



# Economic Development Strategic Plan - RCM2342AS Task 8 Report

prepared for:

**City of Cape Coral Office of Economic and  
Business Development.**

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Table of Contents

8.a – The Need for Speed..... 2

    Fiber Optics ..... 3

        A Potential Revenue Source ..... 3

    Smart Cities ..... 7

        FloodWatch Cape Coral ..... 8

8.b – Physical Infrastructure ..... 9

    Water & Sewer ..... 9

    Solar Infrastructure ..... 10

    Stormwater Infrastructure..... 12

8.c – Transportation ..... 14

    MicroTransit ..... 15

        Unique Microtransit Potential..... 16

    Air Service..... 19

8.d – Task 8 Progress Report/video conference..... 23

Table of Exhibits

Exhibit 8.1 – Cape Coral Data Center Locations ..... 2

Exhibit 8.2 – LeeTran Bus Route Map ..... 14

## Task 8: Infrastructure Analysis

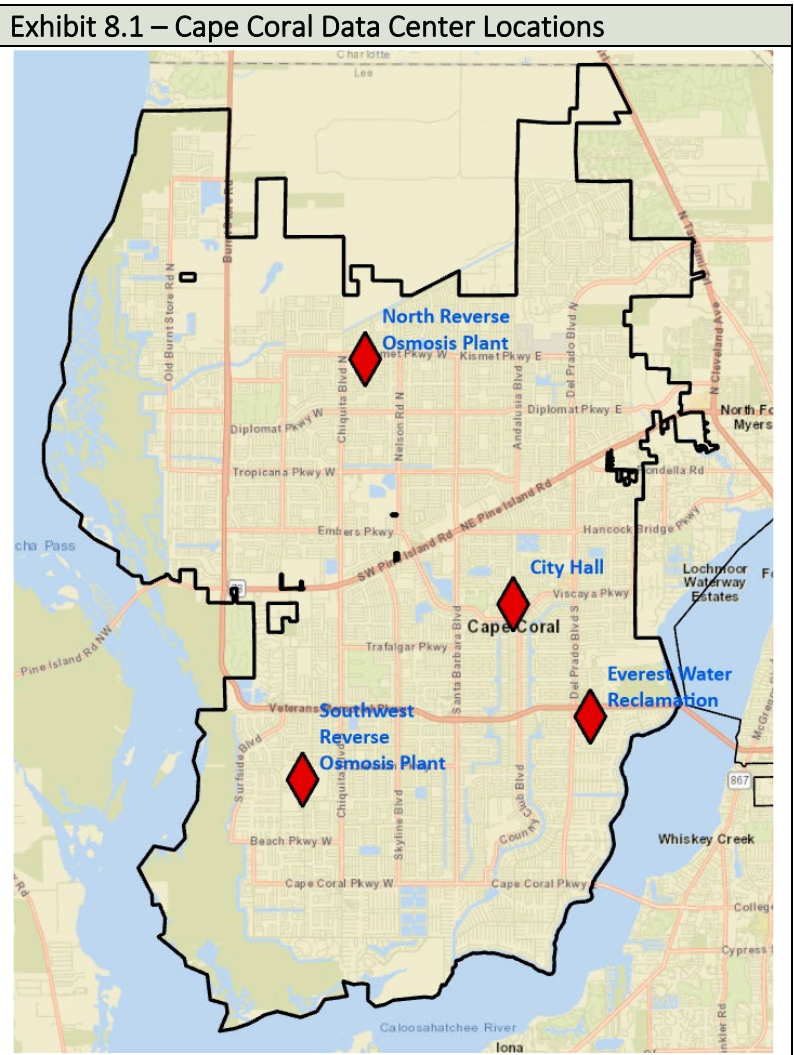
### 8.a – The Need for Speed

The City of Cape Coral Information Technology Plan 2023 recommends expansion of the City’s fiber ring to additional City assets. Primarily, those assets include:

- Parks
- Fire Stations
- Utilities
- Wells
- Master pumping stations

Interviews with the Cape Coral Information Technology Service Department (ITS) have revealed that to meet the cabling goal, approximately **142** miles of fiber optic will be installed. According to the City’s Information Technology Services (ITS) Dept., approximately **40%-50%** of the objective has been met. ITS indicates that completion of the effort will be by the end of **2027**.

At this time, about **30%** of parks in the City have WIFI capability. As a means of managing the complex network, the City operates **four** municipal data centers located at: City Hall, the Southwest Reverse Osmosis Plant, the North Reverse Osmosis Plant, and the Everest Water Reclamation Center. These locations are shown in the map graphic (right).



## Fiber Optics

The fiber optic cabling installation will connect **65** City locations and **139** utility assets. To accomplish this, the Utility Expansion Project (UEP) in coordination with Information Technology Serviced (ITS) is burying “dark fiber” conduits in all new utility trench excavations. This cooperative arrangement will reduce the cost and timelines for fiber optic services to needed City location as well as residential area expansions.

The initial costs for fiber-only installation was estimated at \$100,000 per mile. The national average for fiber installation is within the \$60,000 to \$80,000 per range, making Cape Coral a more expensive location. An ITS analysis conducted for the City Council in 2024 of fiber-versus-satellite found in favor of fiber optics. Co-working with the UEP will continue to reduce capital expenditure (capex) costs going forward. The City has operating agreements with private contractors (Summit Broadband, Lightspeed Construction, Intelligent Infrastructure Solutions) as well as Lee County on dark fiber installation and leasing. Although the project RFP asks for an analysis of potential partnerships with private contractors on installation costs reductions, the recent ITS-UEP cooperation has made the need for this analysis moot and will not be undertaken in this study.

### A Potential Revenue Source

As new fiber optics demand is projected, the City is installing a 288-strand dark fiber in conduit in cooperation with Utilities construction. Of this cable, 144 strands will be dedicated to City use (50%), and another 72 strands will be left in reserve. This would leave 72 strands (25%) as possibly redundant. The City’s ITS suggests that a maximum of 120 miles of cable should be considered for lease.

Leasing of excess dark fiber by municipalities to a variety of commercial or institutional enterprises is common:

- Manufacturing and logistical companies
- E-commerce and retail operations
- Schools
- Hotels
- Government institutions
- Internet providers
- Telecommunication companies

**Leasing Rates**

Research into commercially available dark fiber from Nashville, TN indicates that leasing is based on a descending mileage scale starting at \$144 per strand per mile per month in a 0 to 15-mile range down to \$80 for 51+ miles. Added to this would be a monthly maintenance fee of \$5 per strand per mile.

We will assume that the City of Cape Coral will be somewhat more affordable than a commercial provider and use the monthly figures of **\$75** per strand per mile, for over 60 miles, or **\$90** per strand per mile, for less than 60 miles. The problem is that a company or institution may likely need only a portion of the available strands, such as 12 or 24 pairs, or perhaps for shorter distances, so finding others to lease the balance will require targeted marketing.

For dark fiber leasing, there are 2 types of leases: Indefeasible Right of Use (IRU) or Short-Term. Since the City may need to recapture use of the unused strands in the future, we would recommend Short Term leases of a maximum of five years over IRU. In the following tables, scenarios are presented that calculate potential revenues for the City from dark fiber leasing:

<b>Scenario 1 – 72 strands use; maximum mileage</b>					
Item	Monthly Cost	Months	# of Strands	Miles	Total
Dark Fiber Lease	\$75	12	72	120	\$7,776,000
Maintenance	\$5	12	72	120	\$518,400
<b>Total Annual Revenue</b>					<b>\$8,294,400</b>

<b>Scenario 2 – 36 strands use; maximum mileage</b>					
Item	Cost	Months	# of Strands	Miles	Total
Dark Fiber Lease	\$75	12	36	120	\$3,888,000
Maintenance	\$5	12	36	120	\$259,200
<b>Total Annual Revenue</b>					<b>\$4,147,200</b>

<b>Scenario 3 - 18 strands use; maximum mileage</b>					
Item	Monthly Cost	Months	# of Strands	Miles	Total
Dark Fiber Lease	\$75	12	18	120	\$1,944,000
Maintenance	\$5	12	18	120	\$129,600
<b>Total Annual Revenue</b>					<b>\$2,073,600</b>



Scenario 4 – 72 strands use; 50% mileage					
Item	Monthly Cost	Months	# of Strands	Miles	Total
Dark Fiber Lease	\$90	12	72	60	\$4,665,600
Maintenance	\$5	12	72	60	\$259,200
<b>Total Annual Revenue</b>					<b>\$4,924,800</b>

Scenario 5 – 36 strands use; 50% mileage					
Item	Monthly Cost	Months	# of Strands	Miles	Total
Dark Fiber Lease	\$90	12	36	60	\$2,332,800
Maintenance	\$5	12	36	60	\$129,600
<b>Total Annual Revenue</b>					<b>\$2,462,400</b>

Scenario 6 – 18 strands use; 50% mileage					
Item	Monthly Cost	Months	# of Strands	Miles	Total
Dark Fiber Lease	\$90	12	18	60	\$1,166,400
Maintenance	\$5	12	18	60	\$64,800
<b>Total Annual Revenue</b>					<b>\$1,231,200</b>

Scenario 7 – 72 strands use; 25% mileage					
Item	Monthly Cost	Months	# of Strands	Miles	Total
Dark Fiber Lease	\$90	12	72	30	\$2,332,800
Maintenance	\$5	12	72	30	\$129,600
<b>Total Annual Revenue</b>					<b>\$2,462,400</b>

Scenario 8 – 36 strands use; 25% mileage					
Item	Monthly Cost	Months	# of Strands	Miles	Total
Dark Fiber Lease	\$90	12	36	30	\$1,166,400
Maintenance	\$5	12	36	30	\$64,800
<b>Total Annual Revenue</b>					<b>\$1,231,200</b>

Scenario 9 – 18 strands use; 25% mileage					
Item	Monthly Cost	Months	# of Strands	Miles	Total
Dark Fiber Lease	\$90	12	18	30	\$583,200
Maintenance	\$5	12	18	30	\$32,400
<b>Total Annual Revenue</b>					<b>\$615,600</b>

In summary the nine scenarios produce a median annual figure of **\$2,462,400**, corresponding to Scenario 5 as the most likely outcome:

Task 8 Report

Leasing Scenarios	Annual \$
Scenario 1 – 72 strands use; maximum mileage	\$8,294,400
Scenario 2 – 36 strands use; maximum mileage	\$4,147,200
Scenario 3 - 18 strands use; maximum mileage	\$2,073,600
Scenario 4 – 72 strands use; 50% mileage	\$4,924,800
<b>Scenario 5 – 36 strands use; 50% mileage</b>	<b>\$2,462,400</b>
Scenario 6 – 18 strands use; 50% mileage	\$1,231,200
Scenario 7 – 72 strands use; 25% mileage	\$2,462,400
Scenario 8 – 36 strands use; 25% mileage	\$1,231,200
Scenario 9 – 18 strands use; 25% mileage	\$615,600
<b>Median</b>	<b>\$2,462,400</b>

Given that short-term leases will run for five years, the table below shows the revenue estimates for the lease periods including escalation based in inflation of 3 percent. Operations are estimated at \$15,000 per year and escalated thereafter; a first year-only marketing allowance of \$50,000 is assumed to secure required five-year leases.

Escalation	3.00%	Year 1	Year 2	Year 3	Year 4	Year 5
<b>Income subtotal</b>						
Dark fiber lease	\$ 2,462,400	\$ 2,462,400	\$ 2,536,272	\$ 2,612,360	\$ 2,690,731	\$ 2,771,453
Maintenance	\$ 129,600	\$ 133,488	\$ 137,493	\$ 141,617	\$ 145,866	\$ 150,242
<b>Income subtotal</b>		\$ 2,595,888	\$ 2,673,765	\$ 2,753,978	\$ 2,836,597	\$ 2,921,695
<b>Expenses subtotal</b>						
Operations	\$ (15,000)	\$ (15,000)	\$ (15,450)	\$ (15,914)	\$ (16,391)	\$ (16,883)
Marketing	\$ (50,000)	\$ (50,000)	\$ -	\$ -	\$ -	\$ -
<b>Expenses subtotal</b>		\$ (65,000)	\$ (15,450)	\$ (15,914)	\$ (16,391)	\$ (16,883)
<b>Revenue Grand Total</b>		<b>\$ 2,530,888</b>	<b>\$ 2,658,315</b>	<b>\$ 2,769,891</b>	<b>\$ 2,852,988</b>	<b>\$ 2,938,577</b>

The five-year revenue total is shown below. A 7% discount rate is used to calculate the Net Present Value (NPV), resulting in a total revenue projection of \$11,207,906 for the five-year lease period in current dollars.

Net Present Value	
Year 1	\$ 2,530,888
Year 2	\$ 2,658,315
Year 3	\$ 2,769,891
Year 4	\$ 2,852,988

Year 5	\$ 2,921,695
<b>Total revenue</b>	<b>\$ 13,733,776</b>
Discount Rate	7%
<b>NPV</b>	<b>\$ 11,207,906</b>

Clearly, an **\$11.2 million** profit to the City should encourage the leasing of excess dark fiber. As a cautionary note, however, it must be stressed that the excess fiber capacity is, in reality, not needed for future expansion within the five -year lease consideration.

As a caveat, the City has contractual restraints with Lee County DOT that could impact this lease scenario. To save costs in building out the fiber ring conduit sharing agreements are in place with Summit Broadband and Lee County DOT. The Lee County DOT agreement states, “The County and the City shall not lease or otherwise allow any third parties to use fiber optic cables or conduit provided by the other Party hereunder.”

## Smart Cities

Smart cities rely on data being collected, distributed and shared in real-time with all relevant stakeholders, from municipal staff to businesses and citizens<sup>1</sup>. The building blocks for successful smart city development include the following:

- A comprehensive 4G/5G communications network that spans the municipality in Real-time
- Internet of Things (IoT) sensors, deployed to collect a range of data, from air quality and traffic volumes to energy usage and water levels
- Open standards for data, that mean they can be easily shared internally and externally
- User friendly interfaces to deliver information to citizens, businesses and staff. These could be online portals, digital signage, apps, connected cars, or data visualizations
- Ways of analyzing/using data (such as AI, digital twins, and automation), enabling effective action to be taken, based on up-to-date information

The City of Cape Coral has embarked on a smart city infrastructure through the innovations shown below:

- Surveillance cameras
- Public Wi-fi

<sup>1</sup> OpenDataSoft; “Harnessing Open Data to Create Smart Communities”; ebook; 2022

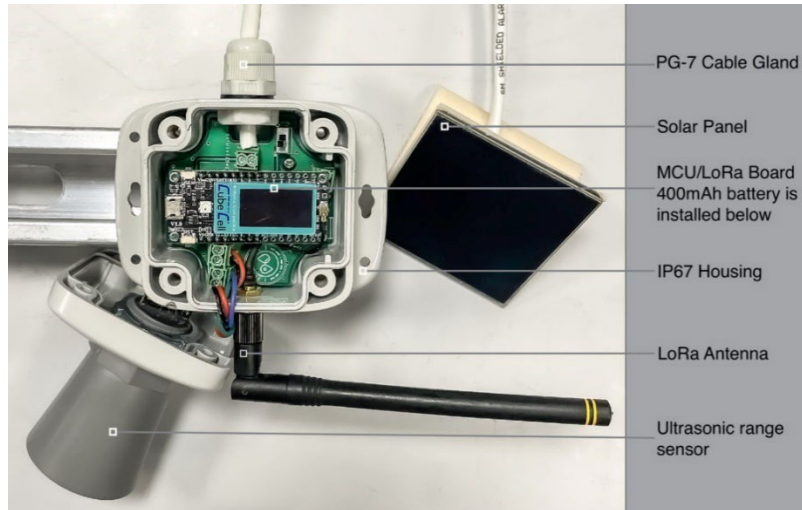


- Informational kiosks
- License plate readers

### FloodWatch Cape Coral

We would recommend that the City’s Utilities and Public Works departments be engaged to consider Real-time IoT sensors that monitor street flooding and other resiliency information that can be integrated with Cape Coral’s 3-1-1 network. An Innovative flood monitoring system was recently developed in New York City for its low-lying neighborhoods prone to street flooding due to high tides, storm surge, and stormwater runoff.

FloodNet<sup>2</sup> is a series of real-time flood sensors created by New York University and the City University of New York’s CUNY Advanced Science Research Center (ASRC), with a goal of providing information on the presence, frequency, and depth of hyperlocal street-level flood events to a range of stakeholders, including policymakers, government agencies, citizens, emergency response teams, community advocacy groups, and researchers.



The FloodNet technology is open-sourced and free to use. We have already contacted the Florida Gulf Coast University’s School of Entrepreneurship about developing a grant program to construct these flood sensors for municipal use. For more information, contact the FloodNet team at: [Info@floodnet.nyc](mailto:Info@floodnet.nyc)

<sup>2</sup> FloodNet; <https://www.floodnet.nyc/>

## 8.b – Physical Infrastructure

With a growing public, the need for physical services is an ongoing requirement. We discussed the issue with Public Works and Utilities to discuss the Utilities Extension Project (UEP).

### Water & Sewer

As part of this study, four areas within the City of Cape Coral are being evaluated for their role in promoting economic development. They are as follows:

- N. Del Prado Commerce Park (formerly Academic Village)
- Burnt Store 300 site
- Downtown and the CRA
- Pine Island Corridor

Ascertaining that these sites are served by adequate water and sewer infrastructure is vital for their implementation.

#### **N. Del Prado Commerce Park**

From the UEP master plan, the N. Del Prado Commerce Park would be within in the North 1 UEP area. At this point, we are envisioning up to about 1.5 million sf of new office space and about 500,000 sf of new flex industrial space, plus a new public library. For office use at an estimate of about .005 gal/hr/sf, the office sewer flow could be as much as 9,000 gal per hour. The Cape Coral Utilities Dept. was queried about this demand and in response, indicated that potable water distribution and supply capacity relative to existing and projected water demand and wastewater collection would be evaluated.

#### **Burnt Store 300 site**

For the Burnt Store 300 property (and added parcels), we believe that a new executive airport, up to about 1.2 million square feet of warehouse/industrial space, and about 60 acres of recreation fields could be accommodated. The Utilities Dept. provides utility service to the City Limits on Burnt Store Rd. The Burnt Store 300 would be within the North 11 UEP area, which includes the new housing and mixed use project at Hudson Creek. Warehousing would have significantly less water/sewer demand compared to office use, but there might be an industrial process established there that might need high volumes of water – unless supplying it would be a problem.

## Task 8 Report

### Downtown and the CRA

With projects such as The Cove and Bimini Square already taking shape in the downtown area, the City of Cape Coral will be witnessing a resurgence of activity within the CRA. With the acquisition of the former Golf Course, this area has great potential. To complete the picture, we are proposing the development of new Civic Center and waterfront entertainment district. Our estimate is for a 3,000-seat multi-use facility. Estimates for water use is 2 gal / seat / event. Planning on perhaps 60 events per year, that would equate to at least 360,000 gallons of water per year. Given the scale and density of downtown projects, we do not foresee any significant impact on water and sewer from this proposal.

### Pine Island Corridor

The Pine Island Corridor project extends from Chiquita Blvd. S. to Burnt Store Rd. It will serve major projects such as the new Town Square. This UEP project area as well as the length of Pine Island Rd. and project northward will be competing for water resources. The Utilities Dept. will need to carefully balance resource allocation on a case-by-case basis.

## Solar Infrastructure

A casual examination solar use reveals few instances of roof-top solar being employed in Cape Coral (see photo below). We have found this to be not uncommon in other Florida locations as well, where more northern states are taking great advantages of the opportunity for solar installation and its accompanying utility costs benefits.



Historically, significant restrictions imposed by electric utilities has widespread hampered solar use, mainly by the requirement that all solar generation must be connected to the utility grid. Recent changes to the net metering process allows for the “banking” of excess kWh power as

credits toward usage. Florida currently does not offer state-specific battery incentives<sup>3</sup>, and solar batteries may not appear to be financially favorable to Florida homeowners, because of the consumer-friendly nature of net metering. Additionally, none of the utility companies in Florida offer a “virtual power plant”<sup>4</sup> program for homeowners. However, if a battery backup power source for a residence, all batteries above 3 kWh in size are eligible for the 30% federal tax credit.

Florida offers a Solar Sales Tax Exemption which exempts sales tax on solar equipment purchase, as well as a Solar Property Tax Exemption for homes using solar energy as a source of power, exempting the value of the solar system from property tax.

The Residential Clean Energy Credit, formerly known as the federal investment tax credit, can reduce solar installation costs by as much as 30 %, including all equipment, labor, permitting, and sales tax.

### Solar Cooperatives

Community solar is a model of buying power that subscription to power produced at a large solar array or farm located at another location in the utility's service area. Innovative developments such as Babcock Ranch in Chalotte County are fully invested in the co-op model. In Task 9, we indicate the opportunities for solar farm installations in Cape Coral.

Currently, the State of Florida does not offer solar storage incentives. In individual cities such as Jacksonville, upfront rebates of \$2,000 or more may be available for installation of solar-plus-storage facilities. Cape Coral’s electricity is supplied by the Lee County Electric Cooperative (LCEC), which in turn buys power from Florida Power & Light (FPL). Upsets in fuel prices directly affect Cape Coral users, resulting in higher utility bills. While the City of Cape Coral is in the process of seeking alternative electric power options, we would recommend that a careful study of mass solar generation and storage be undertaken. Commonly occurring power disruptions from weather events can be partially alleviated for critical use facilities simply through adequate solar generation management.

<sup>3</sup> “Are There Energy Storage Incentives in Florida”; energysage.com

<sup>4</sup> Virtual Power Plan (VPP) -- networks of small energy-producing or storage devices, like solar panels and batteries, that are pooled together to serve the electricity grid. With their participants' approval, their energy can be tapped by utilities during times of high demand, or can be reserved for later use;  
<https://www.reuters.com/business/sustainable-business/what-is-virtual-power-plant-2023-01-31/#:~:text=VPPs%20are%20networks%20of%20small,be%20reserved%20for%20later%20use.>

## Stormwater Infrastructure

Given Cape Coral’s unique location and degree of canal development, a particular emphasis is needed relative to storms and weather events. Monitoring of street flooding can be achieved efficiently as described in the preceding Cape Coral FloodWatch section of this report but actual mitigation requires extensive measures that may not meet municipal budgetary capabilities in all areas of the City. As Cape Coral continues to grow in population and impervious surface area, stormwater management will also increase in its demands on City services.

Perhaps an alternative course of action can be achieved through Low Impact Development (LID). LID is a management approach that can reduce runoff and pollutant loadings as close to its source as possible. LID includes overall site design approaches and individual small-scale stormwater management practices. These practices promote use of natural systems for infiltration, evapotranspiration<sup>5</sup>, and harvesting and reuse of rainwater. Some effective LID techniques are described as follows:

- **Rain Gardens:** filter stormwater runoff, promote evapotranspiration, and serve as visual amenities.
- **Bioretention:** filters stormwater runoff and can promote groundwater recharge and evapotranspiration.
  - Designed for the water quality storm and not for mitigation of flood storms.
  - Functions similar to a sand filter.
  - Requires adequate pre-treatment, such as a sediment forebay, deep sump catch basin, or grass filter strip.
- **Stormwater Gardens:** slow down and filter stormwater runoff, promote evapotranspiration, and serve as visual amenities.
- **Tree Box filters:** management practice or stormwater treatment system widely implemented along sidewalks, street curbs, and car parks.
- **Infiltration:** drywells and leaching catch basins provide groundwater recharge, some peak rate mitigation, and primary water quality treatment.
- **Permeable Pavement:** permeable paving materials reduce impervious cover, promote infiltration, and provide primary water quality treatment, groundwater recharge, and peak rate mitigation.

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<sup>5</sup> Evapotranspiration: the sum of all processes by which water moves from the land surface to the atmosphere via evaporation and transpiration



- **Green Streets:** provide pedestrian-friendly areas, natural shade, and areas for stormwater infiltration and rain gardens for water quality treatment.
- **Green Roofs:** reduce impervious cover and runoff volume, increase evapotranspiration, provide primary water quality treatment, and help reduce the peak rate and volume of stormwater for small storm events.
- **Rainwater Harvesting:** Harvested rainwater can be re-purposed for applications that do not require the use of potable water, such as toilet flushing and irrigation.
  - Rainwater harvesting reduces the volume of stormwater discharge and helps improve water quality.





## 8.c – Transportation

Cape Coral’s unique location is also its drawback. This is a city with no seaports, airports, train stations, interstate highway access, or municipal bus system. In many ways, Cape Coral is just a suburban town. But, with a growing population already exceeding metropolises such as Salt Lake City, transportation plays a crucial role in Cape Coral’s future.

The Transportation Division’s 2024 Cape Coral Multi Modal Transportation Master Plan is a comprehensive review of the City’s need for transportation infrastructure improvements, especially important in a car-centric community as Cape Coral. New concepts such as micromobility and Mobility-on-Demand promise to offer residents the opportunity to transit the City in safer, greener, and more efficient means.

### Lee Tran Bus Service

Bus service in Cape Coral is provided by LeeTran as the City does not operate its own bus system. The fixed route map of LeeTran service through Cape Coral is illustrated in Exhibit 8.2 (right). The map indicates the limited route offerings which are mainly oriented toward connections back to Fort Myers and North Fort Myers. There are four transfer stations in Cape Coral for bus connections:

- Cape Coral Transfer Station (downtown)
- Coralwood Mall Transfer
- Cape Coral Hospital Transfer
- Merchants Crossing Transfer

The bus lines serve the Southeast and Northeast Cape areas but the Southwest



and Northwest neighborhoods are devoid of bus service. Future population growth is anticipated in these unserved areas and residents as well as seasonal visitors have no mass transit opportunities to utilize.

According to LeeTran, ridership and revenue per mile on the overall county system is decreasing as measured through from the FY13-14 through FY 20-21 periods.

## MicroTransit

In most communities, microtransit is considered as an add-on to existing bus networks. According to a KPMG study, when properly designed and executed, flexible microtransit services can help eliminate transit deserts, create first- and last-mile connections to transportation hubs, and provide convenient paratransit — all while getting people out of privately driven vehicles<sup>6</sup>.

Lee Tran’s pioneering microtransit system called ULTRA On-Demand Transit (ULTRA) will soon be implemented in Cape Coral. Available daily in daylight hours, this LeeTran’s mini-bus curb to curb service will allow riders to request a ride as needed and on a first-come, first-served basis within the designated service zones. With the ULTRA on demand transit app, riders will be able to schedule and track rides in real-time. This service differs from LeeTran’s traditional fixed-route public transit service as riders no longer need to travel to a specific bus stop along a defined bus route at a particular time to catch a ride with public transit.

While ULTRA’s roll-out in Lehigh Acres seems to be successful, there are those who feel that this new transit model may not fulfill the promises it offers. In a paper published by the Amalgamated Transit Union, many components of microtransit’s costs, efficiency, scalability, reliability, and environmental impacts were evaluated. In several urban locations already using microtransit, the operating cost of a fixed route bus decreases with the addition of each new passenger but the cost to transport each additional microtransit passenger is roughly the same as the first. A fixed route bus can easily take on more riders as demand increases, but due to limited vehicle capacity and individualized routing, an increase in microtransit demand requires that more vehicles and operators be put on the road<sup>7</sup>.

The study concludes with the following guidelines:

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<sup>6</sup> How Microtransit Can Help Solve Slowing Ridership; <https://www.metro-magazine.com/10007224/how-microtransit-can-help-solve-slowng-ridership>

<sup>7</sup> The False Promise of Microtransit; Amalgamated Transit Union; [https://www.atu.org/pdfs/ATU\\_FalsePromiseofMicrotransit.pdf](https://www.atu.org/pdfs/ATU_FalsePromiseofMicrotransit.pdf)

## Task 8 Report

- Investments should be made in the transit workforce to overcome the operator shortage and guarantee reliable service. Creating and sustaining good transit jobs is the best way to attract more workers to the industry. Good transit jobs benefit local communities, unlike microtransit companies that profit by misclassifying their workforce as independent contractors.
- Bus routes should be reconfigured to better serve passengers when and where they need to travel. The reality is that commuting patterns have fundamentally changed. Transit agencies must also make changes to improve existing services, such as reducing headways, building better bus shelters, and enhancing pedestrian connections to stops.
- Microtransit should not be used to replace or compete with existing fixed route and ADA paratransit services. It does not allow for the type of long-term, sustainable ridership growth that agencies need to recover from the pandemic. Limiting microtransit to small geographic areas can help prevent overlapping service.

Most important for Cape Coral is this last guideline:

- Microtransit might be able to meet coverage goals in areas that cannot support regular service, such as low population exurban and rural communities, or to help people in those areas connect to fixed route systems at transit hubs. It could also serve as a tool to evaluate demand for expanded fixed route service hours or coverage.

### Unique Microtransit Potential

As described earlier, Cape Coral is a large city that has not invested in significant transportation infrastructure. The car-centric suburban nature of the community has served as the model until now, but the City is beginning to explore alternative systems to implement. While electric scooters, golf carts, bike-sharing and other wheel-based micromobility vehicles are becoming prevalent in major cities, we would like to propose a new mobility system tailored to Cape Coral: **On-demand water mobility.**



In many ways, Cape Coral is a city of firsts. First-ranked city in the world length of canal system; first city in the US to solely rely on reverse osmosis for water systems; and in 2017, the first-place award as a Digital City. Achievement cannot be devoid of risk, it is time for the City to again take a leadership position.

The implementation of water taxis has proven to be a successful mobility option in waterfront locations throughout the world. UBER has recently started a water service ferry system on the Thames River in London (Uber Boat) which is transforming the tourism industry and provides commuter opportunities previously unattainable. In New York City, a private ferry company (NY Waterways) serves over 18,000 passengers daily in 23 routes and 32 vessels.

Major US cities with water mobility transportation systems include:

- Alexandria, VA
- Annapolis, MD
- Baltimore, MD
- Boston, MA
- Charleston, SC
- Erie, PA
- Fort Lauderdale, FL
- Jacksonville, FL
- Long Beach, CA
- New York City
- New Orleans, LA
- Oklahoma City, OK
- Orlando, FL
- Pittsburgh, PA
- Portland, ME
- Quad Cities, IL/IA
- Sacramento, CA
- San Francisco, CA
- Seattle, WA
- Tampa, FL

Cape Coral's canal system, although a large and complex network of waterways, is hindered by the saltwater and freshwater makeup of the canals. Saltwater canals have accessibility to the Caloosahatchee River from various southern and eastern points or via the Matlacha Pass in the Northwest Cape. Fresh water canals are landlocked but interconnect large areas of interior Cape Coral.

### Fort Myers Service

The most obvious use of water taxis would be a direct connection to the Fort Myers downtown, thereby providing some traffic relief across crowded bridges during rush hour. Cape Coral terminus locations at the ends of saltwater canals that are in proximity to major thoroughfares of Del Prado Blvd., Cape Coral Parkway, Veterans Parkway, or will serve the Bimini Basin should be considered. If parking areas at these ferry stops can be arranged, suitable property should be acquired. Alternatively, microtransit coordination between residential location and ferry terminus locations could offer a unique transportation linkage system.

With the expanse of water between Cape Coral and Fort Myers and the chances of wind and wave action that could affect light open boats, we would suggest a more substantial vessel be considered like the water taxi being utilized by New York City shown in the photograph right).



We would recommend that the City propose to conduct a feasibility study in Joint venture with the City of Fort Myers for a water taxi service across the Caloosahatchee River but one that is based in Cape Coral. Vessel maintenance, crew training, operations management, marketing, and tourism coordination should be led by a Cape Coral entity, possibly a public-private partnership. The service could provide future service to the beaches and islands. Private ferry service to Fort Myers Beach has been curtailed by the ongoing impact of Hurricane Ian.

### **Internal Water Taxi Service**

#### Saltwater Canals

Cape Coral has a few major saltwater canals that could support water taxi service. The Rubican Canal from SE 47<sup>th</sup> Terrace northward to Viscaya Parkway could provide a scenic route that tourists and seasonal visitors renting private homes could enjoy. An evening ride in a comfortable open pontoon boat to downtown for dining or entertainment providing safe and driving-free options offer marketable opportunities to tourists and residents alike.

Similarly, the Spreader Canal water taxi line could serve larger areas of Southeast and Northwest Cape Coral. With the anticipated Chaquita Lock removal, Spreader Canal water use is expected to be greatly improved. Stops at Marina Village, the Westin, and Rotary Park could potentially create a special experience. We believe that a focus should be made to make the Bimini Basin a central point in the saltwater taxi network.

#### Freshwater Canals

The freshwater canals offer a different potential. Small electric vessels, possibly autonomous, or as micromobility boat-sharing, could operate in the weather-protected canal system. The possibility of water taxi service to attractions such as SunSplash Water Park, Festival Park, or one the many golf courses should be considered as a tourism driver of high importance.



Additionally, the freshwater canal use by more boats would likely result in backwash and breakup of algae which has become a major problem in these canals.

Concepts for water taxi terminus development will be further explored in Task 9.

### Autonomous Vessels

Canals are being re-imagined as water freight delivery systems. In Amsterdam, a new program of autonomous robot vessels entitled “Roboat” is beginning service. These vehicles will offer package delivery, waste collection, water quality testing, shoreline/bulkhead inspection, and more.

Insurance and liability issues remain, but an industry is sprouting around autonomous inland water vessels. In a 2023 paper by the WMU Journal of Maritime Affairs, the conclusions point out that the use of maritime autonomous vessels for the inland waterway (IWW) transport can revolutionize the current logistics supply chain and enable the shifting of the cargo transportation from the less efficient road and rail transport modes<sup>8</sup>.

Advance robotics are commonplace in manufacturing, but not yet in transportation. By partnering with academia and looking forward, the City can become a leader in on-water autonomous mobility.

### Air Service

There are two major airports within 45-minute commute of Cape Coral: Southwest Florida International Airport (RSW) in Fort Myers, and Punta Gorda Airport (PGD). Both facilities offer domestic flight services and private aviation opportunities. There are also two general aviation airports in the area, Page Field in Fort Myers, and Naples Airport. Although the City of Cape Coral is expected to grow to about 375,000 people, there is no direct need to establish a major airport since there are two nearby.

But, private and charter aviation are major business sectors, and availability of tie-down space for aircraft is at a premium. Page Field has a seven-year waiting list for new tie downs, and Naples is full. PGD has a waiting list for hangar rentals. Discussions with the Naples Airport operator indicated the need for a new general aviation airport in the area. Looking into the near future,

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<sup>8</sup> “Towards Autonomous Inland Waterway Vessels” ; WMU Journal of Maritime Affairs;  
<https://link.springer.com/article/10.1007/s13437-023-00316-3>



the development of vertical take-off and Landing (VTOL) air taxis will be prevalent in the US. Cities that can plan for a capture of this growth opportunity will be well positioned to outperform their competition. The City of Orlando is currently building a “vertiport” and will be ready for the implementation of this new industry.

According to Mordor Intelligence, the private jet charter business in the US in 2024 is estimated at \$15.27 billion and is expected to grow to \$29.30 billion by 2029<sup>9</sup>. General Aviation is all civil aviation activity other than that of commercial airlines; including business aviation, law enforcement flying, agricultural application, recreational aviation, air medical services, freight and package delivery, and more. General aviation airports provide a host of benefits to a community, including but not limited to the following:

- **Economic Multiplier Effect:** business aircraft travel brings marketing, professional, technical service and support staffs efficiently and quickly to their destination. These individuals, in turn, spend money in the local economy by staying in local hotels and eating at nearby restaurants, creating the economic “multiplier effect” in the area.
- **Competitive Advantage:** airports help keep existing employers in a community and attract new ones to a region because companies value the transportation and competitive business advantages offered by GA airports. Business developers look for ready access to air transportation when they make decisions on where to locate new operations and facilities.
- **Essential Access:** The ability to move people and goods quickly to and from airports has tangible benefits for everyone, not just air travelers. Overnight mail and package delivery, the transport of fresh fruits, vegetables, flowers and more to locations that would not otherwise have that access, all would not be possible without an airport nearby.
- **Lifesaving Services:** emergency medical services and air ambulance operators provide critically ill or injured people with timely access to specialized medical treatment through airlift operations, organ transports and more. Volunteer “Angel Flights” regularly transport sick patients to distant medical facilities for treatment.
- **Law Enforcement Services:** federal, state and local law enforcement agencies use hundreds of airplanes and helicopters to search, apprehend and transport criminals,

<sup>9</sup> Private Jet Charter Services Market Size and Share Analysis – Growth Trends and Forecasts (2024-2029); Mordor Intelligence; <https://www.mordorintelligence.com/industry-reports/private-jet-charter-services-market>

protect borders, and provide aerial security.

- **Agricultural Services:** Agricultural aircraft operators treat crops and sow seeds via aerial application.
- **Recreational Benefits:** airports play an important role in recreation by providing easy access to vacation and resort destinations, helping generate significant tourism income. Thousands of Americans fly their own airplanes for pleasure as well as business, positively impacting the local economy.

Developing a new airport using federal and state funding is not a quick process. In Florida, there are eight procedures to be followed:

### #1. Airport Sponsor

To be eligible for public funding, every airport that is proposed to be part of Florida's public airport system must be sponsored by a grant-eligible public agency. A grant-eligible agency is a Florida unit of local government (i.e. a city or a county) or an authority as defined in Florida law. A proposed public airport may be newly constructed or may be an existing airport to be purchased by or conveyed to an eligible sponsor.

Ultimately, a proposed airport must be publicly owned and must be available for public use to be eligible for federal and state funding. State funding is dependent on annual legislative appropriations and eligibility does not guarantee state funding.

### #2. Feasibility Study

A proposed airport must be included in the Florida Aviation System Plan (FASP) to be eligible for state funding and in the National Plan of Integrated Airport Systems (NPIAS) to be eligible for federal funding. The FASP is Florida's long-range needs plan for aviation facilities. Likewise, the NPIAS is the Federal Aviation Administration's (FAA's) long-range national needs plan for aviation facilities. Prior to entry into the FASP and/or the NPIAS, a feasibility study must be completed by the sponsor.

### #3. FASP and NPIAS

Entry into the FASP and corresponding eligibility to receive state funds is approved by the Florida Department of Transportation Aviation & Spaceports Office. The decision is based on the results of a feasibility study, the capability and willingness of a proposed airport sponsor to assume long-

term financial and legal commitments to establish and maintain a new airport, a recommendation from the appropriate regional CFASPP steering committee, and a recommendation from the appropriate department district office.

#### **#4: Airport Site Selection and Preliminary Environmental Planning**

A proposed new airport may require several environmental studies prior to facility design and construction. A key federal and state requirement is a site selection study which not only evaluates the aeronautical suitability of potential new airport sites, but also examines impacts of the proposed facility on the social and natural environments. The FAA and the U.S. Department of Environmental Protection are the approval agencies for the site selection and related studies. The Florida Department of Transportation Aviation & Spaceports Office must approve the proposed new airport site prior to capital funding.

#### **#5: Facility Planning**

Prior to capital funding, the airport sponsor must develop an airport master plan and an airport layout plan. The airport master plan develops detailed near-term and long-range facility needs, justification, cost estimates and construction schedules. The FAA must approve the airport layout plan for federal funding eligibility of the planned capital projects. The Florida Department of Transportation Aviation & Spaceports Office must approve both the airport master plan and the airport layout plan for state funding eligibility.

#### **#6: Local Government Planning**

Prior to proceeding with airport development, the airport sponsor must have the airport master plan incorporated into the local government comprehensive plan. The appropriate Metropolitan Planning Organization (MPO) may also review the local government comprehensive plan. Further, the MPO must include proposed airport development funding needs in its long-range transportation plan and its transportation improvement program. The Regional Planning Council may also need to review the proposed airport and consider regional impact.

#### **#7: Environmental Impact Analysis**

Most new airport proposals will be subject to a detailed environmental impact analysis based on development specified in the airport master plan and the airport layout plan. The environmental analysis will result in any environmental impact statement that will specify the acceptability of the proposed projects and any required environmental mitigations. The FM conducts the environmental analysis and issues a record of decision upon completion of the study.

In addition to a favorable FM record of decision, an airport sponsor must obtain all construction permits required by the regional water management district, the Army Corps of Engineers, the Florida Department of Environmental Protection, and the local government(s).

### **#8: Airport Construction**

Finally, engineering design and construction of airport development projects described in the airport master plan and layout plan are accomplished according to the airport master plan schedule, but within the funding constraints of the sponsor, state, and federal budgets.

Typically, it requires more than five years to complete these eight steps for a simple general aviation airport. More complex airport configurations or environmentally sensitive sites require more time for development.

We will explore some financial considerations for a “Cape Coral Executive Airport” in Task 9.

## **8.d – Task 8 Progress Report/video conference**

We conducted a video conference with the Project Review Committee on July 17, 2024. Work product to date was discussed and the materials covered were previously uploaded to the website.