Port Manatee Site Utilization & Network Analysis Study

FDOT District One

April 2019

FDOT DISTRICT 1

PORT MANATEE SITE UTILIZATION & NETWORK ANALYSIS STUDY

Florida Department of Transportation | District 1

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EXECUTIVE SUMMARY

Purpose: The purpose of the Port Manatee Capacity, Capability and Surface Transportation Planning Study is to assist the Florida Department of Transportation (FDOT) District 1 in researching and identifying future capability and capacity improvements utilizing current and future Port Manatee properties, existing infrastructure, and identification of new infrastructure and facilities to maximize Port Manatee's freight movement and handling capabilities. This study identifies transportation requirements as a result of forecasted growth to include specific projects on and off port property to improve cargo and traffic flow on existing roadways and port connectors.

Methodology: To accomplish the purpose of the study, several major tasks were completed. While the Port does have an updated Master Plan, completed in 2016, it is a "living document" that will change as time progresses, thus the requirement of the State of Florida for five year updates. This study did take into consideration the 2016 Port Manatee Master Plan Update, but relied more heavily on interviews with Port tenants conducted in in 2018 and frequent input from Port staff in 2018 and 2019.

1. The first task was to conduct in-depth interviews with the Port's tenants. Most of the tenants were willing to meet with our study team and provided current and pertinent information regarding:
    - Current cargo throughput (volumes, nature of cargoes, peak and non-peak periods)
    - Short and longer term projections for growth or decline in cargo
    - Potential new cargoes or significant expansions of current cargoes handled
    - Potential changes in berth utilization
    - Adequacy of both the Port's landside and waterside facilities and infrastructure as they currently exist
    - Sufficiency of current leaseholds, i.e. what additional property does the tenant need for projected growth
    - Infrastructure and facility needs in the future given their growth projections
    - Internal Port cargo movement issues (truck parking, flow on existing Port roadways, gate efficiency)
    - Issues, constraints, congestion, or bottlenecks encountered on any off-port connectors and intersections (regional transportation network)
    - The tenant's understanding of actions, initiatives, new markets, or projects the Port should pursue to build or increase cargo volumes
    - The tenant's understanding of how the development of port-related operations and ocean freight related industries and manufacturing in the Encouragement Zone can be most effectively pursued by the Port to increase Port utilization

2. The second task was to inspect and evaluate the condition and capabilities of the Port's landside and waterside facilities and infrastructure to include:
    - Berths
    - Access channels
    - Cargo storage (inside and outside) and transshipment areas
    - Internal roadways and gates
    - Covered dry and refrigerated storage capacity
    - Available property at the Port that is able to accommodate new development and/or the expansion of current operations
    - Adequacy of cargo handling equipment and infrastructure

3. The third task was to correlate the data collected from the Port staff, the tenants (who represented direct contact with shippers and carriers) and the Port's updated Master Plan to make a realistic and feasible projection of cargo growth and resulting throughput levels for Port Manatee over the years to 2025.

    With information derived from the previous three sources, the projected cargo growth was translated into types of cargo, specific volumes and peak and non-peak periods for seasonal cargoes, e.g. perishables. This data, coupled with historic and projected divisions between truck-transported and rail-transported cargoes at Port Manatee, provided the study team with the basis to project both future truck traffic

entering and leaving the Port. Projections of truck and vehicular traffic were verified with the Port and an accurate count of gate passages over the last several years provided not only a baseline, but the ability to verify the validity of the Master Plan's growth projections for recent years.

4. The fourth task was to review the Port's 2019-2023 Capital Improvement Plan (CIP) for sufficiency and appropriate prioritization in addressing the Port's focus on specific and probable opportunities for business development and expansion. In discussion with Port leadership, supplemented by extensive interviews with current Port tenants, we learned that the Port's primary focus for the next five years is within three cargo types – containerized, break bulk, and bulk cargoes.

   The CIP will change periodically with market evolution. The demands for various types of cargo will fluctuate and the Port will be presented with new cargo opportunities. Therefore, the CIP must be, and is, updated annually to effectively address not only new business expansion opportunities with existing or new port tenants, but also the sustainment of current operations. Additionally, various regulatory and resource agencies, Customs and Boarder Protection and Homeland Security have historically placed development or improvement requirements on ports that would be reflected as compliance projects within the CIP.

   This review of the most current version of the CIP was to validate the accurate identification and prioritization of projects and initiatives that would most effectively enable sustainment of current cargo throughput and enable projected cargo throughput growth by new and existing Port Manatee tenants/ users.

5. The fifth task was to identify the roadways and intersections (critical connectors) that would be impacted by increased Port growth. The follow-on activity was to analyze the truck and vehicular traffic projections resulting from both Port-generated cargo operations and projected population growth in the County and the region to determine the future impacts on the regional surface transportation network and port connectors. In order to determine the potential impact of Port expansion, an existing conditions peak hour capacity analysis was conducted to determine level of service (LOS) information (2017). The results of the existing conditions analysis were then used to project LOS estimates in a future conditions section for the planning horizon year of 2025. Within the report, data gathered will inform the reader of peak hour volume, LOS information, as well as percentage of truck traffic, all relative to the study-area.

   Highway Capacity Software (HCS 7) was used to conduct the existing conditions roadway capacity analysis. Year 2017 average annual daily traffic (AADT) volumes were obtained from FDOT and were used to develop the peak design hour volumes. The peak design hour K-factor, directional distribution factor (D-Factor), and other data required for the analysis were developed based on guidelines provided by the Transportation Research Board (TRB) Highway Capacity Manual 6th Edition (HCM 6). Based on the guidelines in HCM, it was assumed the directional split of traffic volume during the peak hour is 60/40 for Piney Point Road, 59/41 for US 41, and 60/40 for College Avenue.

   The report contains the details of the evaluation of projected LOS and identifies six of twenty roadway segments that can be reasonably expected to drop to LOS D by 2025, pending accurate assumptions of Port Manatee freight and population growth:
   - College Ave E SR-674 SE to I-75 (multi-lane)
   - On ramp SR-674 to I-75 NB (freeway ramp)
   - Off ramp I-75 SB to SR-674 WB (freeway ramp)
   - I-275 EB to I-75 NB (freeway ramp)
   - I-275 EB to I-75 SB (freeway ramp)
   - I-75 NB to I-275 WB (freeway ramp)

   Our conclusion was that no immediate remedial work is recommended; however, monitoring both cargo throughputs and revised cargo projections at the Port, as well as periodic reviews of actual population growth in the region versus projections are recommended. Additionally, detailed daily and peak hour traffic volume data should be periodically collected and evaluated to determine the need and nature of future remediation.

Traffic signal controlled intersections may become bottle necks as traffic continues to grow. It is recommended to conduct peak hour intersection turning movement counts and evaluate intersection operations at the intersections that are most likely to be impacted by turning traffic accessing the Port. The following signalized intersections should be included:

- US 41 at College Avenue
- US 41 at 14th Avenue
- US 41 at Gulf City Rd
- US 41 at Moccasin Wallow Road
- US 41 at I-275 Westbound Ramps

6. The sixth task was to examine port rail service operations, rail infrastructure, equipment, usage (volumes, types of cargo and frequency of use) and requirements for future expansion. The study team conducted interviews with Port tenants to evaluate their current and future intermodal freight rail projections and needs. Additionally, the study team explored the potential for the establishment of dedicated intermodal freight rail service from CSX. The study team learned the exact criteria that would be used and evaluated by the railroad before dedicated service would be considered.

   The final task was to also gain an understanding of the regional rail infrastructure and assess if there is an applicable opportunity for future transportation of freight to and from the Port. This was accomplished by determining the applicability and feasibility utilizing information received through interviews with the Port, Port tenants, and CSX Transportation (CSXT).

   Our conclusions were that the container volume requirement for dedicated intermodal freight rail service is 50,000 units annually. This is a large number given that historically 10 to 15% of the total container volume handled uses intermodal rail in our region. CSX felt that with the shippers and carriers using Port Manatee this percentage would definitely be at the low end. Thus Port Manatee's annual container throughput would have to exceed 500,000 twenty foot equivalent units (TEUs).

   There are a number of other service parameters that would be considered by CSX that are identified and explained in the report. If there were sufficient cargo going to or coming from Port Manatee that would use intermodal freight rail and thus warrant dedicated rail service, CSX indicated that this service would be provided over Tampa or Winter Haven at established intermodal facilities. Therefore, draying cargo to or from these facilities would not serve to alleviate cargo truck traffic on the Port's connectors.

Conclusion: In order to accommodate growth at both Port Manatee and within the surrounding area, increased diligence is required to ensure the roadway systems continue to provide adequate service levels in the face of increasing traffic. Understanding and identifying the opportunity-driven transportation demands generated by port cargo growth and both industrial and residential development of the area surrounding the Port provide the traffic data with which the transportation network can be analyzed and levels of service can be projected.

Service level deterioration and potential insufficiencies have been projected for six of twenty roadway segments. Additionally, five traffic signal controlled intersections have been identified as potential bottle necks. While no immediate remediation is necessary or recommended, this study is intended to identify roadway and intersection service level issues that might require remediation as the Port and surrounding area continue to grow. At this time the report recommends periodic monitoring of the six roadway segments and five signal controlled intersections in order to verify service level trends and changes and would trigger timely remedial action by FDOT.

Via its capital improvement program, Port Manatee has identified capital projects that advance the competitive position of the Port. The Port is utilizing valuable grant-funding programs to implement maintenance and improvement projects that focus on the enhancement and sustainment of Port operations. Port Manatee has prioritized the expansion of cargo area, as well as cold and dry storage warehouse improvements and expansion. The extension of Berth 4 will allow for berthing vessels at Berths 4 and 5, and act as a primer for the construction of Berths 3, 2 and 1. Finally, improvements to on-Port roadways, expansion and improvements at the North and South Gates, and the improvement/expansion of drop trailer lots will increase efficiency and operational outcomes.

SECTION I
INTRODUCTION

SECTION 1: INTRODUCTION

1.1 A State Prospective

1.1.1 The Maritime Industry in Florida and Port Manatee's Role

From the Port of Fernandina in the northeastern corner of the State south to the Port of Key West and then up the western side of the peninsula to Pensacola at the western end of the Panhandle, the 15 Florida ports combine to produce millions of direct, indirect, and induced jobs and billions of dollars of economic impact. In short, Florida's ports are one of our states most prolific economic engines and provide the state with a gateway to world commerce. Florida's maritime industry is diverse as multiple commodities and cargo types to include both refrigerated and dry containerized cargo, wet and dry bulk cargoes, breakbulk cargoes, and roll on/roll off cargo (autos and trucks) are routinely handled along with millions of cruise passengers.

1.1.2 Cargo Growth

In 2017 Florida's waterborne cargo (both international and domestic) increased from 2016 by 3.2 percent to 110.8 million tons. Specifically, containerized cargo grew at 7 percent to a throughput of 3.7 million TEUs. Bulk cargoes, breakbulk cargoes and roll on/roll of cargoes grew as well.

Import tonnage is twice export tonnage, and there is strong evidence that this trend of import to export imbalance will continue and potentially grow. Nevertheless, in 2017 exports did grow by just over 8 percent and imports fell slightly. In the same year, a total of 16.1 million passengers passed through Florida's cruise ports. This was a new record and an increase of over 4 percent from 2016.

The general picture of Florida's waterborne cargo activity is one of steady growth in virtually all commodities and cargo types. Assuming stability in the state's and nation's economies, this across-the-industry cargo growth should continue. The continued development of more efficient landside and waterside facilities at Florida's seaports, complemented by intermodal connectivity (truck and freight rail), will capture an ever-increasing amount of the 3.5 million TEUs of goods consumed in Florida. Capturing this cargo from other states (Texas, Mississippi, Alabama, Georgia, and South Carolina) has been a major state-level initiative.

1.1.3 Trading Regions

Florida's trading regions are diverse and include nearly every nation. To put Florida's waterborne trade into perspective:

- Florida's ports handled 6.1 percent of the total US export trade. Much of that went to South and Central America and the Caribbean nations. Nearly 25 percent of the total US export trade to those areas flowed out through Florida's ports.
- Florida's ports handled 4.4 percent of the total US import trade. That includes nearly 20 percent of all imports entering the US from South and Central America and the Caribbean.
- In 2017 new trade volume records were set with China, Mexico, and Argentina, and not surprisingly, most of Florida's waterborne trade (almost 93 percent) is with South and Central America, the Caribbean, Asia, and Europe.

1.1.4 Distribution Centers

The unparalleled success of the Georgia Ports Authority in the past two decades, during which their container volume has risen from 700,000 TEUs to over 3,000,000 TUEs, an increase greater than 300 percent, can be attributed to the farsighted state leaders who thirty plus years ago saw the development of distribution centers in the immediate vicinity of the Port of Savannah as the key.

In 2017, the Florida Ports Council commissioned a study to guide the development of seaport strategy that tackled cargo opportunity stemming from distribution centers (DCs) and warehouses. The fact is that greater DC capacity in the state brings more opportunity for cargo through state seaports, and more economic benefits

statewide. The report, entitled *Attracting Distribution Center and Related Logistics Investment to Florida to Anchor Traffic through Florida Ports,* looked at the broad group of intermodal logistics facilities known for their activities in warehousing, fulfillment, transport, logistics, goods distribution, consolidation, and related value-added services. This study identified Florida's strengths as a destination for DC and warehouse investments: market access, low taxes, available construction sites and building inventory, and good maritime connections. The study also recommended prospecting for shippers with a retail footprint, but without a logistics facility in the state, gauging logistics network expansion plans, and developing pitches specific to the most interested/attainable shippers by crystallizing the "Florida Value Proposition". Specific findings from the study can be leveraged to inform discussions with shippers and develop and deliver appropriate messaging. Also, because Florida's state-level incentives are not really targeted at the transportation and logistics sector, especially relative to those offered by competing states, it was suggested that creating state-level incentives in Florida would help attract new DCs.

Both the Distribution and Logistics Investment study and the FDOT plan identified constraints to growth: a peninsular geography, somewhat limited rail options, fewer global carriers than neighboring states' ports, DC operating costs, highway access or bottlenecks, navigation issues and vessel traffic delays, gate operations, highway challenges related to cruise and cargo traffic interaction, security access, federal funding for deepening/dredging, the U.S. Army Corps of Engineers joint permitting process, truck regulations such as weight limits and gate appointments, and tidal restrictions on vessel movement.

Despite the identified constraints, Florida's major containerized cargo ports continue to pursue the development of proximate DCs. As they begin to feel the effects of limited cargo space on existing terminals and the diminishing availability of expansion property in the immediate vicinity of the port, Florida's larger ports are actively exploring the viability of establishing inland ports to alleviate terminal congestion and the resulting inefficiencies, much along the lines of the development of the inland ports at Greer and Dillon by the South Carolina Ports Authority.

1.1.5 Statewide Port Capital Investment

In 2017, Florida seaports planned to spend $821 million on capital infrastructure, and that amount grew to $1 billion in Fiscal Year 2018/2019. The state's five largest tonnage seaports (Jacksonville, Canaveral, Everglades, Miami and Tampa) account for nearly 90 percent of the planned capital spending. New cargo terminals, berths and equipment, together with berth rehabilitation and repair, account for 34.5 percent of the states' seaport Capital Improvement Plan. New and refurbished facilities are key to the seaport's business retention and future competitiveness. Additionally, a significant 16.2 percent of the overall capital budget has been allocated to the development of new cruise facilities. Looking forward, total capital improvements at all Florida ports for FY's 18-19 through 22-23 is $3.5 Billion. Of that total, 16.9% ($591.5 Million) is programmed for harbor and channel deepening and maintenance dredging.

1.2 Port Manatee

While Florida has 15 ports, each is unique and has a specific niche. Port Manatee is no exception. A port's niche is determined by a number of variables beginning with location and the port's facilities that may have been developed over the years for specific markets, commodities, and cargo types.

Port Manatee completed their most recent Port Master Plan update in 2016. As port activity expands and the type and volume of cargo arriving to, and departing from the port increases, needed improvements to the regional transportation network must be concurrently evaluated, planned, and incorporated into the FDOT Five-Year Work Program to accommodate increased surface traffic generated by expanding port activity. This review will provide Port Manatee, Manatee County, the Sarasota/Manatee Metropolitan Planning Organization, and FDOT information needed to support the port's next Five-Year Capital Improvement Plan (CIP), development of projects for the Five-Year Work Program, and for other potential state and federal funding opportunities.

Located on over 1,100 acres with 5,000 acres of local contiguous land available, Manatee County is a hub for a wide variety of agricultural and industrial products. The Porthosts shipments of orange juice and other citrus juices and beverages, forestry products, bananas, melons, aluminum, steel, paper products, linerboard, wood pulp, petroleum products, construction-grade aggregate, cement, and fertilizer. Port Manatee boasts the highest capacity of on-dock cold storage for high-value perishables in Florida and is a full-service port facility, including ship repair and fabrication. In fiscal year 2017, the Port experienced record numbers for container volumes while also reporting one of the

best years for total cargo tons moved. Operating revenues increased nearly 15 percent to $15.9 million in fiscal year 2018, largely due to an increase of close to one million dollars in waterborne-related revenue. Petroleum product imports continue to be on the rise at Port Manatee with over 8 million barrels of petroleum products imported in fiscal year 2017. Other significant increases were with dry bulk products, including fertilizer, granite, phosphate rock, and sulphur. The Port needs to aggressively expand, maintain, and invest in capital improvements to meet the needs of port tenants and users, but also address the infrastructure needs to support the Port's long-term vision of growth serving not only Central Florida, but all of Florida and the United States.

In 2019, Port Manatee's strengths are in:

- Breakbulk and containerized (refrigerated and dry) cargoes that include perishables and agricultural products, a full spectrum of forest products from lumber to pulp to paper and liner board, steel and other nonferrous metals, construction materials, and the myriad of commodities shipped in dry containers.
- Dry bulk cargoes from fly ash to cement and gypsum, dry chemicals and aggregates of various types, and fertilizers.
- Wet bulk cargoes to include juices, various petroleum products, and fuels.

These are the areas in which Port Manatee has correctly identified their greatest immediate expansion opportunities. In the more extended future, development of port–related industries and manufacturing in the adjacent Encouragement Zone could diversify the Port's cargoes and trade lanes. Additionally, there is the potential for the development of roll-on/roll-off cargo operations, but that probability is ambiguous as is the potential for involvement in the cruise or ferry industry. Further on in this report, the Port's focus on its niche as described above, is reflected in its focused Capital Improvement Plan (CIP) that has identified the facilities and infrastructure needed to capitalize upon the real opportunities in the Port's future.

Based on location, funding applicability and availability, the local and state political climate and a variety of other variables, ports across the country conduct business as operating or non-operating landlord ports. Some are fully operating ports in which all terminal operations are performed by port employees or stevedores under contract with the ports; alternatively, Port Manatee is an example of a non-operating port, or landlord port. As a landlord port all terminal operations and even facilities maintenance will be performed by port tenants which have long term leases and operating agreements with the port for the property upon which they operate and facilities and equipment they use. There are some Ports, such as the Georgia Ports Authority, that operate as a hybrid. As a strict landlord port, Manatee minimizes both operating and maintenance costs and often the opportunity arises to share capital development costs with the long-term tenants while still maintaining eligibility for state and federal capital grant funds.

SECTION 2
EXISTING CONDITIONS

SECTION 2: EXISTING CONDITIONS

2.1 Port Manatee Geography

Port Manatee is located in Palmetto, Florida surrounded by Tampa Bay to its west and US 41 to its east as shown in Figure 1. It is the closest U.S. deep water seaport to the Panama Canal and serves customers shipping bulk, breakbulk, container, heavy lift, project, and general cargo customers. Port Manatee offers 60-mph vehicular access to I-75, I-275, and I-4 via US 41.

Eight million Florida residents live within a two-hour drive of Port Manatee and the majority of Florida's nearly 113 million annual visitors may be found within a three-hour drive.

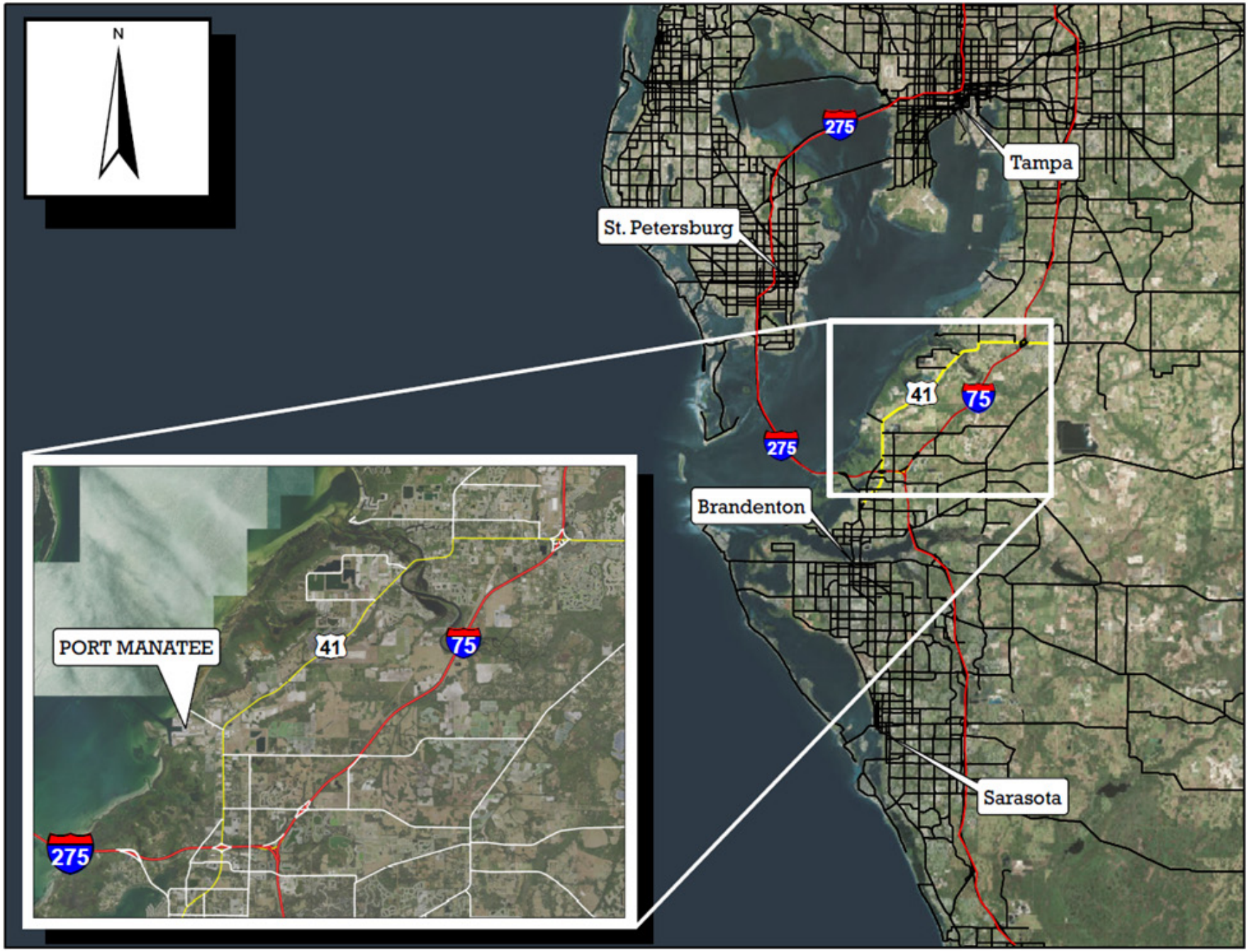
The Port is currently comprised of approximately 1,100 acres of land; a ship basin 1,588 feet long by 787 feet wide; and an access channel 2.9 miles long, 400 feet wide, and 40 feet deep, which links the basin with the federal channel in Tampa Bay. Port Manatee has ten 40-foot depth berths totaling 7,243 linear feet. Two Gottwald mobile harbor cranes can load and unload bulk, breakbulk, heavy lift, containers, and general cargo at multiple locations. Five of the berths contain underground pipelines installed to load and discharge petroleum products; a roll-on, roll-off (Ro-Ro) berth accommodates trailers and rolling equipment.

The Port recently opened Berths 12 and 14 with 10 acres of paved container cargo space. The entire available area east of the berths is 52 acres, and initially 29 acres were planned for development; however, funding constraints limited the initial development to 10 acres. In the past month, the Port has entered into a design contract for the preparation of plans and construction documents to develop as much of the remaining land for multiple cargo-type operations at Berths 12 and 14 as possible. Construction of the additional cargo area is expected to begin before the end of 2019. However, it is uncertain how much of the remaining undeveloped acreage will be developed in the next year as funds are limited. The Port intends to continue development, incrementally, until at least the remaining permitted 19 acres are developed as intermodal cargo space.

At the same time the Port will undertake the staged replacement/reconstruction of pavements and internal port roadways at multiple locations within the Port in an effort to provide enhanced access to port facilities, increase the efficiency of internal cargo movement between port facilities, and provide additional truck parking. This construction effort is expected to be underway in 2019.

The Port has more than one million square feet of warehouse space for the storage and transshipment of various cargoes. This includes over 200,000 square feet of refrigerated warehouse space for perishables, 200 stationary "Reefer" plugs, and 80 portable receptacles to provide power to refrigerated containers. Del Monte has shown interest in investing in the existing warehouse space to extend its design life; however, inclusion of additional cold storage is dependent on Public/Private Partnerships.

Figure 1: Port Manatee and Surrounding Transportation Network



Primary truck and wheeled vehicle access to the Port is through the Access Control Center at the Port's north entrance. Other aspects of existing conditions that impact cargo activity growth and increased demands upon the regional transportation network are:

- **Navigation:** None of the Port's ten berths currently exceed the widely-accepted high berth occupancy rate of 75 percent. The air draft limitation of the Skyway Bridge does preclude passage of larger cruise vessels and some of the largest Post-Panamax cargo vessels; however, it is not expected that those vessels would plan to call at Port Manatee in the future. Nevertheless, future vessel calls at the Port could include broader beam and deeper draft cargo vessels that would require improvements (depth and width) to the Federal Channel.
- **Circulation and Access:** On-Port roadways are generally adequate at current cargo throughput levels. However, as throughput levels increase as expected, the Port will make selective improvements to area circulation to maintain the current level of access and internal circulation.

2.2 Port Manatee Access

Access to the Port is provided via a series of strategic intermodal system (SIS) connectors and corridors, including a rail corridor, a rail connector, two highway corridors, and a highway connector. US 41 is the designated SIS highway connector, providing a direct connection between Port Manatee and I-275. Interstate 275 and I-75 are both designated SIS highway corridors and provide connections between the SIS connector and the rest of the state. Roadways in the area surrounding and serving the Port are currently operating at an estimated Level of Service (LOS) C or better.

One long-term project of considerable interest to the Port is the Port Connector to I-75. Currently the study is on hold in the alternatives phase of the 2008 Project Development and Environment (PD&E) Study. The Port is concerned that this "on hold" status might continue until conditions warrant its consideration, design, and construction. At that point, restarting the PD&E might delay the project to the extent that a serious bottleneck develops before it can be addressed.

Port Manatee owns and operates a short line railroad that directly connects to CSX Corporation's (CSX) mainline less than one mile from the Port's north gate. The short line operates 24 hours per day on nearly 7 miles of track with a capacity for approximately 300 railcars.

2.3 Port Manatee Tenants

The Port currently leases property to fifteen tenants including the following:

- Alpico International
- AME Salt
- American Cement
- Argos
- B&N Fashion
- Carver Marine
- Del Monte
- Federal Marine Terminal
- Frontier Communications
- Gulf Coast Logistics
- Kinder Morgan
- Logistec USA
- Martin Marietta
- TransMontaigne
- World Direct Shipping

Port Manatee tenant lease information is shown in Table 1. Figure 2 displays a tenant and facility map. Additional information on individual tenants is available in Subsections 2.3.1-2.3.9.

Figure 2: Port Manatee Tenants and Facilities Map

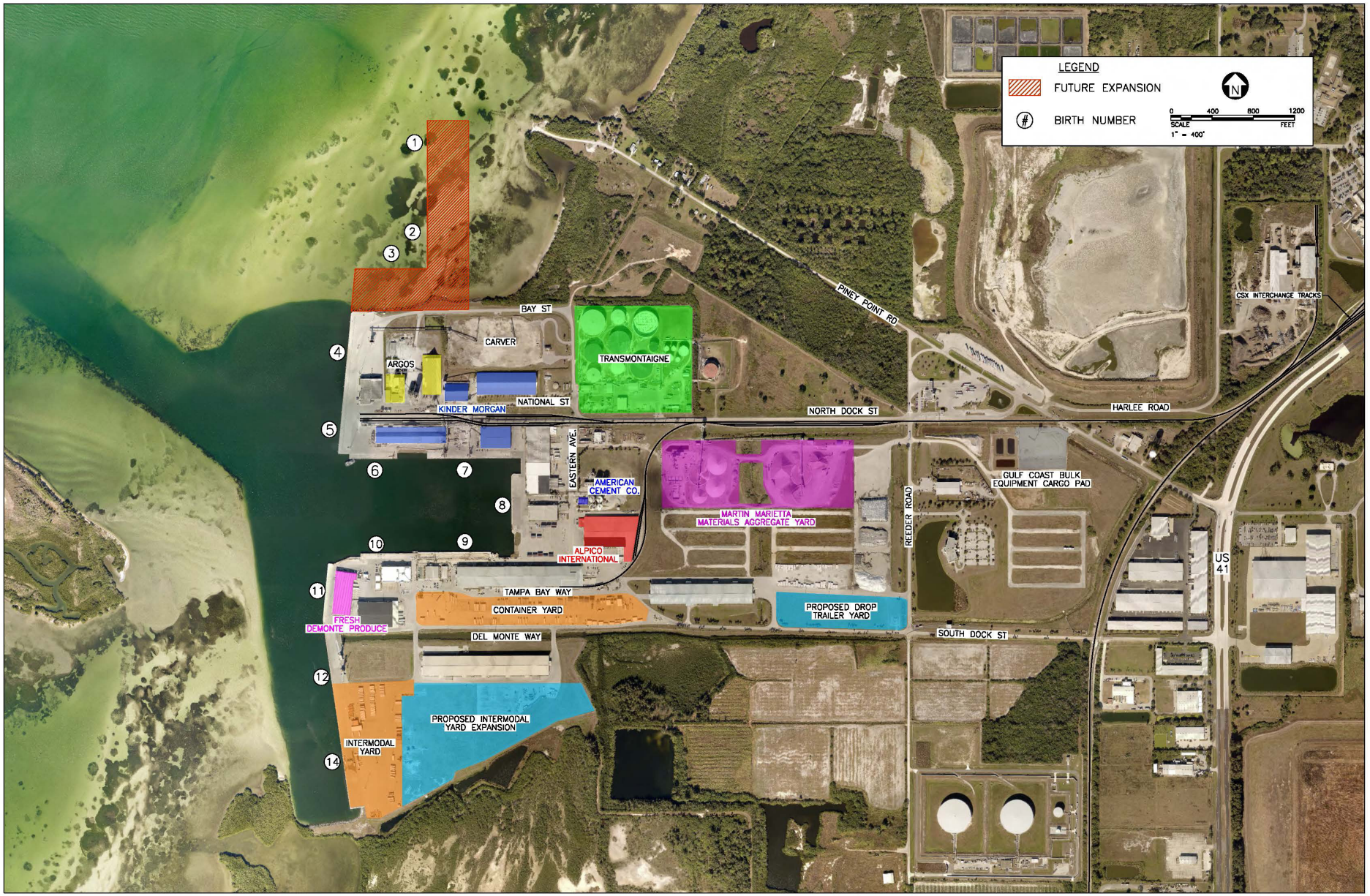


Table 1: Port Manatee Tenant Lease Information

Tenant	Lease Description	Square Feet/Acres	Lease Expiration
Alpico International	Harris Intermodal-Office	685.00 sq. ft.	12/31/2020
American Cement	Cement Facility	5.97 acres	12/31/2049
Argos	Land – Their Facility	7 acres: 5.42 & 1.58 acres	8/6/2020
B&N Fabrication	Shop	2.015 acres	10/31/2019
Carver Maritime LLC	Land	10 acres	9/30/2023
Del Monte	Warehouse 8	66,000 sq. ft. (cold)	Month-to-Month
Federal Marine Terminals	Land	20,833 sq. ft.	12/31/2019
	Shop	4,270 sq. ft.	12/31/2019
	Office – Warehouse 9	230 sq. ft.	12/31/2019
	Storage	1,500 sq. ft.	12/31/2019
Kinder Morgan	Land – Their Facility	5.01 acres	8/6/2020
	Land – Their Facility	2.79 acres	9/18//2031
Logistec USA	Crane	Crane 1	12/18/2022
	Crane	Crane 2	10/1/2025
	Office – Admin. Bldg.	2, 078 sq. ft.	12/31/2016
Logistec Gulf Coast Bulk	Land	5.19 acres	9/30/2019
Martin Marietta	Land	20.1 acres	12/17/2039
TransMontaigne	Land – Their Facility	35.28 acres	4/30/2020

2.3.1 Alpico International

Alpico International is a licensed international freight forwarder that focuses on a wide variety of moving general cargo around the world. Product types include, but are not limited to: agricultural equipment, heavy machinery, cars/trucks, containers, rolling stock, Ro-Ro, and refrigerated containers ("Reefers").

2.3.2 American Cement Company (ACC)

ACC is the leading state of the art cement facility in Central Florida located in Sumterville, Florida, approximately 100 miles from Port Manatee.

The operations are fairly new returning to Port Manatee after incurring a ten year idle period. At the time of the tenant interviews (August 2018) the facility was anticipating their second vessel; however, projections for 2019 anticipate six vessels, or 204,000 short tons. A more detailed description of operations for this tenant are described within the tenant interview notes in Appendix 1.

2.3.3 Carver Maritime

Carver Maritime is a subsidiary to Carver Companies. The Port Manatee facility will be their third maritime endeavor, the first two located in Port of Coeymans (on the Hudson River, NY) and North Charleston, SC. This facility fits their core capabilities of aggregate supply, heavy construction, and maritime operations. The addition of Port Manatee to their facility locations allows Carver access to the Gulf Coast and Central Florida markets.

Carver Maritime's Port Manatee operations focuses on bulk cargo and the use of a 1,400 foot high-speed conveyor system, truck load-out facilities, and deep-water access. They received their first vessel of approximately 50,000 tons of raw material to be used in cement manufacturing on February 6, 2019. At this time, they are able to move quickly on a variety of types of products and they are reviewing opportunities for a salt bagging facility and providing services for cement cargo.

2.3.4 Del Monte

Fresh Del Monte Produce Inc. (Del Monte) is one of the world's leading vertically integrated producers, marketers, and distributors of high-quality fresh and fresh-cut fruit and vegetables, as well as leading producer and distributor of prepared fruit and vegetables, juices, beverages, and snacks in Europe, Africa, and the Middle East. Del Monte offers ocean cargo services via its network shipping subsidiary using its 15 owned and 8 chartered refrigerated vessels with regular service between the U.S. and Central America. Del Monte operates four port facilities, including Port Manatee, Palmetto, FL; Port Hueneme, Port Hueneme, California; Port Galveston, Galveston, TX; and Gloucester Port, Gloucester City, NJ. All of which include cold storage facilities.

At Port Manatee, Del Monte Fresh's imports arrive by container or by pallet; however, the company intends to convert to a fully containerized operation by 2020. At this time, one out of every three vessels is a container only ship. Implications of this change will include requirements for additional "Reefer" plugs, increased container storage, and increased transloading facilities compared to their existing operations. In preparation for the fully containerized operations, Port Manatee has installed new "Reefer" plugs and has begun the design for an expanded container area.

All freight departs by truck and freight that arrives by container is transloaded into trucks for transport off the facility in attempt to reduce the container dwell. A more detailed description of operations for this tenant are as described within the tenant interview notes in Appendix 1.

2.3.5 Federal Marine Terminals

FMT is an industry leader servicing breakbulk, bulk, specialized, and general cargo needs. Commodities handled range from steel and machinery to forest products and containers. The company has terminal locations in the Great Lakes, along the St. Lawrence River, and East and Gulf Coasts.

Commodities handled at Port Manatee include: forest products, steel, bulk, project cargo, containers, and other breakbulk cargoes.

2.3.6 Kinder Morgan

Kinder Morgan is one of the largest energy infrastructure companies in North America. The company currently owns an interest in or operates approximately 85,000 miles of pipelines and 152 terminals. The company transports the following products via pipeline: natural gas, gasoline, crude oil, carbon dioxide, and more. Products stored and handled at their terminals include petroleum products, chemicals, and other products.

At their Port Manatee location, they import fly ash and export phosphates. They are currently in negotiations with the Port for an additional two acres of land starting in 2020.

2.3.7 Logistec

Logistec is a leading terminal operator across North America, operating in more than 37 ports and over 61 terminals. The company specializes in terminal operations and specialized cargo handling services including container, bulk, breakbulk, and project cargo, as well as intermodal facilities and Ro-Ro operations.

At Port Manatee, Logistec's customers include: Del Monte Fresh, AME Salt, Intermetals and VA Trading, and Port Manatee Scrap. A more detailed description of operations for this tenant are described within the tenant interview notes in Appendix 1.

2.3.8 Martin Marietta

Martin Marietta is an American-based company and a leading supplier of aggregates and heavy building materials. The company has operations spanning in 27 states, Canada, the Bahamas, and the Caribbean Islands.

At Port Manatee, Martin Marietta's largest volume commodity is granite product that is used by regional asphalt companies. As of the interview conducted August 2018, they believe that there is opportunity to grow into other

markets for aggregate commodities at Port Manatee and expressed interest in expanding to include limestone. A detailed description of operations are included within the tenant interview notes in Appendix 1.

2.3.9 TransMontaigne

TransMontaigne provides terminaling, storage, and transportation services through their network of assets that span 51 storage terminals with more than 38 million barrels of capacity and three product pipelines. In Port Manatee alone, TransMontaigne has capacity to store approximately 1,408,000 barrels of oil and other refined products.

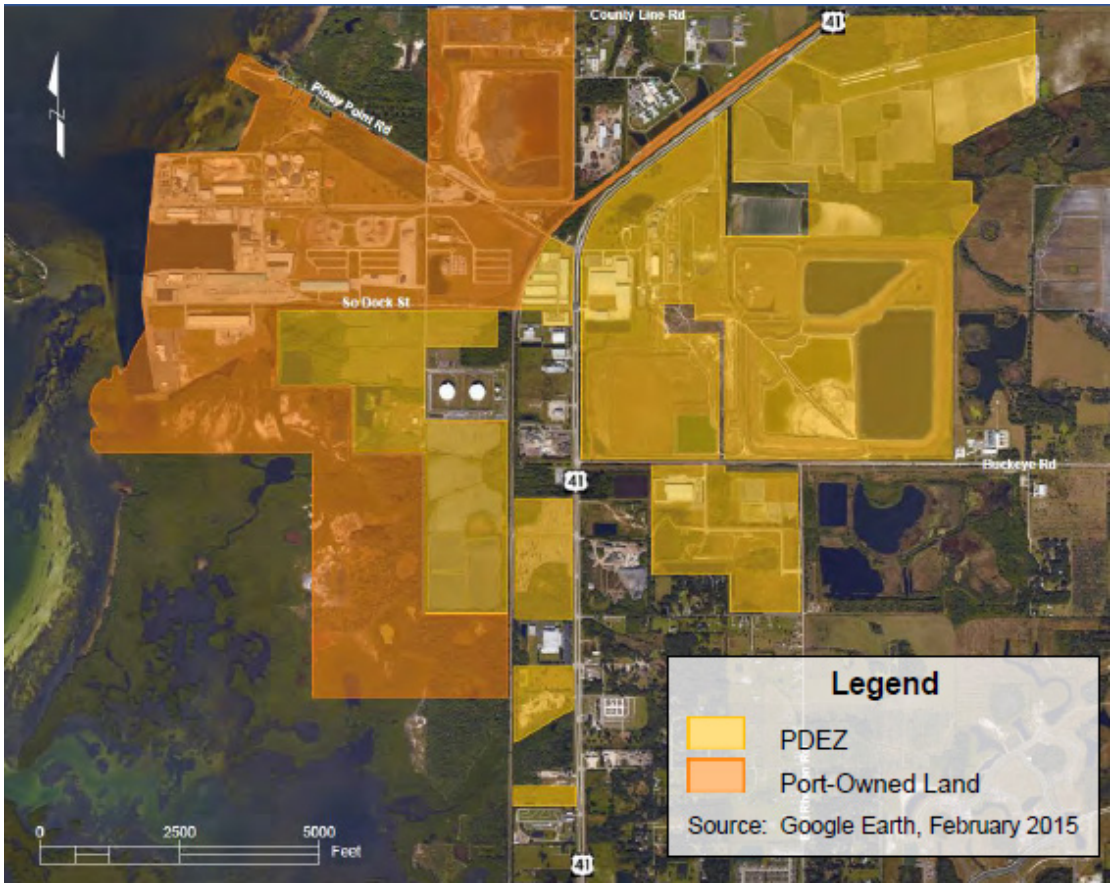
At Port Manatee, TransMontaigne receives gasoline, diesel, ethanol, six oil, and asphalt, though where gasoline and diesel make up the majority of their business. The majority of freight is trucked off the Port's property; however, six oil departs by barge for use on cruise ships and freight ships, departing three to four times per week. A more detailed description of operations for this tenant are described within the tenant interview notes in Appendix 1.

2.4 Planned Development Encouragement Zone (PDEZ)

Adjacent to Port Manatee - west of the Florida International Gateway (FIG) and running south along US 41, there is a Planned Development Encouragement Zone (PDEZ), which Manatee County created to facilitate pre-approval of a variety of land uses for local property owners (Figure 3). The PDEZ is established within Manatee County's Land Development Code. The goal of the PDEZ is to "encourage" port-compatible development (e.g., warehousing, distribution, processing, manufacturing, and other heavy and light industrial uses) inside of the approximately 1,000 acre designated district. Its primary objectives include:

- Enhancing Port Manatee's future competitive position by expanding its "usable" land banks outside the Port
- Fomenting job creation through encouraging industrial and logistics related uses in the north part of the county
- Further demarcating that part of the county for industrial and commercial uses rather than residential ones

Figure 3: PDEZ Location Relative to Port Manatee



2.5 Negative Development Factors Affecting the PDEZ

2.5.1 The Housing Alternative

A majority of the land within the PDEZ is owned by a handful of property owners. Seeking the maximum possible return on their real estate investment, the land within the PDEZ district is in constant competition among other viable potential land-uses, such as housing. Current economic conditions indicate momentum in the statewide and local residential development markets that is quickly outpacing the demand for industrial and logistics uses. With the Port lacking the capital resources required to purchase the lands within the PDEZ, its future development tract remains uncertain.

2.5.2 Land Control

At the request of the County, the Urban Land Institute (ULI) completed a 2013 development assessment study for Manatee County. The study sought to identify economic and land development challenges and opportunities. A recommendation made by the study in relation to Port Manatee suggested seeking Public Private Partnerships (PPP) as a means for debt and equity financing for future port infrastructure and port-related projects. However, a fundamental catalyst of PPP projects is public sector control over the lands where the development/project is expected to occur.

2.5.3 Cargo Mix

Port Manatee is experiencing an evolution in its bulk cargo volumes and mix. For example, while fertilizer is down, liquid bulk is projected to significantly increase in the coming years. That said containerized cargo at Port Manatee, while growing, is still at a relatively low threshold. It is unlikely that the amount of growth, relative to volume, of containerized cargo at Port Manatee will be large enough to become a catalyst for container-related development within the PDEZ in the foreseeable future.

2.5.4 Market Conditions

The "Great Recession" of 2007-2009 had a significant impact on cargo operations, not only at Port Manatee, but nationwide. In fact, Florida's ports are still struggling to reach pre-2007 cargo levels. According to a 2013 study conducted by Florida Ports Council, the following are some of the primary challenges faced by Florida ports in reaching a state of economic recovery:

- Their share of the container market dropped from 8.3 percent in 2013 to 7 percent in 2015.
- The total potential import/export market for Florida origin/destined goods available as additional cargo to its ports is approximately 3.5 million TEUs. Florida ports are capturing approximately one out of every two available TEUs coming into the state.
- Florida ports are lagging behind ports across the country in growth (1.6 percent versus 3 percent nationally). In fact, in real terms, container growth is lower today than in 2001.

SECTION 3
PORT MANATEE EXPECTED GROWTH

SECTION 3: PORT MANATEE EXPECTED GROWTH

As national, state, and regional economies are adjusting and recovering from the last recession, Port Manatee is looking ahead to the next ten-year period in terms of projected growth. Over the next decade, the Port is expecting a resurgence related to the volume of petroleum product imports. A planned increase in tank farm activity at the Port is expected to increase liquid bulk import tonnage by nearly 500 percent.

Forecasts are also predicting steady, but moderate growth in container trade and general cargo imports, a continued reduction in total dry-bulk exports, and a buildup in terms of volume related to new dry bulk import commodities.

The tonnage moving over Port Manatee's berths is forecast to increase at an annual average rate of 8.3 percent through 2025, as shown in Figure 4 (Source: Port Manatee Master Plan 2016). This projection is as stated within the 2016 Port Manatee Master Plan; however, based on interviews with the Port staff in March 2019, they do believe that the projections are still accurate. The increases in projected import cargoes through 2025 are primarily led by liquid and dry bulks, followed by general cargo and containers. Export cargo over the same forecast period show substantial container growth, some growth in liquid bulks, but reductions in general cargoes and dry bulks.

Contributing factors include, but are not limited to:

- An announced and planned increase in tank farm activity at Port Manatee is projected to result in a nearly 500 percent increase in liquid bulk import tonnage.
- The emergence of new import commodities, such as fly ash and sulphur, expected to exhibit annual average volume gains of 7.5 percent through 2025.
- Exports are expected to continue to decrease in tonnage; however, historically, Port Manatee experiences a cyclical pattern in export volumes.

Del Monte and World Direct Shipping are the two major container shippers located at Port Manatee fiscal year 2017 volume of nearly 40,000 TEUs was the largest annual container throughput in the Port's history, previously 30,431 TEU reported in fiscal year 2010. As of April 2018, the Port indicated that they were experiencing an additional 12.6 percent increase in cargo growth in the first half of fiscal year 2018. Moving forward, the Port's container count, including imports, exports and empty boxes is projected to increase at an annual average rate between 5 and 6 percent over the next ten-year period.

New business opportunities would have an impact on container growth for the Port. Opportunities previously sited include exports to Cuba, a pilot program for cold-treated fruit from South America, a shift from "Reefers" to containers, and a new liner service to account for regional growth.

Figure 4: Port Manatee Tonnage History and Forecast 2004-2025 (In 000 short tons)

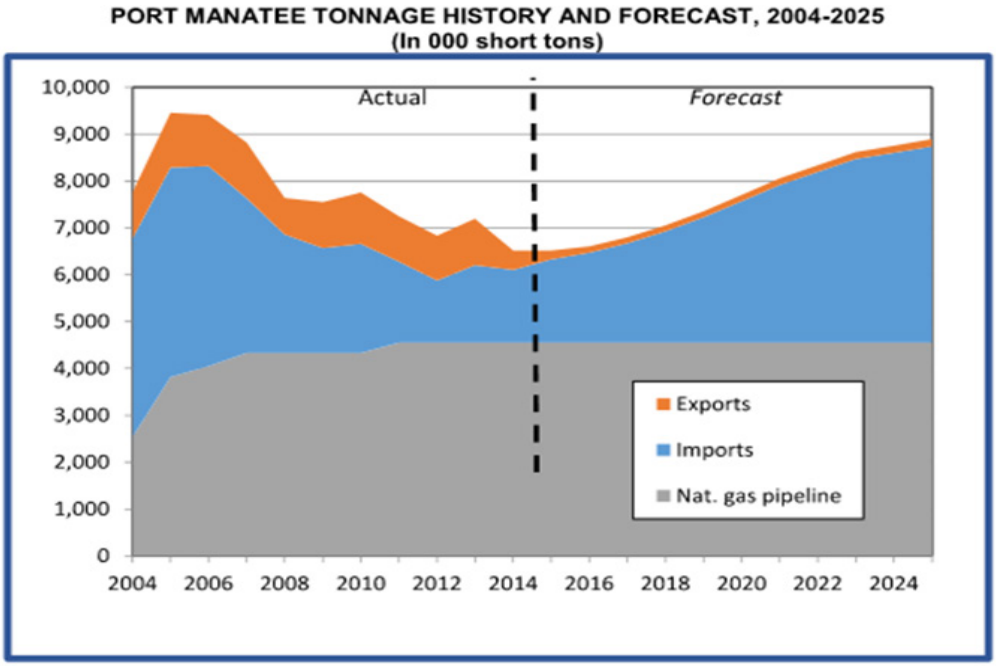


Figure 5: Port Manatee Container Throughput 2016-2018 (TEUs)

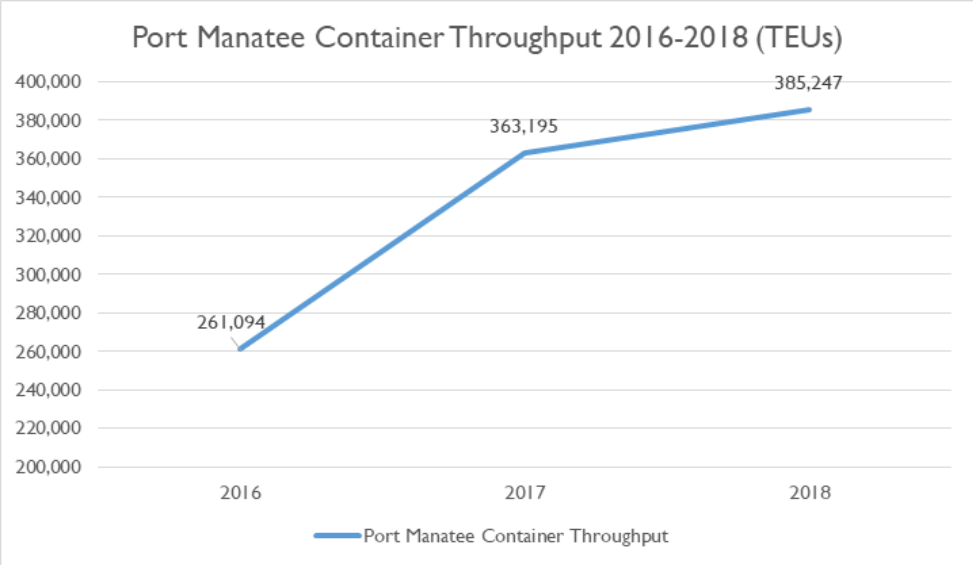


Figure 6: Port Manatee General Cargo Throughput 2016-2018 (Tons)

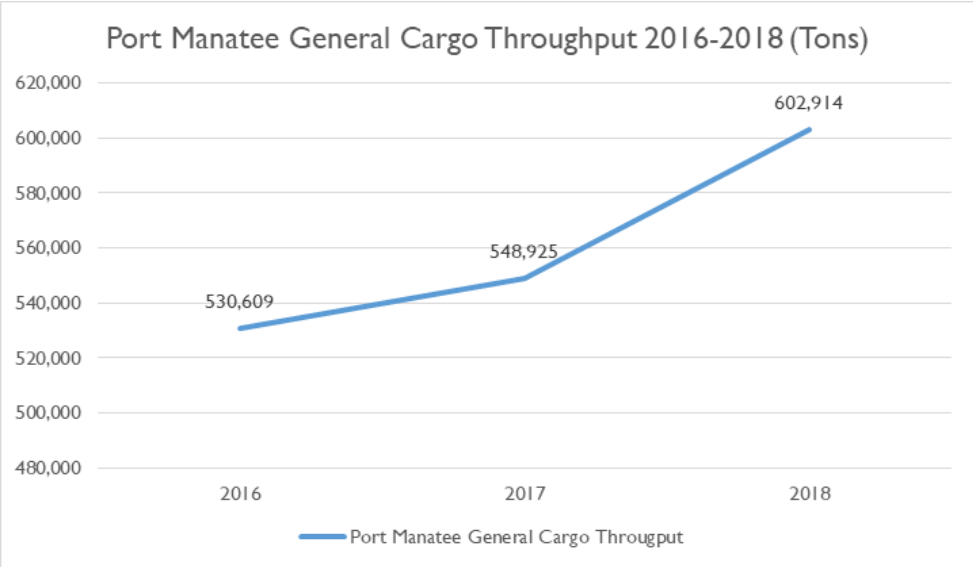


Figure 7: Port Manatee Dry Bulk Throughput 2016-2018 (Tons)

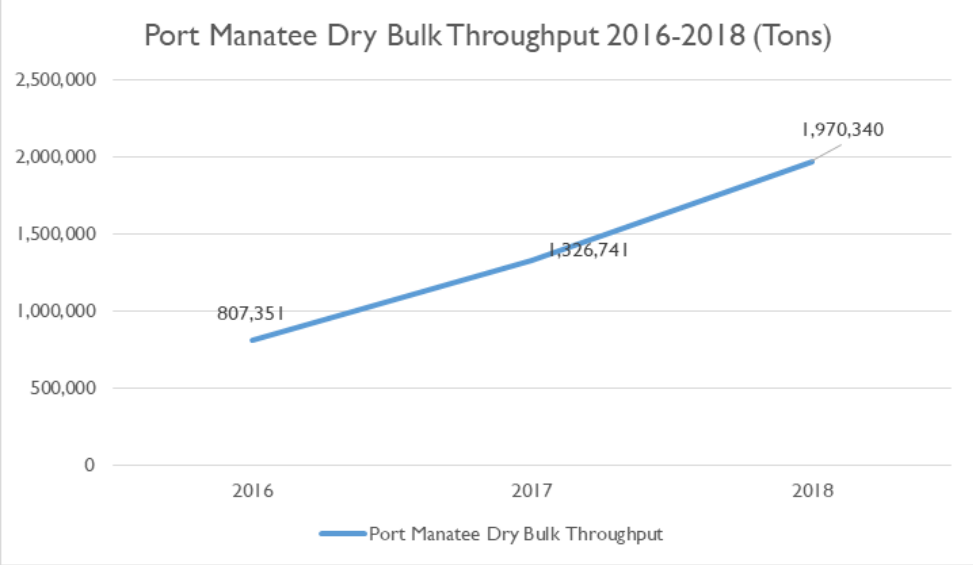


Figure 8: Port Manatee Liquid Bulk Throughput 2016-2018 (Tons)

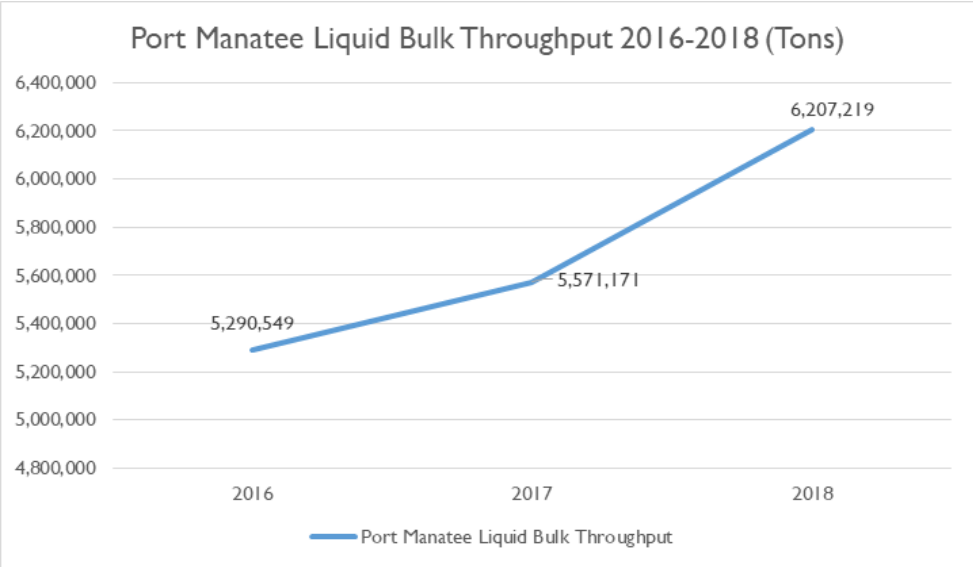
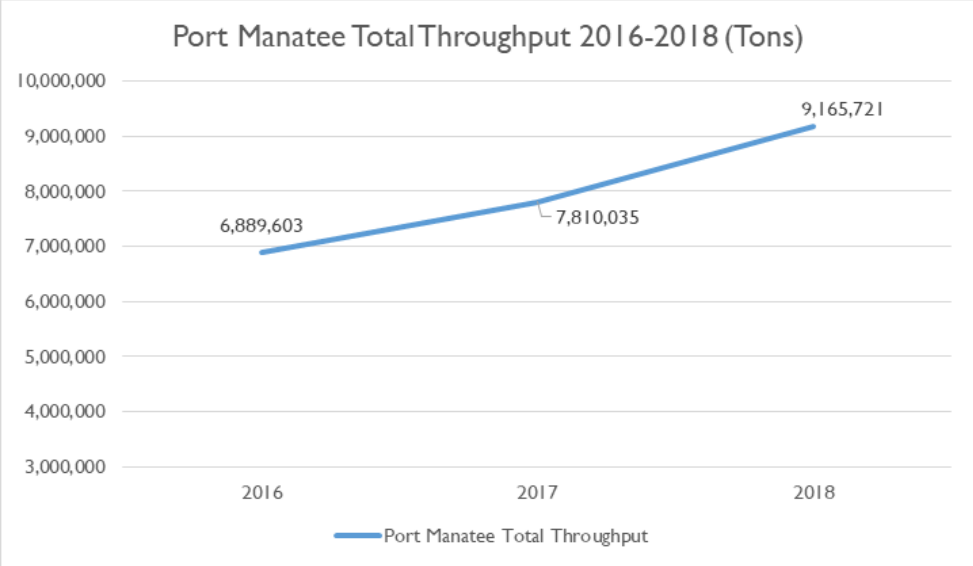


Figure 9: Port Manatee Total Throughput 2016-2018 (Tons)



Figures 5-9 demonstrate the growth totals for throughput at Port Manatee during years 2016-2018. Container and bulk cargoes all experienced consistent, year-over-year growth over this timeframe. Subsequently, total throughput at the Port is up 2,276,118 tons during this three year period.

SECTION 4
PORT MANATEE CAPITAL IMPROVEMENT PLAN (CIP)

SECTION 4: PORT MANATEE CAPITAL IMPROVEMENT PLAN (CIP)

The Port's updated Master Plan in 2016 summarized the short-term (years one through five) and the long-term (years six through ten) maintenance and expansion program based upon several potential business expansion and development scenarios. Consideration was also given to development of access to the County's Encouragement Zone (PDEZ) in order to facilitate potential industrial and manufacturing developments that would eventually become port users.

This section of the study reviews the Port's 2019 perception of the cargo market, identification of real opportunities, and Port Manatee's focus on expansion in specific cargo and commodity types. In turn, the identification of highly probable business development and expansion opportunities provides the basis for the further identification of needed new infrastructure, facilities, and equipment, as well as the need to maintain the capacity/capability of existing facilities, infrastructure, and equipment. These identified needs comprise the Port's Capital Improvement Plan (CIP). Per tenant interviews, the Port's identification of true business expansion opportunities do corroborate very closely with the perceptions of opportunity held by the Port tenants and users.

4.1 Port Manatee CIP and Facility Infrastructure Improvements

In proposing these capital improvements, Port Manatee's focus is on making the best possible use of its existing infrastructure while incrementally adding new facilities as required to meet market demands and changing trends in the maritime industry in order to attract new carriers, shippers, and commodities to the Port, expand the operations of current Port tenants, and sustain current operations.

Port Manatee's 2019 – 2023 Capital Improvement Plan (CIP) is based upon a current focus on specific types of cargo expansion opportunities. Such opportunities do not always come to fruition, thus the "living" nature of the CIP and the necessity for the Port's reevaluation and modification of the plan on an annual basis, if not one of greater frequency.

4.2 Port Manatee Business Markets

In the 2016 Master Plan update, four development scenarios were identified that corresponded to commodity types. The following table displays the commodities considered in 2016.

Table 2: Port Manatee Business Lines by Cargo Type

Commodity Type	Commodity Description	Scenario Identification
Containers	Fruits, Vegetables, Linerboard	Scenario A
Perishables	Bananas, Melons, Pineapples	Scenario A
Energy	Asphalt, Bunker C Fuel, Diesel/Gas	Scenario D
Bulk	Citrus Juice, Granite, Limestone, Salt, Fly Ash, Sulfur, Fertilizer, Phosphate Rock, Slag	Scenarios A & C
General Cargo/Auto	Hardboard, Lumber, Plywood, Steel, Aluminum, Wood Pulp, Bagged Sugar, Scrap Metal, Vehicles	Scenarios A & B
Cruise/Ferry	Passengers, Autos, General Cargo	Scenario B

Our visual inspection of the Port and its facilities in conjunction with interviews with a majority of the Port's tenants revealed the extraordinary diversity of commodities handled by Port Manatee. These commodities fall into three major cargo types – containerized (dry and refrigerated), break bulk, and bulk (liquid and dry) cargoes. In 2019, the Port leaders are focused on these cargo types and capitalizing on the opportunities for expansion within these markets. While the Port still monitors the potential for the development of roll on/roll off cargo and a possible ferry or smaller cruise service, these pursuits have taken on reduced focus. The Port's 2019 – 2023 CIP reflects this business line focus on containerized, break bulk, and bulk cargoes.

4.3 Five-Year Capital Improvement Plan

Port Manatee has developed the phased $95 million five-year capital improvement plan (CIP) for 2019 through 2023. The projects presented in the CIP are reflective of the Port's anticipated maintenance and short-term expansion needs. These needs reflect the Port's direction and focus on specific business expansion and development initiatives and opportunities.

Improvements listed in the CIP are required to develop future Port growth and sustain current operations. They have been prioritized in the CIP to advance the competitive position of the Port and harness probable grant funding opportunities. Figure 10 lists the major capital projects envisioned in the five-year CIP. The projects planned farther out in the future are more susceptible to change as markets, commodities handled and demand evolve. Availability of funding from Port revenues/reserves, the state or federal governments, or from private sector investors has a significant impact on project economic feasibility. Another critical variable is unexpected business opportunities requiring quick capital investment by the Port. In short, the CIP is revised, at a minimum, on an annual basis to reflect the needs and financial capabilities of the Port.

The Port's recently updated CIP for 2019 – 2023 is focused on:

- Expansion of the cargo area east of Berths 12 and 14
- Improvements to the existing freight rail infrastructure
- Cold and dry storage warehouse improvement and expansion
- Improvement and expansion of drop trailer areas
- North and South Gate expansions/improvements
- Berth rehabilitations and the extension of Berth 4
- Internal roadway improvements
- Acquisition of a third mobile harbor crane

These identified capital projects clearly focus on the enhancement and sustainment of the Port's container, break bulk, and bulk operations in which opportunities for business development and expansion have been positively identified.

Figure 10: Port Manatee Five-Year Capital Improvement Plan (2019-2023)

MANATEE COUNTY PORT AUTHORITY
CAPITAL IMPROVEMENT PLAN 2019-2023

2019 FUNDING				
	Project Costs	Grant	Reserves	Other Funding
Projects				
Intermodal Container Yd-Ph II	5,250,000	2,625,000	2,625,000	
Railroad Track Improvements	654,470	327,235	327,235	-
Cold Storage Whse Improvements	1,000,000	500,000	500,000	
Drop Trailer Lot	1,000,000	500,000	500,000	
North Gate Expansion Project	1,262,600	1,196,950	65,650	
Berth Rehabilitation	2,000,000	1,500,000		500,000
Roadway Improvements*Phased	4,000,000	1,000,000	1,000,000	-
TOTAL:	**15,167,070**	**7,649,185**	**5,017,885**	**500,000**

2020 FUNDING				
	Project Costs	Grant	Reserves	Other Funding
Projects				
South Gate Phase II	1,500,000	1,125,000		375,000
Laydown Area Zone B-7 acres	2,000,000	1,000,000	1,000,000	
Roadway Improvements	500,000	250,000	250,000	-
Master Plan Update	300,000	150,000	150,000	-
TOTAL:	**4,300,000**	**2,525,000**	**1,400,000**	**375,000**

2021 FUNDING				
	Project Costs	Grant	Reserves	Other Funding
Projects				
Roadway Improvements	500,000	250,000	250,000	-
Berth 4 Extension	20,000,000	15,000,000	-	5,000,000
Mobile Harbor Crane	4,000,000	2,000,000		2,000,000
Maintenance Dredging	450,000	337,500	112,500	-
TOTAL:	**24,950,000**	**17,587,500**	**362,500**	**-**

2022 FUNDING				
	Project Costs	Grant	Reserves	Other Funding
Projects				
Roadway Improvements	500,000	250,000	250,000	-
Cruise Terminal Ferry	20,000,000	10,000,000	-	10,000,000
TOTAL:	**20,500,000**	**10,250,000**	**250,000**	**-**

2023 FUNDING				
	Project Costs	Grant	Reserves	Other Funding
Projects				
Land Acquistion	18,000,000	9,000,000	-	9,000,000
TOTAL:	**18,000,000**	**9,000,000**	**-**	**-**

The Port Manatee CIP appears to be financially pragmatic. It includes both capital maintenance and new facility/ infrastructure projects that ensure the sustainment of current cargo operations and deliver new or enhanced facilities that will enable growth in the Port's container, break bulk, and bulk cargo lines. In a review of the 2019 - 2023 five-year CIP, it does not appear that any growth-critical projects are absent. On the contrary the projects in the CIP are clearly those that will facilitate the projected annual cargo growth rate of 8.3 percent through 2025.

The following maintenance initiatives are planned during the period of the five-year capital improvement program:

Berth Rehabilitation and Reconstruction. First built in the mid-1970s, Berths 6, 7, 8, 9, 10, and 11 have reached their design life and are due for rehabilitation. To avoid further deterioration and perhaps collapse, these berths should be rehabilitated, upgraded, and/or reconstructed during the short-term planning horizon or when fiscally possible. Improvements will include shoring up aprons and refurbishing/replacing pilings to accommodate yard equipment and heavy-lift mobile cranes, as applicable. *Note – A rehabilitation of Berth 9 has recently been completed.*

The Port has also expressed the inherent need to complete an extension of Berth 4. The project is so vital that

the Port would fund the effort from its own reserves, in anticipation of a grant funding agreement with FDOT. This extension would allow berthing two vessels on Berths 4 and 5. The Berth 4 extension would be an interim step towards building Berths 3, 2 and 1 in the long-term.

Road and Railroad Maintenance. The Port will continue to upgrade and rehabilitate existing roads and railroad tracks within the Port, as required, including rail-tie replacement, ballast, and resurfacing. Funds will also be used for existing locomotive maintenance. This work will be done to maintain a good state of repair and in anticipation of the increased volumes and loads associated with additional bulk and containerized cargo throughput.

Refrigerated Storage. One of Port Manatee's most critical types of facility is the refrigerated storage for perishables. Maintaining their refrigerated facilities is essential to this major business line and thus comprises a major focus of the Port's facility and equipment maintenance program. As more and more perishable cargoes (fruits and vegetables) are converted from break bulk that requires refrigerated warehousing/storage to cargoes being transported in refrigerated containers (refers), more dependence on operational refer plugs has developed. The Port is vigilant in maintaining a very high operational readiness rate of their current plugs and adding new refer plug capacity as the demand grows.

Yard Maintenance. The periodic patching of paved areas throughout the Port has continued to sufficiently maintain the structural integrity of operating areas. Even though the associated estimated costs have been identified in the Five-Year Capital Improvement Program, it is possible that certain yard maintenance may be delayed to allow cash flow to be directed to capital investments.

4.4 Grant Funding

For planning purposes in coordination with the CIP, the Port has developed reporting of existing projects that are currently under grant agreements or listed as proposed, potential projects, as shown in Figure 11. Similar to the CIP, this document is a "living" document and updated regularly to ensure that the information remains current.

Figure 11: Projects Under Grant Agreements or Potential Projects

Port Manatee

PROJECTS UNDER GRANT AGREEMENTS/OR POTENTIAL PROJECTS

Under PTGA

Cold Storage Warehouse Improvements

FM	Year	Allocation	Match	Project Cost	Expenditures	Grant Balance
440875-1-94-01	2017	$250,000	$250,000	500,000	148,161	$101,839
440875-1-94-02	2019	$500,000	$500,000	1,000,000	-	$500,000
Total		$500,000	$500,000	1,000,000	148,160.88	$500,000

Intermodal Container Yard Expansion

FM	Year	Allocation	Match	Project Cost	Expenditures	Balance
444251-1-94-01	2019	$2,625,000	$2,625,000	5,250,000		$2,625,000
Total		$2,625,000	$2,625,000	5,250,000	-	$2,625,000

Upland Cargo Improvements (Rehab & Upgrade of Roadways)

FM	Year	Allocation	Match	Project Cost	Expenditures	Balance
444277-1-94-01	2019	$2,000,000	$2,000,000	4,000,000	-	$2,000,000
444278-1-94-01	2019	$30,000	$30,000	60,000	-	$30,000
Total		$2,030,000	$2,030,000	4,060,000	-	$2,030,000

North Gate Expansion

FM	Year	Allocation	Match	Project Cost	Expenditures	Balance
444947-1-94-01	2019	$250,000	-	250,000		$250,000
PSGP	2019	$946,950	$65,650	1,012,600	-	$946,950
Total		$1,196,950	$65,650	1,262,600	-	$1,196,950

Railroad Improvements

FM	Year	Allocation	Match	Project Cost	Expenditures	Balance
444887-2-94-01	2019	$45,449	$45,449	90,898		$45,449
Total		$45,449	$45,449	90,898	-	$45,449

Berth Rehab & Reconstruction

FM	Year	Allocation	Match	Project Cost	Expenditures	Balance
433457-1-94-03	2015	$1,300,000	$433,333	1,733,333	535,626	$764,374
Total		$1,300,000	$433,333	1,733,333	$535,626	$764,374

Total - 2019		$7,651,950	$5,653,983	13,305,933	$ 683,787	$12,622,146

EXPECTED PTGA's 2020* *FDOT's FY. Should receive PTGA in September 2019

Berth Rehabilitation, Continued

FM	Year	Allocation	Match	Project Cost	Expenditures	Balance
	2020	$1,500,000	$500,000	2,000,000	-	$1,500,000
Total		$1,500,000	$500,000	2,000,000	-	$1,500,000

Railroad Track Improvements, Continued

FM	Year	Allocation	Match	Project Cost	Expenditures	Balance
	2020	$327,325	$327,325	654,650		$327,325
Total		$327,325	$327,325	654,650	-	$327,325

Total - 2019 & 2020		$9,479,275	$6,481,308	15,960,583	$683,787	$14,449,471

Port Manatee

PROJECTS UNDER GRANT AGREEMENTS/OR POTENTIAL PROJECTS

OTHER PROJECTS UNDERWAY OR BEING DISCUSSED

Drop Trailer Lot

FM	Year	Allocation	Match	Project Cost	Expenditures	Balance
	2019	$0	$1,000,000	1,000,000	-	$0
Total		$0	$1,000,000	1,000,000	-	$0

Water Tank Removal

FM	Year	Allocation	Match	Project Cost	Expenditures	Balance
	2019	$0	$150,000	150,000	-	$0
Total		$0	$150,000	150,000	-	$0

Maintenance Dredging

FM	Year	Allocation	Match	Project Cost	Expenditures	Balance
	2019	$0	$450,000	450,000	-	$0
Total		$0	$450,000	450,000	-	$0

McDonough Pilings

FM	Year	Allocation	Match	Project Cost	Expenditures	Balance
	2019	$0	$200,000	200,000		$0
Total		$0	$200,000	200,000	-	$0

TOTAL: PORT		$9,479,275	$8,131,308	17,160,583	$683,787	$14,449,471

STILL MORE CAPITAL PROJECTS

DESCRIPTION	Year	Allocation	Match	Project Cost	Expenditures	Balance
Berth 4 Extension				20,000,000		
Warehouse 6				4,000,000		
Mitigation Credits				1,500,000		
Haven Salt Bagging				15,000,000		
Stormwater Study				250,000		
Dry Storage Whse				12,000,000		

MAINTENANCE ITEMS

DESCRIPTION	Year	Allocation	Match	Project Cost	Expenditures	Balance
Dock Levelers						
Whse 9 Office Roof						
Whse 3-doors/roof						
Whse 2-equipment						
Whse 4 units						
Fenders						
Lights						

SECTION 5
PORT MANATEE TRAFFIC ANALYSIS AND IMPACT ON THE HIGHWAY SYSTEM

SECTION 5: PORT MANATEE TRAFFIC ANALYSIS AND IMPACT ON THE HIGHWAY SYSTEM

As Port Manatee continues to grow, an increased number of trucks are anticipated to be required to serve the region. This section of the report will review the existing conditions of the regional highway infrastructure for Port-related trucks to gain access to Interstate 75 (I-75), expected future conditions based on information found within the Port Manatee Master Plan, regional growth, and an analysis on where potential failures may occur from the growth projections within the next five years.

Florida's SIS was last updated by the Florida Department of Transportation (FDOT) in March 2016. The SIS comprises a statewide network of high-priority transportation facilities and services, including the state's largest and most significant commercial service airports, spaceport, deep water seaports, freight rail terminals, passenger rail and intercity bus terminals, rail corridors, waterways and highways. The SIS is intended to enhance Florida's economic competitiveness by focusing limited state resources on transportation facilities that are critical to Florida's economy and quality-of-life. Port Manatee is a designated SIS seaport. Access to the Port is provided via a series of SIS connectors and corridors, including a rail corridor, a rail connector, two highway corridors, and a highway connector. US 41 is the designated SIS highway connector, providing a direct connection between Port Manatee and I-275. Interstate 275 and I-75 are both designated SIS highway corridors and provide connections between the SIS connector, US 41 connector, and the rest of the state.

5.1 Existing Conditions

As previously stated and shown in Figure 1, Port Manatee offers 60-mph vehicular access to I-75, I-275, and I-4 via Highway 41. US 41 is a major north-south United States highway that traverses from Miami, Florida to the Upper Peninsula of Michigan. Its access to I-75 and I-275 in the direct vicinity of Port Manatee allow trucks to gain access to the interstate highway system for long-haul routes.

5.1.1 Piney Point Road

The final approach to Port Manatee's north entrance (main entrance) is via Piney Point Road. This road is comprised of two lanes and connects to US 41. There are two rail crossings that intersect the road. The road's conditions can currently be described as raveling, disintegrating, and rutting in several areas. These conditions are as shown in Figures 12 through 15 and described in detail in the following paragraphs.

Raveling is the deterioration or loss of the pavement surface course. It can be caused by improper construction leading to insufficient adhesion between the asphalt binder and the aggregate. If untreated, the pavement will continue to deteriorate as the larger aggregate in the base course will break away, leading to disintegration. Recommendations for raveling to this magnitude typically entail an asphalt overlay to protect the base course and reapply an adequate surface course.

Disintegration is the progressive breaking of the pavement layers into smaller and smaller pieces until the pavement is fully deteriorated. If left untreated, the subgrade will expose and the pavement section will need to be fully reconstructed. Recommendations for disintegration to this magnitude typically entail installing a section of full pavement for reconstruction.

Rutting is the compression or displacement of one or more layers of pavement. It is caused when a layer is too weak for the loading that it experiences and a movement within the pavement layer occurs, creating a rut or channel in the pavement. Rutting occurs in high stress areas and is usually accompanied by pavement cracking. Rutting can be caused by a failure in the surface course, base course, or the subgrade. Current conditions reflect a surface with sectional base failure. Reclaiming or milling off the surface course and overlaying with additional asphalt surface and full depth patching is recommended, but a complete reconstruction may be necessary. Fatigue cracking, seen in the rutting areas, is caused by a failure of the surface course layer by continually over-loading the pavement, or fatiguing it. Block cracking, seen outside of the rutting areas, is caused when transverse cracks and

longitudinal cracks intersect. Block cracking is usually caused by an inadequate compaction within the pavement layers or within the subgrade layer. If cracking is only observed in the surface layer, a mill and overlay can be utilized to repair the failing surface layer. If the cracks transverse through all layers, that indicates a poorly compacted subgrade where the subgrade will settle and the pavement will become unsupported causing cracking. If this occurs, a full pavement reconstruction will be required. It appears in the pictures seen above that the cracking is within the surface layer only, but further investigation will be required.

Research is currently underway as an interim fix; however, discussions have occurred within FDOT acknowledging that future expansion is eminent to allow Port Manatee to continue to grow.

Figure 12: Piney Point Road (1 of 4)

Figure 13: Piney Point Road (2 of 4)

Figure 14: Piney Point Road (3 of 4)

Figure 15: Piney Point Road (4 of 4)

5.1.2 Piney Point Existing Throughput

Port Manatee representatives advised they had 338,096 inbound gate entries between August 2017 and August 2018, where 90 percent were estimated to be trucks. Exact truck figures were not available when requested and are not tracked daily. The gate is open 7 days per week, which equates to approximately 1,667 trucks per day on average. By comparison, the AADT for Piney Point according to Florida Traffic Online is approximately 792 trucks per day, a difference of approximately 110%. Variance between the two figures is dependent on data collection processes including: the limited duration of data collection for AADT, the estimated value of trucks used by Port Manatee, and seasonality of the Port's freight. Port Manatee reported record fiscal year growth in FY2018 of 19.1 percent, etc. For the purposes of this study, and because of the drastic difference between the trucks per day estimates, analysis on both AADT estimates and Port Manatee gate estimates were conducted.

Table 3: Total Vehicular and Truck Estimates Based on FDOT AADT and Port Manatee Gate Counts

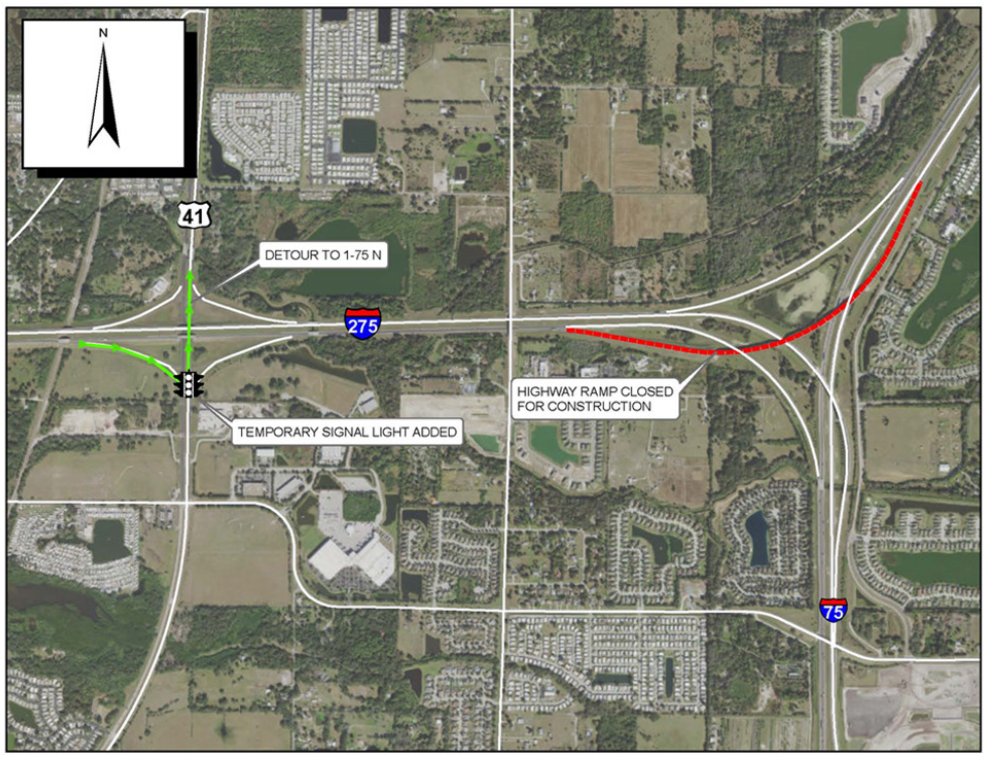
FDOT AADT	FDOT Truck AADT	Port Manatee Vehicular Estimate	Port Manatee Truck Estimate
2,200	792	1,852	1,667

Based on the existing conditions of Port Manatee's gate area and in-gate requirements, truck drivers may dwell within the gate area for extended periods of time. This time is spent to ensure that proper bill of lading, transportation worker identification card, and other paperwork is in place prior to pick up of a load. During peak hours, the gate becomes more congested which may cause trucks to queue on Piney Point Road. Expanding Piney Point Road will be required to ensure that trucks are able to enter into the facility while other vehicles can safely maneuver around the traffic. While Port Manatee has conducted improvement projects to ensure they are processing trucks efficiently there are improvements outside of the gate that can assist with other port traffic and by-passing traffic moving forward.

5.1.3 Existing Construction

A construction project is currently underway to replace the concrete bridge deck on the southbound I-275 ramp to northbound I-75 (Exit 228). A temporary traffic signal has been installed on US 41 at the southbound I-275 exit and construction is being detoured north on US 41 to SR 674 in Hillsborough County as shown in Figure 16. Construction began in July 2018 and is expected to be complete in the summer of 2019.

Figure 16: Exit 228 Reconstruction Traffic Control Understanding



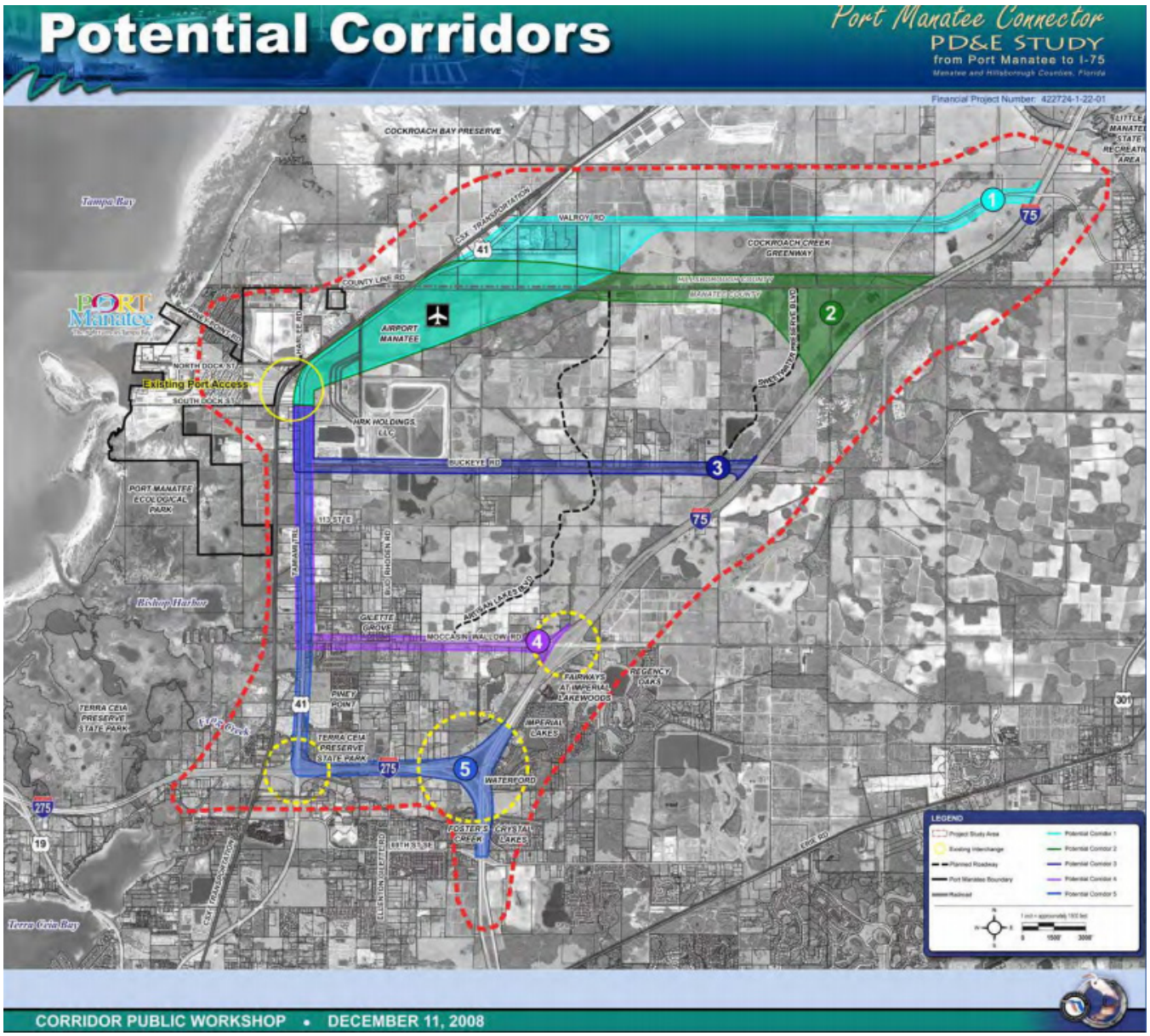
The traffic signal that has been incorporated as part of the traffic control plan for the construction project is currently anticipated to be removed at the end of construction. That said, during interviews, tenants acknowledged this light and stated that it assists in turning movements by giving trucks and personal vehicles dedicated turning capabilities.

5.1.4 I-75 Connector Project Development and Environmental (PD&E) Study

FDOT, in cooperation with the Federal Highway Administration (FHWA), initiated the Port Manatee Connector Project Development and Environmental (PD&E) Study in May 2008. The study focuses on several alternatives for increased access between US 41 and I-75. The purpose of the PD&E study was to develop and evaluate viable alternatives that had the opportunity to improve the movement of goods and traffic between the Port and I-75.

The study is currently on hold and remains in the alternatives analysis. If the study were to be reactivated, it would need to be added back onto the Sarasota/Manatee MPO's LRTP Financially Feasible Plan and alternatives would need to be carried out into a Draft Environmental Impact Statement assessment phase.

Figure 17: PD&E Study from Port Manatee to I-75



5.2 Existing Conditions Evaluation

To evaluate current traffic operation conditions along the roadway segments that are most likely to be impacted by the planned Port expansion, peak hour capacity analyses were conducted for the study area roadways on a planning level. Highway Capacity Software (HCS 7) was used to conduct the roadway capacity analysis. The 2017

AADT volumes obtained from FDOT were used to develop the peak design hour volumes. The peak design hour K-factor, directional distribution factor (D-Factor), and other data required for the analysis were developed based on guidelines provided by the Transportation Research Board (TRB) Highway Capacity Manual 6th Edition (HCM 6). Based on the guidelines in HCM, it was assumed the directional split of traffic volume during the peak hour is 60/40 for Piney Pint Road, 59/41 for US 41, and 60/40 for College Avenue. Table 4 summarizes the 2017 existing condition roadway capacity analysis results.

Factors stated above were used to estimate the peak hour volume and Level of Service (LOS) during the estimated peak hour. For the purposes of this analysis, peak hour volume is referenced as a generality and calculated based on the available data. Peak hour represents a morning or evening peak hour, or rush hour, within the study area. Per the HCM 6, LOS is a quantitative measure used to relate the quality of motor vehicle traffic service. This study focused on the LOS analysis for a roadway section. Similar to academic grading, roadways were rated on a scale of A through F where a rating of F is failure to meet the requirements.

The LOS calculations do not take into account train crossing movements, slower movements attributed to deteriorated roadway infrastructure, or potential back up on Piney Point Road attributed to Port Manatee's main gate entrance.

Table 4: Roadway Level of Service Summary (2017 Conditions)

Roadway Segment	Truck %	K-Factor	D-Factor	Peak Hour Volume	LOS
Piney Point Rd (AADT analysis)	36%	15.1%	60%	335	B
Piney Point Rd (Port Manatee analysis)	76%	15.1%	60%	335	B
US-41 Piney Point to Valroy Rd	10%	11.8%	59%	1,160	A
US-41 Valroy Rd to Cockroach Bay Rd	11%	11.8%	59%	1,135	A
US-41 Cockroach Bay Rd - College Ave E	8%	11.6%	59%	1,880	B
College Ave E US-41 to SR-674	5%	10.7%	60%	2,140	A
College Ave E SR-674 SE to I-75	4%	10.7%	60%	3,105	C
On ramp SR-674 to I-75 NB	8%	11.8%	100%	1,030	C
On ramp SR-674 to I-75 SB	9%	13.6%	100%	600	B
Off ramp I-75 SB to SR-674 WB	9%	11.8%	100%	1,075	C
Off ramp I-75 NB to SR-674 WB	9%	13.6%	100%	585	A
US-41 Piney Point south to I-275	11%	11.6%	59%	1,430	A
Continue South on US-41	8%	10.7%	59%	2,785	C
US-41 to I-275 EB on Ramp	28%	13.6%	100%	410	A
US-41 to I-275 WB on Ramp	3%	11.8%	100%	1,005	C
I-275 WB to US-41 NB	3%	11.8%	100%	970	C
I-275 EB to US-41 NB	27%	13.6%	100%	410	A
I-275 EB to I-75 NB	7%	11.8%	100%	1,015	C
I-275 EB to I-75 SB	7%	11.6%	100%	2,205	C
I-75 SB to I-275 WB	8%	11.8%	100%	865	B
I-75 NB to I-275 WB	8%	11.6%	100%	2,030	C

Data was collected from Florida Traffic Online (https://tdaappsprod.dot.state.fl.us/fto/) to determine the baseline Average Annual Daily Traffic (AADT) and truck volumes traveling between Port Manatee and the interstate highway system. These values were used as a baseline for the analysis and are dated as 2017 figures. Full-size maps have been included in Appendix A of this report. Figures are represented as follows:

- Figure 18 represents the 2017 AADT from a network perspective.
- Figure 19 represents the 2017 AADT for each on and off ramp between US674 and I-75, US41 and I-275, and I-275 and I75.
- Figure 20 represents the 2017 truck volumes from a network perspective.
- Figure 21 represents the 2017 truck volumes for each on and off ramp between US674 and I-75, US41 and I-275, and I-275 and I-75

Figure 18: 2017 Average Annual Daily Traffic

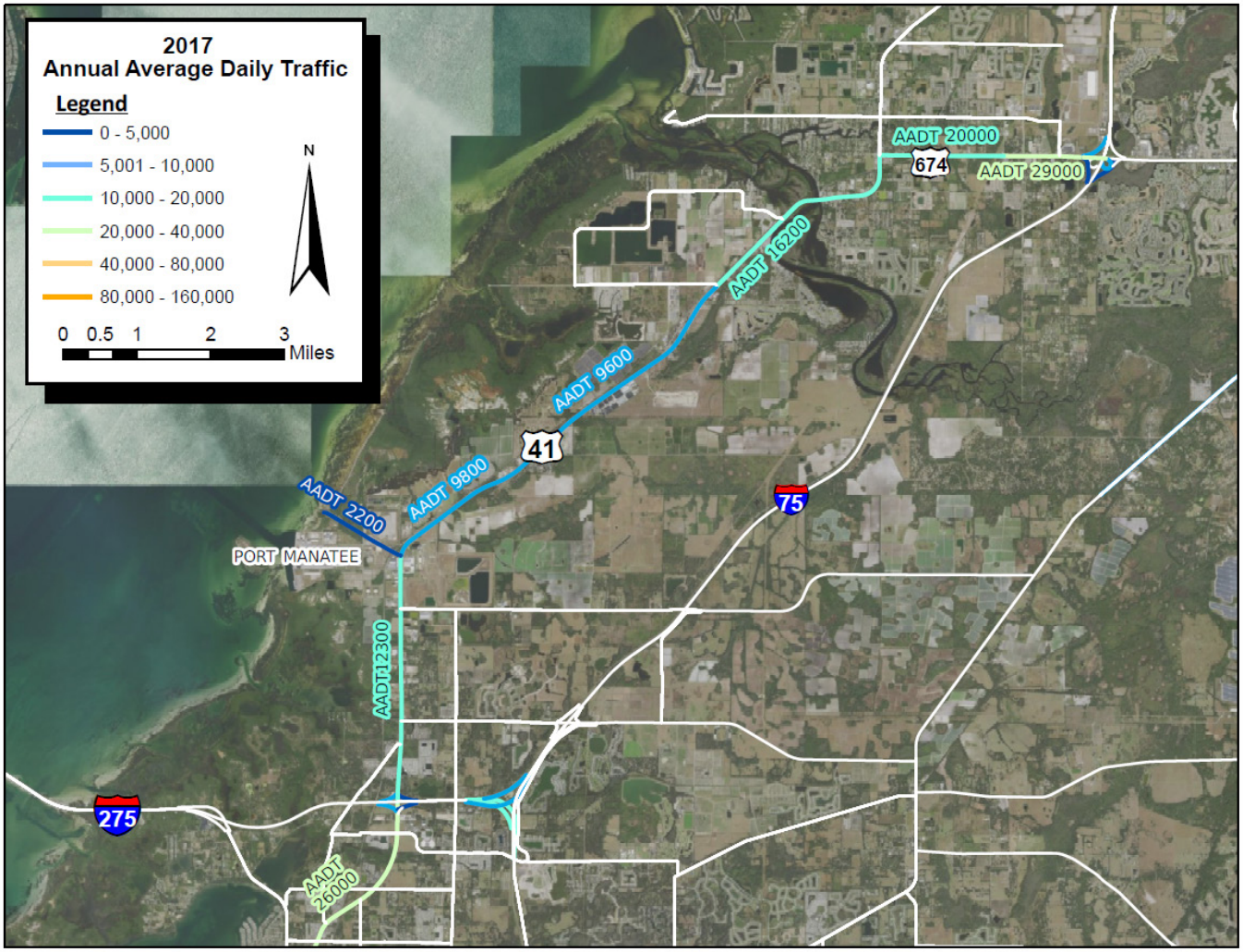


Figure 19: 2017 Average Annual Daily Traffic (Ramps)

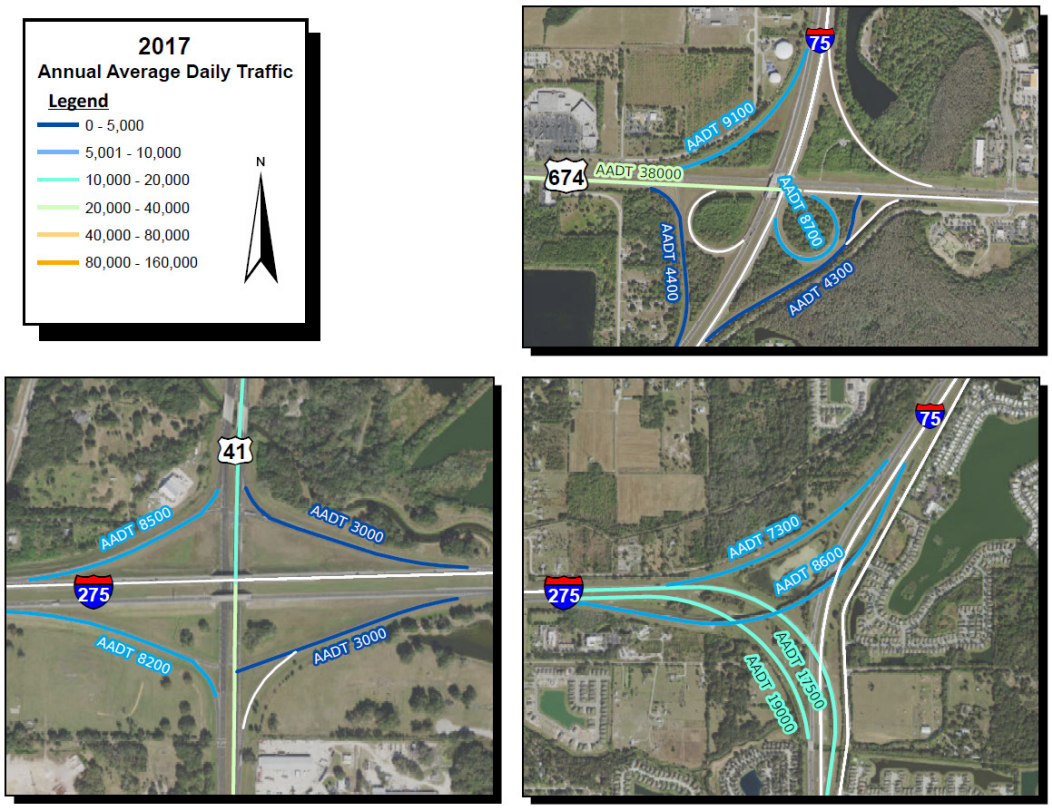


Figure 20: 2017 Average Annual Daily Truck Traffic

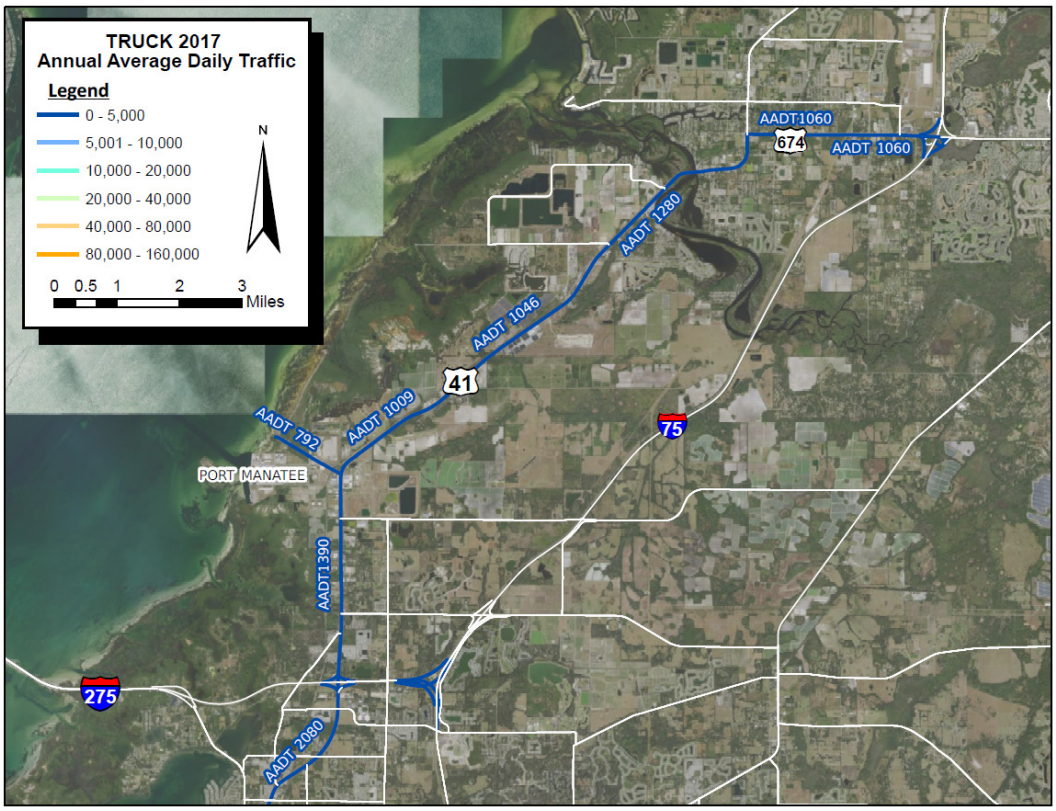
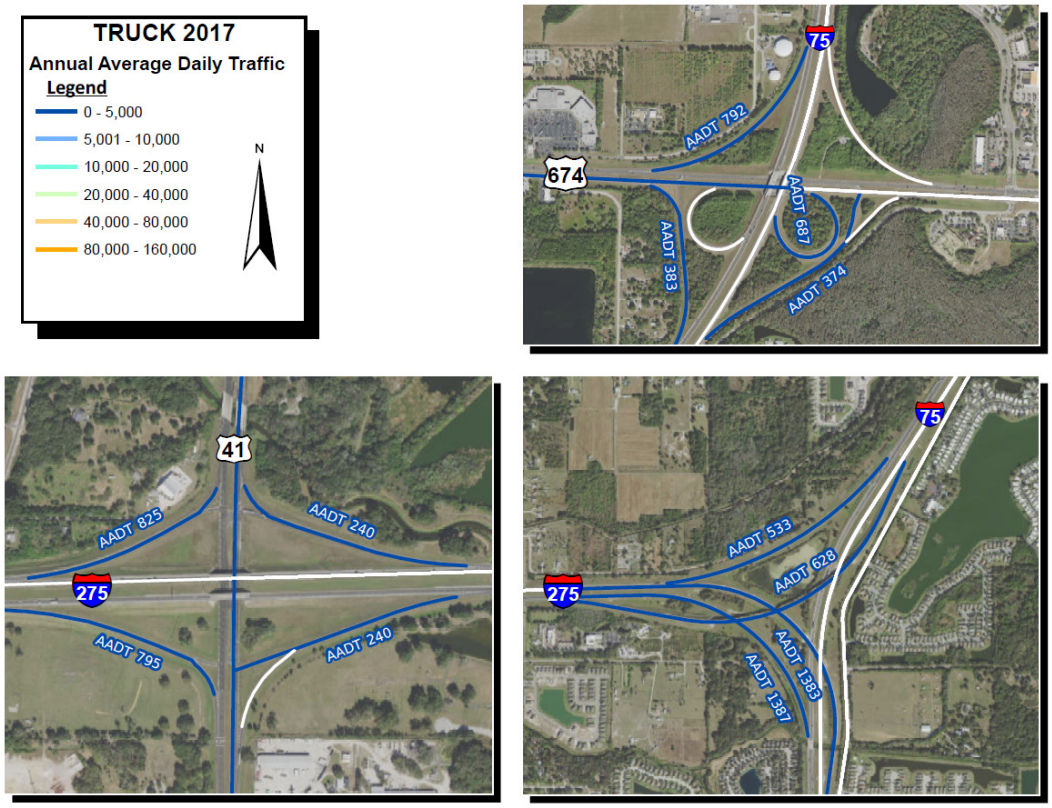


Figure 21: 2017 Average Annual Daily Truck Traffic (Ramps)

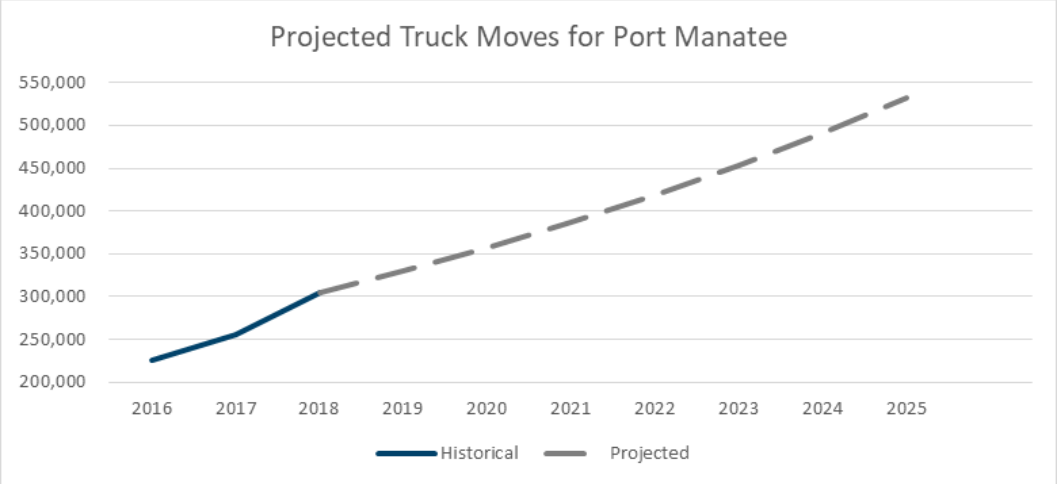


5.3 Future Conditions

5.3.1 Truck Traffic Growth Projection

As previously stated, Port Manatee provided the gate information from August 2017 through August 2018. Within this period of time, 338,096 vehicles entered the Port. Of those vehicles, Port Manatee estimates that approximately 90 percent of those vehicles are trucks, or approximately 304,286 trucks. Volume growth is estimated to be 8.3 percent between 2016 and 2025. Actual tonnage volumes were used to estimate the total number of trucks for 2016 and 2017 year figures and projections were based on the 8.3% estimated growth moving forward. Figure 22 shows a representation of the estimated growth in truck volume through 2025.

Figure 22: Projected Truck Moves for Port Manatee



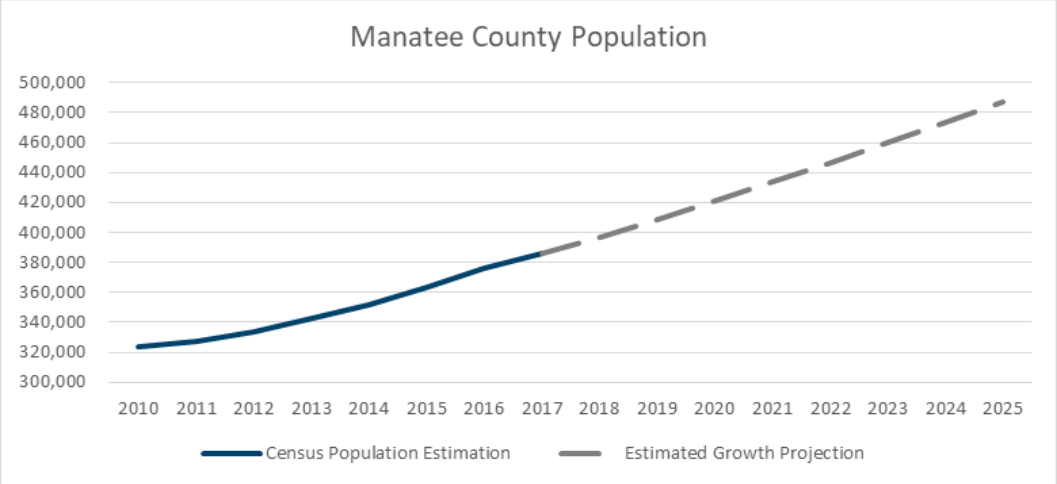
5.3.2 Personal Vehicle Traffic Growth Projection

A review of growth within Manatee County was conducted based on estimations from the United States Census Bureau between 2013 and 2017 to determine the personal vehicular traffic. Table 5 provides a summary of population data that was retrieved from Census Bureau website (Source: factfinder.census.gov). A weighted average was developed as an estimation of future growth, where more emphasis was placed on more recent years' growth. Based on this calculation Manatee County is estimated to continue to grow at a rate of 2.97 percent per year, or 15.78 percent over the next five years, as shown in Figure 23.

Table 5: Manatee County Estimated Population Growth

Year	2013	2014	2015	2016	2017
Population	342,229	351,771	363,369	375,888	385,571
% Increase	2.48%	2.79%	3.30%	3.45%	2.58%

Figure 23: Historical and Projected Population Growth (Manatee County)



5.3.3 Estimated Future Conditions

Future truck traffic conditions were estimated based on the information found within the 2016 Port Manatee Master Plan. The fact that not all trucks that use the US41, I-275, and I-75 corridor originate or terminate at Port Manatee is acknowledged; however, other truck traffic is currently assumed to increase at a lower rate than the freight moving to and from Port Manatee. **Future conditions for the Port did not include any potential new tenants, including the cruise ship/ferry planning scenarios.**

Future conditions for AADT were based on a combination of expected growth from Port Manatee and the projected population growth where the existing AADT that is attributed to truck traffic has grown at a rate of 8.3 percent per year and the AADT attributed to vehicular traffic has grown at a rate of 2.97 percent. An example is shown in Table 6 for Piney Point Rd.

Table 6: Piney Point Road 2017 Conditions and 2025 Projections

Road	2017 Conditions			2025 Projections		
	Truck AADT	AADT	% Truck Traffic	Truck AADT	AADT	% Truck Traffic
Piney Point	792	2,200	36%	1,499	3,279	46%

Roadway capacity analyses were also conducted based on the projected 2025 design year traffic volumes and truck percentage. Table 7 summarizes the results of the analysis and provide a comparison of the 2017 condition and the projected 2025 condition.

Table 7: Roadway Level of Service Comparison (2017 and 2025 Conditions)

Roadway Segment	Truck %		Peak Hour Volume		LOS	
	2017	2025	2017	2025	2017	2025
Piney Point Rd (AADT analysis)	36%	46%	335	495	B	C
Piney Point Rd (Port Manatee analysis)	76%	82%	335	580	B	C
US-41 Piney Point to Valroy Rd	10%	15%	1,160	1,540	A	A
US-41 Valroy Rd to Cockroach Bay Rd	11%	15%	1,135	1,510	A	A
US-41 Cockroach Bay Rd - College Ave E	8%	11%	1,880	2,470	B	B
College Ave E US-41 to SR-674	5%	8%	2,140	2,780	A	B
College Ave E SR-674 SE to I-75	4%	5%	3,105	3,995	C	**D**
On ramp SR-674 to I-75 NB	8%	11%	1,030	1,350	C	**D**
On ramp SR-674 to I-75 SB	9%	12%	600	790	B	B
Off ramp I-75 SB to SR-674 WB	9%	12%	1,075	1,420	C	**D**
Off ramp I-75 NB to SR-674 WB	9%	12%	585	775	A	B
US-41 Piney Point south to I-275	11%	16%	1,430	1,905	A	B
Continue South on US-41	8%	12%	2,785	3,660	C	C
US-41 to I-275 EB on Ramp	28%	36%	410	590	A	B
US-41 to I-275 WB on Ramp	3%	4%	1,005	1,290	C	C
I-275 WB to US-41 NB	3%	4%	970	1,245	C	C
I-275 EB to US-41 NB	27%	35%	410	585	A	B
I-275 EB to I-75 NB	7%	11%	1,015	1,330	C	**D**
I-275 EB to I-75 SB	7%	11%	2,205	2,890	C	**D**
I-75 SB to I-275 WB	8%	11%	865	1,130	B	C
I-75 NB to I-275 WB	8%	11%	2,030	2,670	C	**D**

As shown in Table 7, based on the projected 2025 AADT and truck growth, seven (7) of the twenty roadway segments studied are expected to continue operating at the same level of service during the future design year of 2025, as compared to 2017. Five (5) segments that currently operate at LOS A are expected to operate at LOS B during the 2025 design year, and two (2) segments that currently operate at LOS B are expected to operate at LOS C during the 2025 design year. The following six (6) roadway segments currently operating at LOS C are expected to drop to LOS D under the projected 2025 condition:

- College Ave E SR-674 SE to I-75 (multi-lane)
- On ramp SR-674 to I-75 NB (freeway ramp)
- Off ramp I-75 SB to SR-674 WB (freeway ramp)
- I-275 EB to I-75 NB (freeway ramp)
- I-275 EB to I-75 SB (freeway ramp)
- I-75 NB to I-275 WB (freeway ramp)

The analysis indicates that all the study area roadway segments are expected to operate at an acceptable level of service during the 2025 design year with the planned Port Manatee expansion and the anticipated growth in the area. Figures 24 – 27 depict the projected 2025 conditions; full size images are included as Appendix A.

- Figure 24 represents the 2025 AADT from a network perspective
- Figure 25 represents the 2025 AADT for each on and off ramp between US 674 and I-75, US 41 and I-275, and I-275 and I75
- Figure 26 represents the 2025 truck volumes from a network perspective

- Figure 27 represents the 2025 truck volumes for each on and off ramp between US 674 and I-75, US 41 and I-275, and I-275 and I-75

Figure 24: 2025 Average Annual Daily Traffic Projections

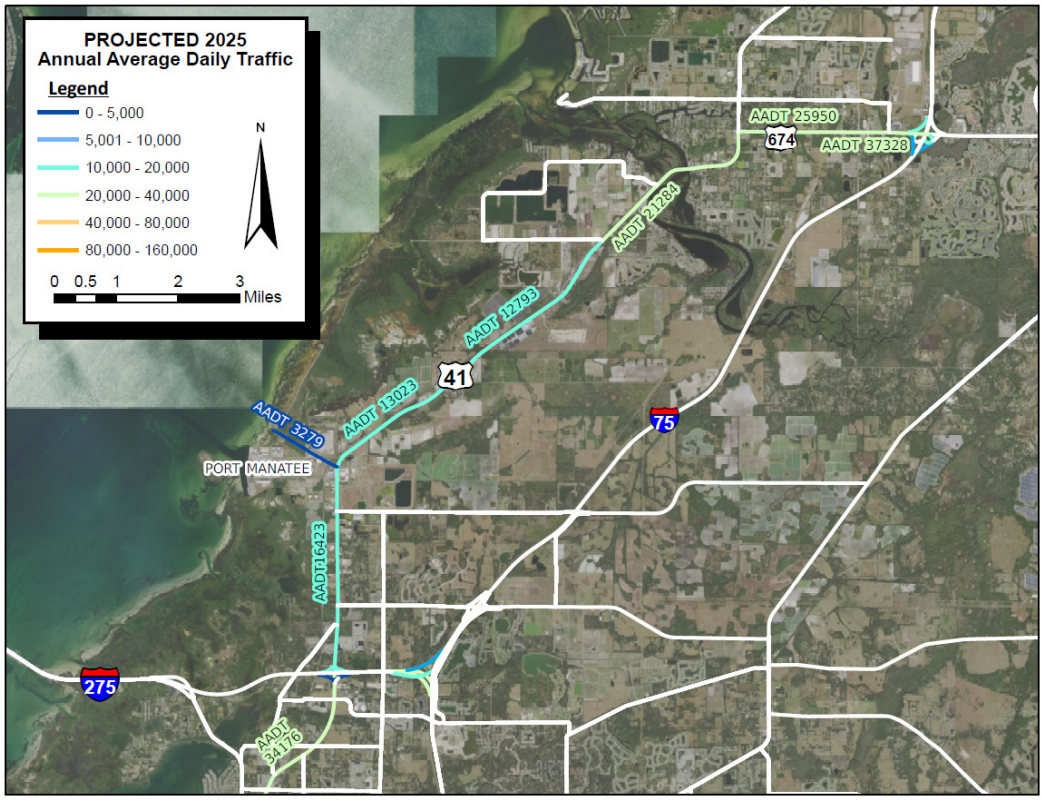


Figure 25: 2025 Average Annual Daily Traffic Projections (Ramps)

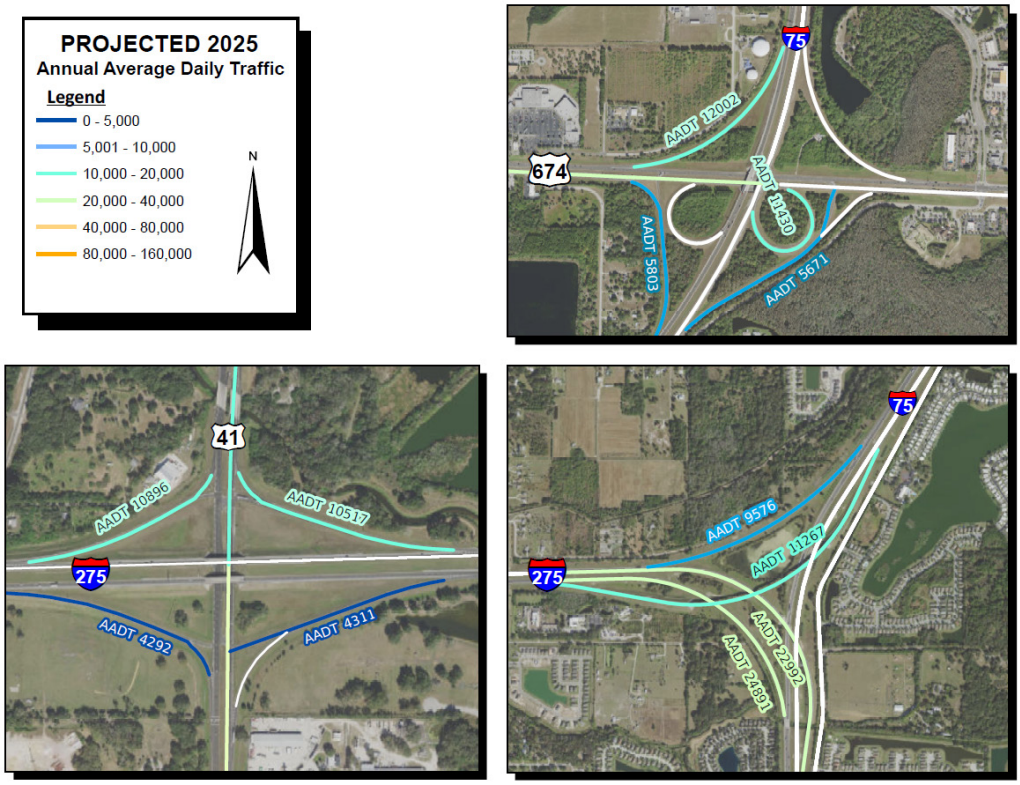


Figure 26: 2025 Average Annual Daily Truck Traffic Projections

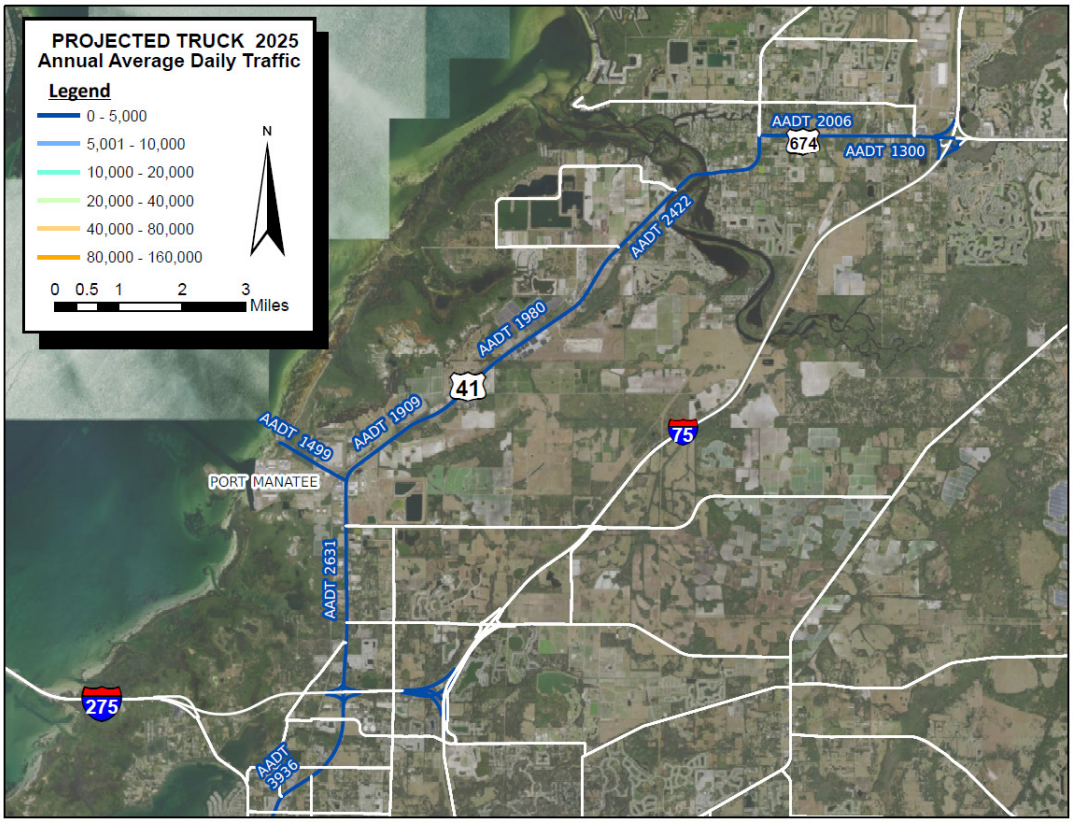
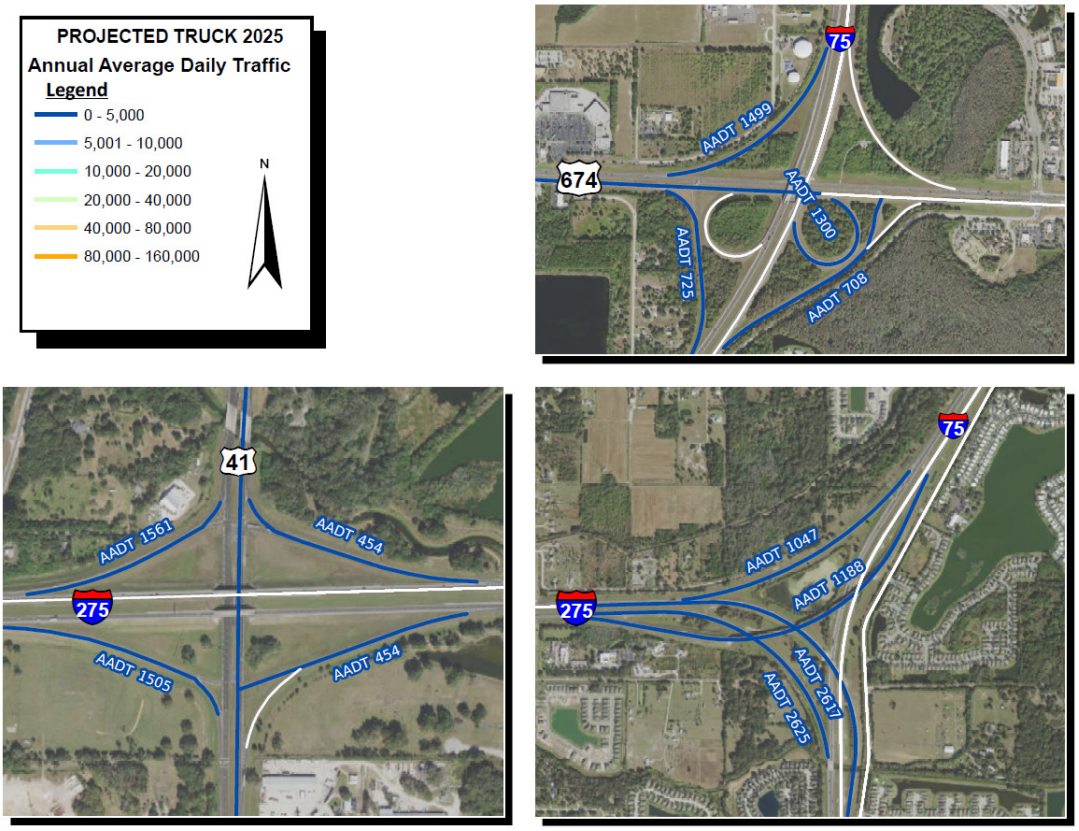


Figure 27: 2025 Average Annual Daily Truck Traffic Projections (Ramps)



5.4 Roadway Recommendations

5.4.1 Required Improvements to Piney Point Road

Based on the extent of the damage and current condition of Piney Point Road, redesign and reconstruction of the road is advised. Smaller projects for patching and asphalt overlay may be applicable in the short term; however, these should only be used as temporary fixes during planning for full reconstruction.

A study of future need is advised in the short-term to determine expansion requirements in the future. Roadway expansion is likely required in the next three to four years to continue to accommodate the truck movements into and out of the Port on Piney Point Road. Initiation of the planning, design, permitting, and construction will be required immediately to accommodate this time frame. This expansion project for Piney Point Road should be completed in conjunction with Port Manatee gate expansion/improvement projects to ensure capacity requirements for the roadway are met.

5.4.2 Retention of the Light for the US-41 Detour

As previously stated, during interviews, tenants commented that the traffic light that was temporarily installed for the US-41 detour assists trucks and personal vehicles by providing a dedicated turning capability where one was previously not available. As traffic continues to increase along US-41, this traffic light has the opportunity to reduce the risk of an accident during turning movements. Construction is currently scheduled for completion in summer 2019; however, recommendations include making this traffic light a permanent fixture at this intersection.

5.4.3 I-75 Connector

Applicability of the I-75 Connector is dependent on future growth of the Port, future growth in the surrounding area (including the PDEZ), and future residential growth. At this time, based on this study's findings, the I-75 Connector PD&E study is recommended to remain on hold. Re-starting the study should be considered in approximately five to ten years, dependent on the actual growth of the Port and surrounding area to determine if the I-75 connector is required or if other projects can be conducted to account for increased traffic on the regional network.

5.4.4 Continued Traffic Analysis

The capacity analysis for this study focused on roadway segments in the area and was conducted at the planning level. Assumptions were mostly based on the HCM guidelines and some of the analysis inputs used the HCM recommended default values to ascertain if the roadway network surrounding Port Manatee would provide adequate capacity to accommodate the anticipated growth associated with the Port. With some uncertainty about cargo volume expansion, area population growth, and the variance associated with using the default traffic inputs when pieces of detailed data are somewhat ambiguous, the study results should be considered preliminary. The study results indicated acceptable levels of service are anticipated at all study roadway segments; however, for those that are expected to operate at LOS D during the year 2025, it is recommended to collect detailed daily and peak hour traffic volume data. Further study may be warranted at these locations, or at specified intersections.

This study was focused on uninterrupted traffic flow on the area roadway segments. Intersections, freeway weaving sections, ramp merge, and diverge points were not evaluated. Further studies may be warranted for these locations.

No immediate remedial work is recommended; however, monitoring both cargo throughputs and revised cargo projections at the Port, as well as periodic reviews of actual population growth in the region versus projections, are recommended. Additionally, detailed daily and peak hour traffic volume data should be periodically collected and evaluated to determine the need and nature of future remediation and indicators of the need to consider re-start of the Connector PD&E study.

To gain a better understanding of when specific locations are expected to fail, an initial study is advised to determine an existing state of the turning movements, acceleration and deceleration lanes, and weaving sections in the surrounding network is applicable in the short-term, within five years, to develop a baseline for future growth. Recommended locations for review are described below, within this section. This study should include

the following:

- Traffic counts at the locations highlighted in the remainder of this section, as well as other locations as deemed applicable by FDOT to include traffic modeling and analysis for a determination of traffic movements.
- A secondary review of the Port's growth compared to this study and the most recent Port Manatee Master Plan.
- A regional economic analysis of future freight growth.
- A regional socioeconomic analysis to gain a more precise understanding of potential regional economic and population growth.

Once the study has been completed it should then be reviewed periodically for accuracy of future projections compared to reality. The timeline of these reviews should be defined in the study with action items based on when specific traffic movements are expected to reach capacity.

Signalized Intersections Recommended for Review: Traffic signal controlled intersections have the potential to become bottle-necks as traffic continues to grow. It is recommended that peak hour intersection turning movement counts be conducted, as well as evaluating operations at the intersections that are most likely to be impacted by turning traffic to access the Port. The following signalized intersections should be included:

- US 41 at College Avenue
- US 41 at 14th Avenue
- US 41 at Gulf City Rd
- US 41 at Moccasin Wallow Road
- US 41 at I-275 Westbound Ramps

Non-Signalized Intersections Recommended for Review: It is also recommend that an intersection capacity analyses is conducted at the following un-signalized intersections to determine if the current stop control on side streets would allow vehicles to exit the side streets without excessive delay:

- US 41 at Piney Point Road
- US 41 at I-275 Eastbound Ramps

As shown in Figure 16, a temporary signal is located at the intersection of the US 41 at I-275 eastbound ramp. Based on interviews with Port personnel and tenants, this temporary signal has been a benefit in traffic operations, as this signal provides dedicated turning access for vehicles approaching US-41, including truck traffic destined for Port Manatee. This temporary signal has added an element of increased safety when undertaking the turning movement. Permanent inclusion of this traffic signal has the potential to improve traffic flow and safety at this intersection.

Acceleration and Deceleration Lanes Recommended for Review: With the anticipated traffic growth and increased truck traffic, acceleration and deceleration lanes may be warranted at some intersections along the truck routes and at the US 41 and I-275 interchange ramp locations.

- US 41 at Piney Point Road
- US 41 at I-275 Westbound Ramps

Weaving Sections Recommended for Review: The Highway Capacity Manual (HCM) 2000 defines weaving as the crossing of two or more traffic streams travelling in the same general direction along a significant length of highway, without the aid of traffic control devices. The weaving section along I-275 westbound between US 41 and I-75 was not included in this study. This section is likely to be impacted by the increased truck traffic from I-75 northbound attempting to take the exit to US 41. It is recommended to determine if there would be a weaving problem at this location as traffic grows.

SECTION 6
CLASS I RAIL TRENDS AND RAIL OPERATIONS AT PORT MANATEE

SECTION 6: CLASS I RAIL TRENDS AND RAIL OPERATIONS AT PORT MANATEE

While it appears that the Level of Service (LOS) on the surrounding surface transportation roadway network that serves the Port is not projected to fail or be at a problematic level within the next six years, certainly in the short term and probably long term horizons, intermodal freight rail service to and from the Port is a prudent subject for evaluation. The increased use of intermodal rail service will serve to preserve the LOS of the surrounding surface roadway system and enhance the efficiencies of cargo handling at the Port. The following is a review of a number of existing conditions, variables and operating parameters that impact the eventual improvement of intermodal rail service for the Port and the region.

6.1 Class I Rail Trends

Florida rail shipments are strongly influenced by shipments of base chemicals, gravel aggregates, non-metallic bulk, miscellaneous food and wood products. Otherwise, Florida rail shipments are dominated by southbound shipments of consumer products, building materials, coal shipments to power plants, and raw materials for the industrial markets.

Historically, rail shipment patterns are highly imbalanced, with strong inbound southbound movements and much less actual volume northbound. Due to economic rail haul distances, the preponderance of the rail freight movements within the state are bulk commodities, similar to inbound shipments from out-of-state. Out-state rail shipments are highly oriented along the I-75 corridor to Atlanta and limited points beyond, including Chicago and Appalachian coal sources. Since 2012, the Florida economy has been recovering and looking towards 2025, when shipping volumes are forecasted to increase.

6.2 Port Manatee Rail Capabilities

Currently, the Port Manatee Railroad, a short line rail facility owned by the Port, connects to the CSXT railroad mainline, less than a mile from the Port's North Gate, with a curved track connection, just north of Piney Point Road, as shown in Figure 2. North of this connection is a set of four siding tracks used for train makeup and car storage paralleling the single CSXT track. The main Port track runs due west from the CSXT, past the North Gate along the south side of North Dock Street to the bulk terminal areas at Berths 6 and 7. In the portion between Eastern Avenue and Reeder Road, two parallel siding tracks are used for train car movements and storage. A branch track, which departs from the main Port track east of Eastern Avenue, curves southward and then westward to run along a segment of the south side of Warehouse 9. The Port is connected to the CSXT SIS rail corridor via the SIS rail connector. The Port owns the designated SIS rail connector, a segment of the on-port Class III railroad connecting to the CSXT railroad.

Port Manatee currently has two 1,400 horsepower locomotives, each of which has an engine currently in a good state of repair. The Port has seven miles of track, with 19 switches, nine crossings, and 300-car capacity. On-site rail mostly consists of 90lb RA and 100lb RE rail. RE is a more robust section of rail used in freight rail transportation, and is an acceptable standard for the American Railway Engineering Association. RA is a rail section that historically was used for higher speed rail; however, is no longer standard in typical railroad design. At the CSX interchange, rail is 115lb and 132lb RE with concrete ties. New rail has concrete crossties, while the rail is comprised of wooden ties. Rail staff at the Port consists of a Yard Master, Assistant Yard Master, and Conductor, for a total of three dedicated employees.

Rail service at the Port has been viewed as a variable in the mix of transportation alternatives to be made available to customers, particularly those that will require enhanced rail capabilities to improve turn times both domestically and internationally. The Port's terminal railroad was designed to provide flexibility and customer service for on-port tenants and to provide an alternative transport interchange service with CSXT just outside the Port's gates. Not much emphasis has been given to creating a "profit center" from railroad operations or to providing regularly scheduled added value services to entice tenants and off-port clients to utilize the railroad as much more than a "switching service."

As existing and new commodity throughputs increase, the need may arise for the Port to enhance its existing railroad transport capabilities. New customers may demand enhanced rail interchange operations as a condition to locating at the Port. Currently, the Port's rail facilities are considered sufficient for existing business volumes.

6.3 CSX Railroad

CSX Corporation, based in Jacksonville, owns companies providing rail, intermodal and rail-to-truck trans-load services; these are among the nation's leading transportation entities, connecting more than 70 river, ocean, and lake ports as well as more than 200 short line railroads. Its principal operating company, CSXT operates the largest railroad in the eastern United States with a 21,000-mile rail network linking commercial markets in 23 states, the District of Columbia, and two Canadian provinces. Port Manatee's rail access is provided through the CSXT rail corridor running along US 41, adjacent to the Port.

CSXT operates two major rail lines in peninsular Florida, dubbed the A and S-Lines. The A-line runs through Jacksonville and Orlando, roughly following I-95 and I-4 into Polk County. The S-line runs through Baldwin and Ocala slightly west of the center of the state; a Federal Railroad Administration Class III single track mainline serves Port Manatee and Bradenton to the south from Tampa's Yeoman Yard. The two lines touch near the Florida-Georgia border, then split and intersect again only in north central Polk County. There they essentially merge in an east-west line between Auburndale and a spot just west of downtown Lakeland. Historically, this mainline averaged between 10 and 20 million gross ton-miles of freight traffic per year. The line continues southeast to the north of Lake Okeechobee to West Palm Beach where it then generally parallels I-95 southward into central Miami-Dade County and the Hialeah Yard, connecting to two branch lines serving rock pits and industrial customers.

For freight continuing further south on the Gulf Coast, CSXT interchanges with Seminole Gulf Railway LP (SGLR). The short line is headquartered in Fort Myers, Florida and has two interchange points located in Oneco, FL and Arcadia, FL. Freight interchanged in Oneco can travel as far south as Bee Ridge, FL and freight interchanged in Arcadia, FL can travel as far south as Naples, FL. Primary car types on these routes include boxcars and open top gondolas.

Figure 28: Existing Rail Lines

6.4 Precision Railroading

Precision railroading is an operational system and a management philosophy that has been implemented by several publically traded Class I railroads including Canadian National, Canadian Pacific, CSX, Norfolk Southern, and Union Pacific. Originally developed by former CSX CEO Hunter Harrison, the overall intent of the philosophy is to improve the operating ratio and eliminate waste in the network. There are five major principles that apply:

- Improving customer service by prioritizing delivery of customer shipments on fixed point-to-point schedules while minimizing in-transit work events.
- Strict cost control across the organization.
- Monitor the use of each asset to optimize utilization of railcars and locomotive power.
- Operating safely remains a priority.
- Value, develop, and empower employees at all levels (Source: https://www.freightwaves.com/news/railroad/precision-railroading-primer).

The aspect of a point-to-point system is significantly different from the former hub and spoke system that was previously the focus at Class I railroads, like CSX. A hub and spoke system is similar to that of an airline operator, for instance Delta. For example, if an individual is to fly from origin to destination, he is likely to have a connecting flight in Atlanta, Georgia or another major terminal. Similarly, a railcar in a hub and spoke system would likely make multiple stops between origin and destination where reclassification and switching would occur, typically at a hump yard, to move the railcar to the next intermediary destinations prior to arriving at the final destination.

A point-to-point system, as used in precision railroading, is intended to provide a simplified network, increased train speeds, reduced terminal dwell, improved locomotive utilization, and decrease the total number of railcars on the network. The overall intent is to reduce intermediate handling of railcars through strategic blocking that moves a railcar further, faster and allows overall longer trains. This is completed through asset trip planning over train trip planning.

Another variation between the hub and spoke and point-to-point systems is a transition to focus on merchandise or batch trains. The hub and spoke system focuses primarily on the use of unit trains, dedicated to haul trains loaded with one commodity (i.e. coal, grain, etc.). These trains are typically shorter because of the single commodity within the train and quantity of railcars available at the scheduled time of departure. By transitioning to a focus of batch trains, precision railroads have determined that fewer resources are required to transport more railcars because multiple commodities are loaded onto a longer train.

With the new philosophy in full swing for CSX, adding additional freight has become a selective process as it must fit the new model of operation. While each requirement is not absolute the dedication of intermodal freight rail services is a case-by-case basis decision by the railroad. From CSX perspective, the following are significant points of consideration in the determination of whether or not to pursue the establishment of a dedicated freight rail service for the Port:

- What product(s) are intended for arrival/departure by rail?
- Railcar type and owner requirements (if known).
- Site acreage requirement.
- Building size requirement (if any).
- Determination of whether product(s) are shipped and/or received by rail.
- Determination of freight payer.
- Estimated weekly and monthly railcar volumes.

6.5 Port Manatee's Revival of Rail

Port Manatee does not currently fit the volume requirements or cargo type requirements that would be required to add service to their network. Historically, US ports produce 10 to 15 percent of their overall cargo throughput as intermodal cargo. The nature of Port Manatee's cargoes are currently below that range. Sustained rail volumes of an estimated 50,000 intermodal containers per year would be required to demonstrate that Port Manatee has potential for their own intermodal service. Presently, these types of volumes could not be supported at the Port. Additional track would be required at the docks and at the CSX interchange. Additionally, the dedication of intermodal freight rail service should be strongly supported by a substantial ocean carrier. As yet, there has been no such request of railroad for Port Manatee. Alternatives to on-dock rail include trucking freight to existing CSX

Intermodal facilities located in Tampa and Central Florida (Winter Haven).

Further restricting the applicability of Port Manatee's freight to meet the precision railroading philosophy is the fact that the existing containerized cargo is largely refrigerated perishables and is more domestic than discretionary. Shipping refrigerated goods adds risk to the shipment that railroads do not typically want to absorb. "Reefer" units on containers during rail transit are run by diesel generators rather than plugged-in which risk breaking down or running out of fuel. The generators are typically checked daily by railroad contractors when on the ground or on a chassis at an intermodal facility; however, are not inspected during transit or when on a railcar.

One asset that the Port has some influence upon is their PDEZ. If the Port and County were able to attract more industrial/manufacturing, distribution, and value adding operations (e.g. auto processing) locate to within the PDEZ, the increase in cargo generation may allow for rail service if it fits the requirements of CSXT. This amount of cargo volume would be in addition to any intermodal cargo the Port may generate in the future for transport by rail. Given the current level of interest and development of industrial/manufacturing, distribution and value adding operations in the PDEZ, CSXT is not inclined to consider dedicated freight rail service for the Port in the immediate future.

Based on data reviewed in Section 5, regarding the roadway level of service estimations, the LOS in 2025 for the reviewed roadway network is expected to pass with the lowest rating for a roadway segment meeting a LOS D. Assuming estimations for growth by Port Manatee and the region are met, the rail network may require review around 2025 to determine if the roadway network along with proposed improvements, from this study and other regional studies, can continue to meet the requirements of traffic or if increased rail traffic is feasible to reduce congestion.

6.6 Port Manatee Rail Funding

During 2019, the Port will receive grant funding to assist with track and locomotive maintenance for the first-time. The grant award is via FDOT for a total project cost of $90,898 (50/50 split). Track maintenance has been cited as a consistent issue with a dedicated staff of just three employees performing the work. In addition, Port Manatee will also receive additional FDOT grant funds in 2020 for railroad maintenance. The total project cost for the 2020 funding is $654,650 (50/50 split).

6.7 Recommendations

Pending continued rail traffic, the Port should focus their efforts on updating their track to current standards for industry track and continue to maintain their existing infrastructure as described in Section 6.6.

Expansion of the existing rail facilities is dependent on a significant increase overall rail traffic, which is not likely in the short or mid-term. The Port should assess the potential for increased rail traffic during their Master Plan updates and when approached by viable future tenants. At any point when Port Manatee believes rail expansion is required, they should initiate conversations with CSXT's Director of Ports and Industrial Development.

SECTION 7
CONCLUSION

SECTION 7: CONCLUSION

7.1 Port

Recommendations for the Port are focused on their existing CIP. Items identified included berth rehabilitation and reconstruction, on-site road maintenance, on-site rail maintenance, accommodation for increased refrigerated storage (both "Reefer" plugs and warehousing), and yard maintenance. These are all short term, on-going requirements needed to ensure the Port can continue to handle their growth moving forward. While market conditions have expectedly changed somewhat since the completion of the updated Port Master Plan in 2016, the Port's focus is now on maximizing growth opportunities in breakbulk cargoes and containerized cargo. The current CIP has been appropriately focused to develop and enhance infrastructure and facilities that will enable growth in these cargo categories. Specific projects that will accomplish this effort are expansion of the Container Yard east of Berths 12 and 14, cold storage warehouse improvements, drop trailer lots, gate expansions, internal roadway improvements, the acquisition of another mobile harbor crane, maintenance dredging and berth rehabilitations. In the longer term, the Port is properly focused on development of new infrastructure and facilities to accommodate increased waterborne traffic by extending Berth 4 and eventually developing Berths 3, 2 and 1 in the area to the northeast of Berth 4.

Long-term improvements are a moving target based on actual growth and any variations in future cargo handling requirements. For example, the Port does acknowledge the requirement to increase the size of the turning basin in the future; however, this is dependent on actual cargo growth and other variables. Requirements for the expanded turning basin are likely ten or more years in the future.

The Port's Encouragement Zone (PEZ) offers a significant and unique growth opportunity for Port Manatee. Potential industrial and manufacturing developments in the PEZ that require port-related services for importing or exporting components or finished products will not only increase port utilization and throughput, but these industrial and manufacturing activities will add cargo that could be rail transported. Increased intermodal rail cargo added to the intermodal rail cargo generated by the Port will justify more dedicated freight rail service from CSX. Therefore, it is recommended that the County actively support industrial and manufacturing development within the PEZ as an industrial corridor between the Port and interstate.

7.2 Regional Highway System

Recommendations were provided for the highway system. These focus mainly on the continued review and analysis of the roadway network and provide the opportunity for future, more focused studies on traffic analysis.

Piney Point Road does require significant maintenance to continue to support the traffic and future projections for increased traffic. Immediate assessment of specific pavement requirements is recommended to ensure future drivability of the road. Short-term, small projects are applicable for patching and asphalt overlay; however, they should only be considered temporary fixes during the planning process for full reconstruction or rehabilitation.

Piney Point Road is under consideration for expansion because significant number of trucks that use the road to gain access to Port Manatee. A study is recommended to determine the expansion requirements in the next three to four years. Initiation of the planning, design, permitting, and construction will be required immediately to accommodate this time frame. Any recommendations from this study should be completed in conjunction with Port Manatee gate expansion/improvement projects to ensure capacity requirements for the roadway are met.

Existing construction and traffic detour plans have cause a requirement for a temporary traffic signal to be installed on US-41 at the southbound I-275 exit. This traffic signal has been described as an asset to truck drivers by providing a dedicated turn movement for access to US-41. Retention of this traffic light after construction is complete in summer 2019 has an opportunity to reduce the risk of accidents in the future during turn movements.

At this time, the I-75 Connector PD&E Study is recommended to remain on hold. Based on the analysis of the existing through traffic on the roadway network, major roadway projects focused on increasing throughput may not be required for at least six years. The I-75 Connector PD&E Study should be revisited in five to ten years,

dependent on actual growth of the Port and surrounding area. This assessment should review the applicability of the I-75 Connector PD&E study, as well as other projects that may be completed, such as the recommended project described below.

Finally, a study is recommended that focuses strictly on traffic analysis in the surrounding area to be completed within the next 5 years. This would be a more detailed analysis of existing state of the surrounding network and a focus on turning movements, acceleration and deceleration lands, and weaving sections. This Port Manatee Site Utilization & Network Analysis Studys is intended to provide a detailed understanding of baseline traffic conditions and future traffic conditions which will enable FDOT to right-size future roadway improvements and develop timelines for design and construction. Subsequent efforts should analyze traffic counts, calculate a secondary projection of future Port freight growth, calculate a projection of future regional freight growth, and calculate a projection of regional economic and population growth.

7.3 Rail

Future potential for rail expansion at Port Manatee is dependent on a significant increase in freight. While not specifically defined, CSXT has changed their operating practices and their requirements in accepting freight from existing and potential future customers. Based on these requirements, Port Manatee should continue to review the opportunity for rail traffic in the Master Plan updates and when approached by viable future tenants. Otherwise, pending continued rail traffic, the Port should focus their efforts on updating their track to current standards for industry track and continue to maintain the existing infrastructure as described in Section 6.6.

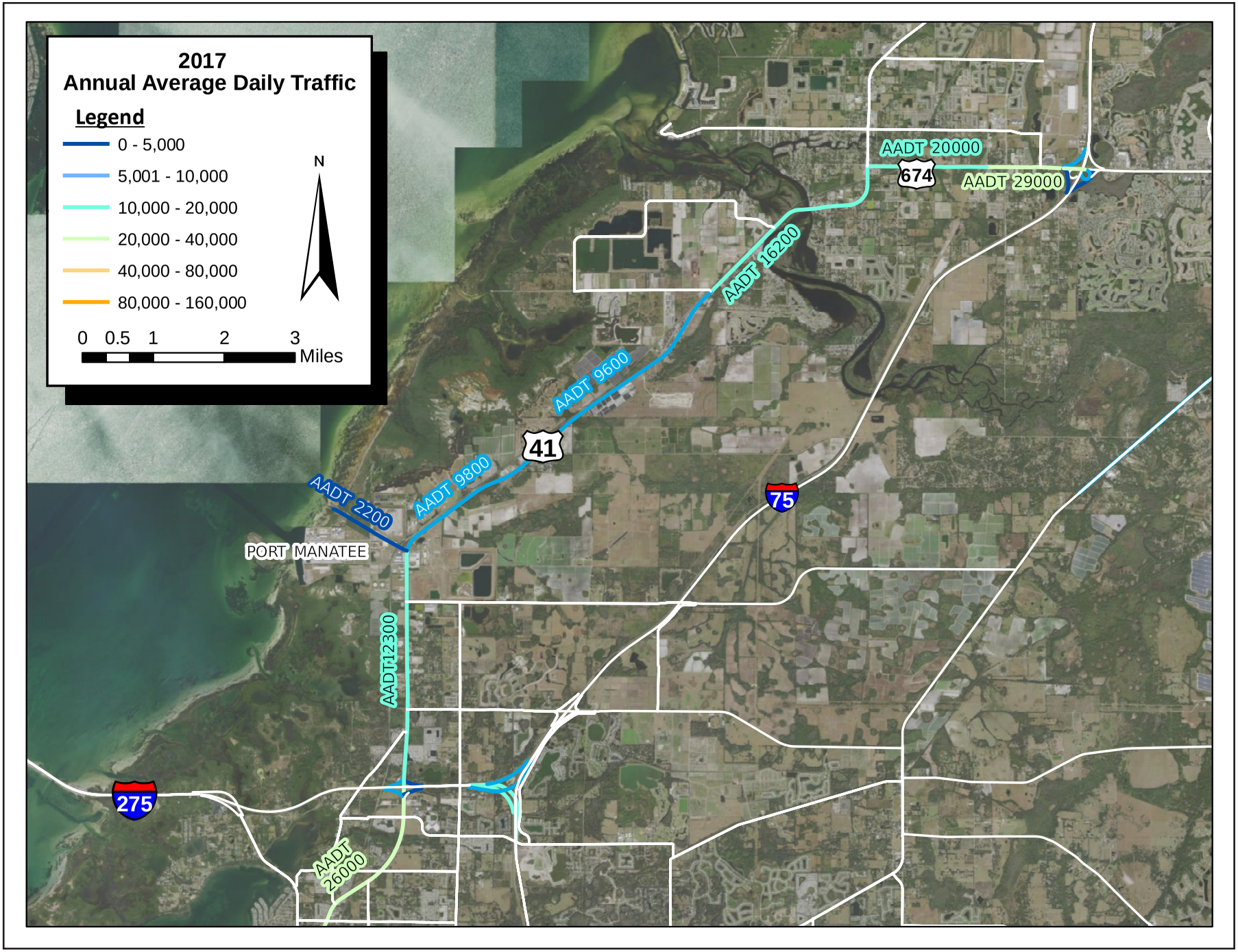
7.4 Conclusion

Based on geographical location and land availability, Port Manatee has significant opportunity to grow their cargo throughput in both the immediate and extended future. Continued coordination with their tenants and infrastructure maintenance and construction will be required to ensure that they can continue to handle freight efficiently and effectively on-site. Moving forward, Port Manatee will benefit from continuing their tenant relationships and building new tenant relationships that follow their vision for growth and focus on those commodities that build upon their existing business model.

Likewise, collaboration will also be required moving forward with FDOT to ensure that the roadway network will provide adequate service levels for both truck and vehicular traffic. This teaming, along with an understanding of the regional, opportunity-driven transportation demands, will allow for advanced planning and construction of infrastructure for the roadway network.

APPENDIX A:

2017 AADT MAPS


2017
Annual Average Daily Traffic
Legend
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5,001 - 10,000
10,000 - 20,000
20,000 - 40,000
40,000 - 80,000
80,000 - 160,000
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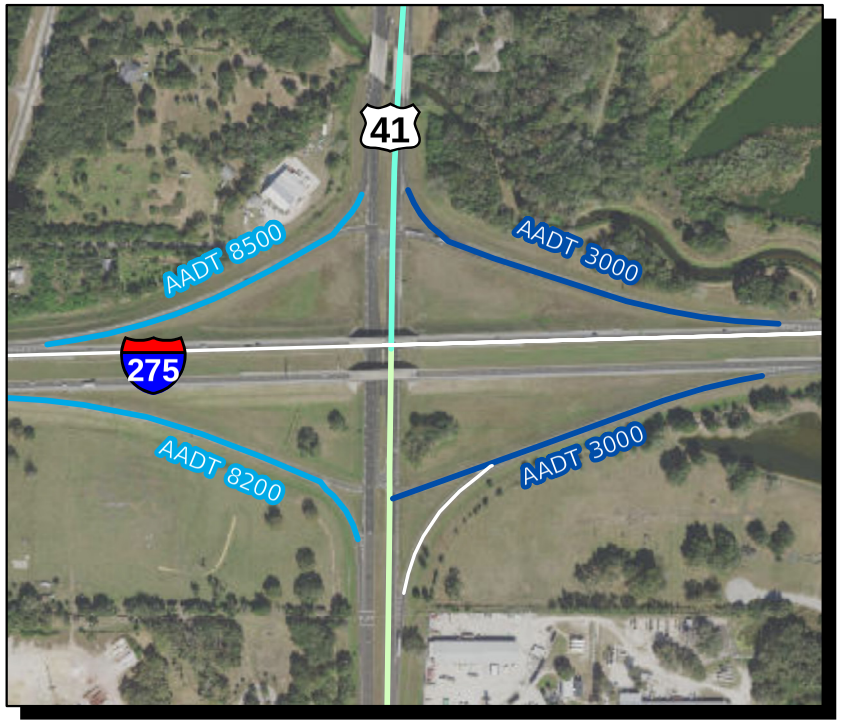
Miles
AADT 20000
674
AADT 29000
AADT 16200
AADT 9600
41
AADT 9800
AADT 2200
PORT MANATEE
75
AADT12300
275
AADT 26000

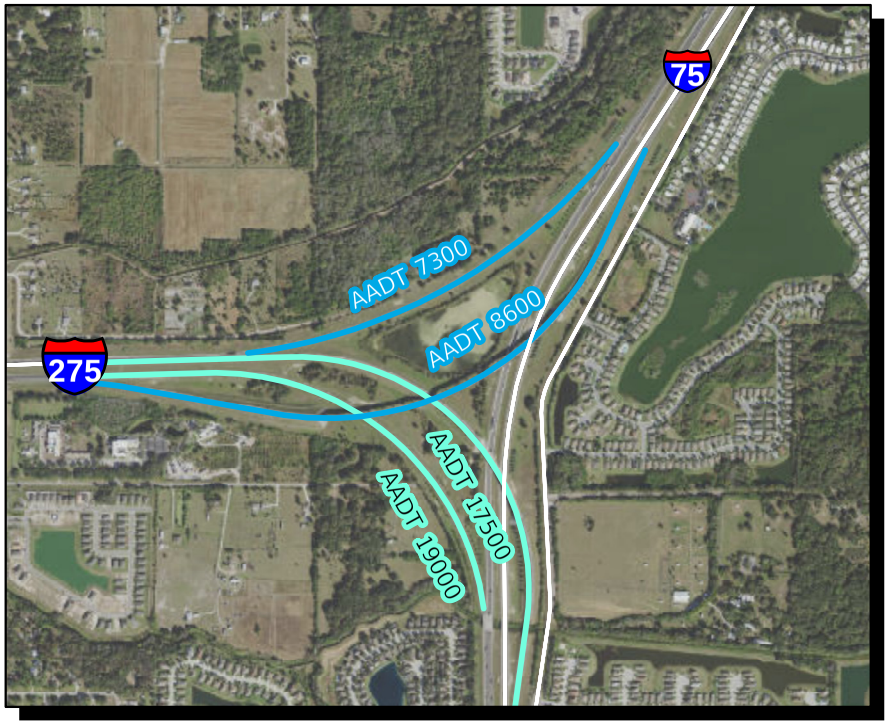
2017
Annual Average Daily Traffic

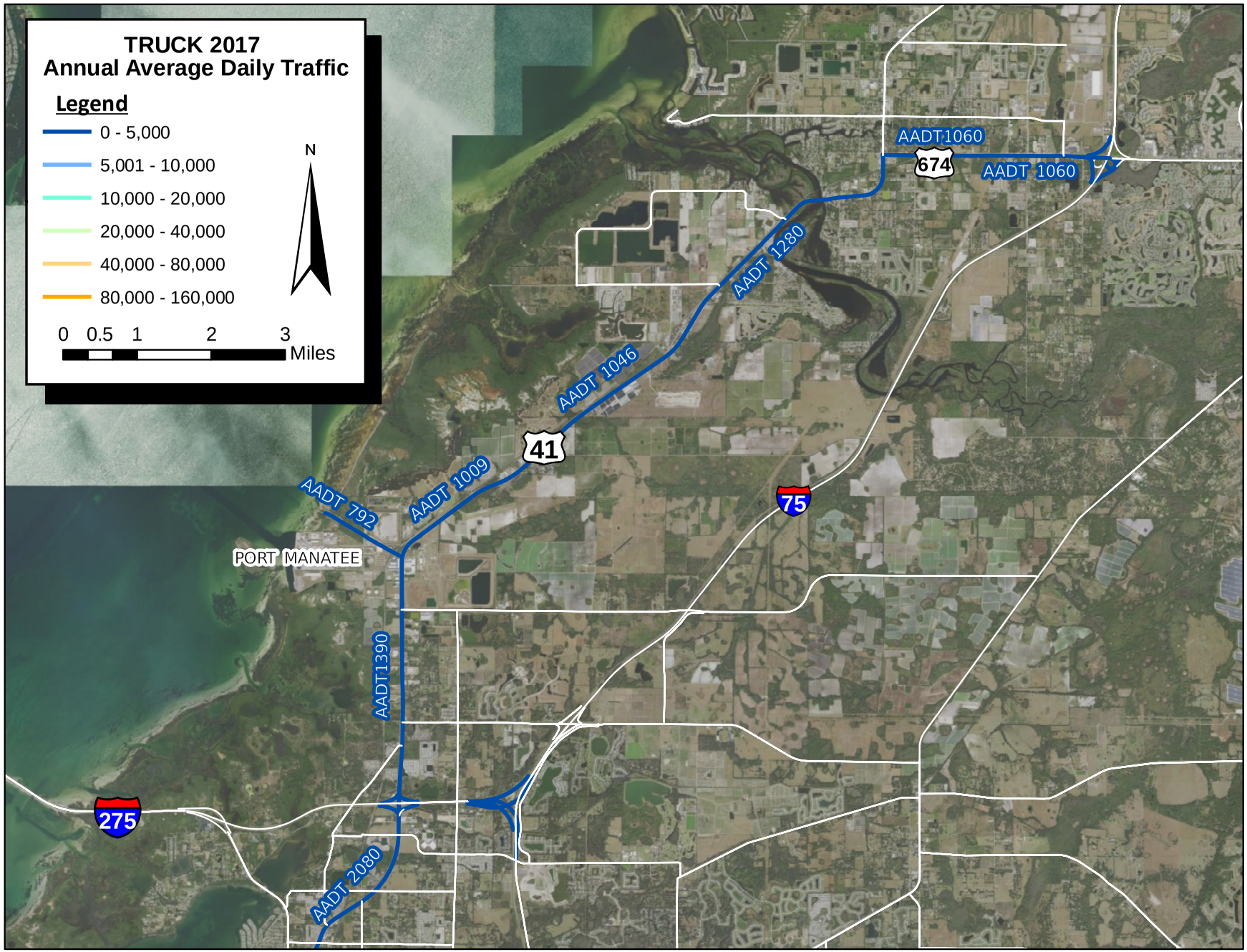
Legend

- 0 - 5,000
- 5,001 - 10,000
- 10,000 - 20,000
- 20,000 - 40,000
- 40,000 - 80,000
- 80,000 - 160,000

N






TRUCK 2017
Annual Average Daily Traffic
Legend
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10,000 - 20,000
20,000 - 40,000
40,000 - 80,000
80,000 - 160,000
N
0 0.5 1 2 3
Miles
AADT1060
674
AADT 1060
AADT 1280
AADT 1046
41
AADT 1009
AADT 792
75
PORT MANATEE
AADT1390
275
AADT 2080

TRUCK 2017

Annual Average Daily Traffic

Legend

- 0 - 5,000
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- 10,000 - 20,000
- 20,000 - 40,000
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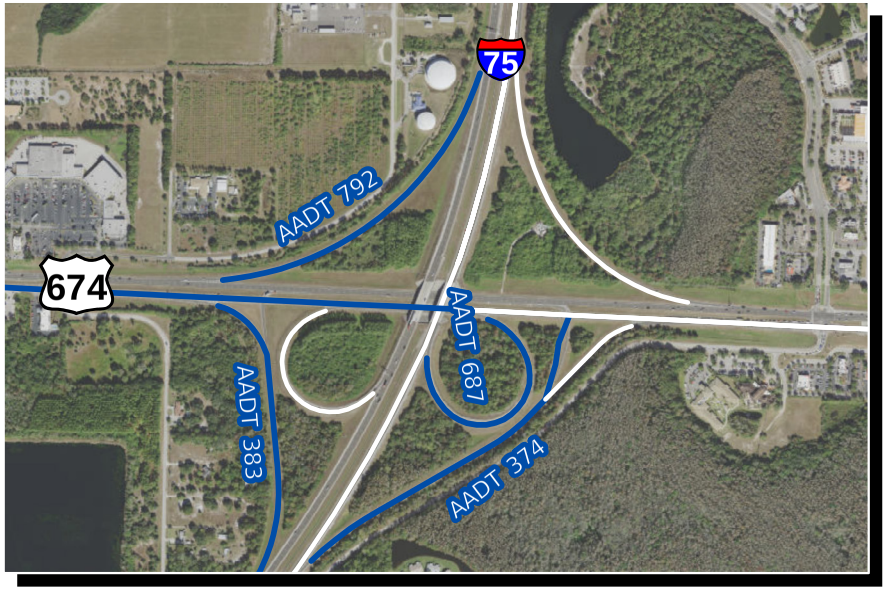
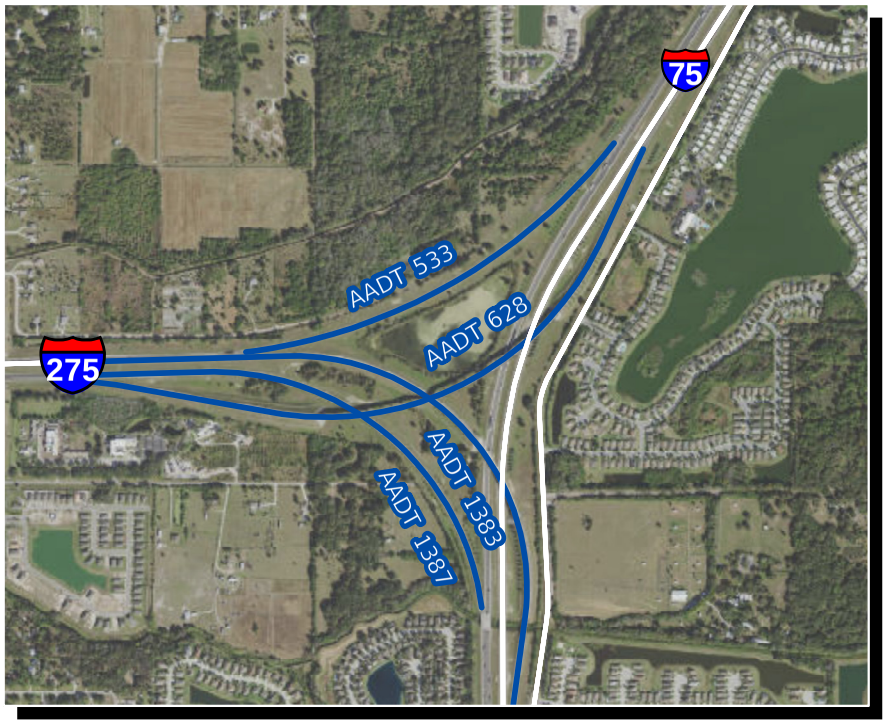
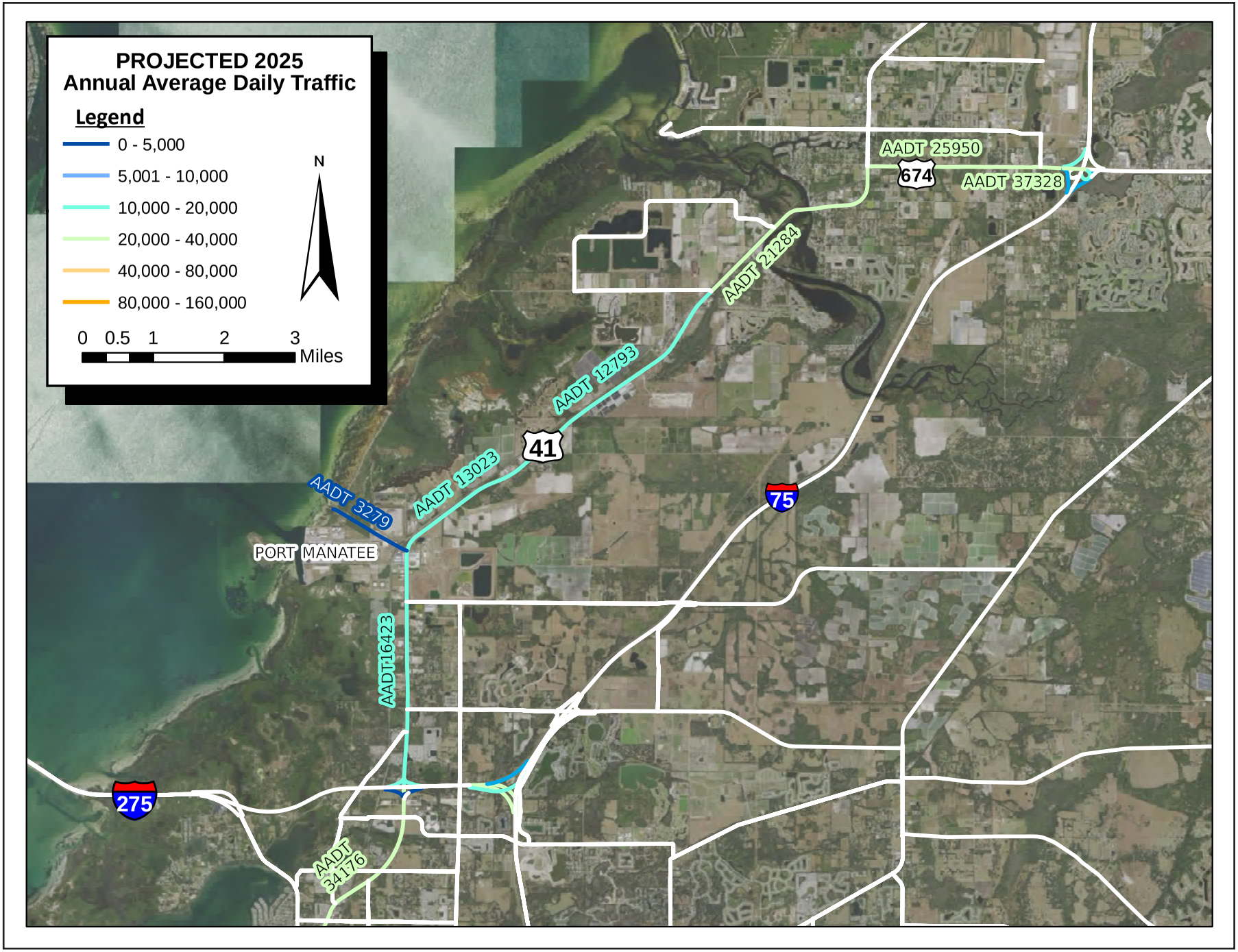




APPENDIX B:

2025 AADT MAPS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10,000 - 20,000
20,000 - 40,000
40,000 - 80,000
80,000 - 160,000
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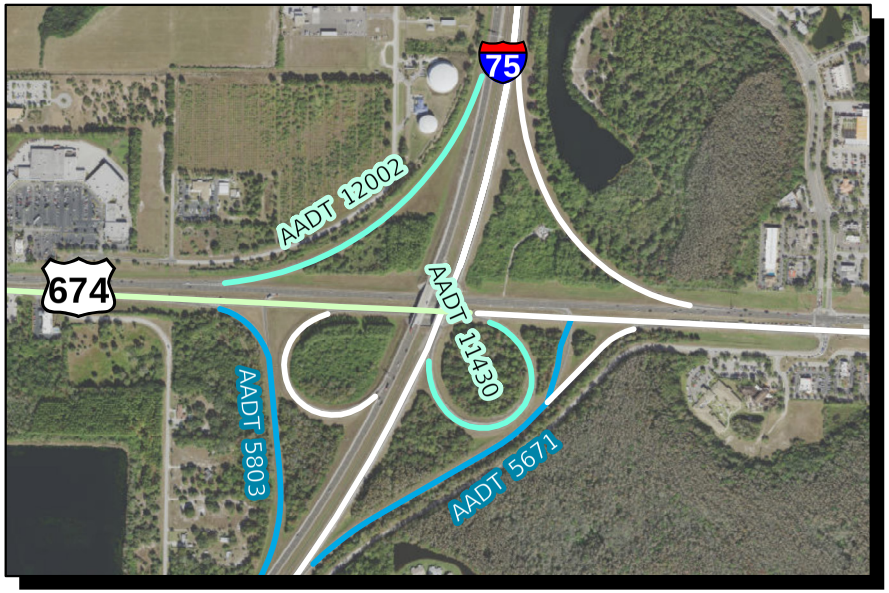
0 0.5 1 2 3
Miles
AADT 25950
674
AADT 37328
AADT 21284
AADT 12793
41
AADT 13023
AADT 3279
PORT MANATEE
75
AADT16423
275
AADT 34176

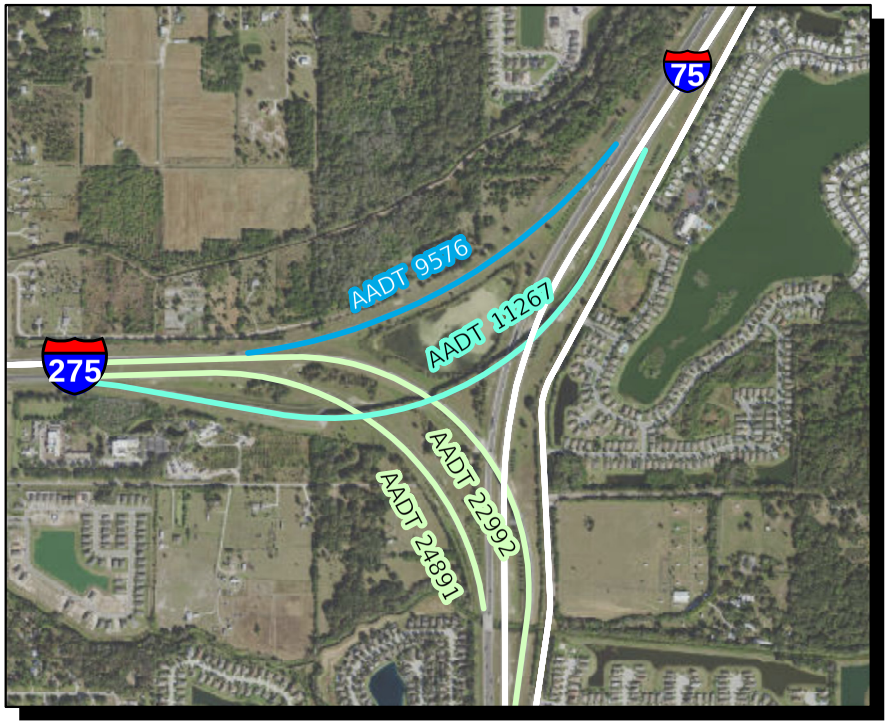
PROJECTED 2025
Annual Average Daily Traffic

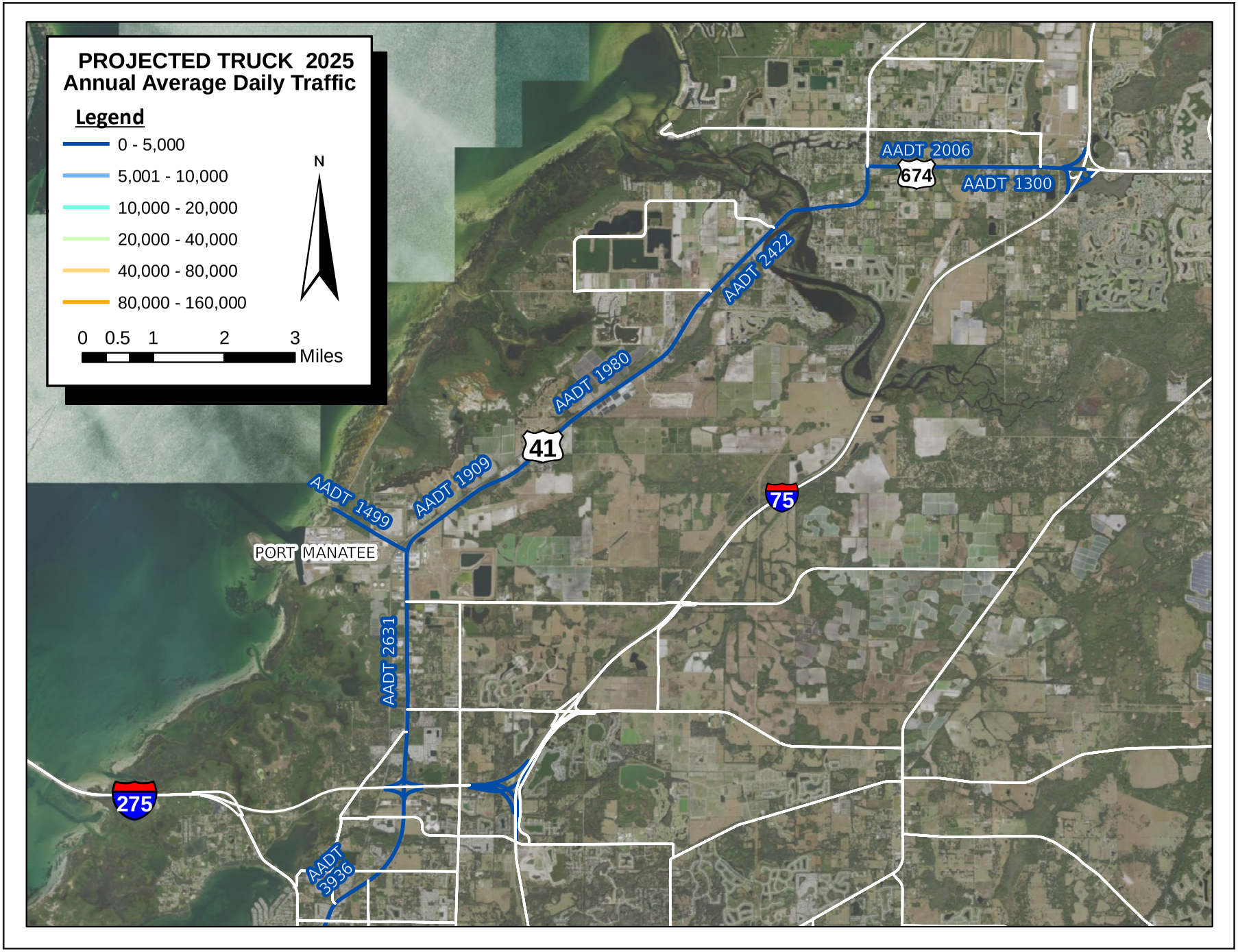
Legend

- 0 - 5,000
- 5,001 - 10,000
- 10,000 - 20,000
- 20,000 - 40,000
- 40,000 - 80,000
- 80,000 - 160,000

N






PROJECTED TRUCK 2025
Annual Average Daily Traffic
Legend
0 - 5,000
5,001 - 10,000
10,000 - 20,000
20,000 - 40,000
40,000 - 80,000
80,000 - 160,000
N
0 0.5 1 2 3
Miles
AADT 2006
674
AADT 1300
AADT 2422
AADT 1980
41
AADT 1909
AADT 1499
PORT MANATEE
75
AADT 2631
275
AADT 3936

PROJECTED TRUCK 2025

Annual Average Daily Traffic

Legend

- 0 - 5,000
- 5,001 - 10,000
- 10,000 - 20,000
- 20,000 - 40,000
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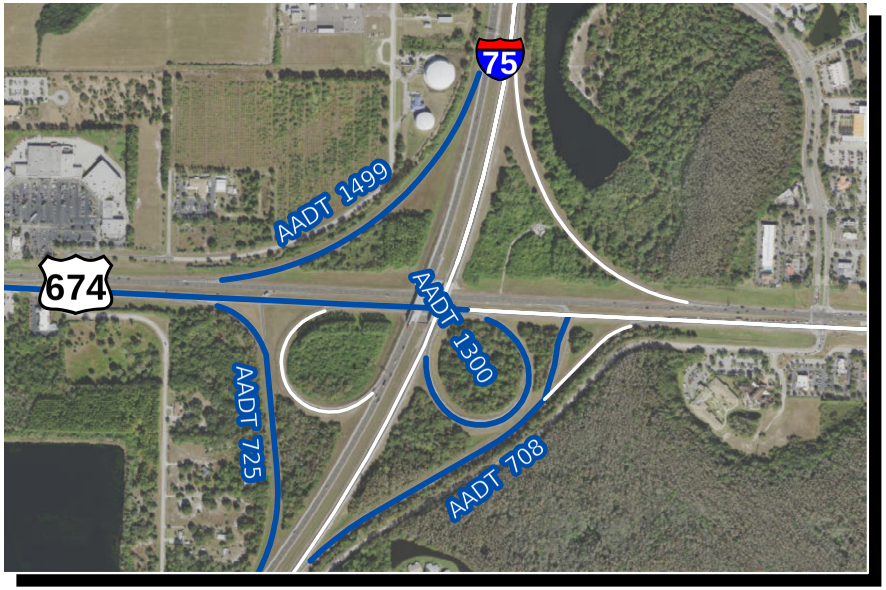
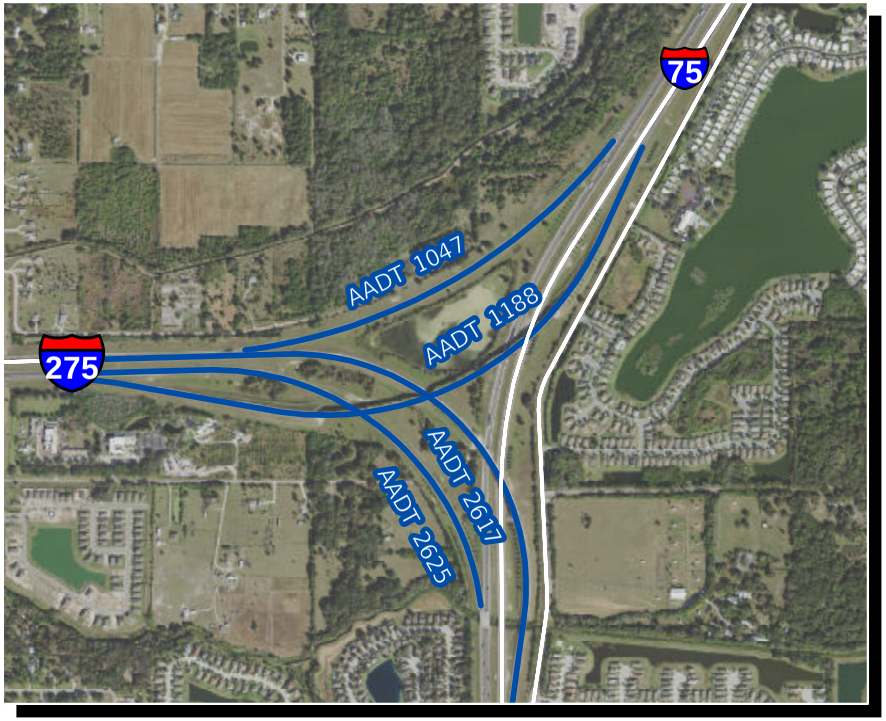
- 80,000 - 160,000

N





APPENDIX C:

PORT MANATEE INTERVIEW SUMMARIES

Appendix C: Port Manatee Interview Summaries

Interviews were conducted with those tenants that Port Manatee Executive staff was able to provide contact information for. Tenant interviews were conducted between August 8, 2018 and August 22, 2018. Contact information was provided for the following tenants:

Tenant	Response
Alpico International	No response received
American Cement	Interview conducted in person
Del Monte	Interview conducted in person
Federal Marine Terminals	Interview conducted in person
Kinder Morgan	Refused interview
Logistec North America	Interview conducted in person
Martin Marietta	Phone interview conducted
TransMontaigne	Phone interview conducted
World Direct Services	Interview conducted in person

Florida Department of Transportation
801 North Broadway Avenue
Bartow, FL 33830-1249

RICK SCOTT
GOVERNOR

MIKE DEW
SECRETARY

August 17, 2018

Keith Robbins, (863-519-2913)
Keith.Robbins@dot.state.fl.us

Meeting Summary
Contract: C9Y66 FDOT District One Systems Planning TWO 3: Port Manatee Site Utilization
Facilitator: Ms. Monique Whitehead, TranSystems – Industry Specialist / mlwhitehead@transystems.com
Date: Wednesday, August 08, 2018 8:00 EST
Location: American Cement Office

A meeting was held in relation to task work order (TWO) 3, Port Manatee Site Utilization Plan with American Cement on August 8, 2018 at 8:00am at their Port Manatee office. The purpose of this meeting was to gain an understanding American Cement's existing port operations and potential for growth in the future.

Attendees to this meeting included:

- Monique Whitehead: Industry Specialist for Rail Operations, TranSystems
- Matt McIntosh: Transportation Planner, TranSystems
- Jeff Kaiphas: Terminal Manager, Suwannee American Cement

Interviews conducted focused on a variety of topics including vessel operations, storage capabilities, trucking operations, operational constraints, and understanding of the encouragement zone. This document will provide a summary of topics discussed at the meeting:

1. Vessel Operations

When Berth 8 is available, a vessel can be moored in approximately 15 minutes. Customs clearing the vessel requires approximately 1 hour to 1.5 hours. Hook up time for a vessel varies; however, a typical vessel requires 24 hours to set up for offloading because equipment is placed into the vessel. American Cement has tried an alternative option to set up faster (approximately 12 hours); however, this set up created environmental concerns contained within the scenario but deemed as ineffective for future vessels. Finally, offloading of the vessel requires 9 days where dry bulk cement is transferred into 1 of 4 silos via 2 hoppers and a pneumatic pump and pipe system.

Each vessel arriving carries 34,000 tons of dry bulk cement from Turkey. Vessels operations are expected to be fairly consistent through the year because of the warmer climate in Florida compared to operations in the north.

2. Stockpile Capacity

The dry bulk cement is held within 4 silos on site. Each silo has a capacity of 10,000 short tons, equaling a total of 40,000 short tons of static capacity. Inventory turnover for the silos is on a 2 month schedule. No processing is completed on site.

3. Trucking Operations

American Cement currently loads approximately 8 trucks per day; however, they estimate that a total of 50 trucks could be loaded within one day based on operations at Port of Tampa. Each truck can hold approximately 26 tons of dry cement and takes approximately 8 minutes to load. There is no settling time required for the product when loaded into a truck. Trucking operations are heaviest in the morning and are fairly smooth throughout the week. There is potential for an extra truck run on either Monday or Friday based on customer requirements through the weekend.

The terminal operations are set up to be able to load two trucks at a time based on the number of scales available on site. Each truck is loaded using a two way radio system. The driver will pick up a two way radio from the office prior to entering the loading area so that he/she can communicate with the employees. American Cement understands the inefficiencies within this communication method and there has been discussion to include a lighting and monitor system at the facility. This would also increase the number of trucks that would fit on the terminal operator's leased property from 1 to 4 or 5 because they would no longer stop at the office area for a two way radio and could progress immediately towards the silos.

The majority of the freight departing American Cement from Port Manatee is traveling south up to 120 miles towards Ft. Myers (approximately 75%), west approximately 60 miles, or north approximately 40 miles. American Cement stated they were not aware of any major roadway challenges past typical morning Tampa traffic.

An additional 25 dump trucks arrive American Cement per day for ticketing and scaling prior to hauling raw material to a local plant. This raw material is transported to the port via railcar then stockpiled and loaded to trucks by a third party prior to entering the American Cement lease area scaling.

4. Buildings and Employees

American Cement has the following building areas on site to accommodate their operations:

- An administrative building
- A shop/warehouse building for spare parts
- A small oil storage shed
- 4 silos

There are currently 2 employees that work on site besides the terminal manager that operate one shift per day. Shifts run Monday through Friday from 6am through 4pm. Operations are performed on weekends upon request by the customer. The facility does shut down for major holidays.

5. Expectations for Growth

The operations are fairly new returning to Port Manatee after having a 10 year idle period. The facility estimates receiving 6 vessels in 2019 which equates to approximately 204,000 short tons.

Port Manatee is currently interested in the opportunity to expand upon their rail operations if feasible. American Cement stated that the use of rail operations could be probable within their operations.

6. Opportunities for Improvement

American Cement stated that one of their challenges they currently perceive is the Transportation Worker Identification Card (TWIC) requirements for truck drivers on port property. Currently when a driver arrives the port,

the driver must check in at the port office to confirm their pickup; drive through the security area, swiping their TWIC card as identification confirmation; and proceed to appropriate terminal operator for loading. A driver can enter Port property for a cost of $35 where the driver is monitored using cameras mounted to American Cement's silos.

American Cement stated that there are sometimes delays caused by the cold storage warehouse when trucks are trying to back into their docking areas. These delays are minor; however, there may be an opportunity to move the gate behind the existing parking area to eliminate queueing, creating an alternative access point for truck drivers. American Cement acknowledged that they believe this would be their responsibility to implement.

7. Encouragement Zone

As part of Port Manatee's attempts to expand their customer base they have implemented an Encouragement Zone directly across US-41 from Port Manatee. This area is intended to promote port and maritime related facilities within the region to expand on future markets. American Cement did not have any opinion on this area.

8. General Notes

Other general notes of interest from the interview included the following:

- The terminal sat idled for 10 years until recently. Projections for next year will include 6 vessels. When the terminal was in operations over a decade ago, the terminal would receive 1-2 vessels per month; however, this was under a different company name.

3

Florida Department of Transportation
801 North Broadway Avenue
Bartow, FL 33830-1249

RICK SCOTT
GOVERNOR

MIKE DEW
SECRETARY

August 17, 2018

Keith Robbins, (863-519-2913)
Keith.Robbins@dot.state.fl.us

Meeting Summary
Contract: C9Y66 FDOT District One Systems Planning TWO 3: Port Manatee Site Utilization
Facilitator: Ms. Monique Whitehead, TranSystems – Industry Specialist / mlwhitehead@transystems.com
Date: Wednesday, August 8, 2018 15:00 EST
Location: Del Monte Fresh Office

A meeting was held in relation to task work order (TWO) 3, Port Manatee Site Utilization Plan with Del Monte Fresh on August 8, 2018 at 3:00pm at their Port Manatee office. The purpose of this meeting was to gain an understanding Del Mont Fresh's existing port operations and potential for growth in the future.

Attendees to this meeting included:

- Monique Whitehead: Industry Specialist for Rail Operations, TranSystems
- Rick Ferrin: Seaports, TranSystems
- Carlos Agudelo: Port Manager, Del Monte Fresh Produce

Interviews conducted focused on a variety of topics including vessel operations, storage capabilities, trucking operations, operational constraints, and understanding of the encouragement zone. This document will provide a summary of topics discussed at the meeting:

1. Vessel Operations

Del Monte Fresh receives two types of vessels at Port Manatee. They receive 2 vessels that handle both break bulk and containers. These vessels arrive weekly and have a capacity of approximately 190 twenty foot equivalent units (TEU). The second vessel type is a fully containerized vessel that arrives Port Manatee every third week. This vessel has a capacity of 2,490 TEU. Each vessel calling Port Manatee for Del Monte Fresh is scheduled and requires approximately 20 hours of berthing time.

The vessel type that allows for break bulk cargo has a ships gear that is used to offload palletized freight. Containerized freight is offloaded from both vessel types using the two harbor cranes on Port Manatee property. Freight can be offloaded at a rate of 40 TEU per hour or 95 pallets per hour.

Seasonal peaks occur between the months of January and April, during melon season. This peak season accounts for an increase in 1.13:1.00 ratio of peak months to average months.

All containers arriving as imports are loaded with Del Monte Fresh product; however, export cargo is typically dry and commercial cargo. This cargo accounts for 30% of the exported containers and approximately two thirds of the freight arrives by rail.

2. Stockpile Capacity

When containers arrive by vessel, they are emptied and the contents are put into cold storage or directly into a refrigerated truck depending on availability of space and number of open refrigerated container ("reefer") plug-ins are available. The empty container will remain on site for approximately 1 to 2 weeks until vessel space is available for the container to be loaded for departure. Containers are moved about the yard by chassis or bomb cart and moved to the ground using a top loader crane.

Del Monte Fresh is currently able to store approximately 240 empty containers, 80 reefer, and 200 refrigerated trailers on site. Reefers are not stacked for reefer maintenance requirements, access to the plug, and the pavement's inability to support loaded stacking. The container yard currently accounts for approximately 10 acres and an additional 19 acres are available for future expansion.

3. Trucking Operations

Customer pick up is dependent on the ripening schedule and consumer sales within the stores. All fruit is trucked off Port Manatee where approximately 20 pallets can fit in one truck because of weight limitations. Approximately 17,400 loads depart Del Monte Fresh per year and require 1.15 hours of processing time for loading.

Del Monte Fresh uses their own drivers to move freight to the distribution centers and to some customers. The terminal will allow drivers to leave their trucks on site over night for loading during off hours and approximately 30% of the drivers take advantage of the opportunity. Truck distribution during the day is fairly even and they will load approximately 40% of the trucks in the morning and 60% of the trucks in the evening. Loading operations end at 5pm daily, with exceptions during peak season when loading operations may continue until 10pm.

4. Buildings

Martin Marietta has the following building areas on site to accommodate their operations:

- An Administrative Building,
- A Cold Form Steel Building (owned by Port Manatee), and
- A Maintenance & Repair Building (owned by Port Manatee).

5. Balks

For the purposes of this study, a balk is defined as a truck driver that has incurred an issue that prevents him from accepting a load. Del Monte Fresh stated that balks are typically associated to those trucks that do not comply with the food safety requirements and are rejected. Those trucks must depart the facility and return once they have been washed. There are also overweight trucks that may return to have freight removed. In total, balks account for approximately 8% of the total truck moves.

6. Expectations for Growth

There are current plans for replacement of the existing vessels to move towards fully containerized vessels by mid-2020. While this is expected to equate to the same number of trucks departing the gate, there will be an increase in containers on site of approximately 50% which will require a revised layout. Past discussion have considered the use of rubber tire gantry (RTG) cranes and the capability to stack reefers within the revised layout.

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Del Monte Fresh stated their expectations for growth over the next several years is approximately 3.5% year over year. There may be opportunity in the future for Del Monte Fresh to growth their general cargo market or to ship other companies' fruits. Expansion markets are likely through Central and South America.

Port Manatee is currently interested in the opportunity to expand upon their rail operations, if feasible. While rail is attractive, Del Monte Fresh is concerned that using rail would increase the number of containers needed to sustain their existing operations. They also stated that at this time, because they are shipping by pallet, there is not a definitive need to ship by rail.

7. Opportunities for Improvement

Del Monte Fresh provided a several opportunities for improvement as they continue to grow their operations at Port Manatee. They currently use a refrigerated storage facility owned by the Port to store pallets of fruit that arrive by vessel. Del Monte Fresh would prefer this facility be replaced for a more modern and higher capacity refrigerated warehouse. An ideal increase in size would be approximately 50% more space.

With the vessels switching to purely containerized, there is an opportunity to better utilize the existing container yard. This would require improved pavement that would allow for stacked loaded containers on site. The existing pavement is worn and would likely need repairs and potentially require thicker pavement to sustain the weight of the loads. Within the same area, Del Monte Fresh stated that ideally, they would like the ability to plug in containers that are stacked. This would require superstructures that could accommodate plugging in containers stacked two or three high. If these kinds of improvements are made, the reefers could become the ultimate storage location and the area required in the refrigerated warehouse would decrease.

8. Encouragement Zone

As part of Port Manatee's attempts to expand their customer base they have implemented an Encouragement Zone directly across US-41 from Port Manatee. This area is intended to promote port and maritime related facilities within the region to expand on future markets. Del Monte Fresh stated they were unaware of any developing business opportunities that would take advantage of this area.

9. General Notes

Other general notes of interest from the interview included the following:

- Truck driver supply in the region is very limited and Del Monte Fresh absorbs the majority of truck drivers in the area which is likely attributed to the driver shortage and the less populated region. Del Monte Fresh stated that they do feel the lack of trucking services as well.

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August 20, 2018

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Meeting Summary
Contract: C9Y66 FDOT District One Systems Planning TWO 3: Port Manatee Site Utilization
Facilitator: Ms. Monique Whitehead, TranSystems – Industry Specialist / mlwhitehead@transystems.com
Date: Wednesday, August 9, 2018 09:00 EST
Location: Logistec office

A meeting was held in relation to task work order (TWO) 3, Port Manatee Site Utilization Plan with Logistec on August 9, 2018 at 9:00am at their Port Manatee office. The purpose of this meeting was to gain an understanding World Direct Service's existing port operations and potential for growth in the future.

Attendees to this meeting included:

- Monique Whitehead: Industry Specialist for Rail Operations, TranSystems
- Rick Ferrin: Seaports, TranSystems
- Andre Dubois: General Manager, Logistec

The interview conducted focused on a variety of topics including customers served, equipment, opportunity for overall Port growth operational constraints, and understanding of the encouragement zone and foreign trade zone. This document will provide a summary of topics discussed at the meeting:

1. Customers

Logistec is a stevedoring contractor at Port Manatee and currently serves a number of customers including, but not limited to:

- Del Monte Fresh,
- AME Salt,
- Intermetals and VA Trading, and
- Port Manatee Scrap.

Vessel operations are dependent on customer. Del Monte Fresh typically receives 1 vessel per week in the summer months; however, they receive 2 to 4 vessels per week between November and May, peak (melon) season. AME Salt receives a vessel of approximately 7,000 to 10,000 of bag salt for the pool industry every 60-80 days. A rebar vessel is typically received approximately 4 times per year and contain approximately 6,000-10,000 tons of rebar depending on market demand, all of this product is stored on Port Manatee property. Vessels containing scrap metal is based on market demand and can fluctuate between 2 vessels in one month to 2-3 months without a vessel; typically 4 vessels are budgeted per year.

Logistec stated that periodically vessels are received at Port Manatee loaded with project cargo. These vessels, while good business for the Port, can create space constraints on site for other products received by long term leasing tenants. 2014, in particular, was a big year for receipt of project cargo at the port and Logistec advised that there were vessels diverted because of lack of space.

2. Equipment

In 2007, the first harbor crane was purchased in partnership with Port Manatee. The second crane was acquired through funding and the remaining equipment, "yard dogs", etc., was purchased over time.

3. Opportunities for Growth

Logistec stated that there have been auto carriers and container carriers who have researched the opportunity to receive vessels at Port Manatee; however, there have chosen not to use Port Manatee because the infrastructure is not available. If the port were able to attract an auto carrier, a Roll on, Roll off, "Ro-Ro", operation could be completed with storage and auto processing near the south gate area to remove the requirements for a TWIC card. Based on Logistec's knowledge, this freight could be seeking a new Port as soon as late 2019 to early 2020. These operations would likely required a dedicated road between Berths 12 and 14 to an auto processing area near the south gate, for which there are currently permits in place to accommodate.

To date, refrigerated goods have been one of Port Manatee's main customer bases. Logistec stated that there are more companies interested in this business that would consider Port Manatee if additional refrigerated space were available. This would require both "reefer" plug-ins and refrigerated warehousing.

4. Opportunities for Improvement

Logistec stated that the ability to increase the laydown area for project cargo could improve the storage requirements at the port for those years when project cargo volumes are high. While this product is dependent on market demand and is cyclical over several years, this would provide the appropriate storage facilities so that vessels are not diverted.

Port Manatee currently has land available that is undeveloped or only partially developed. If these areas were paved, at a minimum, it would provide perspective tenants and customers a better understanding of the potential for their goods moving through Port Manatee. Preparation for future expansion of existing tenants and acceptance of future tenants may also include additional warehousing on site.

Similar to statements from Del Monte Fresh, Logistec stated that additional refrigerated palletized storage and reefer storage is required on site to help with future growth and peak season. Reefer storage would include pavement that supports stacked containers and plug-ins that can reach containers that are stacked two high, or taller depending on pavement thickness.

Port security operations were described as a major bottleneck, they were described as "chaotic" and unlike any other port. Drivers are currently required to check-in at the main security building to confirm their pick up number prior to entering the port. Based on the limited number of TWIC drivers within the region, this has caused an additional shortage of drivers willing to go to Port Manatee. Discussions were based on the ability to move more freight storage towards the gate area, outside of what is considered the "TWIC zone", including a common user warehouse for refrigerated and dry goods.

Improvements were also discussed for the south gate of the port. Logistec stated that the gate was inadequate for large truck operations. Attempts to increase the capabilities of this gate could alleviate congestion at the north gate.

Finally, Logistec recommended the removal of Transit Shed 6. They stated that it is obsolete and should be removed to open working space for Berths 11, 12, and 14. This would also allow full travel for the harbor cranes from Berth 11 to Berth 14.

5. Encouragement Zone

As part of Port Manatee's attempts to expand their customer base they have implemented an Encouragement Zone directly across US-41 from Port Manatee. This area is intended to promote port and maritime related facilities within the region to expand on future markets. Logistec agreed that this could be a good opportunity and tool for customer attraction to Port Manatee focusing on "big box" customers; however, they believe that a bottleneck may be created and require a dedicated crossing, similar to what was built in Georgia for the auto carriers.

6. General Notes

Other general notes of interest from the interview included the following:

- Logistec does not believe the port has enough open space to accommodate the customers, especially in years when project cargo is at its peak.
- The Foreign Trade Zone could be a major attraction for auto processors to use Port Manatee; however, it is currently not active.

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August 17, 2018

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Meeting Summary
Contract: C9Y66 FDOT District One Systems Planning TWO 3: Port Manatee Site Utilization
Facilitator: Ms. Monique Whitehead, TranSystems – Industry Specialist / mlwhitehead@transystems.com
Date: Tuesday, August 14, 2018 9:00 EST
Location: Conference Call

A conference call was held in relation to task work order (TWO) 3, Port Manatee Site Utilization Plan with Martin Marietta on August 14, 2018 at 9:00am. The purpose of this meeting was to gain an understanding of Martin Marietta's existing port operations and potential for growth in the future.

Attendees to this meeting included:

- Monique Whitehead: Industry Specialist for Rail Operations, TranSystems
- Jim Dubea: Seaports, TranSystems
- Matt McIntosh: Transportation Planner, TranSystems
- Robert Estes: Sales Representative, Martin Marietta
- Brent Merman: West Florida Yards Manager, Martin Marietta

Interviews conducted focused on a variety of topics including vessel operations, storage capabilities, trucking operations, operational constraints, and understanding of the encouragement zone. This document will provide a summary of topics discussed at the meeting:

1. Vessel Operations

Vessels arriving in Port Manatee for Martin Marietta are leased from CSL. They currently receive one direct discharge vessel, with conveyor belts connected to the vessel that discharge into landside hoppers, approximately every 5 weeks at Port Manatee. Each vessel contains approximately 50,000-61,000 tons. The max speed of the conveyor is approximately 2,800 tons per hour; however, the minimum contracted speed is 2,600 tons per hour. Offloading a vessel typically takes 26-30 hours from when the berth is available to when the vessel is ready to depart. Martin Marietta works to schedule around the holidays; however, operations are conducted as needed to ensure timely vessel offloading.

Traditionally, vessel shipments are received predominantly from Canada and currently focus on granite. These vessels are scheduled and take approximately 10 days to arrive Port Manatee. Martin Marietta has started receiving a limited amount of limestone that began around July 2018 from the Bahamas which requires a 5 day trip.

2. Stockpile Capacity

Martin Marietta can currently stockpile approximately 250,000 tons of commodity, assuming it is one product. As they diversify the commodities arriving to Port Manatee for distribution, additional piles will be required within the same footprint causing a reduced total tonnage of capacity available from the small stockpile sizes.

Stockpile turnover is dependent on their customers, asphalt manufacturers, manufacturing process. Their customers typically produce more asphalt product outside of the rainy season when projects involving placement of asphalt is within its peak season. Their peak season is also dependent on FDOT's fiscal year and letting of projects within the region.

3. Trucking Operations

At its peak, Martin Marietta could potentially load 250-300 trucks per day. If additional personnel were added and another scale were added, the loading capability would increase to approximately 400-500 trucks per day. These figures are based on existing operations in Tampa; however, Martin Marietta stated that their existing loading is currently less.

Martin Marietta currently loads trucks between 6am and 3pm every day. Based on customer need, they will open early or stay late to meet their customer's requirements.

Trucks departing the facility are typically traveling 50-70 miles south to the Fort Myers area. Trucks scheduled to travel north are dependent on the size of regional projects and requirements for asphalt because of the close proximity to the Port of Tampa, which provides direct completion to the operations conducted by Martin Marietta at Port Manatee.

4. Buildings and Employees

Martin Marietta has the following building areas on site to accommodate their operations:

- An Administrative Building,
- Two MC buildings,
- A pump house, and
- A control tower.

To accommodate typical operations, Martin Marietta has 2 employees on site daily. There are current plans to expand to 3 employees in the near future.

5. Balks

For the purposes of this study, a balk is defined as a truck driver that has incurred an issue that prevents him from accepting a load. Martin Marietta stated that they have a consistent customer base and typically balks are only caused by over or under loading trucks; however, estimates of this occurring are only 3-4% of the time.

6. Expectations for Growth

Martin Marietta stated that this year they are expecting to ship approximately 600,000-700,000 tons of primarily granite product through Port Manatee which will be used by asphalt companies in the area as raw material into the final asphalt product.

Discussions on growth continued with opportunity to diversify their raw material products for asphalt through the inclusion of products like limestone. Drainage materials and bridge materials are also under future consideration. Martin Marietta understands that there are constraints to entering the market based on price and availability of space at Port Manatee.

Forecasting now and in the future is dependent on their customer requirements to determine the correct mix of raw materials on the ground. Martin Marietta believes that they can break through in some of the various markets required by FDOT because of the quality of material they are able to provide, like their limestone which they believe exceeds the existing FDOT specification requirements. With these expansion markets, there is likely opportunity for Martin Marietta to request and negotiate additional land within their lease for additional stockpiling capabilities.

Port Manatee is currently interested in the opportunity to expand upon their rail operations, if feasible. When Martin Marietta was asked if this would benefit their operations, they stated that rail operations would be dependent on price. In previous research by Martin Marietta, they determined the price to ship by rail was not conducive to their current operations.

7. Opportunities for Improvement

Martin Marietta stated that the largest challenge they currently perceive is the Transportation Worker Identification Card (TWIC) requirements for truck drivers on port property. Currently when a driver arrives the port, the driver must check in at the port office to confirm their pickup; drive through the security area, swiping their TWIC card as identification confirmation; and proceed to appropriate terminal operator for loading. Martin Marietta identified this process as cumbersome and time consuming for drivers and that many regional drivers are unwilling to get apply for and pay for a TWIC when they rarely pick up loads from Port Manatee. They also stated that many companies will include additional port demerge time for the driver to be on port because of the increased time expected for security requirements, making it a less competitive location to pick up product.

Other ports within the region have found alternative operations that allow for drivers to pick up low security freight outside of the TWIC area of a port. Martin Marietta stated if Port Manatee were able to revise the layout in a similar fashion, they would be able to attract more truck drivers and customers to their Port Manatee facility because of the ease of access to US-41 and connecting highways.

Martin Marietta did not provide any bottleneck locations for truck drivers. Their facility is the first stop after the gate and drivers destined for their facility typically do not get held up from other operations.

Martin Marietta did not provide any bottleneck locations for truck drivers outside of Port Manatee. They stated that there are issues with traffic in and around Tampa; however, nothing specific to Port Manatee. They specifically stated that Martin Marietta likes the current set up for turning in and out of the north entrance onto US-41.

8. Encouragement Zone

As part of Port Manatee's attempts to expand their customer base they have implemented an Encouragement Zone directly across US-41 from Port Manatee. This area is intended to promote port and maritime related facilities within the region to expand on future markets.

Martin Marietta stated that they have been encouraged to move part of their operations to the other side of US-41 in the past, into the Encouragement Zone; however, cost for required infrastructure to move freight over US-41 and

facility development deterred this effort. They do believe that there is opportunity for an asphalt plant location within the Encouragement Zone and stated that they were aware of a company that may show interest.

9. General Notes

Other general notes of interest from the interview included the following:

- Martin Marietta currently operates two railyards within proximity to Port Manatee Loughman Yard, located in Davenport, Florida, and Mulberry Yard, located Mulberry, Florida.
- A concrete plant was previously located on site but was removed. The removal of the plant has allowed Martin Marietta to expand their stockpile area on site.

4

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RICK SCOTT
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August 21, 2018

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Meeting Summary
Contract: C9Y66 FDOT District One Systems Planning TWO 3: Port Manatee Site Utilization
Facilitator: Ms. Monique Whitehead, TranSystems – Industry Specialist / mlwhitehead@transystems.com
Date: Friday, August 17, 2018 9:00 EST
Location: Conference Call

A conference call was held in relation to task work order (TWO) 3, Port Manatee Site Utilization Plan with TransMontaigne on August 17, 2018 at 9:00am. The purpose of this meeting was to gain an understanding of TransMontaigne's existing port operations and potential for growth in the future.

Attendees to this meeting included:

- Monique Whitehead: Industry Specialist for Rail Operations, TranSystems
- Rick Ferrin: Seaports, TranSystems
- Matt McIntosh: Transportation Planner, TranSystems
- Steve Lynch: Terminal Manager, TransMontaigne

Interviews conducted focused on a variety of topics including vessel operations, storage capabilities, trucking operations, operational constraints, and understanding of the encouragement zone. This document will provide a summary of topics discussed at the meeting:

1. Vessel Operations

TransMontaigne receives gasoline, diesel, ethanol, six oil, and asphalt at the Port Manatee facility, gasoline and diesel make up the bulk of their business. Vessels are scheduled and typically received once per week and the vessel make up is dependent on the products being shipped. Each vessel is regulated by the US Coast Guard because of the products being shipped. Vessels arriving at Port Manatee for TransMontaigne are typically arriving from the Gulf Coast, Texas and Louisiana; however, six oil may also arrive from South America. There is no seasonality for the freight and monthly throughput remains the same throughout the year.

After a vessel has arrived the port, TransMontaigne is typically pumping after approximately 2 to 3 hours. Anywhere from 40,000 barrels to 300,000 barrels can be offloaded from a vessel. Each vessel requires approximately 30 to 36 hours to offload and is not dependent on the product type.

2. Stockpile Capacity

TransMontaigne currently has approximately 1.4 million barrels of storage on site where approximately 10% of the space must remain empty as "dead space". TransMontaigne estimates that the tanks are approximately 50% utilized

at this time. This storage is made up of 14 tanks of various sizes and are distributed amongst the products as follows:

- 3 tanks are dedicated to gasoline,
- 2 tanks are dedicated to ethanol,
- 2 tanks are dedicated to diesel,
- 3 tanks are dedicated to asphalt,
- 1 tank is dedicated to six oil, and
- Remaining tanks are dedicated to maintenance.

TransMontaigne stated they do not perceive any issues with storage in the future. There is no refining or blending that occurs on site and TransMontaigne stated that they lease additional space outside of their fenced area, an additional 14 acres, at Port Manatee. This area could be used for additional tanks if required in the future.

3. Trucking/Barge Operations

At this time, the majority of freight departs TransMontaigne via truck with the exception of six oil, which departs by barge for use on cruise ships and freight ships. A barge is received 3 to 4 times per week and can hold 6,000 to 12,000 barrels.

They stated that the truck volumes for all other products have remained the same since December 2017. The process for both fuel trucks and asphalt trucks is fully computerized and automated to prevent overloading. Fuel trucks are loaded via loading arm hook ups for gasoline, ethanol, and/or diesel. One fuel truck has a capacity of 8,700 gallons and there are multiple chambers within the truck that allow various types of fuel within one truck. A fuel truck takes about 20 minutes to load and 3 trucks can be loaded at a time. An asphalt truck is loaded on a scale to ensure no more than 80,000 pounds are loaded. There are 2 scales on site and one truck takes approximately 30 minutes to load.

Drivers picking up freight from TransMontaigne are required to have a TWIC card for pick up and they typically see the same drivers daily. That said, TransMontaigne would not benefit from moving their loading operations closer to the entrance/exit of the port.

4. Infrastructure

Unlike most tenants, TransMontaigne owns and maintains the majority of their infrastructure on site. They have several buildings on site including:

- An administrative building,
- A steam oiler building,
- A hot oiler building, and
- Several other buildings used for storage.

TransMontaigne also owns a series of pipelines that are buried on site. These pipelines allow for TransMontaigne to offload vessels from Berths 7, 8, 9, and 10 and transfer the products to storage.

5. Expectations for Growth

TransMontaigne stated that for many years, they did not receive gasoline. Port Manatee assisted in bringing gasoline as a product on site. They believe that the port takes their business seriously which has allowed TransMontaigne to move a lot of freight. Over the next 5 to 10 years, they believe that their growth will be dependent on residential and population growth. TransMontaigne currently loads approximately 140 trucks per day and are the

only gasoline terminal within the area. Their reach is Sun City to Naples with opportunity to grow in Ft. Myers. TransMontaigne stated this could eventually lead to receiving a vessel every 5 days instead of 1 vessel per week.

Port Manatee is currently interested in the opportunity to expand upon their rail operations, if feasible. When Martin Marietta was asked if this would benefit their operations, they stated that rail operations would be dependent on price. TransMontaigne stated that, theoretically, rail could be used to ship asphalt or ethanol; however, there have been no active conversations on this topic. Gasoline and diesel departing the facility and destined for gas stations and would not be a good candidate for rail.

6. Opportunities for Improvement

TransMontaigne stated that the backups at the gate from other drivers can cause congestion issues for their customers. Freight trucks have to show their load to security at the gate. Products departing from TransMontaigne receive a bill of lading upon departure and do not show their product. Non-TWIC drivers can also back up the gate.

Offsite, TransMontaigne stated there was a temporary traffic light installed a few years ago where southbound 41 and southbound I-275 dead end with I-75. This light has benefitted truck drivers because it provides them a turn opportunity across three lanes of traffic. TransMontaigne would like to see this light become permanent.

7. Encouragement Zone

As part of Port Manatee's attempts to expand their customer base they have implemented an Encouragement Zone directly across US-41 from Port Manatee. This area is intended to promote port and maritime related facilities within the region to expand on future markets. TransMontaigne stated that there are asphalt plants located close to the port, with the closest located approximately .5 miles south of the entrance. At this time, they believe that the encouragement zone would not likely benefit them or their customers at this time.

8. General Notes

Other general notes of interest from the interview included the following:

- TransMontaigne currently operates on 25 acres of the 34 acres they currently lease.

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September 4, 2018 Keith Robbins, (863-519-2913)
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Meeting Summary
Contract: C9Y66 FDOT District One Systems Planning TWO 3: Port Manatee Site Utilization
Facilitator: Ms. Monique Whitehead, TranSystems – Industry Specialist / mlwhitehead@transystems.com
Date: Wednesday, August 22, 2018 9:00 EST
Location: Conference Call

A meeting was held at Port Manatee in relation to the two work order (TWO) 3, Port Manatee Site Utilization Plan with Port Manatee staff on August 21, 2018 at 11:00am. The purpose of this meeting review information compiled during the tenant interviews.

Attendees to this meeting included:

- Monique Whitehead: Industry Specialist for Rail Operations, TranSystems
- Rick Ferrin: Ports and Maritime, TranSystems (conference call)
- George Isiminger: Senior Director of Planning, Engineering and Environmental Affairs, Port Manatee
- Matty Appice: Chief Commercial Officer, Port Manatee

1. Capital Improvement Plan

The updated Capital Improvement Plan (CIP) was provided to attendees of the meeting for review. This plan currently focuses on various projects planned over the next five fiscal years. These projects may be accelerated or delayed depending on business opportunities, grant funding, partnerships, and other financial considerations. The current CIP table is as shown in Figure 1.

The projects are intended to provide a funding plan for both maintenance and expansion projects within Port Manatee. Projects within this plan currently include, but are not limited to:

- Maintenance dredging;
- Gate improvements and expansion
- Roadway improvements
- Warehouse improvements
- Rehabilitation and addition of docks
- Container yard expansion
- Master plan update

When discussing opportunities for improvement with the Port Tenants, many stated that roadway improvements were required throughout the Port. Port Manatee stated they acknowledged these improvements were required and have included a roadway improvement schedule within their CIP. In fiscal year 2018, $2 million has been allocated for roadway improvements with an additional $1 million allocated between fiscal year 2019 and 2020.

World Direct Service referenced repairs required to Warehouse 10, a cold storage warehouse on site. Port Manatee acknowledged that improvements to Warehouse 10 are funded for fiscal year 2018 valued at $1 million. This project is currently under contract.

Several tenants mentioned security at Port Manatee being excessive and causing delays to their operations process. While Port Manatee has plans within their CIP for expansion at both the north and south gates, they advised that they do not require any processes above and beyond typical public port operations. Drivers are required to register at the front office on their first visit but are then able to scan their TWIC card upon return. Port Manatee believes that being located within a rural area is to their advantage because trucks do not immediately enter congested downtown areas upon exiting the port.

2019 FUNDING				
	Project Costs	Grant	Reserves	Other Funding
Projects				
Intermodal Container Yd-Ph II	7,500,000	3,750,000	3,750,000	-
Access Control System Upgrade	1,000,000	250,000	-	750,000
Railroad Track Improvements	654,470	327,235	327,235	-
Berth Rehabilitation	2,000,000	1,500,000		500,000
Cold Storage Warehouse	25,000,000	12,500,000	-	12,500,000
Roadway Improvements	500,000	250,000	250,000	-
TOTAL:	**36,654,470**	**18,577,235**	**4,327,235**	**13,750,000**
2020 FUNDING				
	Project Costs	Grant	Reserves	Other Funding
Projects				
South Gate Phase II	1,500,000	1,125,000	375,000	-
Warehouse 6 & 8 Improvements	4,000,000	2,000,000	-	2,000,000
Laydown Area Zone B-7 acres	2,000,000	1,000,000	1,000,000	
Roadway Improvements	500,000	250,000	250,000	-
Mobile Harbor Crane	4,000,000	2,000,000	-	2,000,000
Master Plan Update	300,000	150,000	150,000	-
TOTAL:	**12,300,000**	**6,525,000**	**1,775,000**	**4,000,000**
2021 FUNDING				
	Project Costs	Grant	Reserves	Other Funding
Projects				
Roadway Improvements	500,000	250,000	250,000	-
Berth 4 Extension	20,000,000	15,000,000	-	5,000,000
Maintenance Dredging	450,000	337,500	112,500	-
Land Acquistion	18,000,000	9,000,000	-	9,000,000
TOTAL:	**38,950,000**	**24,587,500**	**362,500**	**-**
2022 FUNDING				
	Project Costs	Grant	Reserves	Other Funding
Projects				
Roadway Improvements	500,000	250,000	250,000	-
Cruise Terminal Ferry	20,000,000	10,000,000	-	10,000,000
TOTAL:	**20,500,000**	**10,250,000**	**250,000**	**-**
2023 FUNDING				
	Project Costs	Grant	Reserves	Other Funding
Projects				
Berth Reconstruction	11,000,000	8,250,000	-	2,750,000
TOTAL:	**11,000,000**	**8,250,000**	-	-

Figure 1: 2019-2023 Funding

2. Encouragement Zone

Based on the information compiled within the tenant interviews, TranSystems advised that further advertisement and education of the Encouragement Zone may be required for the existing tenants. While some tenants acknowledged the existence of the Encouragement Zone, many were unaware of how it may benefit customers seeking land in the

surrounding area. Port Manatee stated the tenants had been involved in past discussions of the Encouragement Zone; however, turnover of management for some tenants may benefit from inclusion of further discussion in their tenant meetings. Port Manatee also stated that further coordination with the County could assist the growth of the Encouragement Zone.

A six-month, Northwest County Planning Study has been approved to review a study area between I-275 to the Manatee County Line and from I-75 to Tampa Bay, as shown in Figure 2. This study is expected address the infrastructure requirements to assist the expansion of the regional supply chain and funding required for the recommended improvements. The Encouragement Zone will likely be incorporated in this study identified as an opportunity for growth with a potential to review the Proposed Encouragement Zone Access Road, connecting Port Manatee at Piney Point Road to I-75, and the utilities required for the Encouragement Zone.

3. Opportunity for Cold Storage and Containerized Storage Expansion

Various opportunities have been discussed regarding the expansion of both cold and containerized storage on site. These concepts have include improvements of existing cold warehouse, addition of new cold storage warehouses, increased paving for containers, and inclusion of rubber tire gantry cranes (RTGs) within the container operations, and increase accessibility to refrigerated unit (reefer) plugs.

Port Manatee stated that there have been discussions in the past pertaining to additional cold storage on site in collaboration with Del Monte Fresh; however, contracts with Del Monte Fresh were not signed and grant funding was not pursued. There are current plans to repair existing cold storage warehousing on site. Port Manatee currently believes that additional expansion may be plausible in anticipation of additional refrigerated cargo, likely belonging to a new customer, and there is potential to expand container stacking areas with intention to use the space for other commodities in the short term. Project cargo is a good example of cargo that could be stored as a short term alternative if the container stacking area were expanded because storage close to the berth creates an opportunity to reduce handling costs.

Port Manatee stated that they currently have enough space to handle the Del Monte Fresh cargo without expansion. If Del Monte Fresh continues to expand their third party business more storage may be required. At this time, Port Manatee does not believe that Del Monte Fresh expand their business to include a third party import fruit customer. Logistec has pursued the Chicuita and Dole as potential future customers which could increase the refrigerated storage requirements in the future and export cargo.

4. Inclusion of Consumer Vehicles

Logistec stated within their interview that they are have pursued opportunities to bring consumer vehicles to Port Manatee. While Port Manatee stated that there is berth capacity available to take on this additional freight, storage area would be required for the vehicles and any processing that may be completed on site (processing could be completed off-site). Port Manatee stated that Horizon Lines consumer vehicles could be a good test coming from Port Everglades. Port Manatee currently believes that car carriers will remain on the east coast as much as possible based on their current vessel rotations; however, they do believe that Port Manatee provides sufficient access to the south Florida market which could be an advantage.

5. Expectations for Growth

Discussions pertaining to expectations for growth are as follows:

- Port Manatee agrees, that 3.5% increase in freight is a reasonable for Del Monte Fresh.

- Port Manatee believes that World Direct Services estimations for growth are aggressive where 20% growth may be more reasonable for 2019 and, with the right marketing plan in place, they could achieve 20% each year for the following years.
- Port Manatee recognizes that American Cement is new in comparison to other entities on the port and there is opportunity to tweak their operations.
- Martin Marietta's contract currently has an annual guarantee for shipments.

6. Conclusion

Overall, Port Manatee does believe there are large opportunities for growth. There are currently plans in place to expand their berthing operations to improve existing berths and add 3 additional berths in the future. The port also has a significant amount of undeveloped land that could potentially be used for additional storage and/or operations in the future. The Encouragement Zone across US-41 is also available and likely would benefit manufacturing companies with imported goods.

APPENDIX D:

HIGHWAY CAPACITY SOFTWARE REPORTS ESTIMATED EXISTING CONDITIONS

HCS7 Multilane Highway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	Existing
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning		

Direction 2 Geometric Data

Direction 2 Description	College Ave 9th St to I-75 WB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Right-Side Lateral Clearance (LC_R), ft	2
Lane Width, ft	12	Left-Side Lateral Clearance (LC_L), ft	0
Median Type	Divided	Total Lateral Clearance (TLC), ft	2.00
Access Point Density, pts/mi	19.0	Free-Flow Speed (FFS), mi/h	52.5

Direction 2 Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		

Direction 2 Demand and Capacity

Volume (V), veh/h	1865	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.88	Flow Rate (v_p), pc/h/ln	1102
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2022
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1957
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.56

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.1
Total Lateral Clearance Adj. (f_{TLC})	2.8	Density (D), pc/mi/ln	21.6
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	C
Access Point Density Adjustment (f_A)	4.8		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}), veh/h	1060	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	16	Bicycle LOS Score (BLOS)	4.58
Average Effective Width (W_e), ft	20	Bicycle Level of Service (LOS)	E

HCS7 Multilane Highway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	Existing Condition
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning		

Direction 2 Geometric Data

Direction 2 Description	College Ave US-41 to 9th St WB		
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Right-Side Lateral Clearance (LC_R), ft	3
Lane Width, ft	12	Left-Side Lateral Clearance (LC_L), ft	0
Median Type	Divided	Total Lateral Clearance (TLC), ft	3.00
Access Point Density, pts/mi	25.0	Free-Flow Speed (FFS), mi/h	51.0

Direction 2 Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		

Direction 2 Demand and Capacity

Volume (V), veh/h	1285	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.88	Flow Rate (v_p), pc/h/ln	511
Total Trucks, %	5.00	Capacity (c), pc/h/ln	1994
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1930
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.26

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	49.7
Total Lateral Clearance Adj. (f_{TLC})	2.8	Density (D), pc/mi/ln	10.3
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	A
Access Point Density Adjustment (f_A)	6.3		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}), veh/h	487	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	16	Bicycle LOS Score (BLOS)	4.47
Average Effective Width (W_e), ft	20	Bicycle Level of Service (LOS)	D

HCS7 Basic Freeway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	Existing Condition
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning - I-75 NB to I-275 WB		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.6
Right-Side Lateral Clearance, ft	4		

Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.968
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2030	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1166
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2291
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2218
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.53
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	59.1
Right-Side Lateral Clearance Adj. (f_{RLC})	1.2	Density (D), pc/mi/ln	19.7
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	59.1		

HCS7 Basic Freeway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	Existing Condition
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning (one-lane ramp, volume doubled) - I-75 SB to I-275 WB		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.6
Right-Side Lateral Clearance, ft	4		

Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.968
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1730	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	994
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2291
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2218
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.45
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	59.1
Right-Side Lateral Clearance Adj. (f_{RLC})	1.2	Density (D), pc/mi/ln	16.8
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	59.1		

HCS7 Basic Freeway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	Existing Condition
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning (one-lane ramp, volume doubled) - I-275 EB to I-75 NB		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	61.8
Right-Side Lateral Clearance, ft	8		

Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.968
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2030	Heavy Vehicle Adjustment Factor (f_{HV})	0.935
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1155
Total Trucks, %	7.00	Capacity (c), pc/h/ln	2302
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2228
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.52
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	60.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.2
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.2		

HCS7 Basic Freeway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	Existing Condition
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning - I-275 EB to I-75 SB		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	61.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.968
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2205	Heavy Vehicle Adjustment Factor (f_{HV})	0.935
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1254
Total Trucks, %	7.00	Capacity (c), pc/h/ln	2302
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2228
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.56
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	60.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	20.8
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.2		

HCS7 Basic Freeway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	Existing Condition
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning (one-lane ramp, volume doubled) - I-275 EB to US-41		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	59.4
Right-Side Lateral Clearance, ft	2		

Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.968
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	820	Heavy Vehicle Adjustment Factor (f_{HV})	0.787
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	554
Total Trucks, %	27.00	Capacity (c), pc/h/ln	2279
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2206
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.25
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.9
Right-Side Lateral Clearance Adj. (f_{RLC})	2.4	Density (D), pc/mi/ln	9.6
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.9		

HCS7 Basic Freeway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	Existing Condition
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning (one-lane ramp, volume doubled) - I-275 WB to US-41		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	59.4
Right-Side Lateral Clearance, ft	2		

Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.968
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1940	Heavy Vehicle Adjustment Factor (f_{HV})	0.971
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1062
Total Trucks, %	3.00	Capacity (c), pc/h/ln	2279
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2206
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.48
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.9
Right-Side Lateral Clearance Adj. (f_{RLC})	2.4	Density (D), pc/mi/ln	18.3
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.9		

HCS7 Basic Freeway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	Existing Condition
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning (one-lane ramp, volume doubled) - Off ramp I-75 NB to SR-674 WB		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	63.8
Right-Side Lateral Clearance, ft	4		

Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.968
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1170	Heavy Vehicle Adjustment Factor (f_{HV})	0.917
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	678
Total Trucks, %	9.00	Capacity (c), pc/h/ln	2322
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2248
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.30
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	62.2
Right-Side Lateral Clearance Adj. (f_{RLC})	1.2	Density (D), pc/mi/ln	10.9
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	62.2		

HCS7 Basic Freeway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	Existing Condition
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning (one-lane ramp, volume doubled) - Off ramp I-75 SB to SR-674 WB		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	63.8
Right-Side Lateral Clearance, ft	4		

Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.968
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2150	Heavy Vehicle Adjustment Factor (f_{HV})	0.917
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1247
Total Trucks, %	9.00	Capacity (c), pc/h/ln	2322
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2248
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.55
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	62.2
Right-Side Lateral Clearance Adj. (f_{RLC})	1.2	Density (D), pc/mi/ln	20.0
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	62.2		

HCS7 Basic Freeway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	Existing Condition
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning (one-lane ramp, volume doubled) - On ramp SR-674 to I-75 NB		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	4		

Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.968
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2060	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1184
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2273
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.54
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.3
Right-Side Lateral Clearance Adj. (f_{RLC})	1.2	Density (D), pc/mi/ln	20.7
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.3		

HCS7 Basic Freeway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	Existing Condition
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning (one-lane ramp, volume doubled) - On ramp SR-674 to I-75 SB		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	63.8
Right-Side Lateral Clearance, ft	4		

Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.968
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1200	Heavy Vehicle Adjustment Factor (f_{HV})	0.917
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	696
Total Trucks, %	9.00	Capacity (c), pc/h/ln	2322
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2248
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.31
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

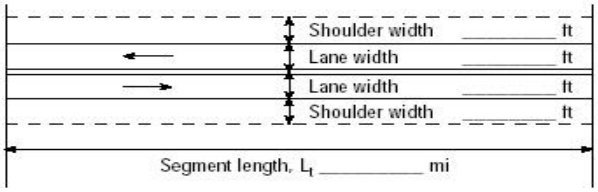
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	62.2
Right-Side Lateral Clearance Adj. (f_{RLC})	1.2	Density (D), pc/mi/ln	11.2
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	62.2		

DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*FY*	Highway / Direction of Travel	*Piney Point Rd*
Agency or Company	*TranSystems*	From/To	
Date Performed	*11/8/2018*	Jurisdiction	*FDOT District 1*
Analysis Time Period	*Peak Hour*	Analysis Year	*Existing Condition*

Project Description: *Port Manatee Planning*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.88*

No-passing zone *20%*

% Trucks and Buses , P_T *76* %

% Recreational vehicles, P_R *0%*

Access points *mi* *8*/mi

Analysis direction vol., V_d *200*veh/h

Opposing direction vol., V_o *135*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.3*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.5*	*1.7*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.725*	*0.653*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*313*	*235*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*2.0 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.9 mi/h*	Free-flow speed, FFS (FSS=BFFS-f_{LS}-f_A)	*40.4 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*35.2 mi/h*
		Percent free flow speed, PFFS	*87.2 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.929*	*0.929*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*245*	*165*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*25.6*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*36.3*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*47.3*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*B*
Volume to capacity ratio, *v/c*	*0.13*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1700*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*87.2*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*227.3*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*3.39*
Bicycle level of service score, BLOS (Eq. 15-31)	*56.84*
Bicycle level of service (Exhibit 15-4)	*F*
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain. 2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.	

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HCS7 Multilane Highway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	Existing Condition
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning		

Direction 1 Geometric Data

Direction 1 Description	US-41 Cockroach Bay Rd. to College Ave. NB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Right-Side Lateral Clearance (LC_R), ft	2
Lane Width, ft	12	Left-Side Lateral Clearance (LC_L), ft	0
Median Type	Divided	Total Lateral Clearance (TLC), ft	2.00
Access Point Density, pts/mi	12.0	Free-Flow Speed (FFS), mi/h	54.2

Direction 1 Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		

Direction 1 Demand and Capacity

Volume (V), veh/h	1110	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.88	Flow Rate (v_p), pc/h/ln	681
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2056
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1990
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.34

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.8
Total Lateral Clearance Adj. (f_{TLC})	2.8	Density (D), pc/mi/ln	12.9
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	B
Access Point Density Adjustment (f_A)	3.0		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}), veh/h	631	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	16	Bicycle LOS Score (BLOS)	5.56
Average Effective Width (W_e), ft	20	Bicycle Level of Service (LOS)	F

HCS7 Multilane Highway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	Existing Condition
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning		

Direction 2 Geometric Data

Direction 2 Description	US-41 Piney Point to Valroy Rd SB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Right-Side Lateral Clearance (LC_R), ft	4
Lane Width, ft	12	Left-Side Lateral Clearance (LC_L), ft	0
Median Type	Divided	Total Lateral Clearance (TLC), ft	4.00
Access Point Density, pts/mi	4.0	Free-Flow Speed (FFS), mi/h	57.3

Direction 2 Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		

Direction 2 Demand and Capacity

Volume (V), veh/h	685	Heavy Vehicle Adjustment Factor (f_{HV})	0.909
Peak Hour Factor (PHF)	0.88	Flow Rate (v_p), pc/h/ln	428
Total Trucks, %	10.00	Capacity (c), pc/h/ln	2118
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2050
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.21

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.9
Total Lateral Clearance Adj. (f_{TLC})	1.7	Density (D), pc/mi/ln	7.7
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	A
Access Point Density Adjustment (f_A)	1.0		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}), veh/h	389	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	16	Bicycle LOS Score (BLOS)	6.06
Average Effective Width (W_e), ft	20	Bicycle Level of Service (LOS)	F

HCS7 Multilane Highway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	Existing Condition
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning		

Direction 2 Geometric Data

Direction 2 Description	US-41 Piney Point south to I-275 SB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Right-Side Lateral Clearance (LC_R), ft	4
Lane Width, ft	12	Left-Side Lateral Clearance (LC_L), ft	0
Median Type	Divided	Total Lateral Clearance (TLC), ft	4.00
Access Point Density, pts/mi	12.0	Free-Flow Speed (FFS), mi/h	55.3

Direction 2 Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		

Direction 2 Demand and Capacity

Volume (V), veh/h	845	Heavy Vehicle Adjustment Factor (f_{HV})	0.901
Peak Hour Factor (PHF)	0.88	Flow Rate (v_p), pc/h/ln	533
Total Trucks, %	11.00	Capacity (c), pc/h/ln	2078
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2012
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.26

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.9
Total Lateral Clearance Adj. (f_{TLC})	1.7	Density (D), pc/mi/ln	9.9
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	A
Access Point Density Adjustment (f_A)	3.0		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}), veh/h	480	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	16	Bicycle LOS Score (BLOS)	6.57
Average Effective Width (W_e), ft	20	Bicycle Level of Service (LOS)	F

HCS7 Multilane Highway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	Existing Condition
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning		

Direction 1 Geometric Data

Direction 1 Description	US-41 South of I-275 NB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Right-Side Lateral Clearance (LC_R), ft	4
Lane Width, ft	12	Left-Side Lateral Clearance (LC_L), ft	0
Median Type	Divided	Total Lateral Clearance (TLC), ft	4.00
Access Point Density, pts/mi	11.0	Free-Flow Speed (FFS), mi/h	55.6

Direction 1 Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		

Direction 1 Demand and Capacity

Volume (V), veh/h	1645	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.88	Flow Rate (v_p), pc/h/ln	1010
Total Trucks, %	8.00	Capacity (c), pc/h/ln	2084
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2017
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.50

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.2
Total Lateral Clearance Adj. (f_{TLC})	1.7	Density (D), pc/mi/ln	18.6
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	C
Access Point Density Adjustment (f_A)	2.8		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}), veh/h	935	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	16	Bicycle LOS Score (BLOS)	5.76
Average Effective Width (W_e), ft	20	Bicycle Level of Service (LOS)	F

HCS7 Basic Freeway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	Existing Condition
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning (one-lane ramp, volume doubled) - US-41 to I-275 EB on Ramp		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	59.4
Right-Side Lateral Clearance, ft	2		

Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.968
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	820	Heavy Vehicle Adjustment Factor (f_{HV})	0.781
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	558
Total Trucks, %	28.00	Capacity (c), pc/h/ln	2279
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2206
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.25
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.9
Right-Side Lateral Clearance Adj. (f_{RLC})	2.4	Density (D), pc/mi/ln	9.6
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	A
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.9		

HCS7 Basic Freeway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	Existing Condition
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning (one-lane ramp, volume doubled) - US-41 to I-275 WB on Ramp		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	59.4
Right-Side Lateral Clearance, ft	2		

Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.968
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2010	Heavy Vehicle Adjustment Factor (f_{HV})	0.971
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1101
Total Trucks, %	3.00	Capacity (c), pc/h/ln	2279
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2206
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.50
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.9
Right-Side Lateral Clearance Adj. (f_{RLC})	2.4	Density (D), pc/mi/ln	19.0
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.9		

HCS7 Multilane Highway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	Existing Condition
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning		

Direction 2 Geometric Data

Direction 2 Description	US-41 Valroy Rd. to Cockroach Bay Rd SB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Right-Side Lateral Clearance (LC_R), ft	4
Lane Width, ft	12	Left-Side Lateral Clearance (LC_L), ft	0
Median Type	Divided	Total Lateral Clearance (TLC), ft	4.00
Access Point Density, pts/mi	7.0	Free-Flow Speed (FFS), mi/h	56.6

Direction 2 Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		

Direction 2 Demand and Capacity

Volume (V), veh/h	670	Heavy Vehicle Adjustment Factor (f_{HV})	0.901
Peak Hour Factor (PHF)	0.88	Flow Rate (v_p), pc/h/ln	422
Total Trucks, %	11.00	Capacity (c), pc/h/ln	2102
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2035
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.21

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.1
Total Lateral Clearance Adj. (f_{TLC})	1.7	Density (D), pc/mi/ln	7.7
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	A
Access Point Density Adjustment (f_A)	1.8		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}), veh/h	381	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	16	Bicycle LOS Score (BLOS)	6.45
Average Effective Width (W_e), ft	20	Bicycle Level of Service (LOS)	F

APPENDIX E:

HIGHWAY CAPACITY SOFTWARE REPORTS ESTIMATED 2025 CONDITIONS

HCS7 Multilane Highway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	2025
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning		

Direction 2 Geometric Data

Direction 2 Description	College Ave 9th St to I-75 WB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Right-Side Lateral Clearance (LC_R), ft	2
Lane Width, ft	12	Left-Side Lateral Clearance (LC_L), ft	0
Median Type	Divided	Total Lateral Clearance (TLC), ft	2.00
Access Point Density, pts/mi	19.0	Free-Flow Speed (FFS), mi/h	52.5

Direction 2 Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		

Direction 2 Demand and Capacity

Volume (V), veh/h	2400	Heavy Vehicle Adjustment Factor (f_{HV})	0.952
Peak Hour Factor (PHF)	0.88	Flow Rate (v_p), pc/h/ln	1432
Total Trucks, %	5.00	Capacity (c), pc/h/ln	2022
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1957
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.73

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	51.1
Total Lateral Clearance Adj. (f_{TLC})	2.8	Density (D), pc/mi/ln	28.0
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	D
Access Point Density Adjustment (f_A)	4.8		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}), veh/h	1364	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	16	Bicycle LOS Score (BLOS)	4.99
Average Effective Width (W_e), ft	20	Bicycle Level of Service (LOS)	E

HCS7 Multilane Highway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	2025
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning		

Direction 2 Geometric Data

Direction 2 Description	College Ave US-41 to 9th St WB		
Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Right-Side Lateral Clearance (LC_R), ft	3
Lane Width, ft	12	Left-Side Lateral Clearance (LC_L), ft	0
Median Type	Divided	Total Lateral Clearance (TLC), ft	3.00
Access Point Density, pts/mi	25.0	Free-Flow Speed (FFS), mi/h	51.0

Direction 2 Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		

Direction 2 Demand and Capacity

Volume (V), veh/h	1670	Heavy Vehicle Adjustment Factor (f_{HV})	0.926
Peak Hour Factor (PHF)	0.88	Flow Rate (v_p), pc/h/ln	683
Total Trucks, %	8.00	Capacity (c), pc/h/ln	1994
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1930
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.35

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	49.7
Total Lateral Clearance Adj. (f_{TLC})	2.8	Density (D), pc/mi/ln	13.7
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	B
Access Point Density Adjustment (f_A)	6.3		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}), veh/h	633	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	16	Bicycle LOS Score (BLOS)	5.57
Average Effective Width (W_e), ft	20	Bicycle Level of Service (LOS)	F

HCS7 Basic Freeway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	2025
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning - I-75 NB to I-275 WB		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.6
Right-Side Lateral Clearance, ft	4		

Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.968
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2670	Heavy Vehicle Adjustment Factor (f_{HV})	0.901
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1576
Total Trucks, %	11.00	Capacity (c), pc/h/ln	2291
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2218
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.71
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	59.1
Right-Side Lateral Clearance Adj. (f_{RLC})	1.2	Density (D), pc/mi/ln	26.7
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	59.1		

HCS7 Basic Freeway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	2025
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning (one-lane ramp, volume doubled) - I-75 SB to I-275 WB		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	60.6
Right-Side Lateral Clearance, ft	4		

Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.968
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2260	Heavy Vehicle Adjustment Factor (f_{HV})	0.901
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1334
Total Trucks, %	11.00	Capacity (c), pc/h/ln	2291
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2218
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.60
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	59.1
Right-Side Lateral Clearance Adj. (f_{RLC})	1.2	Density (D), pc/mi/ln	22.6
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	59.1		

HCS7 Basic Freeway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	2025
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning (one-lane ramp, volume doubled) - I-275 EB to I-75 NB		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	61.8
Right-Side Lateral Clearance, ft	8		

Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.968
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2660	Heavy Vehicle Adjustment Factor (f_{HV})	0.901
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1570
Total Trucks, %	11.00	Capacity (c), pc/h/ln	2302
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2228
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.70
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	60.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.1
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.2		

HCS7 Basic Freeway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	2025
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning - I-275 EB to I-75 SB		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	61.8
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.968
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2890	Heavy Vehicle Adjustment Factor (f_{HV})	0.901
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1706
Total Trucks, %	11.00	Capacity (c), pc/h/ln	2302
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2228
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.77
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	59.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.8
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	60.2		

HCS7 Basic Freeway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	2025
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning (one-lane ramp, volume doubled) - I-275 EB to US-41		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	59.4
Right-Side Lateral Clearance, ft	2		

Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.968
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1170	Heavy Vehicle Adjustment Factor (f_{HV})	0.741
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	840
Total Trucks, %	35.00	Capacity (c), pc/h/ln	2279
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2206
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.38
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.9
Right-Side Lateral Clearance Adj. (f_{RLC})	2.4	Density (D), pc/mi/ln	14.5
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.9		

HCS7 Basic Freeway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	2025
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning (one-lane ramp, volume doubled) - I-275 WB to US-41		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	59.4
Right-Side Lateral Clearance, ft	2		

Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.968
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2490	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1377
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2279
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2206
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.62
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.9
Right-Side Lateral Clearance Adj. (f_{RLC})	2.4	Density (D), pc/mi/ln	23.8
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.9		

HCS7 Basic Freeway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	2025
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning (one-lane ramp, volume doubled) - Off ramp I-75 NB to SR-674 WB		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	63.8
Right-Side Lateral Clearance, ft	4		

Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.968
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1550	Heavy Vehicle Adjustment Factor (f_{HV})	0.893
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	924
Total Trucks, %	12.00	Capacity (c), pc/h/ln	2322
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2248
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.41
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	62.2
Right-Side Lateral Clearance Adj. (f_{RLC})	1.2	Density (D), pc/mi/ln	14.9
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	62.2		

HCS7 Basic Freeway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	2025
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning (one-lane ramp, volume doubled) - Off ramp I-75 SB to SR-674 WB		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	63.8
Right-Side Lateral Clearance, ft	4		

Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.968
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2840	Heavy Vehicle Adjustment Factor (f_{HV})	0.893
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1692
Total Trucks, %	12.00	Capacity (c), pc/h/ln	2322
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2248
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.75
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	60.9
Right-Side Lateral Clearance Adj. (f_{RLC})	1.2	Density (D), pc/mi/ln	27.8
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	62.2		

HCS7 Basic Freeway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	2025
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning (one-lane ramp, volume doubled) - On ramp SR-674 to I-75 NB		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	58.8
Right-Side Lateral Clearance, ft	4		

Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.968
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2700	Heavy Vehicle Adjustment Factor (f_{HV})	0.901
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1594
Total Trucks, %	11.00	Capacity (c), pc/h/ln	2273
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2200
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.72
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.3
Right-Side Lateral Clearance Adj. (f_{RLC})	1.2	Density (D), pc/mi/ln	27.8
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.3		

HCS7 Basic Freeway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	2025
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning (one-lane ramp, volume doubled) - On ramp SR-674 to I-75 SB		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	63.8
Right-Side Lateral Clearance, ft	4		

Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.968
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1580	Heavy Vehicle Adjustment Factor (f_{HV})	0.893
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	941
Total Trucks, %	12.00	Capacity (c), pc/h/ln	2322
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2248
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.42
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

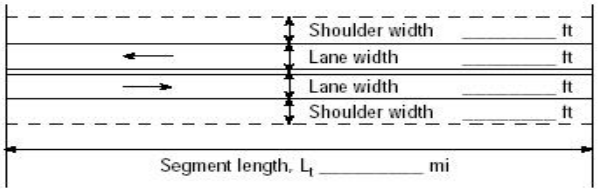
Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	62.2
Right-Side Lateral Clearance Adj. (f_{RLC})	1.2	Density (D), pc/mi/ln	15.1
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	62.2		

DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

General Information		***Site Information***	
Analyst	*FY*	Highway / Direction of Travel	*Piney Point Rd*
Agency or Company	*TranSystems*	From/To	
Date Performed	*11/8/2018*	Jurisdiction	*FDOT District 1*
Analysis Time Period	*Peak Hour*	Analysis Year	*2025*

Project Description: *Port Manatee Planning*

Input Data



Show North Arrow

☐ Class I highway ☑ Class II highway ☐ Class III highway

Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.88*

No-passing zone *20%*

% Trucks and Buses , P_T *82 %*

% Recreational vehicles, P_R *0%*

Access points *mi* *8*/mi

Analysis direction vol., V_d *350*veh/h

Opposing direction vol., V_o *235*veh/h

Shoulder width ft *2.0*

Lane Width ft *12.0*

Segment Length mi *1.3*

Average Travel Speed

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T (Exhibit 15-11 or 15-12)	*1.3*	*1.4*
Passenger-car equivalents for RVs, E_R (Exhibit 15-11 or 15-13)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.803*	*0.753*
Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9)	*1.00*	*1.00*
Demand flow rate[2], v_i (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$	*495*	*355*

Free-Flow Speed from Field Measurement		**Estimated Free-Flow Speed**	
Mean speed of sample[3], S_{FM}		Base free-flow speed[4], BFFS	*45.0 mi/h*
Total demand flow rate, both directions, *v*		Adj. for lane and shoulder width,[4] f_{LS}(Exhibit 15-7)	*2.6 mi/h*
Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$		Adj. for access points[4], f_A (Exhibit 15-8)	*2.0 mi/h*
Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15)	*0.9 mi/h*	Free-flow speed, FFS ($FSS=BFFS-f_{LS}-f_A$)	*40.4 mi/h*
		Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$	*32.9 mi/h*
		Percent free flow speed, PFFS	*81.4 %*

Percent Time-Spent-Following

	Analysis Direction (d)	Opposing Direction (o)
Passenger-car equivalents for trucks, E_T(Exhibit 15-18 or 15-19)	*1.1*	*1.1*
Passenger-car equivalents for RVs, E_R (Exhibit 15-18 or 15-19)	*1.0*	*1.0*
Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$	*0.924*	*0.924*
Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17)	*1.00*	*1.00*
Directional flow rate[2], v_i(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$	*430*	*289*
Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$	*43.7*	
Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21)	*31.8*	
Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$	*62.7*	

Level of Service and Other Performance Measures

Level of service, LOS (Exhibit 15-3)	*C*
Volume to capacity ratio, *v/c*	*0.23*

Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h	*1700*
Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h	*1700*
Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only)	*81.4*
Bicycle Level of Service	
Directional demand flow rate in outside lane, v_{OL} (Eq. 15-24) veh/h	*397.7*
Effective width, Wv (Eq. 15-29) ft	*14.00*
Effective speed factor, S_t (Eq. 15-30)	*3.39*
Bicycle level of service score, BLOS (Eq. 15-31)	*64.89*
Bicycle level of service (Exhibit 15-4)	*F*
Notes	
1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain. 2. If v_i(v_d or v_o) >=1,700 pc/h, terminate analysis--the LOS is F. 3. For the analysis direction only and for v>200 veh/h. 4. For the analysis direction only 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.	

 HCS™ TwoLane Version 7.5 Generated: 3/7/2019 10:59 AM

HCS7 Multilane Highway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	2025
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning		

Direction 1 Geometric Data

Direction 1 Description	US-41 Cockroach Bay Rd. to College Ave. NB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Right-Side Lateral Clearance (LC_R), ft	2
Lane Width, ft	12	Left-Side Lateral Clearance (LC_L), ft	0
Median Type	Divided	Total Lateral Clearance (TLC), ft	2.00
Access Point Density, pts/mi	12.0	Free-Flow Speed (FFS), mi/h	54.2

Direction 1 Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		

Direction 1 Demand and Capacity

Volume (V), veh/h	1460	Heavy Vehicle Adjustment Factor (f_{HV})	0.901
Peak Hour Factor (PHF)	0.88	Flow Rate (v_p), pc/h/ln	920
Total Trucks, %	11.00	Capacity (c), pc/h/ln	2056
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	1990
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.46

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	52.8
Total Lateral Clearance Adj. (f_{TLC})	2.8	Density (D), pc/mi/ln	17.4
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	B
Access Point Density Adjustment (f_A)	3.0		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}), veh/h	830	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	16	Bicycle LOS Score (BLOS)	6.85
Average Effective Width (W_e), ft	20	Bicycle Level of Service (LOS)	F

HCS7 Multilane Highway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	2025
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning		

Direction 2 Geometric Data

Direction 2 Description	US-41 Piney Point to Valroy Rd SB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Right-Side Lateral Clearance (LC_R), ft	4
Lane Width, ft	12	Left-Side Lateral Clearance (LC_L), ft	0
Median Type	Divided	Total Lateral Clearance (TLC), ft	4.00
Access Point Density, pts/mi	4.0	Free-Flow Speed (FFS), mi/h	57.3

Direction 2 Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		

Direction 2 Demand and Capacity

Volume (V), veh/h	910	Heavy Vehicle Adjustment Factor (f_{HV})	0.870
Peak Hour Factor (PHF)	0.88	Flow Rate (v_p), pc/h/ln	594
Total Trucks, %	15.00	Capacity (c), pc/h/ln	2118
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2050
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.29

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.9
Total Lateral Clearance Adj. (f_{TLC})	1.7	Density (D), pc/mi/ln	10.6
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	A
Access Point Density Adjustment (f_A)	1.0		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}), veh/h	517	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	16	Bicycle LOS Score (BLOS)	8.41
Average Effective Width (W_e), ft	20	Bicycle Level of Service (LOS)	F

HCS7 Multilane Highway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	2025
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning		

Direction 2 Geometric Data

Direction 2 Description	US-41 Piney Point south to I-275 SB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Right-Side Lateral Clearance (LC_R), ft	4
Lane Width, ft	12	Left-Side Lateral Clearance (LC_L), ft	0
Median Type	Divided	Total Lateral Clearance (TLC), ft	4.00
Access Point Density, pts/mi	12.0	Free-Flow Speed (FFS), mi/h	55.3

Direction 2 Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		

Direction 2 Demand and Capacity

Volume (V), veh/h	1125	Heavy Vehicle Adjustment Factor (f_{HV})	0.862
Peak Hour Factor (PHF)	0.88	Flow Rate (v_p), pc/h/ln	742
Total Trucks, %	16.00	Capacity (c), pc/h/ln	2078
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2012
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.37

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.9
Total Lateral Clearance Adj. (f_{TLC})	1.7	Density (D), pc/mi/ln	13.8
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	B
Access Point Density Adjustment (f_A)	3.0		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}), veh/h	639	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	16	Bicycle LOS Score (BLOS)	9.02
Average Effective Width (W_e), ft	20	Bicycle Level of Service (LOS)	F

HCS7 Multilane Highway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	2025
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning		

Direction 1 Geometric Data

Direction 1 Description	US-41 South of I-275 NB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Right-Side Lateral Clearance (LC_R), ft	4
Lane Width, ft	12	Left-Side Lateral Clearance (LC_L), ft	0
Median Type	Divided	Total Lateral Clearance (TLC), ft	4.00
Access Point Density, pts/mi	11.0	Free-Flow Speed (FFS), mi/h	55.6

Direction 1 Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		

Direction 1 Demand and Capacity

Volume (V), veh/h	2160	Heavy Vehicle Adjustment Factor (f_{HV})	0.893
Peak Hour Factor (PHF)	0.88	Flow Rate (v_p), pc/h/ln	1374
Total Trucks, %	12.00	Capacity (c), pc/h/ln	2084
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2017
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.68

Direction 1 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.2
Total Lateral Clearance Adj. (f_{TLC})	1.7	Density (D), pc/mi/ln	25.4
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	C
Access Point Density Adjustment (f_A)	2.8		

Direction 1 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}), veh/h	1227	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	16	Bicycle LOS Score (BLOS)	7.46
Average Effective Width (W_e), ft	20	Bicycle Level of Service (LOS)	F

HCS7 Basic Freeway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	2025
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning (one-lane ramp, volume doubled) - US-41 to I-275 EB on Ramp		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	59.4
Right-Side Lateral Clearance, ft	2		

Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.968
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	1180	Heavy Vehicle Adjustment Factor (f_{HV})	0.735
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	854
Total Trucks, %	36.00	Capacity (c), pc/h/ln	2279
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2206
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.39
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.9
Right-Side Lateral Clearance Adj. (f_{RLC})	2.4	Density (D), pc/mi/ln	14.7
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.9		

HCS7 Basic Freeway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	2025
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning (one-lane ramp, volume doubled) - US-41 to I-275 WB on Ramp		

Geometric Data

Number of Lanes, ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	65.0	Total Ramp Density (TRD), ramps/mi	1.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	59.4
Right-Side Lateral Clearance, ft	2		

Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	0.968
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume veh/h	2580	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor	0.94	Flow Rate (V_p), pc/h/ln	1426
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2279
Single-Unit Trucks (SUT), %	-	Adjusted Cpacity (c_{adj}), pc/h/ln	2206
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	57.9
Right-Side Lateral Clearance Adj. (f_{RLC})	2.4	Density (D), pc/mi/ln	24.6
Total Ramp Density Adjustment	3.2	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	57.9		

HCS7 Multilane Highway Report

Project Information

Analyst	FY	Date	11/9/2018
Agency	TranSystems	Analysis Year	2025
Jurisdiction	FDOT District 1	Time Period Analyzed	Peak Hour
Project Description	Port Manatee Planning		

Direction 2 Geometric Data

Direction 2 Description	US-41 Valroy Rd. to Cockroach Bay Rd SB		
Number of Lanes (N), ln	2	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	60.0	Right-Side Lateral Clearance (LC_R), ft	4
Lane Width, ft	12	Left-Side Lateral Clearance (LC_L), ft	0
Median Type	Divided	Total Lateral Clearance (TLC), ft	4.00
Access Point Density, pts/mi	7.0	Free-Flow Speed (FFS), mi/h	56.6

Direction 2 Adjustment Factors

Driver Population	Mostly Familiar	Final Speed Adjustment Factor (SAF)	0.975
Driver Population SAF	0.975	Final Capacity Adjustment Factor (CAF)	0.968
Driver Population CAF	0.968		

Direction 2 Demand and Capacity

Volume (V), veh/h	895	Heavy Vehicle Adjustment Factor (f_{HV})	0.870
Peak Hour Factor (PHF)	0.88	Flow Rate (v_p), pc/h/ln	584
Total Trucks, %	15.00	Capacity (c), pc/h/ln	2102
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2035
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.29

Direction 2 Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.1
Total Lateral Clearance Adj. (f_{TLC})	1.7	Density (D), pc/mi/ln	10.6
Median Type Adjustment (f_M)	0.0	Level of Service (LOS)	A
Access Point Density Adjustment (f_A)	1.8		

Direction 2 Bicycle LOS

Flow Rate in Outside Lane (v_{OL}), veh/h	509	Effective Speed Factor (S_t)	4.62
Effective Width of Volume (W_v), ft	16	Bicycle LOS Score (BLOS)	8.40
Average Effective Width (W_e), ft	20	Bicycle Level of Service (LOS)	F

APPENDIX F:

PORT MANATEE SITE UTILIZATION REPORT FOLLOW-UP QUESTIONNAIRE (3/7/2019)

Port Manatee Site Utilization Report Follow-Up Questionnaire (3/7/2019)

Attendees:

Keith Robbins (FDOT District 1); George Isiminger, Dave Sanford; and Matty Appice (Port Manatee); Rick Ferrin and Matt McIntosh (TranSystems)

Q: What does the Port see as its direction over the next master planning period; an updated "Four Scenarios"? Opportunities/markets for growth?

The Port made it clear that their focus is on containers and break bulks. They are fully cognizant that the perishable trade is going into refers as fully containerized cargo versus the older method of break bulk boxes on pallets in warehouses.

Q: Add FY18 operating revenue figures:

Port staff reported $15.9m.

Q: What does the Port plan to do with 10 acres of paved container cargo space?

Additional containers and project cargoes.

5 acres N of yard to be paved first. Extend existing yard to the east. Take advantage of entire footprint. Can't currently meet demand. Expanded container yard would be used to attract new business

Q: In regards to developing a cold storage facility; is this still true with Del Monte deal dropping? If yes, what would be the new trigger for the capital improvement?

A new cold storage facility would depend on a PPP and FDOT funding. Del Monte wants to invest in the existing warehouse space to extend life of current facility. New carriers the Port is talking to would have a need for storage.

Del Monte is moving towards full containerization as are the other big perishable carriers – shippers. So, investing in new refrigerated warehouse space is a delicate dance for Manatee. They could build it and find that they really needed more container space and refer plugs.

Q: Provide a description of Carver Maritime's current activities and future plans at the Port

Lebsen's first ship arrived a few weeks ago. Bulk business. Possible salt bagging facility. Can move quickly on any type of project. Not interested in containers. Cement business is strong because of growth in surrounding areas.

Carver is very nimble and can take advantage very quickly of market opportunities. They are well resourced to move quickly as opportunities present themselves.

Q: Impact on Port Manatee of Del Monte converting to a fully containerized operation by 2020

Additional refrigerated plugs and container yard expansion is essential.

In prep, Port put in new plugs. Every 3rd Del Monte ship that comes in is container-only

Eventual conversion to fully containerized cargo is coming.

Q: Details regarding Kinder Morgan operations specific to Port Manatee

Import fly ash and export phosphates. Mosaic for both imports and exports. Currently in lease negotiations with the Port. 10 year with two, 5 year options. Would start in 2020. Would take up to two acres

Q: Are 2016 master plan tonnage forecasts still accurate? Is data available for FY18?

In tons: Containers – 385,247, Dry Bulk – 1.970,340, Break 602,914, Liquid 6,207,219

Q: What demand will warrant purchases related to specialized cargo handling equipment?

Port does not handle cargo. Done by stevedores

Q: What is the trigger for added surfacing of the truck staging area?

Using “drop trailer lots”

One across the street from the n gate on piney point.

Other is behind warehouse 9. Area is in high demand. Have to get drop trailers out so Del Monte can operate. Port identified 5 acre lot to strip and lay crush concrete, eventual paving. World Direct has gone from 1 to 2 ships per week. Recently, 3 ships in a week.

Q: How was one-million cruise passengers/year figure determined?

Cruise in not a feasible option at this point, though internal discussion have occurred.

Q: Would the Port propose renovating Transit Shed 2 for a passenger terminal?

It would be an option if cruise ferry was pursued.

Q: How does the Port plan to utilize S. Dock Street? Are plans available for this project?

In design now for paving improvements. Modifications have been made to S Dock Street gate for Port products. N Dock Street would be widened first. Recently added two new lanes at N gate

Q: What are the Port's plans for the next 18-24 months regarding expenditure of grant funds? What still needs to be done after those projects are completed?

Port provided spreadsheet of current grant-funded projects (included within this report's CIP section). Table reflects programed expenditures that will involve grant awards.

Q: Describe the proposed extension of Bay Street? Does the Port have a preliminary plan/map?

Just in preliminary discussions now. Plan envisioned by Carver (n side of port) will have option on property coming up. Want to widen Bay Street down to dock for big project cargo.

New salt customer wants to build salt dome, 2nd bagging facility, and area for cargo. Tract for customer would be developed without project. Would work nicely for berth 4.

Q: What is the impact of the turning basin expansion project on the 2021 master plan? What is the current estimate of completion for dredging project for the basin expansion?

Current 1,300 foot turning basin not adequate for growth in ship size. Project would occur in two phases:

1: extending berth 4 (2021-2022)

2: berth 3, 2 and 1 would follow

Q: How will PPPs be considered in regards to future expansion efforts at the Port?

PPPs are preferred method for capital improvements. Every project would pursue a private equity partner. Otherwise the Port would have to fund with reserves or bond funds and look to the State or Federal government for grant funding.

Q: What roadway network improvement plans would most benefit the Port?

Piney Point Road is number 1.

Temporary light should be permanent.

Potential need for Port connect to PDEZ if demand warranted. Heavy haul capability. PDEZ landowners have said no-go without improvements and connections to PDEZ to Port (utilities and roads)

Q: How is the TransMontaigne planning for growth in the petroleum sector?

TransMontaigne regards this information as proprietary.

Q: How is the loss of a tank last year in the fire affecting operations? Will TransMontaigne rebuild and /or build additional tanks to accommodate more storage, or will they increase truck throughput to maintain same storage requirements on site?

180,000 tank of palm oil-biodiesel that was destroyed. Market has collapsed on product. Would rebuild if needed.

Q: How does the Port fit into Florida's fuel storage plan (e.g. hurricanes?)

Port does not participate in plan. No agreement with State or private distributors.

Q: What are the Port's FY19-20 plans for routine maintenance activities and what are the associated dollar allocations?

Road and rail have become capital issue b/c has to be replaced.

Refrigeration is #1 priority, then routine maintenance on rail, road paving, and grounds maintenance.

Q: Confirm the Port's CIP plan and proposed funding amount

See Port's up-to-date CIP included within the report.

Q: What are the expected/anticipated growth opportunities impact on cargo handling (ex: cruises, HHE, other types of warehousing)?

They are landlord Port. Involves stevedores. Container handling equipment brought-in by stevedores. Carver and Logistec Gulf Coast recently brought in new equipment.

Q: Are two cranes enough for current Port operations, as well as what they want to do in the future?

No.

Currently in discussions to bring in a third crane. Two stevedores have expressed interest. Would be mobile harbor crane.

Complicated issue b/c Port have exclusive agreement with Logistec.

Q: What are the Port's needs in regards to additional warehouse space? What type? Where?

The Port has prioritized additional dry storage warehouse space to match that of warehouse 10. This would be placed just north of warehouse 10.

Q: What type(s) of rail and are currently in use at the Port?

See the rail section of this report.

Q: What directional changes have/are occurring at the Port (e.g. markets, tenants, etc…) since the publication of the 2016 master plan? Prioritized project for Port?

Maximum diversification. Project cargo, breakbulk (dry and wet), containers – if it's on a ship, they want it.

Ro/ro market is increasing, but margins are typically low. Still having active discussions

RO/RO , Cruise and ferry are an a "way back" burner now. RO/RO – auto processing is an option but it takes an immense amount of land. So development of the EZ for processing and vehicle parking and designation as a Foreign Trade Zone would be the key.