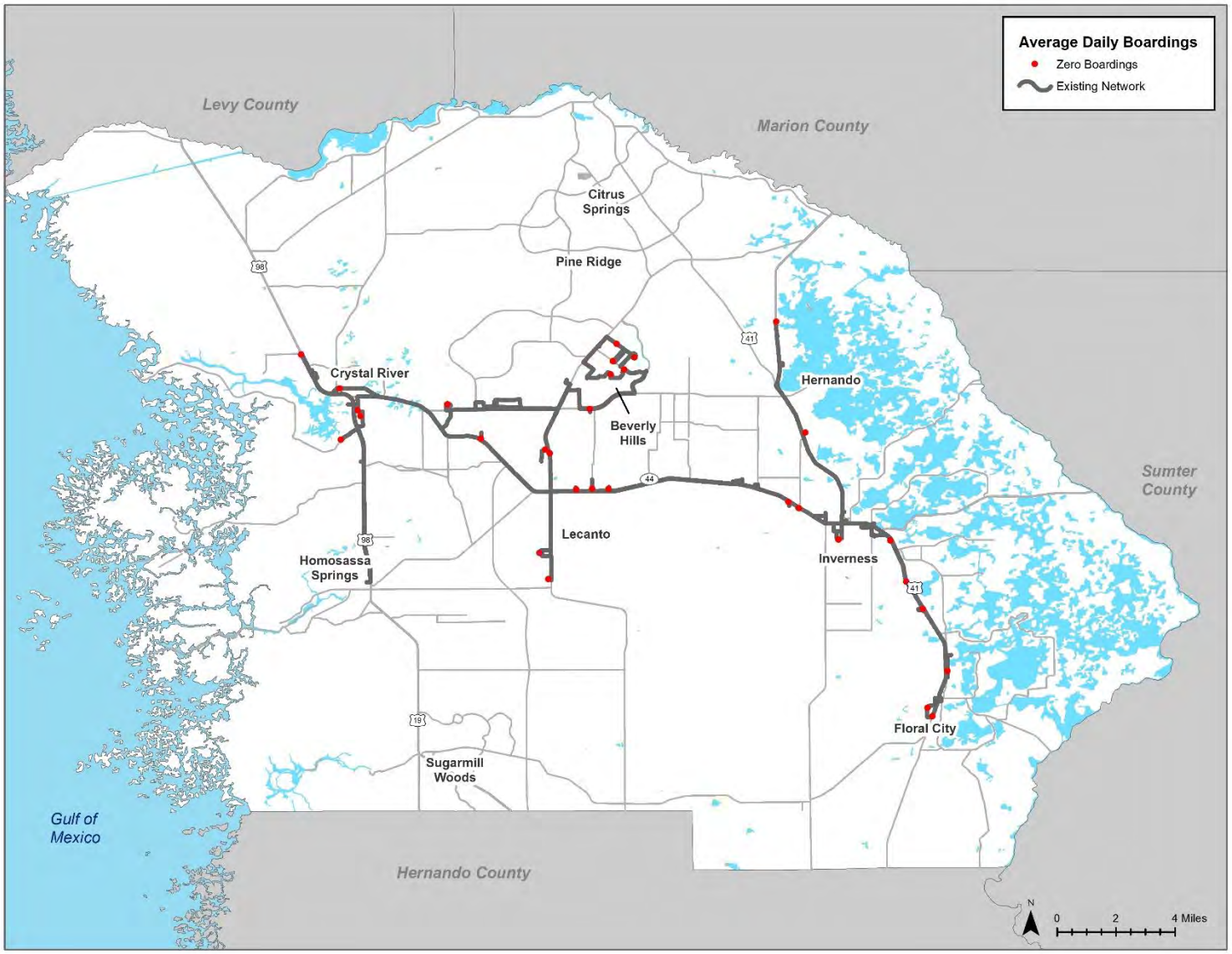
Map 5-2: Fixed Route Average Weekday Boardings by Stop (Zero Boardings), 2019



Map 5-3: Fixed Route Average Weekday Boardings by Stop, 2022



Map 5-4: Fixed Route Average Weekday Boardings by Stop (Zero Boardings), 2022



Ridecheck and Transfer Analysis

On March 15, 2022, an on-board ridecheck and origin-destination analysis was completed for the four Orange Line routes to evaluate the existing conditions of the fixed route system. This section summarizes the results of this effort. The resulting ridecheck concluded an average trip load of 1 person with a maximum of 3 persons during the peak period.

During the transfer analysis, an origin destination survey was also conducted to identify key areas of the current fixed route network where transfers are being initiated, along with identifying passenger trip purpose, and boarding/alighting locations. The ridership data collected mapped to identify key transfer points as well as origins and destination of riders (Map 5-5).

With almost all transfers with the CCT system occurring at the Lecanto Transit Center, transit users must sometimes ride much longer to the transit center to transfer to another route in order to get to their final destination. Many transit users surveyed noted a need for more streamlined connectivity across the county from places such as Hernando (SR 200) and Crystal River. Potential solutions to this issue were explored, as outlined later in this report.

Top Origin and Destinations

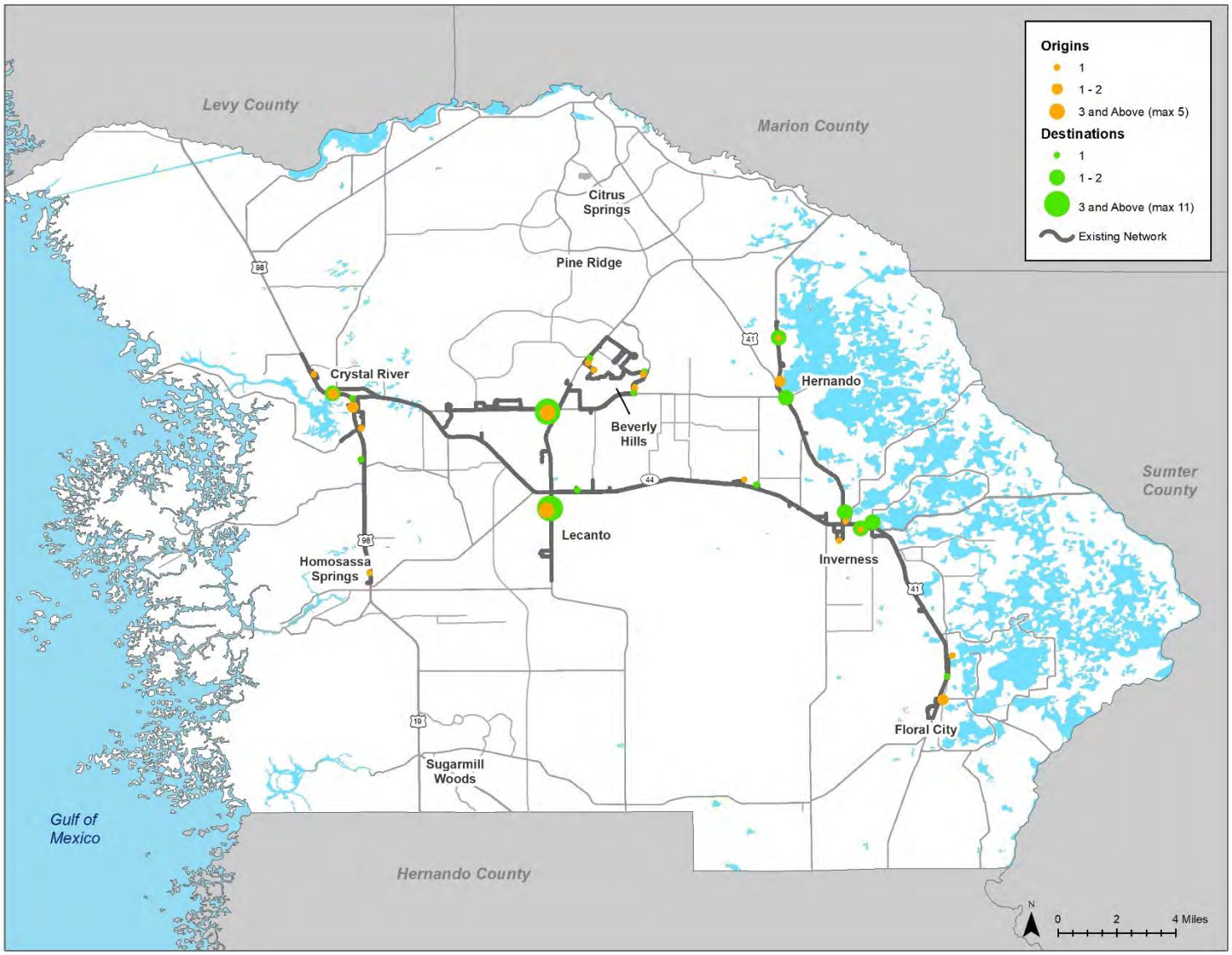
Based on the data gather during the origin-destination survey, the top trip origin was the Lecanto Walmart, followed by the Inverness Walmart, Crystal River Beall's, Beverly Hills Winn-Dixie, and the Floral City Library. The top destination of the first trip was the Lecanto Transit Center, where most riders transferred to other routes to complete their trip.

The top trip destination was the Citrus Memorial Hospital near downtown Inverness. Other top trip destinations included the Lecanto Walmart, Crystal River City Hall, and the Lecanto Health Department.

Segment Utilization

The segments with the highest ridership were found to be Crystal River (downtown area), Hernando (along SR 200 and downtown Inverness), and Floral City (downtown Inverness). The US 41 corridor has the most origin boarding points and destinations compared to other corridors in the CCT network.

Map 5-5: Origin-Destination Survey Results



On-time Performance

The data presented in Table 5-1 compares the systemwide on-time performance for the last runs during the March 15, 2022, field check to the October-December 2021 data. The on-time performance recorded during the field check was 9% higher than the 2021 data sample.

Table 5-1: On-time Performance

Measure	March 15, 2022 Field Check	October – December 2021 Data Sample
Late Arrivals	3	2,198
Early Arrivals	49	127
Total Stops	63	17,411
Percentage of On Time Arrival	95.24%	87.37%

6.0 TRANSIT MARKET ANALYSIS

This section presents the transit market analysis to understand the possible demand for transit services from both discretionary and traditional riders.

Latent Demand

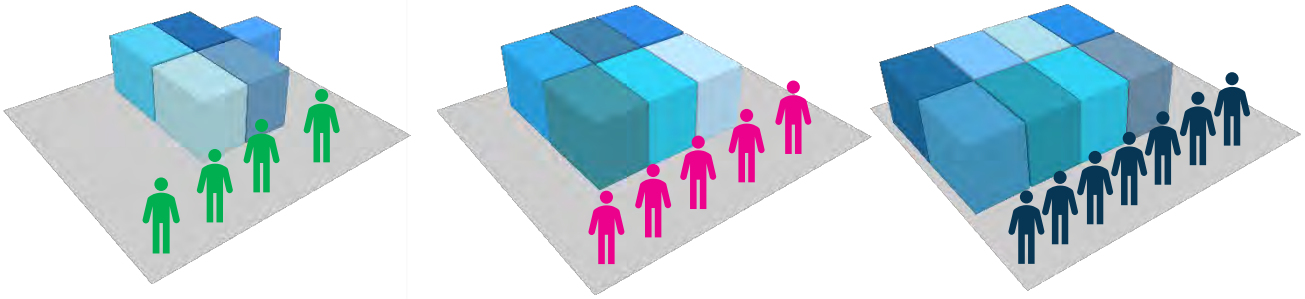
The latent demand analysis includes an evaluation from the perspectives of the discretionary and traditional rider markets. GIS-based analytical tools were used to analyze each: the Density Threshold Assessment (DTA) for the discretionary market and a Transit Orientation Index (TOI) for the traditional market. These tools assess whether existing transit routes are serving areas of the county considered to be transit-supportive relative to the corresponding transit market. They are also used to identify potential areas where different levels of transit investment should be considered. The transit markets and the corresponding market assessment tool used to measure each are described below.

Discretionary Rider Market Analysis

The discretionary transit market consists of potential riders residing in higher-density areas of Citrus County that may choose to use transit as a commuting or transportation alternative. The analysis was conducted using industry-standard density thresholds to identify areas that exhibit transit-supportive residential and employee density levels today, as well as in the future. Socioeconomic data for Citrus County, including dwelling unit and employment estimates by Traffic Analysis Zone (TAZ), were used to develop the DTA.

Three density thresholds, developed based on industry standards/research, were used to indicate whether an area contains sufficient density to sustain some level of fixed route transit operations. Figure 6-1 shows a visual of the dwelling units and employment densities associated with the respective thresholds.

Figure 6-1: Density Threshold Assessment



4.5-5 Dwelling units and/or 4 employees per acre

Minimum

6-7 Dwelling units and/or 5-6 employees per acre

High

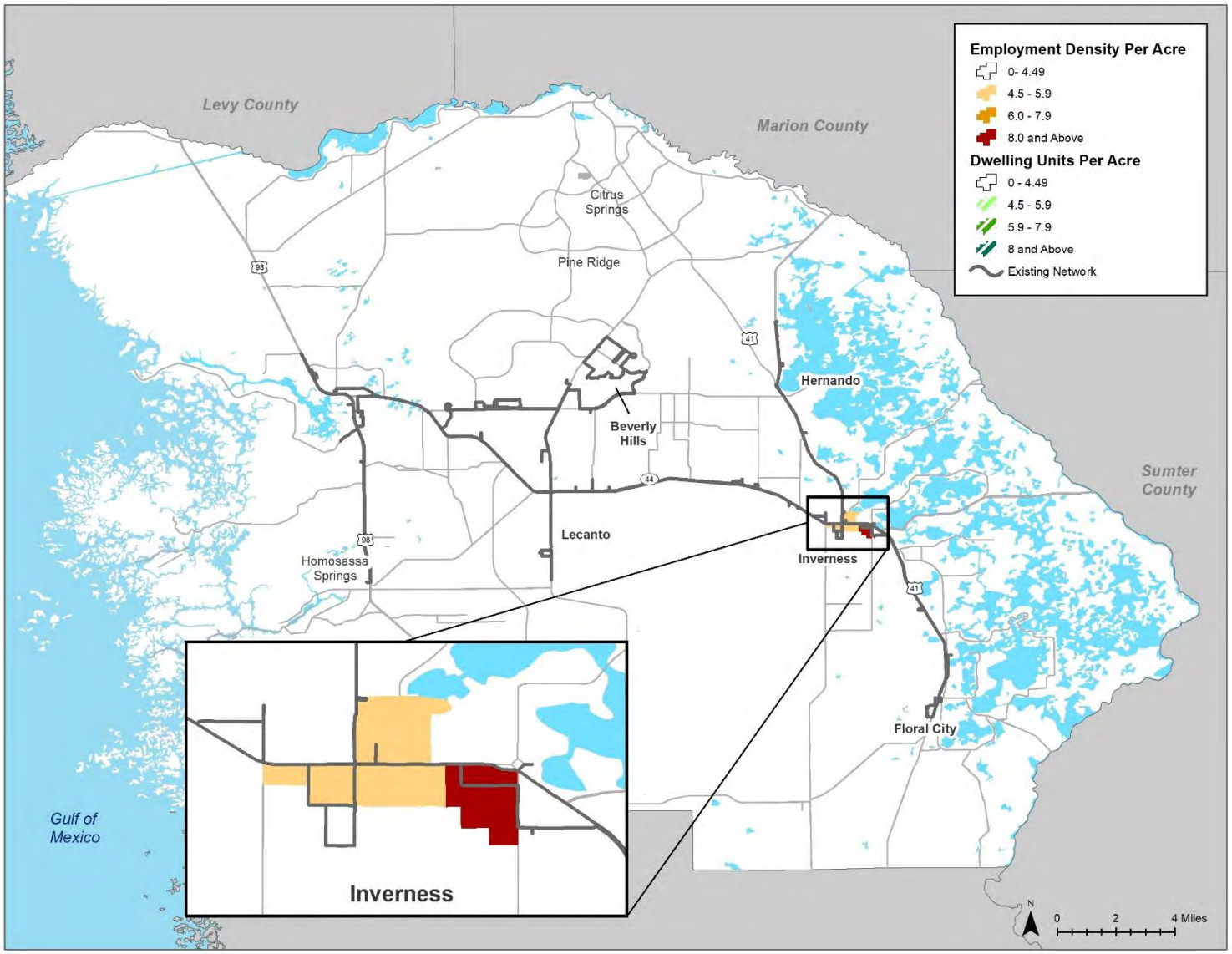
8 or more Dwelling units and/or 7 or more employees per acre

Very High

As density increases, areas generally become more transit-supportive; the DTA assists in determining the presence of optimal conditions for varying levels of fixed-route transit service. The results of these analyses are used in the assessment of transit needs and demand.

Map 6-1 Illustrates the results of the DTA, which considers existing dwelling unit and employment densities. Downtown Inverness is the only area with an employment density that would typically support transit investments. However, it should be noted that significant growth is anticipated to occur, in and around, the existing Beverly Hills Crossing complex at CR 491 and CR 486. Map 6-1 also includes an overlay of the existing CCT network to help gauge how well the current transit network serves areas of the county considered supportive of at least a minimum level of transit investment.

Map 6-1: Density Threshold Assessment



Traditional Rider Market Analysis

The Transit Orientation Index (TOI) measures the traditional rider markets, the levels of transit dependency within a particular geographical area to help assess existing transit coverage in comparison to areas with populations that have a propensity for transit use (older adults, youths, low-income/no vehicle households). To create the TOI, demographic data for these four traditional transit groups were obtained from the 2019 American Community Survey (ACS) 5-Year Estimates (2015-2019) and analyzed at the block group level. A traditional rider market refers to population segments that historically had a higher propensity to use or be dependent on public transit for their transportation needs. For purposes of this analysis, traditional transit users include:

- Zero vehicle households
- Households in Poverty
- Youth/young adult (age 15-24)
- Older adults (65 and older)

Zero Vehicle Households

Zero-vehicle households have a high propensity to use transit. The analysis identified areas in Citrus County with a higher proportion of zero-vehicle households, either because they do not have access to or choose to not own one. The highest concentrations of zero-vehicle households are in the areas surrounding downtown Inverness, west of US 41 near Floral City, northern portions of Crystal River, and Beverly Hills, as shown in Map 6-2.

Households in Poverty

For households in poverty, transportation costs can be particularly challenging as a greater portion of income is typically spent on transportation-related expenses than by higher-income households. As a result, people living in poverty may rely more on lower cost public transit for some or all trips. Map 6-3 illustrates the percent of households with incomes under the poverty level by block group. Areas with a higher concentration of households in poverty are located north of Lecanto along CR 44, in areas surrounding Hernando east of SR 200, and areas south of Inverness in the Highlands South Community.

Youth/Younger Adults (Age 15-24)

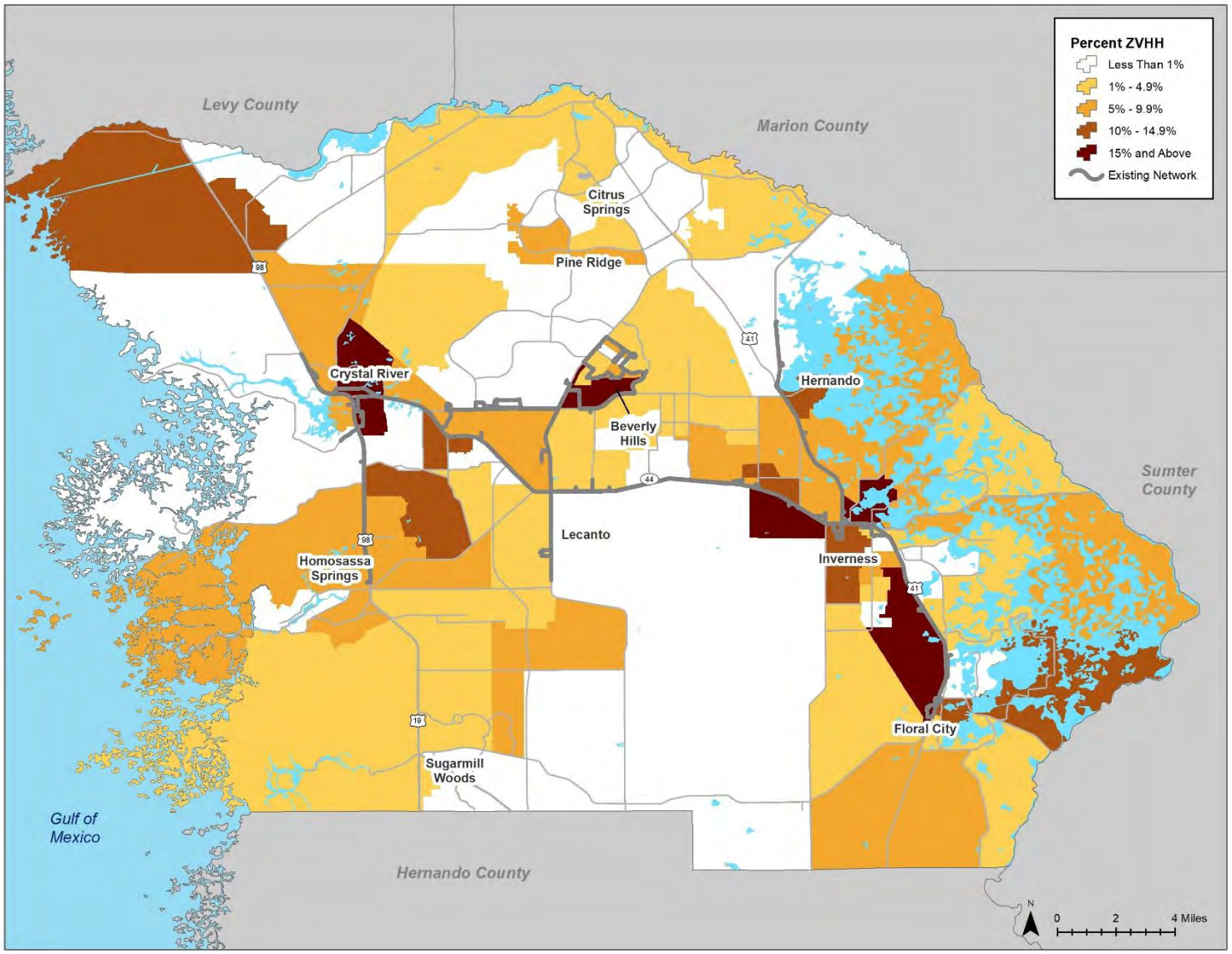
The youth/younger adult population represents those who either are not yet able to drive or afford a car and are dependent on others for car-based travel. Map 6-4 illustrates the distribution of the younger adult population (15–24 years) in the county. The greatest concentration of the younger adult population is evident in Beverly Hills and Citrus Springs. Other areas that have higher concentrations of younger adult populations include Flying Eagle Preserve and Inglis.

Older Adult Population (Ages 65+)

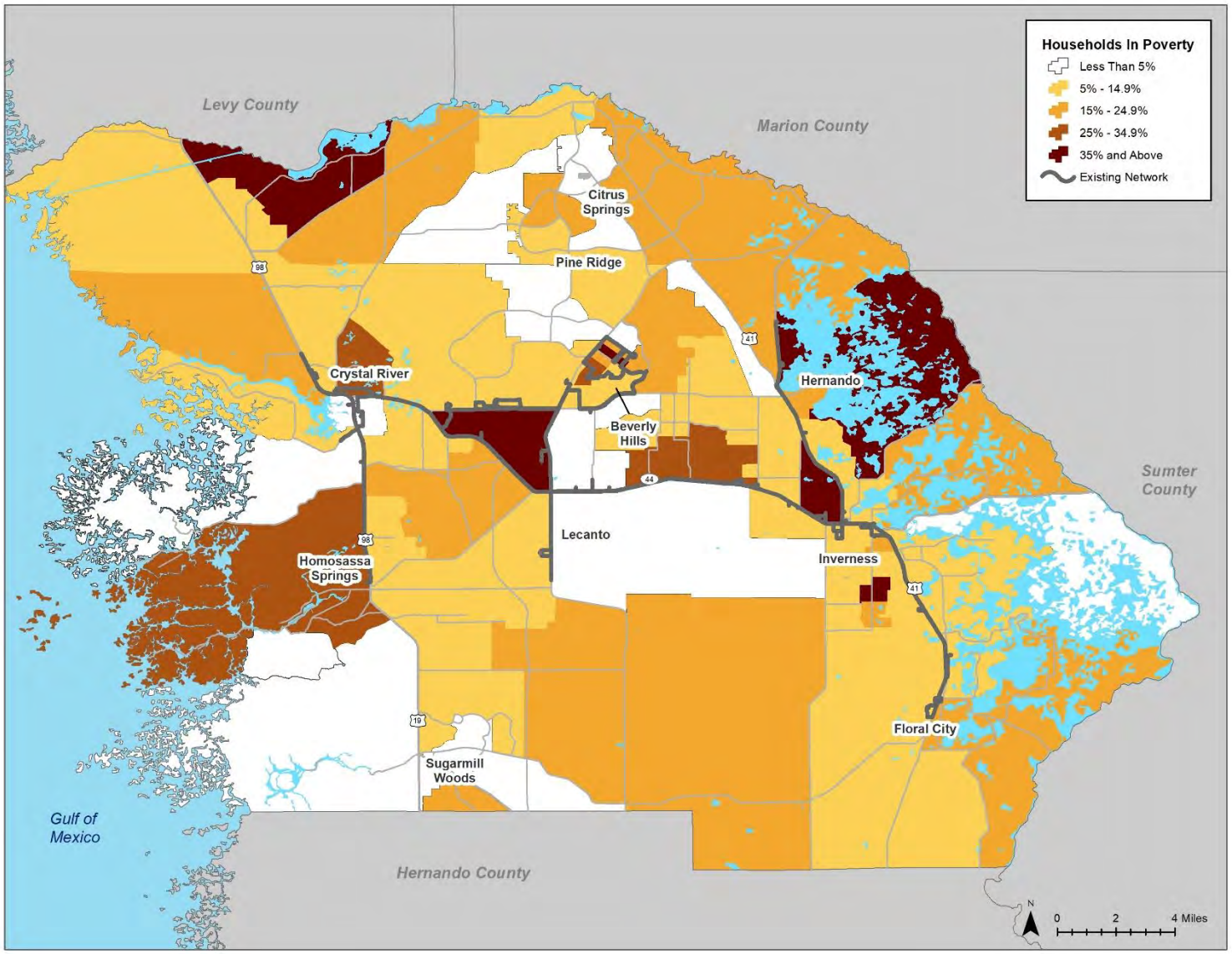
As adults age, their ability or desire to drive tends to decrease over time. Higher concentrations of older adult populations, especially in more suburban settings, creates a market for transit services, particularly for circulators and on-demand type services, as well as more expensive paratransit services. Map 6-5

shows the percentage of population age 65 or older by block group. Areas with a high concentration of older adults are found throughout the CCT service area, but include Sugarmill Woods, Homosassa Springs, downtown Crystal River, Pine Ridge, Beverly Hills, and east of Hernando. Other areas of moderate concertation of older adults are observed throughout the county, specifically along major corridors such as US 41 and US 19.

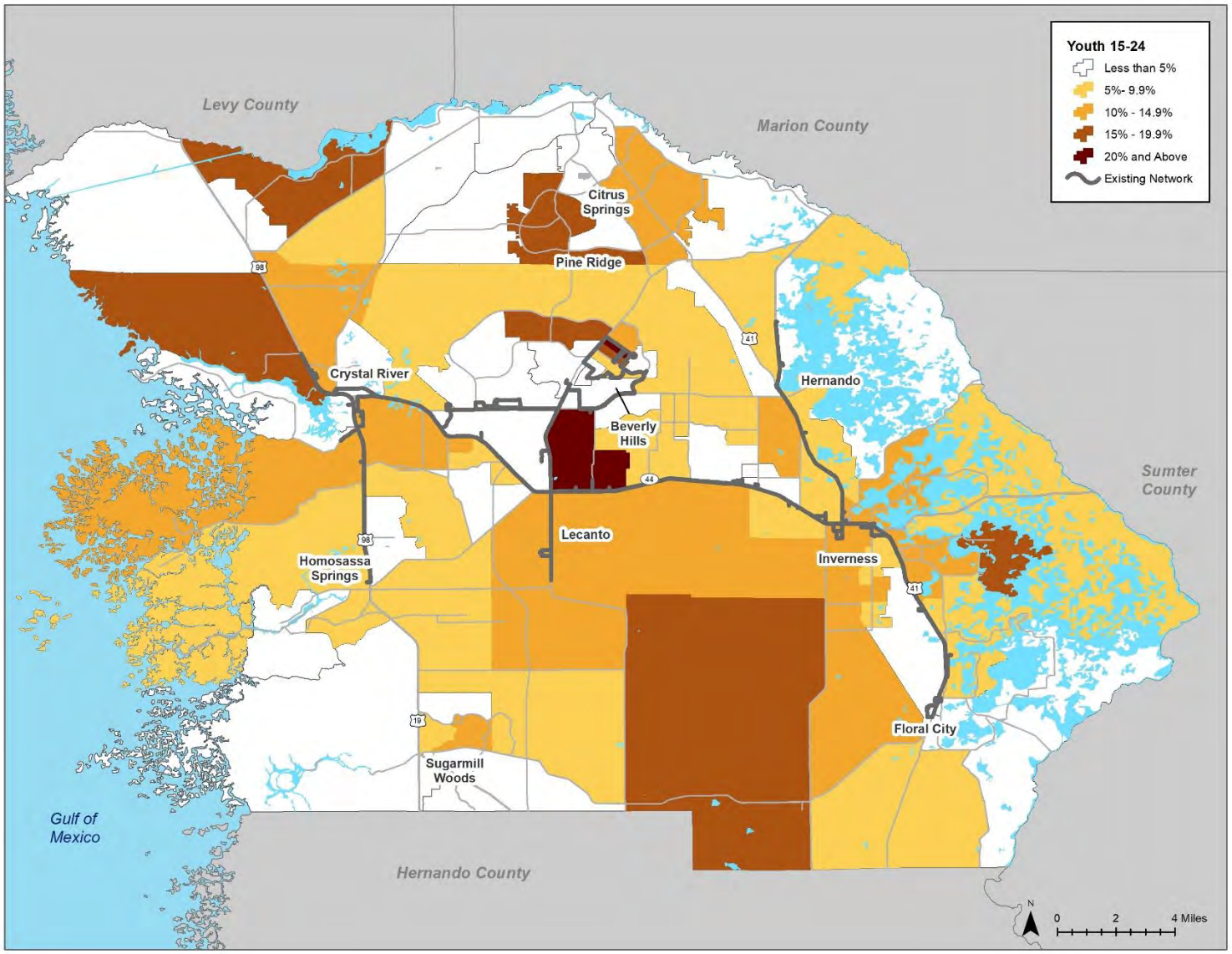
Map 6-2: Zero Vehicle Households



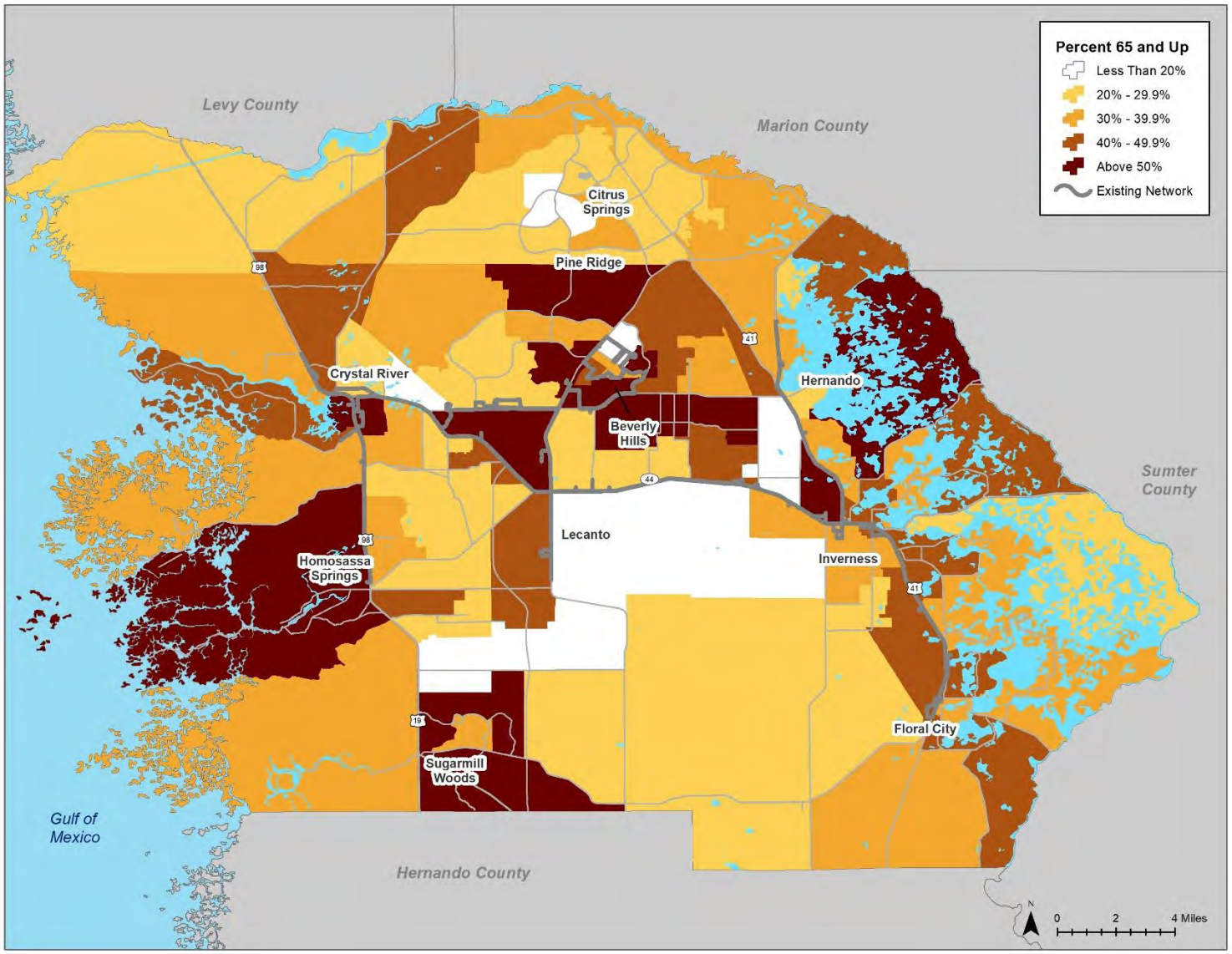
Map 6-3: Households in Poverty



Map 6-4: Younger Adult Population (Age 15-24)



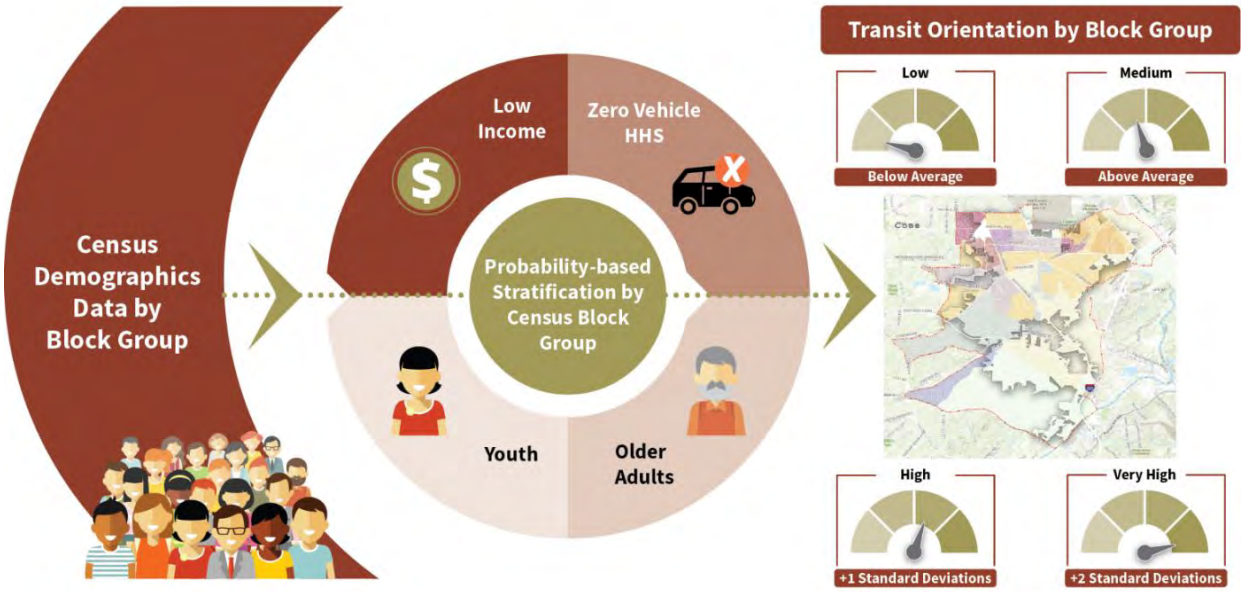
Map 6-5: Older Adult (Age 65+)



Transit Orientation Index (TOI) Methodology and Findings

A TOI was developed to assist in identifying areas where traditional rider markets exist. To create the TOI for this analysis, demographic data from the American Community Survey (ACS) 5-Year Estimates (2013–2017) were analyzed at the block group level for the selected demographic variables. The methodology and benchmarks are shown in Figure 6-2 and discussed in detail thereafter.

Figure 6-2: TOI Methodology and Benchmarks



Census block groups representing the study area were selected, and the percent distributions for each demographic characteristic previously identified were compiled for each. These proportions were then ranked in descending order. Using the TOI methodology, an average proportion and standard deviation for each demographic characteristic was computed. The proportions were stratified into three segments—average percent, average percent plus 1 standard deviation, and average percent plus 2 standard deviations.

The resulting percent values for each block group were placed into one of four categories for each demographic characteristic—Below Average (Low), Above Average but within 1 Standard Deviation (Medium), Above Average but between 1 and 2 Standard Deviations (High), and Above Average but more than 2 Standard Deviations (Very High). The scores were assigned using a comparative probability distribution methodology by first estimating the probability that a block group would be within a given category for a given demographic characteristic.

All individual category scores were summed to obtain a composite score for each block group, and the block groups were ranked by composite score. Block groups with the highest scores were indicated as having a "Very High" orientation for transit use based on the four demographic characteristics. Other categories were indicated as having "High," "Medium," and "Low" orientations, respectively. Using this

composite ranking, each study area Census block group was ranked as “Very High,” “High,” “Medium,” or “Low” in their levels of transit orientation.

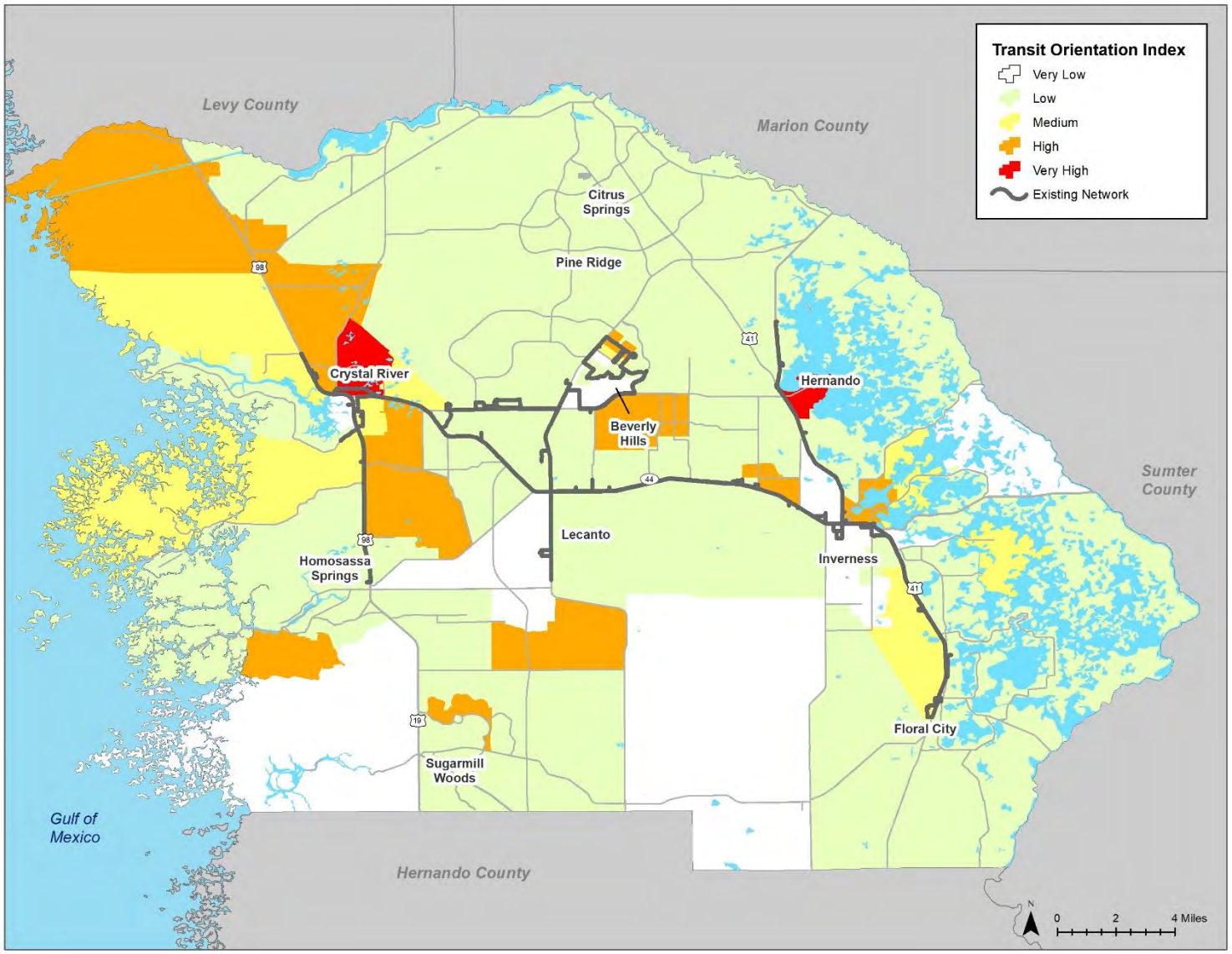
Understanding the intensity of population density also is important when considering transit service for a block group with orientation towards transit. If a block group has a high orientation towards transit but is very low in population density, a transit agency may find it difficult to justify allocating its limited resources to serve that area. Likewise, an agency can benefit if it knows a certain area that is very highly oriented towards transit also is highly dense in population. As a result, TOI categories were cross-tabulated with area density to maximize the effectiveness of the TOI developed for the study area. In addition, a “Very Low” TOI category was created to identify the lowest-density areas from this analysis.

To create the TOI, the ACS data were used to create composite ranking of “Very High,” “High,” “Medium,” or “Low” with respect to each block group’s level of transit orientation. Map 6-6 Illustrates the TOI, reflecting areas throughout the city with varying traditional market potential. “Very high” levels of transit orientation are seen in areas north of Crystal River and in eastern Hernando along US 41. Various areas within Citrus County fall into the “high” classification for the transit orientation, such as areas along US 19 through Crystal River, north of Inverness, and the southern portion of Beverly Hills. The existing transit network tends to serve most of these areas in some fashion but does so inefficiently where routes overlap or operate circuitous one-way loops.

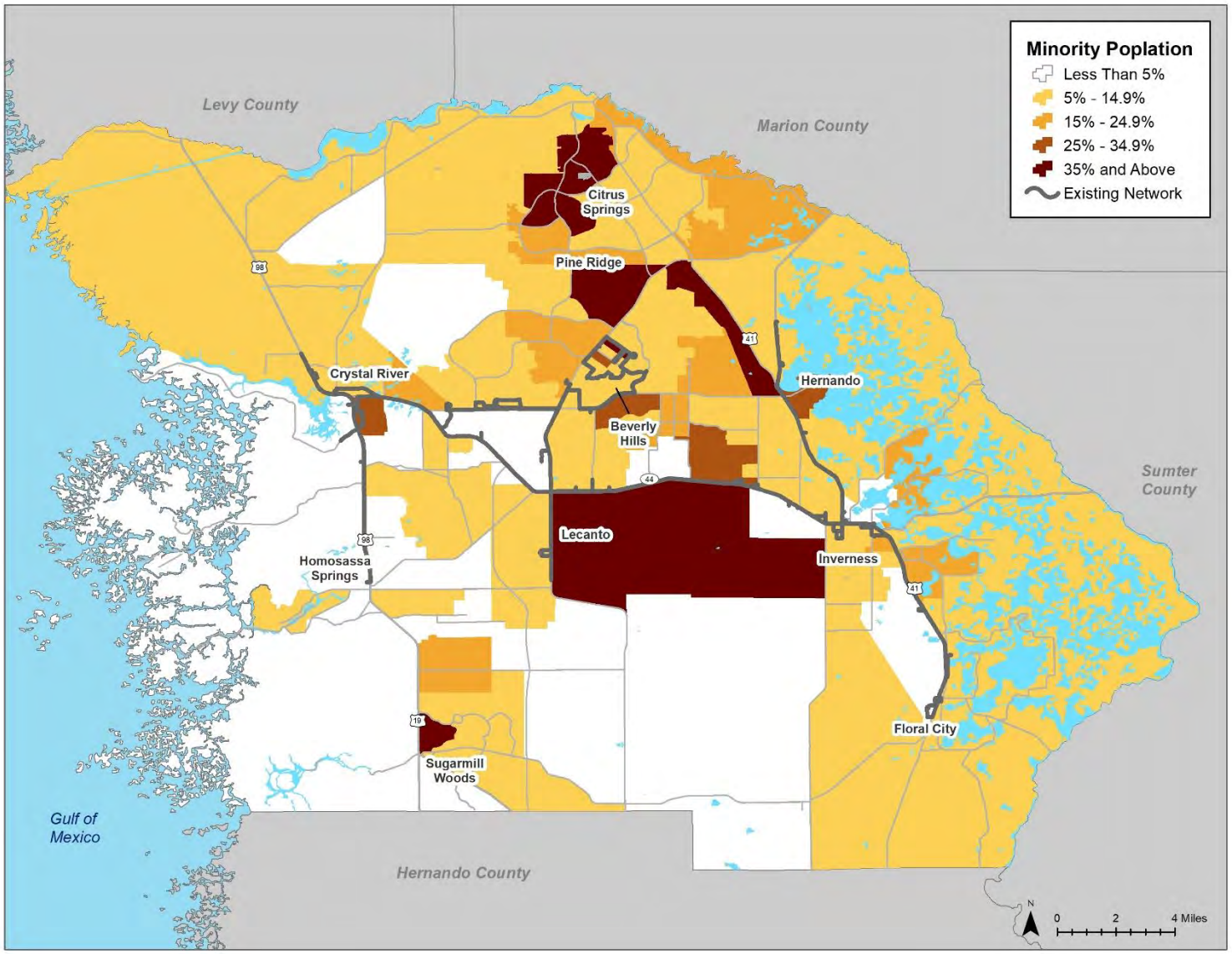
Minority Population

In addition to the TOI analysis, data on minority populations was also mapped (Map 6-7). Areas with the highest concentration of minority populations are located in Citrus Springs, specifically north of Pine Ridge and Sugarmill Woods. Other areas with moderate concentrations of minority block groups are in Hernando and Crystal River between US 19 and CR 44.

Map 6-6: Transit Orientation Index



Map 6-7: Minority Populations



7.0 GAP ANALYSIS

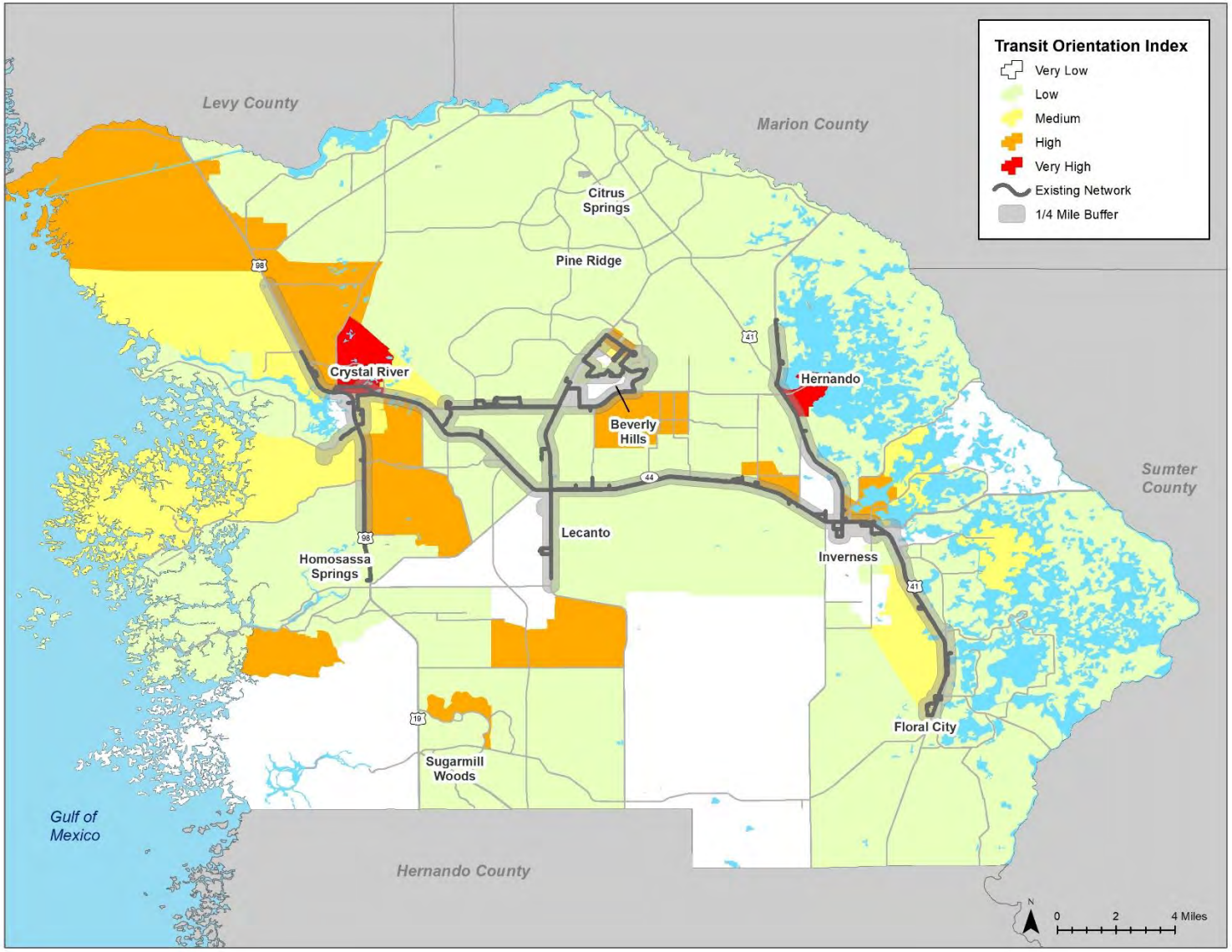
This section presents the findings from a gap analysis, which compares existing service coverage to potential demand using the TOI analysis.

Gap Analysis Overview

The gap analysis aims to identify areas where travel needs by transit are potentially high, but services are non-existent (unserved) or insufficient (underserved). First, the transit service subareas with high TOI scores are mapped. Second, a ¼-mile walkshed buffer is placed around the current CCT routes to determine the extent of each route's ridership capture area. The two outputs are then overlaid to identify general gaps between existing CCT services and highest TOI areas that are served, unserved, or underserved. Note that areas beyond the route catchment area (the buffered area along the route) are considered unserved.

Map 7-1 shows the CCT fixed route network with a ¼-mile walkshed buffer. From this, strategies to mitigate the gaps in service, especially in areas that resonate high in terms of TOI score, are explored. Some areas outside of the ¼-mile walkshed buffer and that also show a "high" to "very high" transit orientation are west Hernando off SR 200, areas north of downtown Inverness along the US 41 corridor, southwest Beverly Hills, and areas north and south of Crystal River along US 98. The application of a more frequent on-demand service could mitigate gaps in service that are outside the existing CCT network.

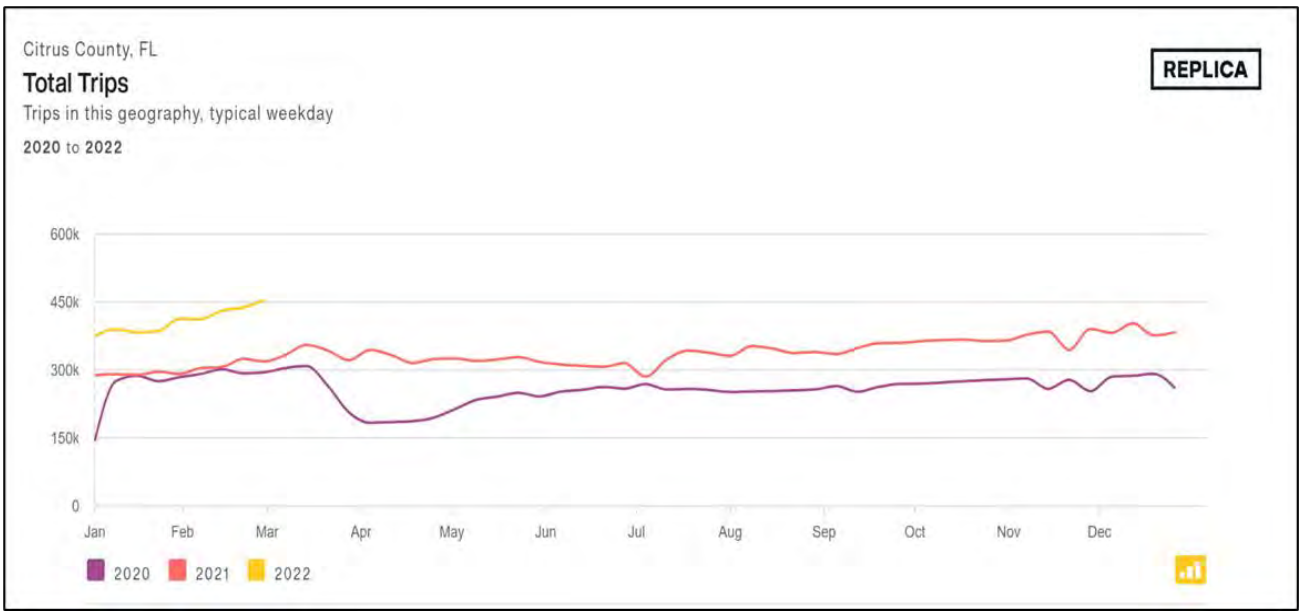
Map 7-1: Gap Analysis



8.0 TRAVEL FLOW ANALYSIS

Replica Trends is a national model that uses data derived from road traffic, mobile phone data, and financial transactions to model mobility trends. Using this data source, a typical weekday of travel patterns in Citrus County was modeled for the period of January 2020 through March 2022. As shown in Figure 8-1, changes to travel patterns during this period, such as the decrease in travel in March 2020 due to the COVID-19 global pandemic, are observed. Travel rebounded slightly in 2021 from the decrease in 2020 and, compared to 2020 and 2021, trips in 2022 are significantly higher and continuing to show a steady monthly increase.

Figure 8-1: Total Weekday Trips (Jan 2020 – Mar 2022)



Source: Replica, March 2022

Origin-Destination Analysis (All trips vs Transit)

A more detailed origin-destination analysis was also conducted using Replica Trends. The analysis provides an understanding of the magnitude of all average daily trips within Citrus County, which can be helpful in planning future transit services tailored to better suit transit users. Figure 8-2 shows the average weekday trips per square mile ending in Citrus County, and surrounding areas. Most of the trips seen originate from suburban areas in Citrus County such as Beverly Hills, Homosassa, and Inverness. Though some of the trips originate as far south as Brooksville and Spring Hill. Trips are also seen originating as far north as Ocala and Dunnellon.

The trip destination patterns illustrated in Figure 8-2 show similar characteristics to the destination in Figure 8-3. However, there is a slight increase in the trips to Ocala.

Figure 8-2: Trip Origins

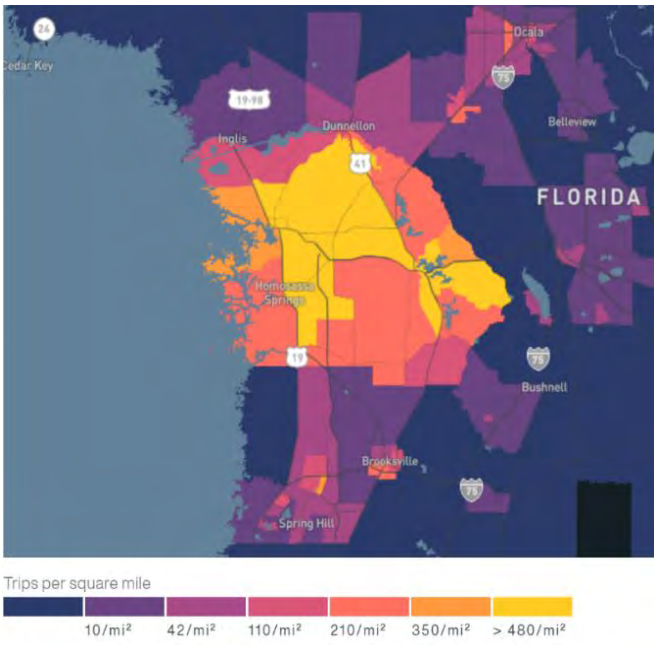


Figure 8-3: Trip Destinations

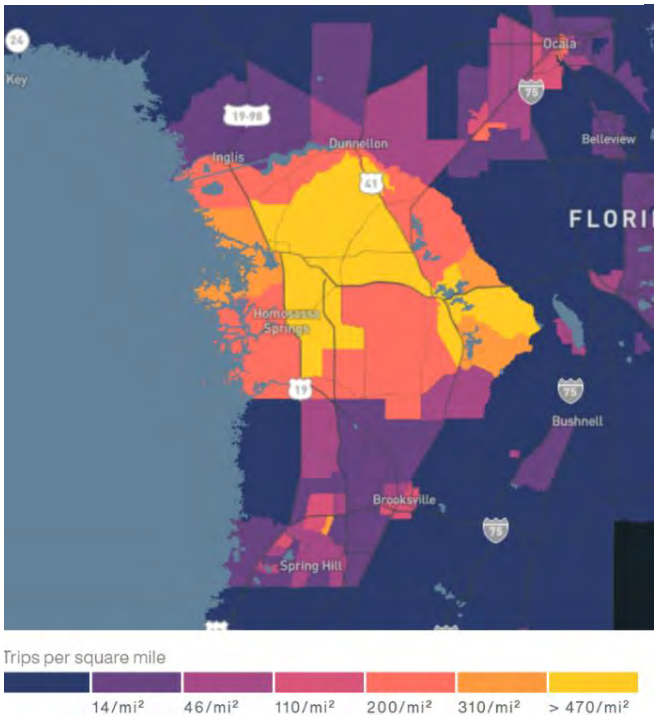
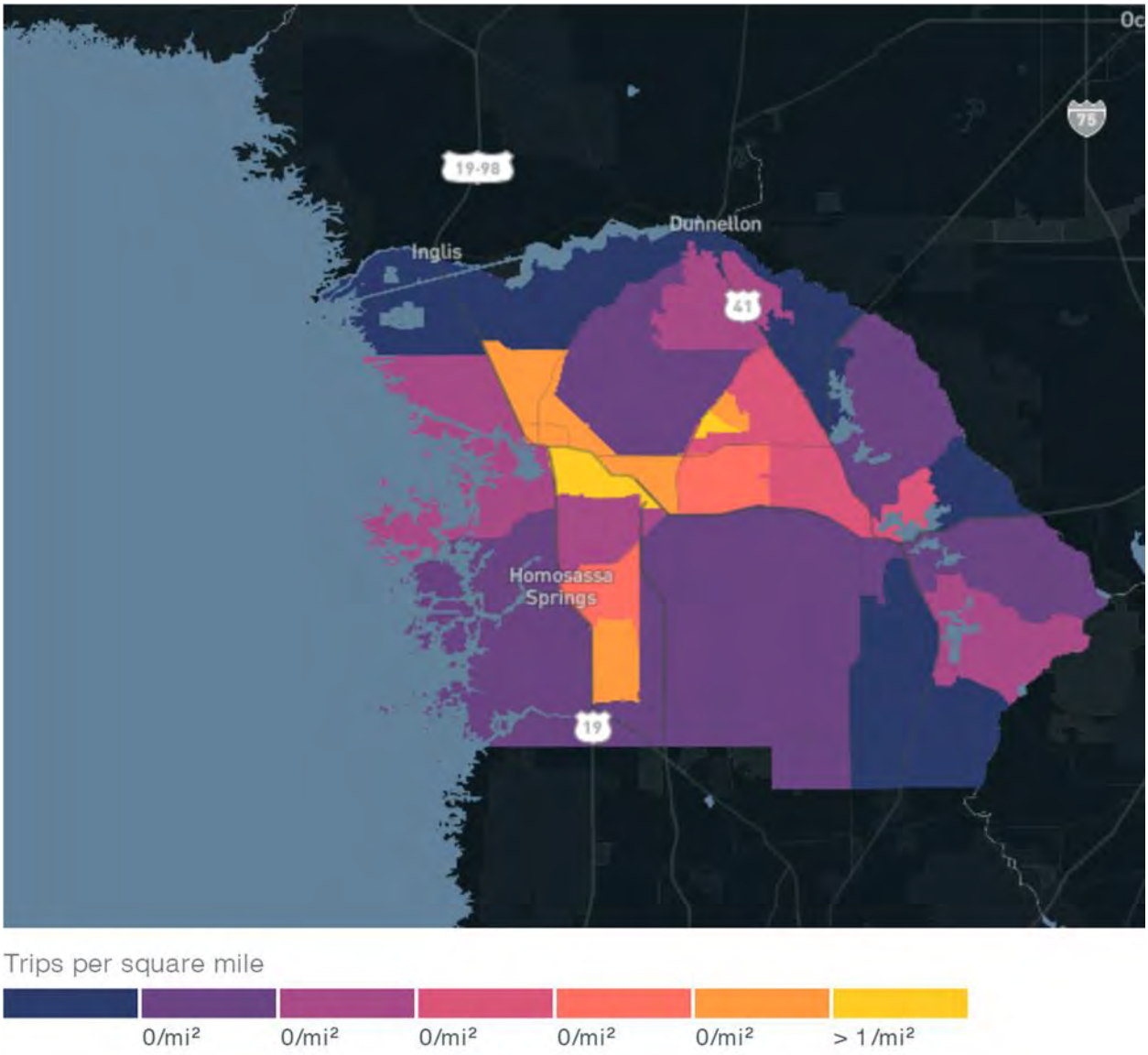


Figure 8-4 shows the average number of transit trip origins per square mile for an average weekday in March 2022. Concentrations of trip origins are seen along US 19 between Crystal River and Homosassa Springs. Other notable transit trip origins are seen along the SR 44 between Lecanto, Inverness, and Dunnellon. It should be noted that there are no Replica data available for transit trip destinations.

Figure 8-4: Transit Origin Trips Per Square Mile (Weekday)



9.0 FIXED ROUTE PROFILES AND OBSERVATIONS

Each fixed route was analyzed in the field and using quantitative analyses. During the field review, observations were made, along with quantitative data, to support potential route recommendations. In addition, ArcGIS was used to analyze socioeconomic population and employment data within a ½-mile walkshed of the four fixed routes.

The summaries below include pros/cons for each route, as well as observations gathered during a follow-up field review on April 5, 2022. This section also provides preliminary route modification notes, which are considered and expanded upon during the route modification phase of the COA process.

Beverly Hills (Green) Route

- Serves Walmart and surrounding areas with the potential for major development.
- Route performance is likely impacted by meandering alignment and route redundancy.
- Redundant service along Norvell Bryant Highway.
- Poor ridership; potential introduction of on-demand services to replace fixed route and provide coverage where there are noticeable gaps.

Crystal River (Blue) Route

- Major east-west route serving tourism pockets in Crystal River with connection to Lecanto.
- Serves areas of Crystal River with little to no trip generators present (i.e., Crystal River Mall, Southbound US 19 into Homosassa, etc.).
- Operates a one-way loop forcing riders to ride the whole route before reaching their destination.
- Potential to streamline route and improve operational efficiencies.
- Poor ridership on the deviated segments to Homosassa Springs; potential introduction of on-demand services to replace fixed route deviated stops once demand and fiscal capacity are available.

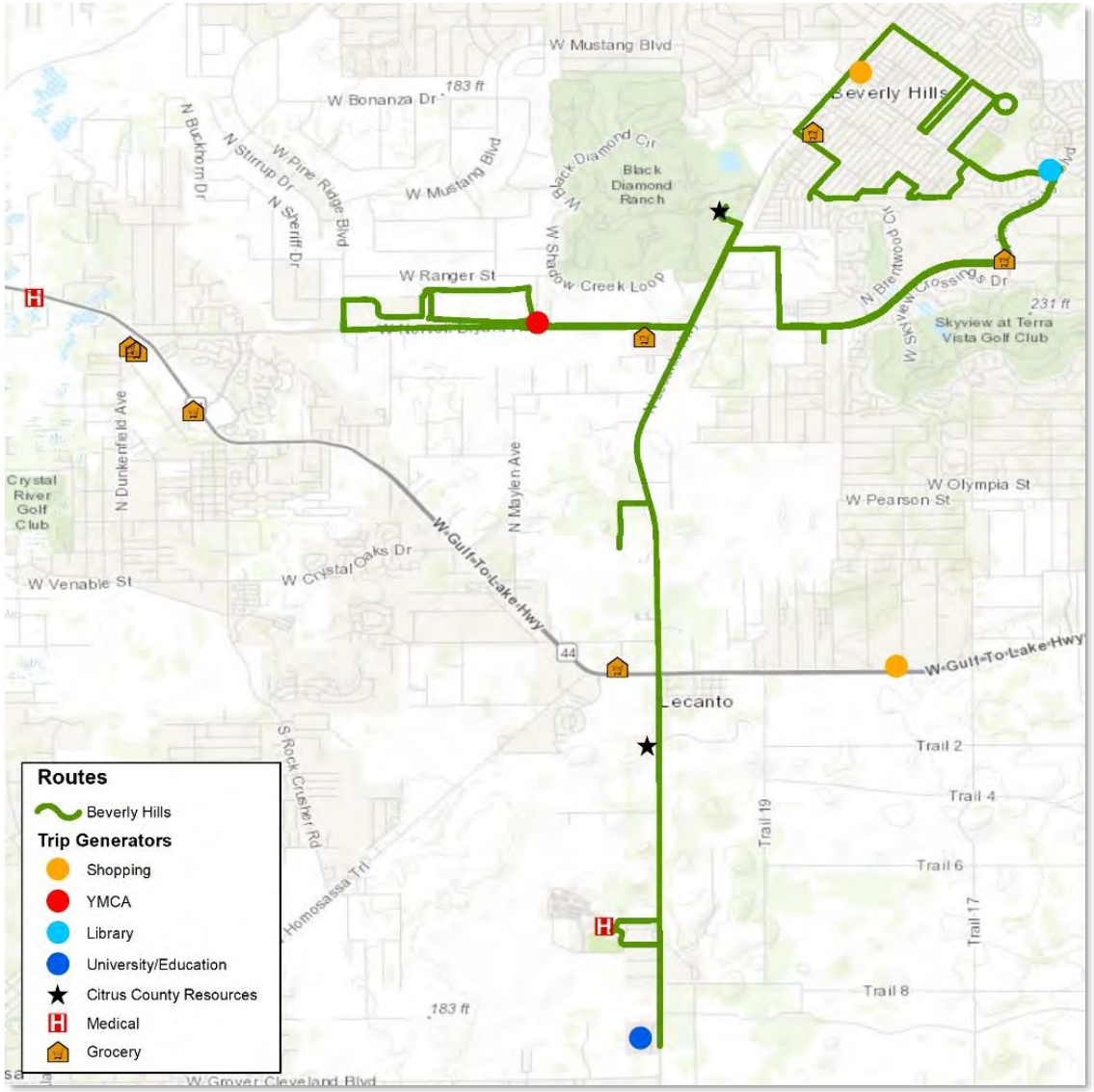
Floral City (Red) Route

- Poor ridership on the southern end of the route near Floral City.
- Potential to streamline this route to improve efficiency and connectedness in the eastern portion of the county.
- Major route redundancy on SR 44 between Lecanto and Inverness.

Hernando (Purple) Route)

- Major north-south corridor service along US 41 connecting Hernando to downtown Inverness.
- Potential to streamline this route to improve efficiency and connectedness in the eastern portion of the county.
- Major route redundancy on SR 44 between Lecanto and Inverness.

Beverly Hills (Green Route)



Population Summary: The Beverly Hills route intersects a total of 20 Traffic Analysis Zones (TAZ) with a total population of 28,898 residents. The population density within the ½-mile walkshed is ~45% (12,917) of the total population (28,898).

Employment Summary: The employment density within the ½-mile walkshed is ~43% (4,207) of the total employed (9,784).

Areas Served:

- Lecanto Walmart
- Lecanto YMCA
- Central Ridge Library
- Citrus County Resource Center (VA)
- Beverly Hills Shopping Plaza

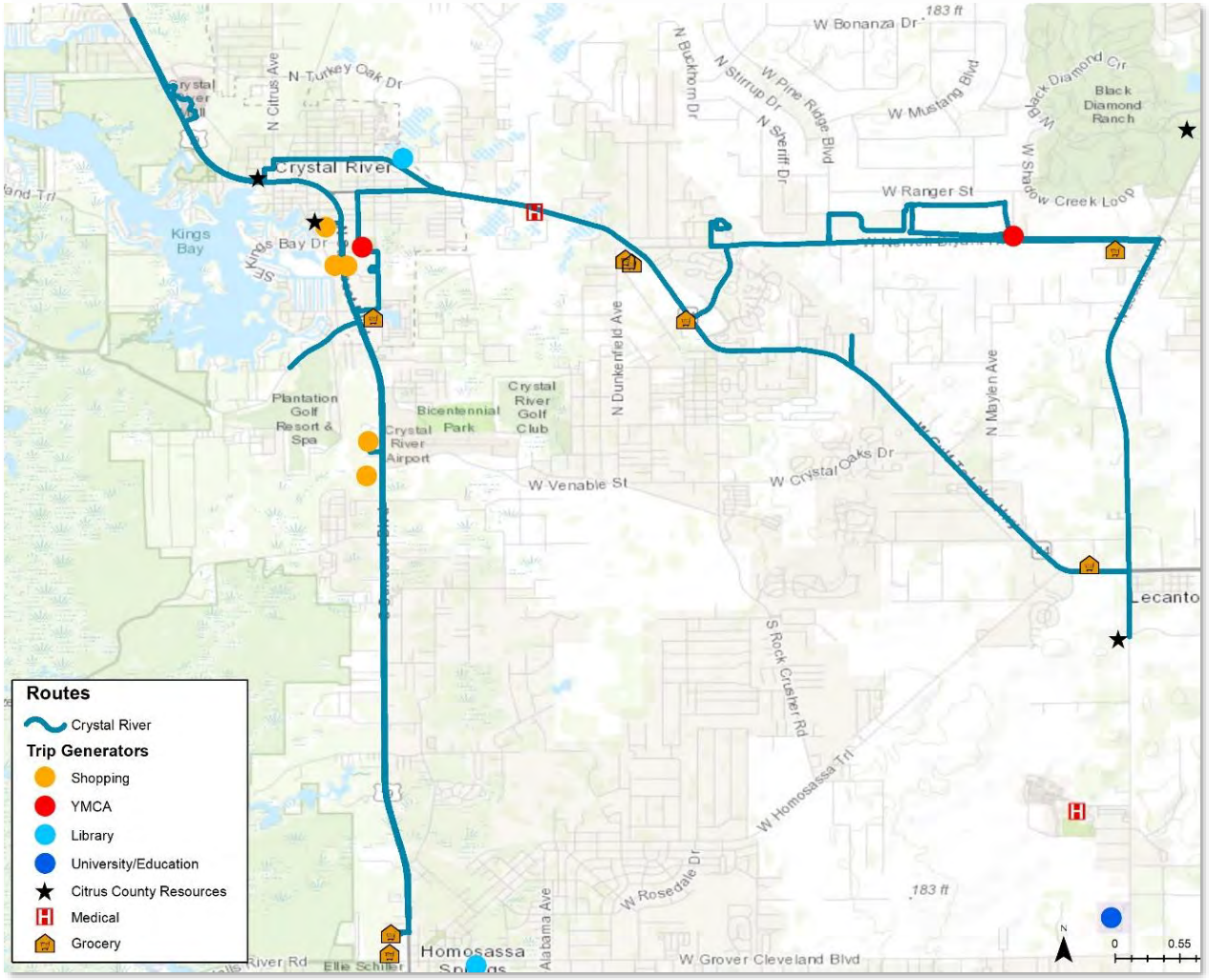
Span: 6:00 AM to 5:15 PM

Days of Service: Weekday

VOMS: 1 vehicle

Average Daily Riders: 12.34

Crystal River (Blue Route)



Population Summary: The Crystal River route intersects a total of 29 Traffic Analysis Zones (TAZ) with a total population of 19,917 residents. The population density within the ½-mile walkshed is ~41% (8,055) of the total population (19,917).

Employment Summary: The employment density within the ½-mile walkshed is ~55% (8,107) of the total employed (14,740).

Areas Served:

- Lecanto Walmart
- Downtown Crystal River
- Homosassa Springs Shopping Center
- Christ Medical Center
- Coastal Regional Library

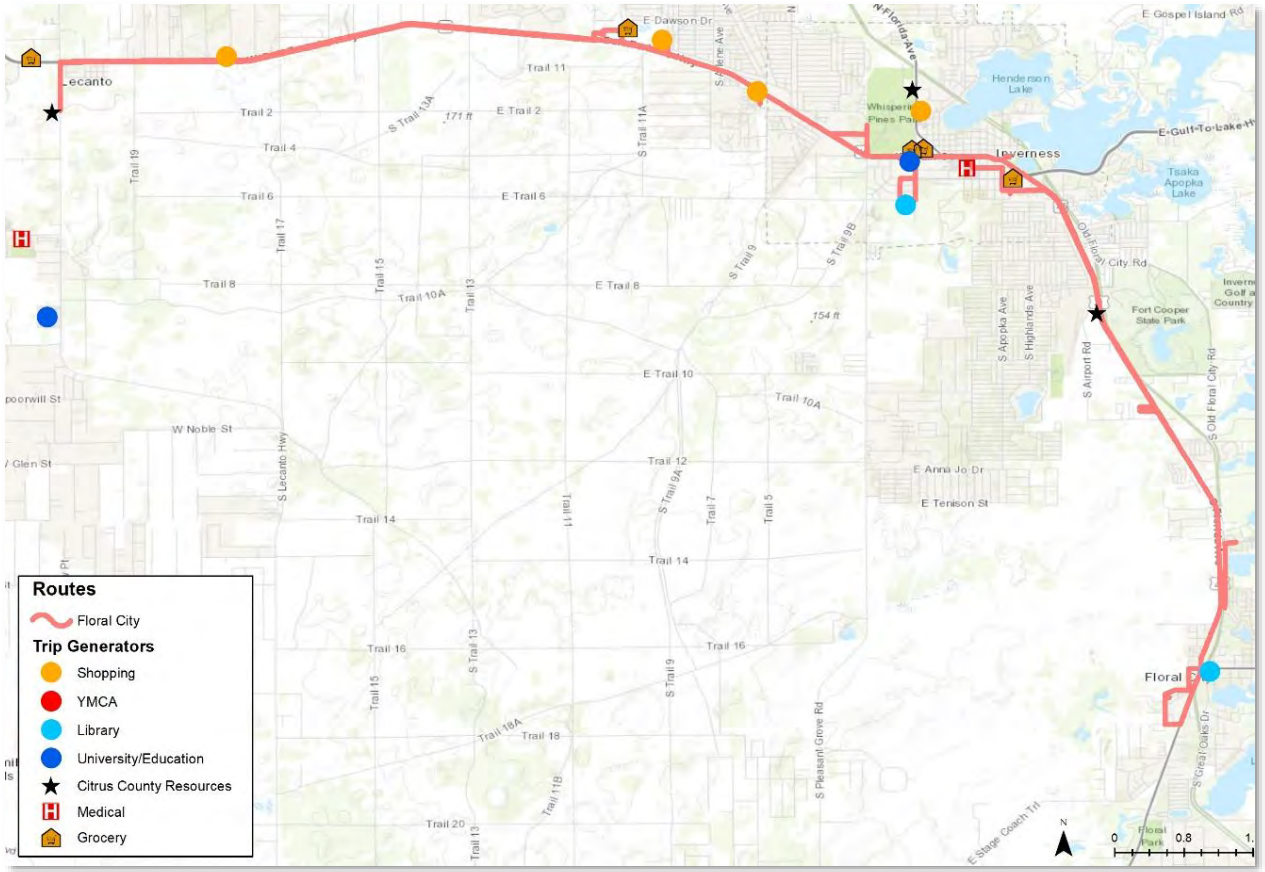
Span: 6:00 AM to 5:15 PM

Days of Service: Weekday

VOMS: 1 vehicle

Average Daily Riders: 15.62

Floral City Route (Purple Route)



Population Summary: The Floral City route intersects a total of 31 Traffic Analysis Zones (TAZ) with a total population of 33,230 residents. The population density within the ½-mile walkshed is ~26% (8,746) of the total population (33,230).

Employment Summary: The employment density within the ½-mile walkshed is ~55% (9,074) of the total employed (16,498).

Areas Served:

- Inverness Walmart
- Downtown Inverness
- HCA Citrus Hospital
- Lollygaggers

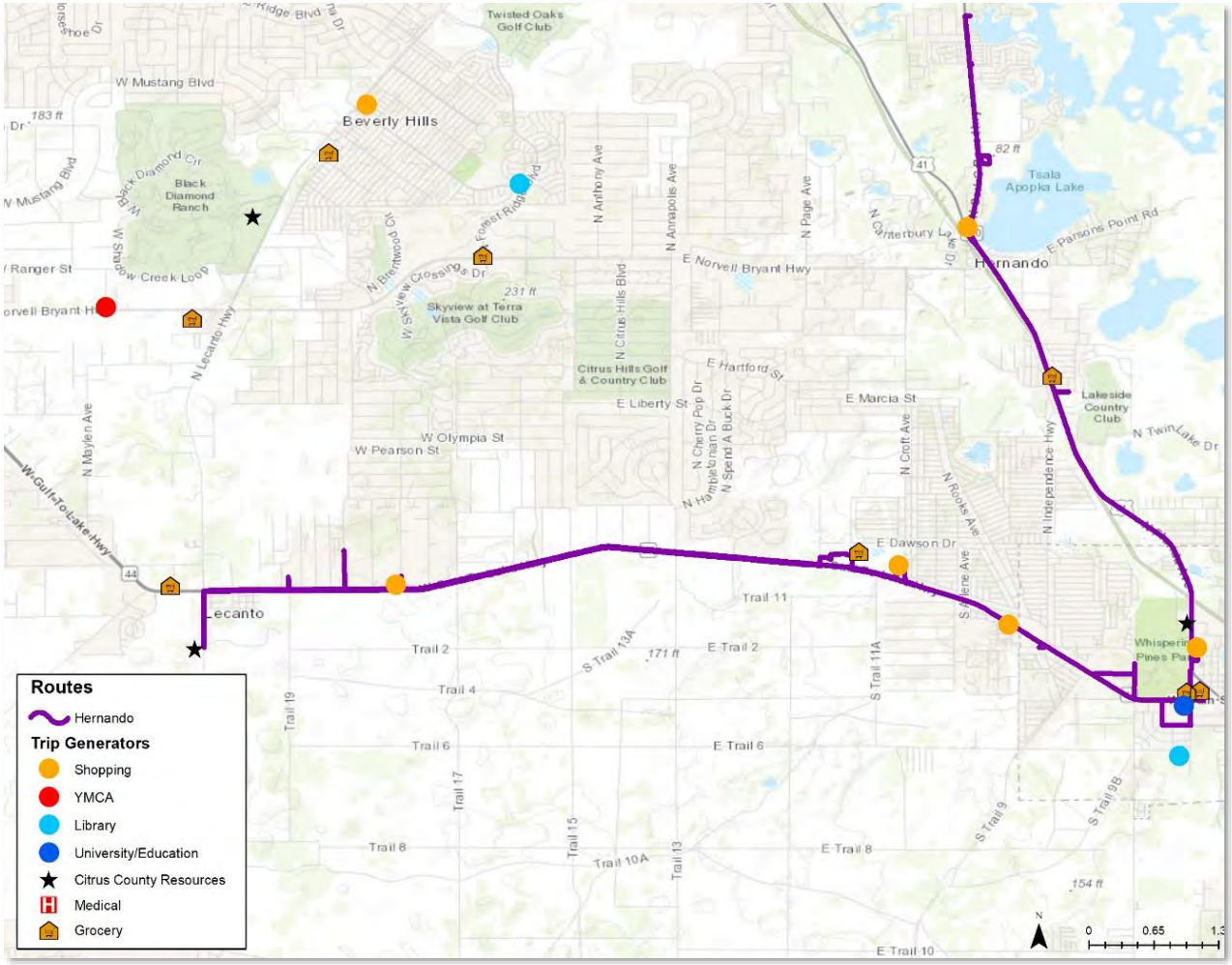
Span: 6:00 AM to 5:20 PM

Days of Service: Weekday

VOMS: 1 vehicle

Average Daily Riders: 15.37

Hernando Route (Purple Route)



Population Summary: The Hernando route intersects a total of 30 Traffic Analysis Zones (TAZ) with a total population of 26,849 residents. The population density within the ½-mile walkshed is ~29% (7,746) of the total employed (26,849).

Employment Summary: The employment density within the ½-mile walkshed is ~52% (8,746) of the total employed (16,819).

Areas Served:

- Dollar General
- Downtown Inverness
- Regional Shopping Plaza
- Inverness Walmart

Span: 6:00 AM to 5:20 PM

Days of Service: Weekday

VOMS: 1 vehicle

Average Daily Riders: 18.92

Citrus County Operator and Staff Input

The field review on April 5, 2022, also included informal operator and CCT staff interviews to gather insights about the current routing structure. The following bullets are highlights of staff provided comments for each route. Tables 9-1 and 9-2 illustrate the feedback that was received through the informal operator interviews.

- Transit operators believe on-demand service can take care of a lot of rider's needs, specifically in Beverly Hills.
- Although there was not much support from riders on the Floral City route, there was a request for an Inverness-Crystal River connector.
- Operators suggested an express route to Ocala, which is already identified in the TDP major update.
- Some operators mentioned wanting/thinking the service should connect to Tampa International Airport (TIA) via the new Suncoast Parkway extension, which is already identified in the TDP major update.
- Operators suggested everyday service 60-minute headways, which is already identified in the TDP major update.
- If the goal is to increase fixed route stop-level deviations, the operators suggest a new stop at the YMCA along the Crystal River route, less than a mile from the Lecanto Walmart. If demand is not warranted, then CCT should utilize the paratransit to serve the YMCA.

Additionally, during the on-board and field reviews, a number of pedestrians were observed walking along arterial streets along the fixed routes. It is assumed that some of the pedestrians may benefit from the transit service if they were made more aware (i.e., marketing, branding, on-street stops, etc.), which was also a suggestion noted during the operator interviews.

Major takeaways from this effort are bulleted below:

- On street stops would help the CCT system function more effective and efficiently.
- On-demand solutions could be helpful in Citrus County to fill gaps of service seen within the Orange Line fixed route network.
- Paratransit operators could fill in gaps to help run an on-demand style service in underserved areas of the county.
- Increased marketing efforts to help "sell" transit to residents.
- A cross-county feeder service was suggested by multiple staff members and operators during discussions with the project team
- Implementing a user-friendly software application that allows uniform payment methods and trip planning users and attract new riders.

Table 9-1: Staff Suggestions and Notes

Staff Respondent	Suggestions	Notes
Response 1	• Fares are too high • Disadvantaged populations need a reduction in fares as well • Expand services from 6am to 6pm for paratransit to help book full trips • Paratransit operators should be used to help fill cross county gaps in system • Look into mobility-on-demand solutions • Customers should have the ability to plan their own trip via software application	• Too many local business stops and not enough origin location stops within the system • Crystal River future development is something to address in the future TDP when examining changes to routes • Lecanto Residence on Crystal Oaks → 5,000 residents • Paratransit trips did not decline during the Covid-19 pandemic • Fare reduction was rejected by County Administration • Homeless population using Orange Line all day • Inverness route needs to serve Highlands north and south • Feeder system used to help rural ridership • Increase span of service has not been supported in the past • Cross-county shuttle needs to connect eastern and western county
Response 2	• Orange line routes run too long between stops • Addition of on street stops • Software package is not user friendly • Microtransit in southern portion of county to form a mini circulator route	• Hernando and Inverness routes are too long with traffic along US 41 • Splitting of Inverness route at Walmart to increase frequency • Highlands north and south need service • Private sector does not want stops on their property • Blue line cut out Walmart and make a left at SR 44 • Bringing paratransit trips to get Homosassa into Crystal River to make route more efficient and not need to go as far south
Response 3	• To many changes occurring in short span of time • Roadway stops on major corridors • Operators must pilot test routes before implementation to make sure route is feasible • Mobility-on-demand as a service	• Fixed route lacks origin stops for users • Increase functionality of service being provided based on the geography of Citrus County • Fixed route service was on the decline before the Covid-19 pandemic, and has not recovered since

Table 9-2: Operator Suggestions and Notes

Operator Respondent	Suggestions	Notes
Operator 1	• More frequency and less headways • Seasonal beach route	• Development is occurring fast in this area, need to be able to serve area north of Crystal River for the Habitat for Humanity housing being built as mixed income development
Operator 2	• Increased marketing	• Lacking ridership since no one knows about this service we offer • Improve service and more people will start to ride if it meets the needs of users better
Operator 3	• Saturday service • Hour headways	• Transit users need expanded service time, including weekend services to better suit their needs • Improving headway will help improve ridership • Inverness used to be standing room only most of the time • Homosassa has no services • Need more funding make changes happen
Operator 4	• Cut out the loops and have more transfer points • On-street stops	• Expand services • Bus connection to surrounding counties
Operator 5	• Uniform payment method • Even distribution of workload among paratransit operators • Increase marketing efforts	• Create a more user-friendly method of paratransit booking and payment for fixed route • Connection to malls in other counties • Connection to other fixed route services in adjoining counties

10.0 TRANSIT ROUTE RECOMMENDATIONS

Due to the specific focus of the COA study to improve operational efficiencies of the current system, transit routing and operating modifications were analyzed and prioritized to develop a set of implementable short-term service recommendations. As documented in earlier sections of this report, extensive data collection and analyses were performed to evaluate existing service performance and coverage, potential new markets, and whether existing services are effectively providing the necessary mobility for the community. Google Earth, ArcGIS, as well as datasets provided by CCT were used to design routes and establish operational characteristics compared to the current transit network. The recommendations were vetted with CCT staff and modified in response to their feedback.

The following section describes the routing recommendation process beginning as a Short-Term Network (0-2 years) and transitioning into a Mid-Term Network (3-5 years), which includes extended service spans, improved headways, and the addition of Saturday service. The recommendations are based on demand, operator availability, and fiscal capacity.

Transit Network Modifications

An important initial recommendation for the COA was to first modify the existing network to address existing operational issues negatively affecting performance and ridership. These issues result from a variety of both internal and external factors throughout the service area including, overextension and redundancy in service coverage, circuitous one-way loops, and meandering alignments. These all contribute to longer travel times connecting to distant areas that make it difficult to meet existing time points.

As a result, key goals for the COA include:

- Minimize impacts to existing ridership while increasing system operational efficiencies.
- Preserve coverage, but realign routes where they are negatively impacting ridership, travel times, speed/reliability, on-time performance on existing routes, and connections.
- Reduce redundancy to better utilize resources to bolster other routes in the service.
- Streamline routes by removing excessive network overlap and add on-street stops in suitable areas.
- Implement app-based on-demand mobility options where suitable.

Any new routes implemented should be advertised in individual route brochures similar to existing routes. It also is recommended that each route brochure show the corridor headways associated with routes throughout a typical weekday or Saturday (if implemented), as well as fare and door-to-door/paratransit information.

Mobility-on-Demand Service

In addition to the fixed route modifications, a more modernized type of service known as mobility-on-demand (MOD) is being recommended. MOD is an emerging mobility operating concept that uses cloud-based Mobility-as-a-Service (MaaS) or Software-as-a-Service (SaaS) tools to allow passengers to hail a ride in real-time or schedule a ride in advance using a smartphone app or by making a phone call. It also facilitates optimized trip assignment sequencing (pickups and drop-offs). The cloud-based MaaS or SaaS platform continually updates and optimizes trip requests and assignments based on trip request times, origin and destination locations, vehicle location, and vehicle capacity considerations. These services operate very similarly to the privately-operated Transportation Network Companies (TNCs) like Uber and Lyft. The process is automated, and the vehicle operator receives and responds to trip assignments in real time. The technology platforms also may include fare payment, consistent with CCT policies. All trip data are collected and stored in real time and used to generate operations and management reports.

The primary difference between a SaaS solution and a MaaS solution is that MaaS incorporates a vehicle operations contractor, whereas SaaS assumes that vehicle operations are directly operated or otherwise procured by the transit agency (like most paratransit providers).

MOD service is designed to serve localized mobility (e.g., home to grocery store) and to provide connections to the fixed route transit network for longer trips (e.g., home to mobility hub to catch fixed route bus downtown). MOD is designed to work in areas, or zones, in which fixed route service may not be logistically feasible because of street network constraints or lack of density, where customers have limited mobility access to bus stops, or where the necessary infrastructure is not available for safe or convenient access to bus stops. MOD service is designed to operate as a point-to-point service within a designated service zone in response to customer requests (immediate or scheduled for a future time). This service is available as a service for all within the zone and thereby, serve a greater share of the mobility market including youth, choice riders, seniors, as well as supplement or replace growing demand for complementary paratransit services in certain areas.

MOD service would be available to the public traveling point-to-point within the zone and would accommodate those who need ramps for boarding. The proposed service has been designed based on density of demand within the defined zone and includes serving existing transit riders and those who have not used CCT in the past. A key benefit of MOD is that the service provided over the course of a day matches the demand, thus reducing unproductive service hours.

It is recommended that CCT explore implementing MOD service in Beverly Hills to replace the existing fixed route network; this would also give residents of Citrus Springs access to transportation. Future pilot zones, such as the Homosassa MOD zone outlined in the Other Considerations (Section 13) of this report, can also be explored.

Short Term Network Existing Route Modifications

The recommended Short-Term Network streamlines the existing transit network by eliminating excessive overlapping service and increasing opportunities for transit connections through the addition of MOD zones in areas with mobility gaps, or areas where operating fixed route services are inefficient in nature. The Short-Term Network introduces a less ambitious set of operational adjustments by maintaining the existing service span while improving the headway on each route and improving operational reliability by modifying the route network. This was done specifically to attempt to stay somewhat cost neutral. This network addresses the responses captured during the outreach efforts, which include more efficient cross county connections, more streamlined routing, and easier connections to major transit trip generators throughout Citrus County.

The Short-Term Network restructures routes to achieve a consistent transit network that provides faster and more direct travel options within the county while continuing to serve areas with high transit need. Route-level modifications included in the Short-Term Network are presented below.

Short-Term Network Modified/Replacement Services

The Short-Term Network proposes the four routes be consolidated into two routes, the Inverness Connector and Cross County Connector, with improved headways, as well as introducing MOD service.

Inverness Connector: The recommended Inverness Connector will provide hourly streamlined bidirectional north-south service between Hernando and Floral City. The Inverness Connector will provide connections to the recommended Cross County Connector at the Wallace Brooks Park (Veterans Park). This new transfer location will make cross-county connections to Lecanto, Beverly Hills, and Crystal River more efficient. It will also provide more connections to shops in downtown Inverness. In addition, Highlands South will now have bidirectional service on Apopka Avenue, as well as Floral City Library via Old Floral City Road. The Inverness Connector preserves coverage to Dollar General, downtown Inverness, Winn-Dixie, Publix, Highlands South, Lollygaggers, and Floral City Public Library, just to name a few.

The modifications to the existing Hernando and Floral City routes remove redundancy and duplication of service where ridership is the poorest. The savings from the route realignment repurposes the savings to serve areas with high transit need and expands service by operating routes bidirectionally, thereby providing more coverage to areas with high propensity to use transit.

Cross County Connector: The recommended Cross County Connector will provide hourly streamlined bidirectional east-west service between Crystal River, Lecanto, and Inverness. The Cross County Connector will provide connections to the recommended Inverness Connector at the Wallace Brooks Park (Veterans Park), which removes redundancy and duplication of service on SR 44. This new transfer location will make cross-county connections to Lecanto, Beverly Hills, and Crystal River more efficient. The recommended Cross County Connector will now provide bidirectional service to the Lecanto Walmart, Beverly Hills MOD, and the many shops and restaurants planned for the Lecanto Plaza. The recommended Cross County Connector preserves coverage to Crystal River, Coastal Regional Library, Lecanto Walmart, Lecanto Transit facility, Inverness Walmart, and downtown Inverness. This route will also serve the apartment complexes on Forest Drive and the Whispering Pines City Park bidirectionally.

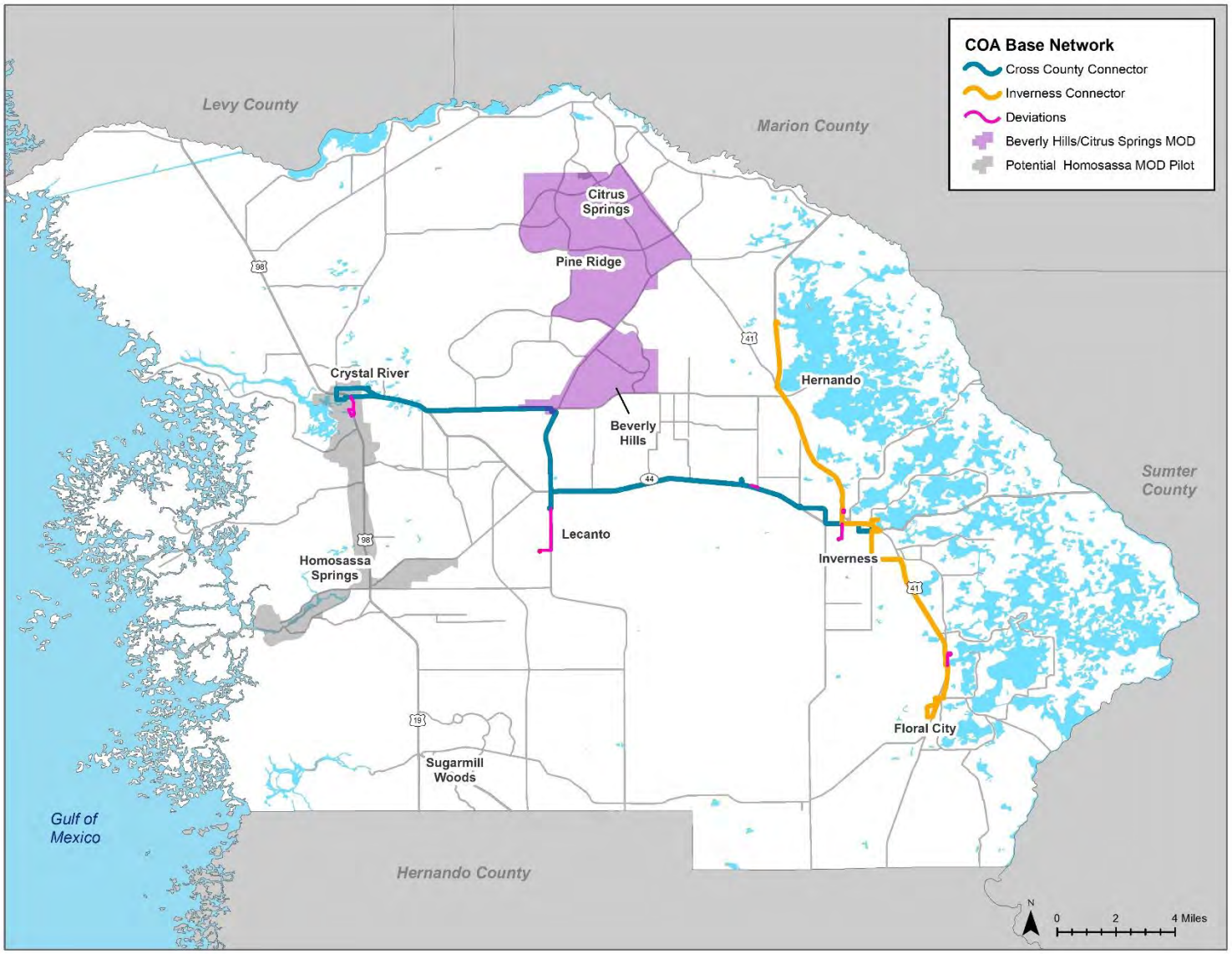
The modifications to the existing routes that make up the Cross County Connector removes redundancy, one-way loops, meandering alignments, and duplication of service where ridership is the poorest. The savings from the route realignment repurposes the savings to serve areas with high transit need and expands service by operating routes bidirectionally, thereby providing more coverage to areas with high propensity to use transit.

Beverly Hills MOD Zone: The Beverly Hills route is recommended to be replaced by MOD to facilitate efficient point-to-point travel to major destinations within the service area. Citrus Springs currently does not have connections to the fixed route network. It is recommended that the MOD service include Citrus Springs to offer on-demand connections to the Lecanto Walmart, which can help facilitate transfers to the fixed route network or other areas throughout Citrus County.

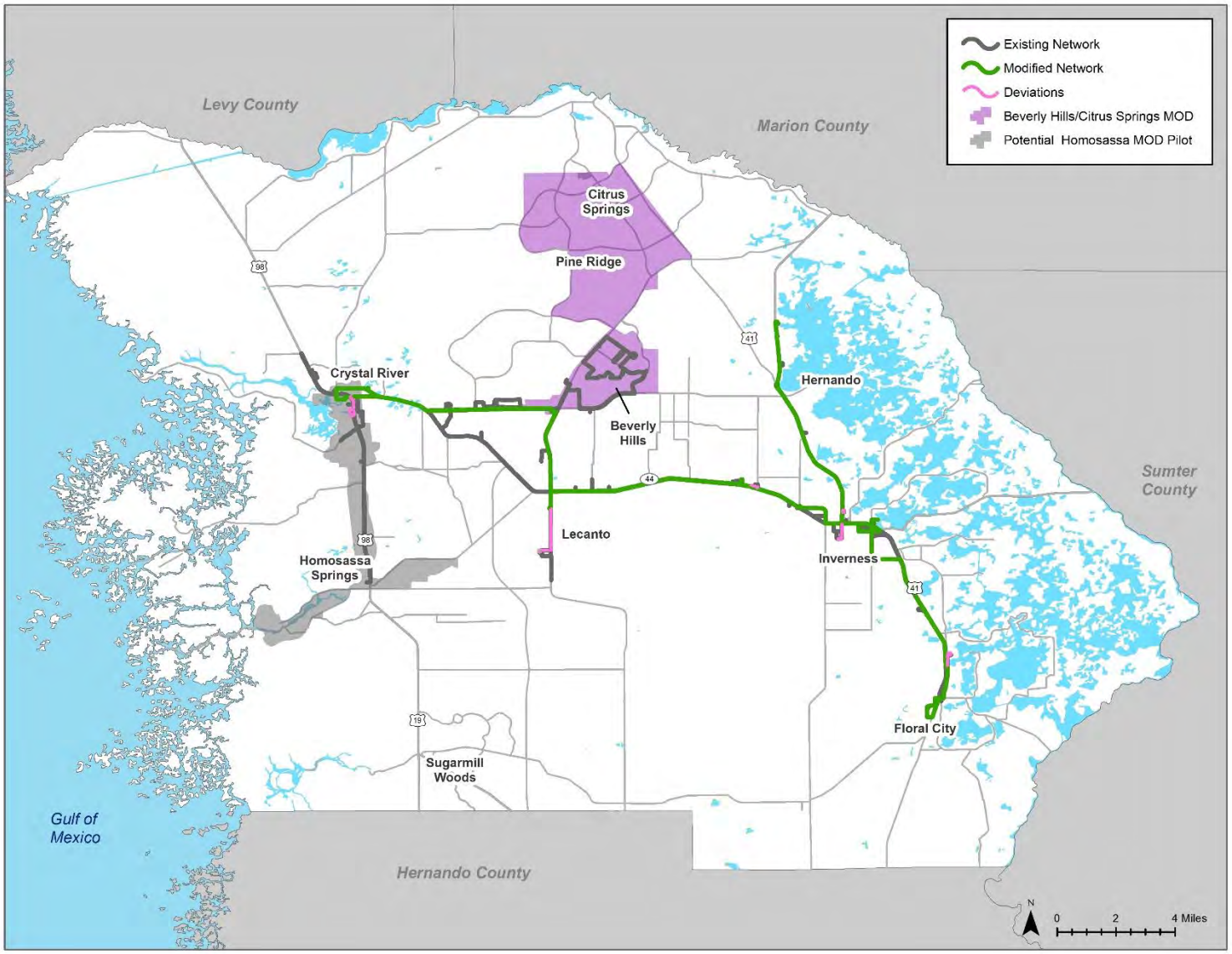
Improve Service to 60-minute Headways: How often a bus comes can determine the attractiveness for potential riders. For riders that depend on transit, infrequent service can be very restrictive. It is recommended that weekday headways be improved to 60-minutes for both the Inverness Connector and Cross County Connector routes beginning in the Short-Term Network and continuing in the Mid-Term Network.

Map 10-1 shows the proposed COA Short-Term Network while Map 10-2 shows modified network overlapping the existing CCT system. Map 10-3 shows transit need (using TOI data) compared to the modified network. As shown, the modified network not only preserves coverage to areas with high transit need, but it expands service to these areas by restructuring the routes to operate more efficiently and more often. Based on the changes to the network, most segments of the eliminated routes will be served by the new network. It is assumed that the realigned routes will be assessed for new stop locations along major corridors as this contributes to more efficient service and potential cost savings. Also shown on the maps are potential route deviations determined based on average daily ridership. The fixed route deviations can be built into the schedule with the allotted recovery time.

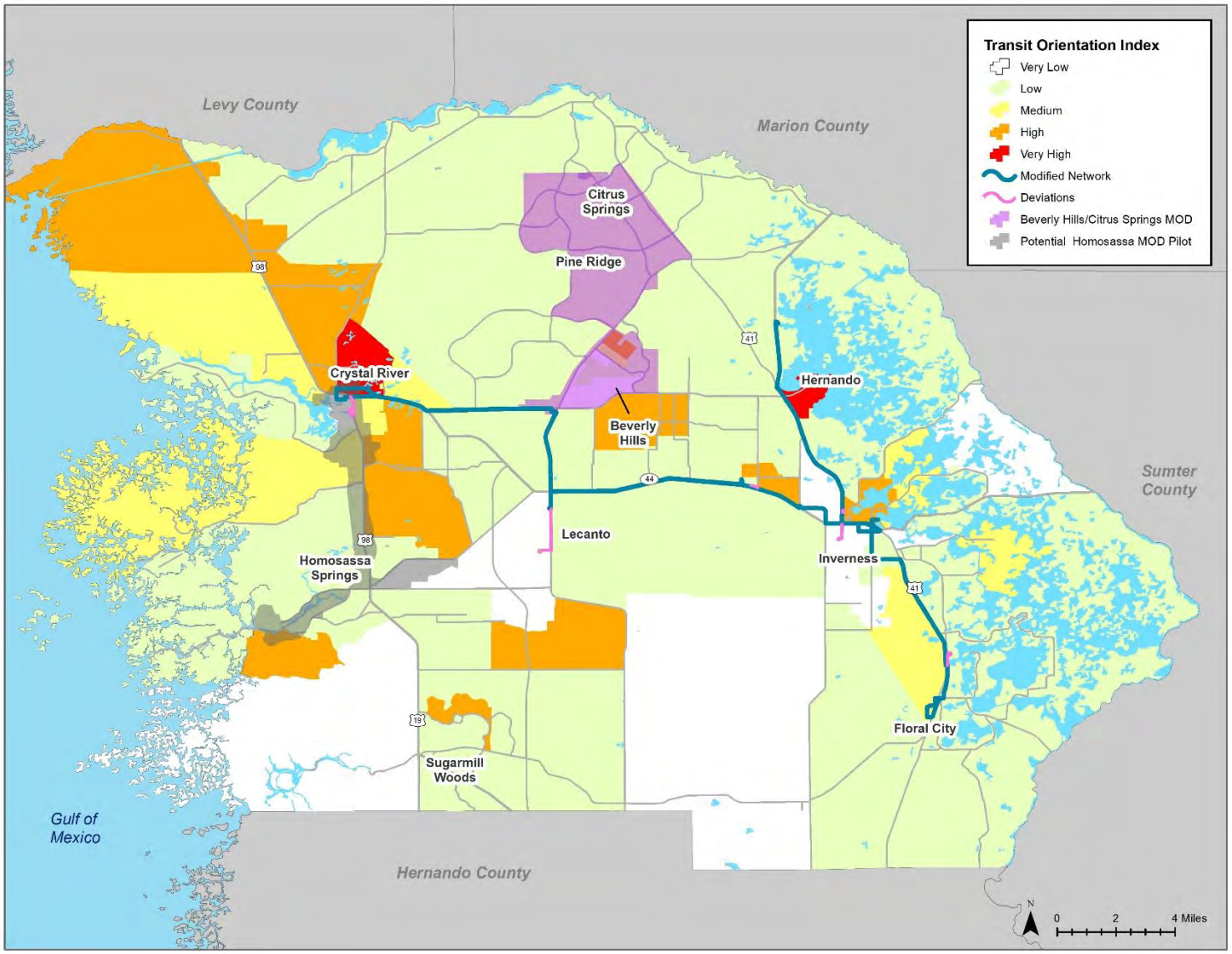
Map 10-1: Short-Term COA Network



Map 10-2: Short-Term COA Network with Existing Route Overlay



Map 10-3: Short-Term COA Network Transit Propensity Overlay



Mid-Term Network Recommendations

A COA is generally more focused on Short-Term improvements to realize immediate operating and financial benefits along with mobility enhancements, which can also be addressed in future TDP updates.

The Mid-Term Network builds on the proposed improvements to the Short-Term Network by increasing service span, adding Saturday service, and expanding MOD services. The Short-Term Network was designed so that additional route alignment changes are not required when implementing the Mid-Term Network recommendations. This will avoid disruption and confusion for passengers and operators once the Short-Term Network is in place.

Specific changes to the Mid-Term Network are detailed below.

Mid-Term Network Improvements

Enhancing existing fixed route services continues to be a top priority of current riders and is needed to make transit more attractive to non-riders, as confirmed by the outreach. To ensure that adequate service hours are provided daily, particularly so riders can better rely on public transit for work and other life-sustaining trips, the following service improvements were identified for the two proposed routes under the Short-Term Network:

Increase Weekday Evening Service: A major request from riders was to extend the weekday service span from 5:20 PM to 6:30 PM. As previously mentioned, service span can be increased later without the need to modify the route alignments or vehicle needs.

Implement Saturday Service: A major request from riders and operators was to implement Saturday service on the fixed route network. The COA recommends that CCT implement service on Saturday from 9:00 AM to 3:00 PM. Extending the hours past the recommended service span is based on demand and fiscal capacity. It is assumed that Saturday service will also be provided for the proposed Beverly Hills/Citrus Springs MOD service. MOD services do not operate on headways; however, for analytical purposes, the zone has been established with an average wait time of 15-20 minutes.

11.0 IMPLEMENTATION PLAN AND CHARACTERISTICS

This section presents the COA implementation plan and operational characteristics to guide CCT in the phased start-up, addressing service, capital/infrastructure, and policy considerations.

Short-Term Implementation Plan (0-2 Years)

Table 11-1 outlines the short-term implementation plan over a two-year period beginning toward the end of calendar year 2022. Improvements are based on the recommended network, which also will be refined based on travel patterns, congestion, land use, and other factors that affect the way transit and transportation systems evolve and operate.

Mid-Term Implementation Plan (3-5-years)

The recommended mid-term implementation plan outlines specific service improvements for a 3-5-year period beginning calendar year 2025, shown in Table 11-1. As previously mentioned, CCT will phase in the mid-term improvements based, in part, on fiscal capacity.

Implementation Schedule Operational Characteristics

Table 11-2 summarizes the operating characteristics and proposed implementation schedule for the Short-Term Network and Mid-Term Network.

Table 11-1: Short-Term and Mid-Term Implementation Checklist

Improvement	2023	2024	2025	2026	2027	2028
New/Modified Routes	Conduct outreach efforts for the planned service changes occurring in 2024 Examine Title VI changes based on COA network	Implement COA network and Beverly Hills MOD		Implement Saturday Service		
Headway Modifications		Implement 60-minute headways				
Span Modifications			Increase Weekday Service Span			
Eliminated Routes		Beverly Hills				
Planning + Capital		Study feasibility of on-street bus stops on the COA network		Technology Improvements MOD Expansion		
Operational Considerations	Program service changes MOD feasibility analysis	Route scheduling and run cutting Modify the complementary paratransit/door-to-door service to serve the two new fixed routes	Monitor Route system performance Monitor modifications to Paratransit / Door-to-Door Service			

Table 11-2: Short-Term to Mid-Term Network Operational Characteristics

	Short-Term Network					Mid-Term Network									
Improvement(s):	60 Min Headways (weekdays)					+ Increase Span					+ Saturday Service				
Timeframe:	2023-2024					2025					2026				
	Start (AM)	**End (PM)**	**Hdwy**	**VOMS**	**Rev Hrs**	**Start (AM)**	**End (PM)**	**Hdwy**	**VOMS**	**Rev Hrs**	**Start (AM)**	**End (PM)**	**Hdwy**	**VOMS**	**Rev Hrs**
Existing Network	6:00	5:20	90	4	9,968	6:00	5:20	90	4	9,968	6:00	5:20	90	4	9,968
COA Network	6:00	5:20	60	4	11,288	6:00	6:30	60	4	12,450	6:00	6:30	60	4	13,698
Change	**--**	**--**	**30**	**0**	**1,320**	**--**	**--**	**30**	**0**	**2,482**	**--**	**--**	**30**	**0**	**3,730**

12.0 OPERATING AND FINANCIAL PLAN

This section presents the operating cost estimates associated with the COA network compared to the existing CCT network.

Fixed Route Operational Changes

Primary focus was placed on areas of efficiency, effectiveness, and speed/reliability during the route modification process, which may affect mileage and revenue hours based on changes to the route geometry and speeds. This section highlights the existing vs recommended estimated operational characteristics by route for weekday service.

Tables 12-1 and 12-2 show the weekday span, headway, and vehicles operating in maximum service (VOMS) by route, annual revenue hours, and estimated annual operating expenses for the existing vs proposed Short-Term Network, respectively. Also summarized are the incremental changes in revenue hours for the existing system when implementing elements of the Short-Term Network improvements.

Table 12-1: Existing Weekday Network Operational Characteristics

Existing Network						
Route	**Start Time**	**End Time**	**Headway**	**VOMS**	**Annual Revenue Hours**	**Estimated Annual Operating Expense**
Floral City	6:00	17:20	90	1	2,528	$114,797
Hernando	6:00	17:20	90	1	2,432	$110,459
Beverly Hills	6:00	17:15	90	1	2,460	$111,725
Crystal River	6:00	17:15	90	1	2,547	$115,684
Total	--	--	--	**4**	**9,968**	**$452,665**

Source: CCT, 2022

**Based on CCT's marginal cost per service hour of approximately $45.41 (NTD, 2022 inflated to 2023). The annual inflation rate for all costs in this table is 3%, based on discussions with CCT staff.*

Table 12-2: Recommended Short-Term Network Weekday Operational Characteristics

Modified COA Network						
Route	**Start Time**	**End Time**	**Headway**	**VOMS**	**Annual Revenue Hours**	**Estimated Annual Operating Expense**
Cross County Connector	6:00	17:20	60	2	5,644	$256,309
Inverness Connector	6:00	17:20	60	2	5,644	$256,309
Total	--	--	--	**4**	**11,288**	**$497,688**

**Based on CCT's marginal cost per service hour of approximately $45.41 (NTD, 2022 inflated to 2023). The annual inflation rate for all costs in this table is 3%, based on discussions with CCT staff.*

Table 12-3 includes the operating costs based on modifications to the transit network, as well as the paratransit (door-to-door) service. The cost estimates are derived from the changes to the total system revenue hours associated with the Short-Term and Mid-Term Network elements multiplied by the operating cost per hour, adjusted for inflation for the year of implementation with improvements beginning toward the end of calendar year 2023.

Table 12-3: Citrus County Transit COA Estimated Financial Plan

	2023	2024	2025	2026	2027	2028
Maintain Existing Transit Services						
Maintain Current Fixed Route	$452,665	$466,245	$480,232	$494,639	$509,479	$524,763
Maintain Current Paratransit/Door-to-Door Service	$1,534,066	$1,580,088	$1,627,491	$1,676,316	$1,726,605	$1,778,403
Operating Costs to Maintain Current Network	**$1,986,731**	**$2,046,333**	**$2,107,723**	**$2,170,955**	**$2,236,084**	**$2,303,166**
Implement Proposed COA Network						
Implement COA Fixed Route Changes	$497,688	$512,619	$527,997	$543,837	$560,152	$576,957
Implement MOD + Paratransit/Door-to-Door Service Changes	$1,534,066	$1,677,129	$1,727,442	$1,779,266	$1,832,644	$1,887,623
Implement COA Service Span Changes			$54,353	$55,983	$57,663	$59,393
Implement COA Saturday Service Changes				$60,127	$61,930	$63,788
Operating Costs to Implement COA Network	**$2,031,754**	**$2,189,747**	**$2,309,792**	**$2,439,212**	**$2,512,389**	**$2,587,760**
Costs/Revenues to Implement COA Network						
Additional Local Contribution*	$11,256	$35,853	$50,517	$67,064	$69,076	$71,149
Additional State/Federal funds	$33,767	$107,560	$151,552	$201,193	$207,229	$213,446
Total Additional funds needed to Implement COA Network	**$45,023**	**$143,414**	**$202,069**	**$268,257**	**$276,305**	**$284,594**

Based on CCT's marginal cost per service hour of approximately $45.41 (NTD, 2022 inflated to 2023). The annual inflation rate for all costs in this table is 3% rounded to the nearest dollar, based on discussions with CCT staff.

*Per CCT staff, local contribution for transit is assumed at 25 percent of the total.

13.0 OTHER CONSIDERATIONS AND RECOMMENDATIONS

This section suggests several service and non-service recommendations that should be considered as a part of the COA.

Technology

Technology is an important tool to improve the customer experience and enhance operational efficiency. Technology improvements can focus internally on the operational needs of a transit agency, such as Automatic Passenger Counters (APCs) to track passenger activity or can be more outward facing to provide additional utility and benefit to patrons, such as real-time passenger information boards at transfer stations. Regardless of purpose, there are many available advanced technology systems and applications that agencies may consider, with an equally wide range of costs and potential benefits associated with them.

CCT already makes use of several different technologies to support its fixed route and paratransit services; however, to continue providing the best service possible for existing patrons and make services more attractive to new riders, CCT should continue evaluating new/improved technologies. Technology improvements that CCT may want to consider as enhancements are made to the system over time include:

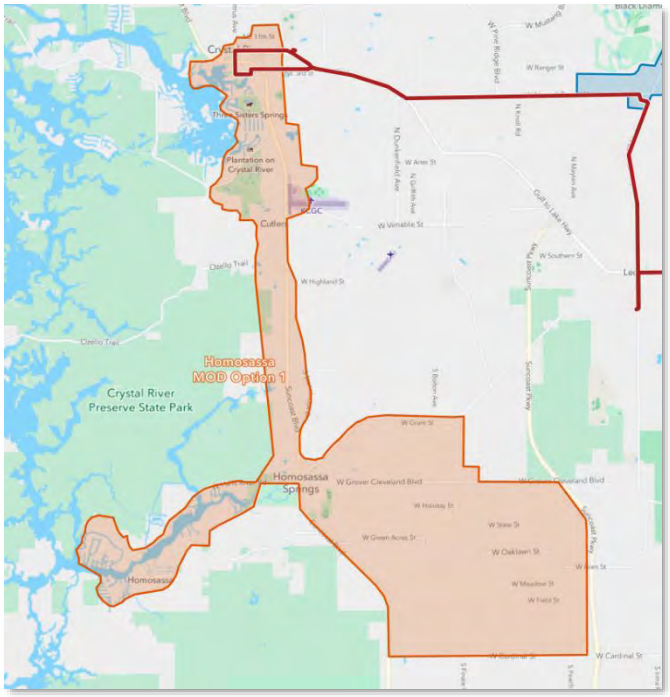
- Replace or upgrade fixed route scheduling software
- Replace or upgrade paratransit scheduling and dispatch software
- Upgrade and monitor computer-aided dispatch (CAD)/Automatic Vehicle Locations (AVL) for fixed route with supervisor remote laptop access
- Upgrade passenger counter systems on all fixed route vehicles
- Install Interactive Voice Response (IVR) system to notify riders of next bus times, bus schedule information, bulletins, and routine route information
- Implement on-board information media system
- Incorporate wireless internet on all busses

Explore MOD in Homosassa

In addition to the recommended transit options presented in Section 9, CCT should explore a potential MOD zone for the Homosassa in the longer-term. MOD service is better suited for this area of the county due to its lack in connectivity to other parts of Citrus County.

A conceptual Homosassa MOD zone is illustrated in Figure 13-1, estimated to cost approximately $215,000 per year. As MOD service must be ADA accessible, this would replace more expensive paratransit services, thus decreasing the overall operational cost for transit in this area.

Figure 13-1: Homosassa MOD Zone



Additional areas for potential MOD service are those with minimal transit access and higher demand, such as Sugarmill Woods, Pine Ridge, and Highlands north and south. A MOD feasibility study in the future can help evaluate service potential.

Shelter Design and Consistency

Bus stop infrastructure helps make service more attractive, especially for riders who must wait for the bus during inclement weather or heat, offers a visual identifier of the bus stop location, and often contributes to the perceived quality of the transit agency and its services.

The design and function of a bus stop shelter can vary considerably based on location, ridership, agency design standards, and other factors. CCT's existing bus shelters vary in style and condition. It is recommended that CCT adopt a consistent bus shelter design throughout its service area to provide visually appealing bus shelters that are comfortable places to wait and connected to adjacent development by safe and accessible walking conditions.

Bus Stop Location

Based on the field review and assessment of development patterns along the major transit corridors, it is recommended that CCT utilize more on-street bus stops. On-street bus stops facilitate more streamlined and efficient service, along with being considered a marketing tool for CCT to attract new riders.

With recent developments and expanded roadways throughout Citrus County, the major transit corridors are beginning to have the proper pedestrian infrastructure, thus facilitating the ability to assess locations for on-street bus stop locations.

Title VI Analysis

Title VI of the Civil Rights Act of 1964 prohibits discrimination on the basis of race, color, or national origin in programs and activities receiving Federal financial assistance. The Federal Transit Administration (FTA) Circular 4702.1B requires any FTA recipient serving a population of 200,000 or greater or 50 or peak buses to evaluate any fare change and major service change at the planning and programming stages to ensure that such proposed changes do not unfairly impact minority and low-income populations. While CCT does not meet this threshold, it is recommended that the agency conduct an equity analysis to examine areas that may be affected by major service reductions and/or major service expansions prior to implementing the network.

CRYSTAL RIVER/TURKEY OAK DRIVE BYPASS STUDY – DRAFT FINAL REPORT

The draft of the final report on the Crystal River/Turkey Oak Drive Bypass Study will be provided at the meeting unless provided to MPO staff prior to the meeting; at which time, it will be sent to the committees via email. This report is scheduled for presentation to the MPO Board at their regular meeting on April 6, 2023, by Kimley-Horn, General Planning Consultant.

Staff Recommendation: It is recommended the TAC review the draft final report and recommend approval by the MPO Board.

2050 LONG-RANGE TRANSPORTATION PLAN (LRTP) SCOPE B PROPOSAL

Attached is a proposal from Kimley-Horn, General Planning Consultant, for the 2050 Long-Range Transportation Plan (LRTP) for the review and recommendation to the Hernando/Citrus Metropolitan Planning Organization Board (MPO).

Staff Recommendation: It is recommended the TAC review the proposal and recommend approval by the MPO Board.

SCOPE OF SERVICES
2050 LONG RANGE TRANSPORTATION PLAN – SCOPE B
PLAN DEVELOPMENT PHASE 2
HERNANDO/CITRUS METROPOLITAN PLANNING ORGANIZATION
(MARCH 15, 2023)

A. TASK OBJECTIVE DESCRIPTION

Background

The Hernando/Citrus MPO is required to update its Long Range Transportation Plan (LRTP) every five years. The next update of the LRTP will have a horizon year of 2050 and must be adopted by the MPO Board and submitted to the Florida Department of Transportation (FDOT), the Federal Highway Administration (FHWA), and the Federal Transit Administration (FTA) by December 2024. The 2050 plan must address the Federal requirements of the Bipartisan Infrastructure Law and existing and subsequent rule making. Additionally, F.S. 339.175 requires that LRTP's must be coordinated with and consistent with local government Comprehensive Plans.

Overview

This scope of services provides support to the Hernando/Citrus MPO in the development of the 2050 Transportation Plan. The tasks in this scope will assist the MPO in the following plan elements:

- Revenues and Cost Data
- Needs Plan
- Cost Affordable Plan
- Performance Evaluation Reporting
- Public Involvement
- Regional Coordination and Technical Support

The following tasks are necessary to the project goal and objectives:

- Task 1: Revenues and Unit Costs
- Task 2: 2050 Multi-modal Needs Plan and Long Range Transit Element
- Task 3: Develop the Multi-modal 2050 Cost Affordable and Interim Cost Affordable Plan
- Task 4: Develop Performance Evaluation Reporting Process
- Task 5: Update Safety, ITS, and Security Components

- Task 6: Conduct Public Involvement and Public Presentations
- Task 7: Regional Coordination and Technical Support

B. SCOPE OF SERVICES

Task 1: Revenues and Unit Costs

The Consultant will summarize revenues and costs through the year 2050, as outlined below.

Revenue Estimates – Revenue forecast information will be obtained from the Florida Department of Transportation (FDOT), and will provide revenue estimates for State and Federal revenue sources. Local revenues generated with the assistance from MPO staff and the staff from Citrus and Hernando Counties, as well has the appropriate municipalities in each county. These efforts include the estimation of revenues designated for capital, operating, and maintenance of transportation facilities (roads, bicycle and pedestrian facilities, and public transportation) in Hernando and Citrus Counties. In addition, private development and other sources of revenue that can be reasonably expected to be available will also be reviewed, evaluated, and documented.

Based on the information from the FDOT and the MPOAC the Consultant will estimate annualized revenues through the year 2050 in 5-year or 10-year increments for the purpose of developing the 2050 Cost Affordable Plan. A draft Technical Appendix will be prepared to summarize the revenue estimates developed for the MPO, along with a description of the assumptions used in preparing the revenue estimates. The Appendix will supplement a chapter created for the LRTP report and will be reviewed in the MPO's LRTP Consensus Building Workshop's (CBW's). The report chapter and Appendix will be submitted to MPO staff for review. Final revenue estimates and assumptions will be documented in a final Technical Appendix as well as a chapter for the Final LRTP report. This effort sets the structure for the LRTP report and the snapshot of revenues gets added to the tech appendix. Toward the end of the plan the chapter gets updated and info is added to a new section of the technical appendix as needed.

Cost Estimates – Unit costs to develop project specific costs will be developed. These costs will be reviewed and updated based upon average cost categories applied to each County database link as appropriate. Cost assumptions developed previously by the MPO and County Engineering staffs will be reviewed and updated, as appropriate. These average cost

estimates will be formatted for the type of improvements that the County anticipates (0 to 2 lane widening, 2 to 4 lane widening, etc.). Additional emphasis will be placed on estimating the operating cost of maintaining the existing and future multi-modal transportation system as part of this Transportation Plan update. For State Roads, the general planning cost guidelines provided by the updated FDOT "Transportation Costs" document, or specific capital cost estimates provided by FDOT District 7 for improvements on the State Highway System and other federally funded projects will be used. The results of the cost estimation process will be summarized in a draft Technical Appendix as well as the draft LRTP report chapter.

A meeting will be held with MPO and FDOT staff to review the Technical Appendix and draft LRTP report chapter. Based on comments received at this meeting and through the public involvement process, the Consultant will produce a final Technical Appendix for Revenue and Cost Estimates as well as a final LRTP report chapter.

Responsibilities of Consultant:

- Utilize information provided by Hernando and Citrus Counties to update annual revenue estimates and costs for the Hernando/ Citrus MPO through the year 2050,
- Prepare draft Technical Appendix summarizing updated revenue estimates and associated assumptions as well as a draft LRTP report chapter;
- Submit draft Technical Appendix and draft LRTP report chapter to MPO for review;
- Meet with MPO staff to review and discuss revenue and cost information;
- Meet with MPO and FDOT staff to review and discuss the revenue and cost estimates;
- Prepare final Technical Appendix and LRTP report chapter and provide to MPO.

Responsibilities of the MPO:

- Review draft Technical Appendix and LRTP report chapter and provide comments;
- Meet with Consultant and FDOT to review and discuss revenue and cost estimates;
- Receive final Technical Appendix and LRTP report chapter.

Task 2: 2050 Multi-modal Needs Plan and Long-Range Transit Element

The Needs Plan will be multimodal in nature and will address needs related to alternative modes. This task will provide analysis to address needs related to transit, bicycle and pedestrian facilities, intermodal facilities, and goods movement. This task sets the foundation for technical information that will be utilized to develop needed transportation projects. The Consultant will identify Context Classification designations for non-state roadways included in the MPO major roadway network.

Once the 2050 Multi-modal Needs Plan is completed, the MPO Prioritization Process will be reviewed and updated by the MPO to establish road widening project priorities for the final Needs Plan. The Consultant will work closely with MPO staff in the subsequent prioritization process. The results of the project prioritization process will be used subsequently in the development of the 2050 Multi-modal Cost Affordable Transportation Plan. This task will include two meetings with MPO staff and two meetings with the FDOT Technical Review Team (TRT) to review and finalize the 2050 Multi-modal Needs Plan network. The Consultant will also develop preliminary present-day costs and year of expenditures costs for the 2050 Multimodal Roadway Needs Plan that will then be used to develop the Cost Affordable Plans (2050 and Interim Year) as well as document the Unfunded Roadway Needs Plan costs.

The Consultant will review bicycle and pedestrian plans provided by MPO staff as well as the 2045 Long Range Transportation Plan for initial development of the needs. In addition, the Consultant will review existing documents, including the 2045 LRTP and conduct one meeting with MPO staff to discuss intermodal facilities and truck traffic movement in Hernando and Citrus Counties. The Consultant will prepare a multi-modal map series for review with staff. Input from staff will be incorporated as appropriate, into the final 2050 Needs Plan. In addition, this task will include a minor update of the Transit Element to the 2050 horizon time frame with assistance from the MPO staff and coordination with the local transit agencies.

The Consultant, with assistance from the MPO staff, will document the final 2050 LRTP Needs Plan, prioritization process and evaluation, and Long-Range Transit Element for inclusion in FDOT required Document “A” as necessary, and 2050 LRTP Summary Report. The MPO staff will review the documentation and provide written comments to the Consultant. Comments received from the MPO staff will be addressed in a future Scope task for the development of Document “A” and the 2050 LRTP Summary Report.

Responsibilities of Consultant:

- Review and update project priorities using the MPO's Project Prioritization Process and the final 2050 Highway Needs Plan;
- Final 2050 Highway Needs Costs;
- Address intermodal facilities and truck traffic movement as part of the development of the 2050 Needs Plan (Prepare map series and conduct one meeting with MPO staff);
- Attend two FDOT TRT meetings
- Update Long Range Transit Element to 2050.
- Update costs and revenues for Transit Needs and Cost Affordable Plans.
- Coordinate with local transit agencies and the regional transit planning.
- Prepare initial text and maps for 2050 LRTP Needs Plan and Long-Range Transit Element

Responsibilities of the MPO:

- Coordinate with Consultant as necessary.
- Review Prioritization Process and the final 2050 Highway Needs Plan
- Participate in meetings with Consultant as documented above.
- Review draft maps and reports.
- Review draft documentation for 2050 LRTP Needs Plan and Long Range Transit Element and provide written comments to Consultant.

Task 3: Develop the Multi-modal 2050 Cost Affordable and Interim Cost Affordable Plan

The Consultant will review travel demand model for further analysis for the Initial Needs Plan, Final Needs Plan, and Initial Cost Affordable Plan. The Consultant will use this process to create the final 2050 Cost Affordable Plan. The 2035 or 2040 Interim Cost Affordable Plan will be created by interpolating the Existing + Committed volumes with the final 2050 Cost Affordable Plan volumes, making adjustments and determining Interim Plan improvements in coordination with MPO staff.

<u>Cost Affordable Plan Development and Mapping</u>

After reviewing the required number of lanes for the final 2050 Needs Plan, the costs associated with the Needs Plan improvements, the initial 2050 Cost Affordable Plan, results of model runs provided by FDOT, public input, the revenues available, and the project priorities, the final 2050 Cost Affordable Plan network will be developed. This will be a joint effort

between the Consultant and MPO staff. As appropriate, the Consultant and MPO staff will coordinate with the regional long-range transportation planning process in updating and finalizing the 2050 Cost Affordable Plan.

As indicated above, the 2035 or 2040 Interim Cost Affordable Plan will be created by interpolating the Existing + Committed volumes with the final 2050 Cost Affordable Plan volumes, reviewing other FDOT model runs, making adjustments and determining Interim Plan improvements in coordination with MPO staff. The resulting estimated Interim Plan volumes will be used in performing the 2035/2040 performance evaluation.

The products for the 2050 Needs and Cost Affordable Plans are listed below. It may be determined that one or more of these products (reports and maps) are not necessary for every network being developed in this task work effort. Specific needed products will be jointly agreed upon between the Consultant and MPO staff.

- Volume Comparison Report (base volume, previous model run volume, current model run volume);
- Volume Reality Check Report (identify roadway segments where the future volume is less than the current volume);
- Volume Smoothing Report;
- Performance Report;
- Road Improvement Cost Report;
- Number of Lanes Map;
- Road Improvement Map;
- Average Annual Daily Travel Map.

Alternative Modes, Truck Routes and Hurricane Evacuation Routes

The 2050 Multi-modal Needs Plan will be used to develop the Cost Affordable Plan for transit, bicycle and pedestrian facilities, intermodal facilities and truck routes consistent with the 2050 Cost Affordable and the Interim Cost Affordable Plan. Additionally, hurricane evacuation routes will be documented in GIS and map files.

Cost and Revenue Balancing and Project Phasing

The Consultant will utilize update the 2045 LRTP Cost Affordable spreadsheet to balance project costs and revenues as reasonable, by five-year increments and ten years for highway

projects for the 2050 plan. Transit projects will also utilize this spreadsheet format. Both the highway and transit projects will be summarized in a user-friendly format that displays present day and year of expenditure costs as well as the phase (i.e. for highways - PD&E/Design, Right of Way, Construction) as well as the phased year and funding type. Transit projects will include capital and operations and maintenance costs. MPO staff will provide the latest TIP information to be placed within FDOT's spreadsheet in tabular format as well as specific project information as available contemplated beyond the TIP. Bicycle/Pedestrian/Multi-use modes will also be summarized by present day and year of expenditure costs. Several tools will be used to help document the phasing of projects within the five and ten-year windows of the spreadsheet including feedback from the public, a review of highway prioritization as well as feedback from MPO staff which will include direction on desired funding type (i.e. State or Local funds) for certain projects as applicable. The Consultant will conduct one review meeting with the MPO staff to discuss the balancing of costs and revenues and project phases of multi-modal projects. Additionally, the Consultant will attend two FDOT TRT meetings to help coordinate the 2050 Cost Affordable Plan and Interim Cost Affordable Plan networks.

The Consultant will prepare the 2050 Multimodal Cost Affordable Plan documentation for inclusion in FDOT required Document "A" as necessary, and 2050 LRTP Summary Report. The MPO staff will review the documentation and provide written comments to the Consultant. Comments.

Responsibilities of Consultant:

- Create Interim Cost Affordable Plan data file, including quality control of level of service and other related data variables;
- Map estimated volumes and roadway performance for the 2050 and interim Cost Affordable Plans;
- Create revenue vs. cost summary sheets for 2050 Cost Affordable Plan and Interim Plan networks (final alternative)
- Address public transportation, bicycle/pedestrian facilities, intermodal facilities and goods movement as part of the development of the 2050 Cost Affordable Plan;
- Map hurricane evacuation routes;
- Participate in one meeting with the MPO staff to review and finalize the 2050 Cost Affordable Plan network as well as to review the FDOT Cost Affordable spreadsheet provide direction on project phasing and funding type;

- Attend two FDOT TRT Meetings
- Prepare 2050 Multimodal Cost Affordable Plan documentation

Responsibilities of the MPO:

- Review tabular listing of changes to the final 2050 Needs Plan network necessary in order to create the initial 2050 Cost Affordable Plan network and subsequent networks, as provided by Consultant;
- Provide all model output files for each iteration of the 2050 Cost Affordable Plan network;
- Coordination and attendance, as necessary, with the Consultant in meetings to review and finalize the Cost Affordable Plan network alternatives;
- Provide latest TIP information to be placed within FDOT's spreadsheet in tabular format as well as specific project information as available contemplated beyond the horizon year of the TIP.
- Review draft documentation for 2050 Multimodal Cost Affordable Plan and provide written comments to the Consultant.

Task 4: Develop Performance Evaluation Reporting Process

The purpose of this task will be to gather and report performance information for the existing plus committed, Needs Plan, Cost Affordable Plan, and Interim Cost Affordable Plan networks. Information with be gathered as available from FDOT's model outputs and the resulting information will be summarized in a standard report format that will allow comparison of alternatives. The performance evaluation information will also be related back to the Goals and Objectives as well as to the Measures of Effectiveness. This information will be incorporated into the 2050 Multi-modal Transportation Plan performance evaluation.

Responsibilities of Consultant:

- Document process and create standard performance report
- Summarize FDOT transportation demand model performance information and other MOE information.
- Document performance evaluation.

Responsibilities of the MPO:

- Review and provide written comments to Consultant on the performance evaluation

information, standard performance report and draft documentation for 2050 Multimodal Cost Affordable Plan.

Task 5: Update Safety, ITS, and Security Components

This task includes documenting and mapping the County's ITS integration into the 2050 LRTP Update. This effort will be completed by the MPO staff and will summarize existing data and information from the FDOT District 7 ITS architecture and other information available from FDOT and Hernando and Citrus Counties. The ITS Plan will include the following:

- Updated summary of existing ITS projects and plans for ITS in the future from FDOT, and Hernando and Citrus Counties.
- Updated list and preliminary prioritization of user services in Hernando and Citrus Counties
- Identification of responsible agencies and/or stakeholders for each user service
- Integration of the FDOT District 7 ITS architecture for Hernando and Citrus Counties

A safety component will be developed for the 2050 LRTP Update using crash data from the latest FDOT Safety data and analysis.

Information on transportation security will be compiled by the MPO staff including discussing emergency relief and disaster preparedness plans and strategies and policies supporting homeland security (as appropriate). Key concerns are generally associated around freight including airports, bridges, intermodal yards, and rail facilities.

The Consultant will prepare draft documentation for ITS, Safety, Security Components (from MPO staff) for inclusion in FDOT required Document "A" and 2050 Summary Report. A meeting will be held with MPO and County staff to discuss the draft documentation.

Responsibilities of the Consultant:

- Document and map ITS initiatives as compiled and provided by MPO staff.
- Display crash information from FDOT District 7
- Prepare draft documentation for ITS, Safety, Security Components for inclusion in FDOT required Document "A" and 2050 Summary Report and attend meeting with MPO staff to review documentation.

Responsibilities of the MPO:

- Document and map ITS initiatives and provide to consultant.
- Review draft documentation and attend consultant meeting to discuss documentation

Task 6: Conduct Public Involvement and Public Presentations

The purpose of the task will also be to build on the initial stakeholder interviews conducted during the development of the socioeconomic forecast and alternative revenues analysis. These Public Involvement efforts will be consistent with the Hernando/Citrus MPO's Public Participation Plan (PPP).

The Consultant will coordinate with MPO staff to gauge public input that has been received through efforts described below and other efforts.

Consensus Building Workshops (One)

One Consensus Building Workshop will be conducted during the development of the Multi- modal Cost Affordable Plan (as agreed by MPO and Consultant staff). The Consensus- Building Workshop is a half day public forum where past stakeholders and other citizens participate in a breakout group setting to discuss existing and future transportation issues, projects, costs, revenues and services. The MPO staff will assist in inviting participants, selecting and securing the workshop location and assisting the consultant in facilitating the workshop.

Project Workshops/Open Houses

The Consultant will provide support and materials for MPO staff for two project workshops or open houses that may be more geographic in nature to engage groups of the community identified by the MPO. The MPO staff will conduct these workshops using information provided by the Consultant. The MPO staff will provide documentation of these workshops to the consultant for inclusion in FDOT required Document "A", as necessary, and the 2050 Summary Report.

Environmental Justice Workshops

The MPO staff will conduct two Environmental Justice Workshops. In order to engage participants in these workshops, the Consultant will provide MPO staff with agreed upon materials, including materials from the Socio-Cultural Effects (SCE) and Environmental Justice (EJ) work efforts in Scope A. This effort will require an assessment of countywide performance with regard to SCE and EJ (completed in Scope A). Proposed transportation projects will be evaluated as they impact areas of the county with a high concentration of minority, low-income, or other traditionally under-served populations. The MPO staff will provide documentation of these

workshops to the consultant for inclusion in FDOT required Document “A”, as necessary, and the 2050 Summary Report.

Public Information Notifications and Theme/Branding Support

The Consultant will provide MPO staff with agreed upon materials in order for MPO staff to develop newsletters, a project website, or email announcements. The Consultant will also support MPO staff in the development of a theme or brand for the 2050 multimodal LRTP.

Presentations

The Consultant will prepare materials for and attend the following meetings during the development and approval of the 2050 Cost Affordable Plan:

- Prepare for 2 TAC meetings and attend 1 meeting
- Prepare for and attend 2 MPO Board meetings

Responsibilities of the Consultant:

- Prepare for and conduct one Consensus Building Workshop (CBW) and document results
- Provide support materials for two MPO staff conducted environmental justice workshops
- Provide support on public Information and theme/branding support
- Prepare for 2 TAC meetings and attend 1 meeting
- Prepare for and attend 2 MPO Board meetings
- Prepare public outreach documentation materials.

Responsibilities of the MPO:

- Assist in inviting participants to one Consensus Building Workshops (CBW)
- Discuss materials needed for MPO staff to conduct two environmental justice workshops
- Discuss materials needed for two TAC meetings
- Discuss materials needed for two MPO Board meetings
- Review and provide written comments to Consultant on public outreach documentation.

Task 7 Regional Coordination and Technical Support

The CONSULTANT will provide on-going technical support to the Hernando/Citrus MPO staff in the plan development process. This includes preparation and attendance meetings with local agencies and at regional coordination meetings such as the Technical Review Team (TRT). This also includes attendance at Hernando/Citrus MPO TAC, CAC, and Board meetings. Preparation and attendance at meetings under this task will only occur at the direction of the MPO staff. This task element also provides for technical support to the MPO staff as requested, and has a limit of $5,000.

C. TIME OF COMPLETION

Tasks 1 to 6 will be developed consistent with the FDOT and Sun Coast Transportation Planning Alliance (SCTPA) schedule for developing the long range transportation plans and associated modeling efforts. Task 7 will be completed on an on-call basis with direction from the MPO Project Manager.

D. COMPENSATION

The budget for this scope of services is $153,858

E. RECORD KEEPING

The CONSULTANT shall prepare an invoice on a monthly basis. The invoice will be based on the percent complete achieved for each authorized task. The invoice will also show the total amount previously invoiced and the net amount due for the current invoice. The CONSULTANT shall provide a monthly status report illustrating the work accomplished during the monthly reporting period. Invoices are due and payable upon receipt. Tasks 1 through 6 will be billed on a lump sum fee basis as summarized in the attached man hours and budget summary included as part of this scope of services. Task 7 will be billed on a cost-plus basis with a limit of $6,060.