



Chapter 3 – Infrastructure

3.1 EXISTING INFRASTRUCTURE

The existing deficient conditions and future programming of major infrastructure systems is critically important to the future redevelopment of the Channel District. The Strategic Action Plan inventories the existing systems and identifies preliminary improvements needed to meet the projected build-out of the study area. The Appendix section includes cost estimates for utility type as well as a spreadsheet with phasing of major capital improvement projects.



Existing Street Conditions

3.1.1 Existing Transportation System -

The current roadways within the Channel District are laid out in a grid, which is divided by four primary north-south routes and six primary east-west routes. The roads vary in size and traffic volume, and generally have narrow right-of-ways (ROW). Due to age and their original design for serving an industrial area, they do not fit the developing character of the District. The streets in the district are listed below:

Table 3.1 Transportation Corridors

North-South Routes	East-West Routes
1. Channelside Drive	1. Twiggs Street
2. 11 th Street	2. Madison Street
3. 12 th Street	3. Kennedy Boulevard / SR 60
4. 14 th Street	4. Washington Street
5. Meridian Avenue	5. Whiting Street
6. Beneficial Drive	6. Cumberland Avenue
7. N. Raymond Avenue	7. Channelside Drive
8. Garrison Street *	8. E. Harbor Street**
9. Seaport Street *	9. E. McKay Street**
	10. E. York Street **

Note:

*Private/Controlled Access.

** Providing access to Port waterfront through TPA property.

Channelside Drive, Meridian Avenue, Kennedy Boulevard, and Twiggs Street are the primary arterial roads in the Channel District. They serve as the main connections between the District and the Central Business District (CBD), Ybor City, Harbour Island, and nearby major transportation routes including Adamo Drive (State Road 60) and the Lee Roy Selmon Crosstown Expressway.



Within the District, vehicular traffic is brought to these roadways primarily via 11th Street and 12th Street (north/south) and Whiting Street, Washington Street, Madison Street, and Cumberland Avenue (east/west).

Table 3.2 lists the current ROW widths and lane configurations for the primary roadways within the Channel District. The City of Tampa Public Works Department Transportation Division maintains Level of Service (LOS) information on several roadway segments within the Channel District. This information is summarized in Table 3.3.

Table 3.2 Channel District Existing Roads and Lane Configuration

Street Name	Right-of-Way Width*	Existing Lane Configuration
Channelside Drive	100'	4 lanes
12 th Street	60'	2 lanes w/ on-street parking
11 th Street	60'	2 lanes w/ on-street parking
Meridian Avenue	140'	6 lanes
Twiggs Street	80'	4 lanes
Madison Street	60'	2 lanes
Kennedy Boulevard	80'	4 lanes w/ turn lane
Washington Street	60'	2 lanes
Whiting Street	60'	2 lanes
Cumberland Avenue	60'	2 lanes

*Right-of-way width varies



Table 3.3 Current Roadway Level of Service (LOS)

Roadway From - To	Impact Fee District	Functional Class	Maintenance Responsibility	Road Type	Distance (MI)	Date of Count	Existing Daily Volume	Existing LOS D Capacity	Existing LOS	Existi ng PM Peak Volum e
Channelside Drive (North)										
Channelside Drive (East) – Kennedy Blvd.	CBD	P	State	4LD	0.40	06/26/05	22,049	29,400	C	2,363
Kennedy Blvd. – Twiggs St.	CBD	P	State	5LU	0.11	06/26/05	20,279	29,400	C	1,859
Twiggs St. – Adamo Dr.	CBD	P	State	5LU	0.17	06/26/05	34,664	29,400	E	3,777
Kennedy Boulevard										
Nebraska Ave. – Channelside Dr. (North)	CBD	M	State	4LU	0.26	08/08/04	15,373	40,800	A	661
Twiggs Street										
Nebraska Ave. – Channelside Dr. (North)	CBD	C	City	4LU	0.29	07/31/05	19,695	22,800	D	1,884
Cumberland Avenue										
Meridian Ave. - Channelside Dr. (North)	CBD	C	City	2LU	0.17	07/31/05	3,949	13,000	A	366

Source: City of Tampa Transportation Division Inventory of Roadway Conditions (Existing and Future) Updated: 02/07/2006

3.1.2 Existing Potable Water System -

The existing potable water system in the Channel District is supplied through a 30-inch water main that enters the district from the north, and runs south along Meridian Avenue. This main is also connected to the Central Business District (CBD) and Harbour Island. Other water mains are located throughout the District to serve the existing individual developments. Refer to City of Tampa Water Main Atlas.

Visible parts of these facilities including valves and fire hydrants were located utilizing a hand held GPS unit. The points were then plotted on a map of the district, which are shown in Figure 3.1. The points shown in this figure represent an approximate location of these facilities.

3.1.3 Existing Wastewater System -

Wastewater from the developments within the Channel District is primarily collected and conveyed by gravity. The District has two separate sanitary sewer systems, one covering the north and another covering the south. The northern system covers the area from Washington Street north. It collects and conveys to a lift station on the east side of 12th Street, north of Twiggs Street. The 14-inch force main from this lift station discharges into a gravity manhole at the intersection of Channelside Drive and Adamo Drive. The outfall pipe from this manhole, to the east, is an 18-inch Vitrified Clay (VC) gravity line. The southern system covers the area from Washington Street south and collects and conveys to a manhole at the intersection of Channelside Drive and Meridian Avenue. The outfall pipe from this manhole to the west is a 24-inch PVC gravity pipe. Refer to City of Tampa Sanitary Sewer Atlas.



Visible parts of these facilities, including manholes were located utilizing a hand held GPS unit. The points were then plotted on a map of the district, which are shown in Figure 3.2. The points shown in this figure represent an approximate location of these facilities.

3.1.4 Existing Stormwater System -

The existing stormwater runoff within the Channel District generally is collected and conveyed by a series of inlets and pipes. These systems collect and convey stormwater basins that are both within and outside of the district. Refer to City of Tampa Stormwater Atlas.

A small portion of the District receives water quality treatment. These areas are primarily the developments that have been constructed since the early 1990's. Newly constructed roadways within the district, including Meridian Avenue by the Tampa-Hillsborough Expressway Authority, and East-West portion of the Channelside Drive by the Tampa Port Authority also receive treatment. The balance of the area and roads in the District do not have any treatment system.

Visible parts of these facilities, manholes, grate inlets and curb inlets, were located utilizing a hand held GPS unit for reference, Figure 3.3. The points shown in this figure represent an approximate location of these facilities.

3.2 PROPOSED INFRASTRUCTURE IMPROVEMENTS

3.2.1 Transportation System -

The development projections created for this report estimate the Channel District population to total over 12,000 residents and workers by 2025. This influx of people and automobiles will make roadway improvements crucial to maintaining a viable neighborhood with adequate transportation links to the Central Business District and points beyond. The community will also require a safe pedestrian experience within the District. Transportation improvements will need to be made to address pedestrian circulation and safety.

The Strategic Action Plan envisions three types of transportation improvements to be undertaken. These improvements are primarily for enhancement of the roads to fit the developing/envisioned character of the district and do not represent capacity improvements. Once the improvements are completed, the north-south streets will have reduced capacity as a result of the increased traffic calming (on street parking, etc.) and enhanced pedestrian circulation. These improvements will include the complete reconstruction and enhancement of existing roadways, and improved and/or new signalization. Four traffic signals are proposed for improved pedestrian facilities. Figure 3.4 illustrates the proposed transportation improvements within the Channel District. These proposed improvements were reviewed with City Transportation Department staff. The following paragraphs describe the detail of these improvements.



a. Complete Reconstruction -

The roads that will be requiring complete ROW reconstruction will be designed with improved pavement section, drainage, upsized/new utilities, and pedestrian facilities, as well as, public realm improvements. The improvements will vary depending on the individual road:

- Two-lane sections with on-street parking:
 - 11th Street
 - 12th Street
 - E. Madison Street

These streets are anticipated to be the primary internal north-south pedestrian circulation with vehicle access for developments while providing on-street parking for the commercial developments. See Figure 3.5 for typical section.

- Two-lane section with left turn lane and one side on-street parking:
 - Washington Street
 - Whiting Street
 - Cumberland Avenue

These streets are anticipated to provide connection to the primary collector roads, Channelside Drive and Meridian Avenue, with added left turn lanes at all intersections for better traffic circulation. See Figure 3.5 for typical section.

- Two-lane and Four-lane sections:
 - E. York Street
 - E. McKay Street
 - E. Harbor Street
 - 14th Street

These roads are within the Tampa Port Authority (TPA) controlled property. At this time, TPA has not established a master plan for these properties. It is anticipated that these roads will be adjusted and/or realigned. For the purpose of cost estimating, re-construction of these roads within the existing ROW is evaluated.

b. Enhancement of Existing Roadways -

The major roadways within the district include Channelside Drive, Twiggs Street, and Kennedy Boulevard. They are all currently four-lane facilities, with limited ROW to expand. It is expected that they will maintain the same functional configuration, but it is anticipated they will undergo significant changes to fit the developing/envisioned character of the District. These improvements will allow for better pedestrian access and the installation/adjustment of utilities. Installation of new and/or improved utilities will require reconstruction of the pavement structural section within the limits of the impacted areas. In addition to public realm improvements, these impacts will require at a minimum total milling and overlay of the existing pavements. The public realm improvements will generally include:

- Addition of textured pavement at intersections and crosswalks.



- Enhanced pedestrian / bicycle ways.
- Enhanced street and pedestrian lighting.
- Enhanced landscaping and streetscaping.
- Addition of street furnishings.
- Addition of on-street parking and urban trail on Twiggs Street.

Provision of any special improvements on state maintained roadways would require coordination and design approval with the Florida Department of Transportation, District 7 Office.

c. Proposed Signalization -

Additional signalization will be added throughout the Channel District to improve traffic flow and increase the number of safe pedestrian crossings. The Tampa-Hillsborough Expressway Authority has proposed a future signal at the intersection of Whiting Street and Meridian Avenue in anticipation of connecting Whiting Street to the CBD. This improvement will most likely occur once the existing industrial development or potential future developments no longer require rail access. Table 3.4 lists the proposed locations for new traffic signals as part of District’s SAP.

Table 3.4 Proposed Intersections for Signalization

Intersection	Primary Need
12 th Street and Twiggs Street	North-South Pedestrian Access
11 th Street and Kennedy Boulevard	North-South Pedestrian Access
11 th Street and Whiting Street	Improved Pedestrian and Vehicular Access
Whiting Street and Channelside Drive	Improved Pedestrian and Vehicular Access

Other proposed improvements are focused on making the Channel District a more pedestrian oriented and walkable neighborhood. Improved pedestrian crossings are proposed at the traffic circle and all non-signalized intersections. These improvements will vary from warning signals activated by pushbutton or motion detection system to high intensity crossing markings, including textured, as well as, raised (tabled) cross walks. In addition, traffic calming design elements will be utilized to minimize the crossing lengths, see Figure 3.4 for locations.

3.2.2 Potable Water System -

The increase in demand expected, as a result of the growth in population and the number of dwelling units within the District; will necessitate both the upgrading of existing facilities, as well as, the addition of new water lines. In order to determine an estimate of future water demand throughout the Channel District, the expected demand created by projects already approved was first calculated. For lands within the District that were still left uncommitted, the long range development projections were distributed across the entire Channel District by acreage. Table 3.5 below illustrates the projected water demand for the Channel District.



Table 3.5 Channel District Projected Water Demand

Property Type	Peak Demand
Committed Property	1,342 gpm
Uncommitted Property	2,251 gpm
TPA Uncommitted Property	722 gpm
TPA Existing property (Channelside Shops, Florida Aquarium, TPA HQ)	1,075 gpm
Existing 3 Cruise Terminals	4,500 gpm
Proposed Cruise Terminal (possible)	1,500 gpm
Fire Protection Reserve (requested by Fire Dept.)	6,000 gpm
Other Existing Developments (estimated)	647 gpm
Irrigation	1,000 gpm
Total Peak Demand	19,037 gpm

The City of Tampa Water Department reviewed the projected water demand. The improvements as shown on Figure 3.6 were recommended by the City. These improvements are based on the assumption of water availability at the intersection of Channelside Drive and Adamo Drive. It is anticipated that extension of a new transmission main from other City water mains to this location may be required. A water main connecting at that intersection will be outside of the Channel District boundary, and therefore may require alternative funding mechanisms than those within the District. The Water Department is evaluating the need for this facility with consideration to other City needs. Size and location of such a facility should be identified prior to initiating the design of the District’s upgraded system. One such facility is a water transmission main from the Cass Street/Pierce Street intersection to Adamo Drive/Channelside Drive intersection.

3.2.3 Wastewater System -

Utilizing Table 3.4 above, the projected wastewater needs were estimated. The City system for this area has the capacity for the projected discharge rates. City of Tampa Wastewater Department reviewed these demands and proposed the improvements as shown on Figure 3.7. These include the upgrading of the lift station, upsizing of certain collector gravity lines, and improvement of the 18-inch Vitrified Clay (VC) gravity line under Adamo Drive. The 18-inch line under Adamo Drive is the limiting factor in the availability of additional capacity in the northern system. There are two potential ways the line could be improved to allow for increased capacity. It could either be upsized or the force main could be extended to the manhole at the intersection of Adamo Drive and North 15th Street. Due to the age of the existing lines, replacement / upgrading of other utilities, and under-grounding of overhead lines, keeping the existing lines (i.e. relining, etc.) most likely will produce more conflicts and result in higher costs than installation of new lines. At the time of design, all lines will be evaluated and addressed appropriately.

3.2.4 Stormwater System -

In order to minimize costs and inconvenience to residents or visitors to the District, the storm sewer system will primarily be upgraded in conjunction with the roadway improvements.



The Southwest Florida Water Management District (SWFWMD) requires water quality treatment of proposed improvements. Developments that have occurred recently in the area (Garrison Seaport Center, Cruise Terminal #2, Cruise Terminal #3) have installed or permitted underground facilities for the treatment of their stormwater runoff. The residential projects that have recently begun the development process, have proposed such underground facilities as well. The consultant team and City staff met with SWFWMD to discuss the potential for a regional treatment system that could be used by both individual developments as equivalent treatment, and for the treatment of city streets. SWFWMD had no objection to such facilities provided they meet their regulations at the time of permitting and construction. In this scenario, developments would be required to pay a fee for using a part of the City system as an equivalent treatment or if they fall within the treatment basin. However, due to space limitations, the availability of property, the number of basins conveyed through the District, and major conflicts with existing and proposed improvements, District wide water quality treatment is not feasible.

The proposed alternative is for two underground systems constructed to provide treatment for the York Basin and McKay Basin, which are approximately 35 acres each. It is proposed that each system will be designed to provide treatment for the first ½-inch of runoff. The outfall pipes from these basins currently discharge into the Ybor Channel through a 48-inch Reinforced Concrete Pipe (RCP) under York Street and a 42-inch RCP under McKay Street. Once constructed, the runoff from each basin will be directed to the underground treatment system prior to discharge into the Ybor Channel through the existing outfalls. The proposed system is a pre-cast vault system with an underdrain for water quality treatment. Each system being will be installed under the roadway surface, within the right-of-way of York Street and McKay Street. Prior to construction, the Tampa Port Authority (TPA) will review final design plans. Because the proposed vaults are to be installed in existing ROW, alternative designs may have to be considered as TPA develops plans for the surrounding property. The City will be responsible for maintenance and operation of these facilities once constructed. The general location of the proposed systems and associated basins are shown in Figure 3.8.

3.2.5 Franchise Utility System -

Notification was sent to all utility owners of record within the District as provided by the City of Tampa. A follow up meeting was held to present the intent of the SAP and identify the existing adjustment of utilities. The following section describes the resulting activities/actions.

a. Power – Tampa Electric Company (TECO)

There are a number of overhead utilities within the District. They are primarily power distribution facilities owned by TECO. The company owns all the poles that support these facilities. Within the core of the District, power service to the existing developments is primarily through pole-mounted transformers. A TECO substation located at the southwest corner of Washington Street and 11th Street services the distribution system. An overhead transmission line entering the Channel District from the area of Adamo Drive and Channelside Drive services this substation. From this point, the transmission main runs along the south side of Lee Roy Selmon Expressway ROW to N. 12th Street, turning south through 12th Street ROW to Twiggs Street, and turning west down the Twiggs Street ROW to Meridian Avenue. From this point the transmission line heads south through Meridian Avenue ROW to Washington Street intersection. From this point the facility splits into two lines one heading west to CBD and one east to service the substation.



Considering the developing/envisioned character of the Channel District, proposed changes will include the elimination of overhead lines, with underground facilities put in their place. Figure 3.8 shows the proposed undergrounding of TECO distribution facilities. Other utilities currently on TECO poles will be required to be put underground as well.

To eliminate the impact of the overhead transmission lines on the District core area, it is proposed to continue the transmission line along the south side of the Lee Roy Selmon Expressway ROW to Meridian Avenue. This location will require close coordination with THEA and the developments along the south side of Expressway ROW. The new location is shown in Figure 3.9.

b. Natural Gas - TECO Peoples Gas

The Channel District is currently served by natural gas. TECO Peoples Gas owns these facilities. They identified these lines and provided a general plan of expansion. However, without specific projects to consider, Peoples Gas has identified that they cannot provide a specific design for expanded use in the District.

3.2.6 Communication System -

The Channel District is served by a number of different communication companies. A great majority of their lines are underground with some overhead lines, which are located on TECO poles. These lines will be required to be buried as part of the overall improvements of the District and in conjunction with undergrounding of TECO facilities. It is proposed that the various communication lines be combined into one duct bank within each road ROW, especially, as part of the complete reconstruction of the 60' ROW roads.

3.2.7 Fire Station/Berth Facility -

City staff and Consultant met with Tampa Fire Department staff to present the anticipated developments and associated population growth of the Channel District. The Fire Department indicated that at a minimum a new EMS facility would be required given the 20,000 people who will eventually work and live within the area. In addition, the Fire Department is in the process of activating a new fireboat, which they may consider having berthed in the District, provided such facilities can be incorporated into the Port's operation. It would be preferred to combine the two facilities into one, along the waterfront. This type of facility will require a comprehensive study as well as review and close coordination with the Tampa Port Authority. This effort is beyond the current scope of work. However, an estimated budget has been established for such facility.



3.3 OPINION OF PROBABLE COST

A conceptual estimate of the probable cost of these improvements has been established and is summarized in table 3.6 below. For detailed breakdown of the cost information, please reference the Detailed Infrastructure Cost Estimate Tables in the Appendix.

Table 3.6 Estimate of Infrastructure Improvement Cost

Type of Improvement	Estimated Cost (2006 Dollars)
Roadways ¹	\$24,240,000
Potable Water ²	\$3,890,000
Sanitary Sewer ³	\$2,780,000
Stormwater System ⁴	\$3,910,000
TECO Undergrounding ⁵	\$11,600,000
TECO Gas ⁶	\$1,000,000
Communication ⁷	\$500,000
Fire Department ⁸	\$5,000,000
Estimated Total	\$52,920,000

¹⁻⁴ Estimates based on determined quantity of proposed improvements. However, it does not include the cost of Public Realm improvements.

⁵ Developed by TECO Electric

⁶ Developed by TECO Gas

⁷ Allowance for Communications Improvements

⁸ Budgeted by City of Tampa Fire Department

3.4 INFRASTRUCTURE POLICY RECOMMENDATIONS

The following are actions/activities required to implement the above identified infrastructure improvements:

3.4.1 City of Tampa Actions -

- Provide incentives for the developers to install and be reimbursed for some of these improvements.
- Develop new regulations that result in developments providing some of these improvements, or provide funding for them.
- Development of a Capital Improvements Program to implement the required improvements.



- Develop a reimbursement program for Channel District developers who are willing to install portions of the City's work.

3.4.2 Private Sector Actions -

Provide the improvements through incentives or regulation that are immediately adjacent to and/or serve the proposed development. Examples of these improvements that could be accomplished by the private sector are:

- Roadway Improvements.
- Installing Core Utilities.
- Installing Private Utilities.
- Accommodating Private Utilities' needs to keep existing customer in service.
- Use of regional stormwater treatment facility.
- Provision of Public Parking and other infrastructure and amenities.
- Park Open Space / Parks.
- Public Art / Gateway Entry Elements.

3.4.3 Other Institutional Actions –

The magnitude, scale, and immediate need for some of these infrastructure improvements make their completion a very high priority. This will require the close coordination of the City of Tampa and the Tampa Port Authority:

- a. City of Tampa
 - Capital Improvements Projects within Channel District.
 - Capital Improvements Projects outside of Channel District where necessary for Economic Development and Strategic Action Plan (i.e. Water Main Transmission from Cass/Pierce to Adamo/Channelside).
 - Strategic Alliance with Utility Providers.
- b. Tampa Port Authority and the City of Tampa Properties East and South of Channelside Drive
 - Provision of:
 - Regional Stormwater Treatment Facility.
 - Fire Station/Berth Facility.
 - Public Realm Improvements.



- Community and Neighborhood Parks.
- Public Open Space.
- Upland Riverwalk.
- Pedestrian Access to Waterfront.
- Maintaining View Corridors to Water.
- Public Parking.

c. Private Utilities and the City of Tampa

- TECO under-grounding of distribution lines and relocation of transmission lines:
 - Adjustment Program (under-grounding)
 - Construction Phasing/Schedule
 - Finalized Cost Estimates
 - Funding Distribution Mechanism
- Communication Companies to develop:
 - Shared Duct Bank
 - Adjustment Program
 - Construction Phasing/Schedule
 - Funding Distribution Mechanism
- Gas Company to develop:
 - Adjustment Program
 - Construction Phasing/Schedule
 - Funding Distribution Mechanism

3.4.4 Phasing of Recommendations –

To implement the proposed SAP Improvements, we suggest the following one and five year strategic recommendations are made:

a. First Year –

- Establish CIP Funding Mechanism.
- Establish an incentive program for developers to provide some of the improvements.
- Establish reimbursement program for developers who are willing to do additional work than what is required for their development.
- Develop project delivery program
- Data collection (survey, etc.).
- Preliminary engineering.



- Initiate permitting.
 - Engineering/permitting/construction plans/bid for stormwater treatment system.
 - City to develop the program management of the work proposed by developers.
- b. Five Year -
- Complete projects that Channel District developers are unable to.
 - Install core utilities under Channelside Drive, Kennedy Boulevard, and Twiggs Street.
 - Construct stormwater treatment system.
 - Install water improvements needed outside of the District.
 - Upgrade sanitary sewer lift station.
 - Upgrade sanitary sewer gravity main in Adamo Drive.
 - Install private utilities under Channelside Drive, Kennedy Boulevard, and Twiggs Street.
 - Complete power, communication, and gas line improvements.
 - Complete Channelside Drive, Kennedy Boulevard and Twiggs Street Enhancements (Infrastructure & Public Realm).
 - Adjust TECO overhead transmission.
 - Complete parks and trails.
 - Complete the fire station/berth facility.
 - Manage work proposed by developers.
- c. Ten Year -
- Complete work not undertaken in areas that are / were expected to be completed by developers.

3.5 INFRASTRUCTURE PHASING

A specific phasing plan cannot be established for the every project need identified in the District, as the improvements will be driven in large part by private developer projects. The proposed projects listed



below represent both area-wide preliminary design plans and individual street corridors that require improvements. The area-wide plans should build upon the SAP planning data, develop new facility survey data, and develop preliminary engineering design with refined cost estimates for the improvements. The following general Phasing Plan should be considered:

3.5.1 Phase One -

- a. Preliminary Infrastructure Design Plans (Area-wide systems) – provide survey data, preliminary design, costs estimates, and final design for area-wide systems that are not contemplated to be completed by private development.
 - Survey data collection
 - Design development (15% plans)
 - Preliminary engineering design (30% plans)
 - Preliminary cost estimates (10% contingency)
 - Final engineering design (60%, 90%, 100%, Final plans)
 - Construction services
- b. East Madison Street (1,000± L.F.) – coordinate with private development improvements to implement SAP provisions for a 2-lane facility with on-street parking.
 - Developer coordination
- c. South 11th Street - East Cumberland Avenue to East Whiting Street (850± L.F.) – coordinate with private development to implement SAP provisions for a 2-lane facility with on-street parking.
 - Developer coordination
- d. South 12th Street - East Cumberland Avenue to Channelside Drive (850± L.F.) – coordinate with private development to implement SAP provisions for a 2-lane facility with on-street parking.
 - Developer coordination
- e. East Whiting Street - Meridian Avenue to Channelside Drive (850± L.F.) - provide survey data, preliminary design, costs estimates, and final design for systems that are not contemplated to be completed by private development for a 2-lane through with continuous turning movement.
 - Survey data collection
 - Design development (15% plans)
 - Preliminary engineering design (30% plans)
 - Preliminary cost estimates (10% contingency)
 - Final engineering design (60%, 90%, 100%, Final plans)
 - Construction services



- f. North 12th Street - North of Twiggs Street (750± L.F.) - provide survey data, preliminary design, costs estimates, and final design for systems that are not contemplated to be completed by private development for a 2-lane with on-street parking.
- Survey data collection
 - Design development (15% plans)
 - Preliminary engineering design (30% plans)
 - Preliminary cost estimates (10% contingency)
 - Final engineering design (60%, 90%, 100%, Final plans)
 - Construction services
- g. Twiggs Street - Meridian Avenue to North 12th Street (750± L.F.) - provide survey data, preliminary design, costs estimates, and final design for systems that are not contemplated to be completed by private development for a mill overlay and enhancement of the existing facility to implement SAP provisions.
- Survey data collection
 - Design development (15% plans)
 - Preliminary engineering design (30% plans)
 - Preliminary cost estimates (10% contingency)
 - Final engineering design (60%, 90%, 100%, Final plans)
 - Construction services
- h. Area-wide Stormwater Treatment Facilities (Including improvements to McKay Street and York Street where impacted) - provide survey data, preliminary design, costs estimates, and final design for area-wide systems that are not contemplated to be completed by private development.
- Survey data collection
 - Design development (15% plans)
 - Preliminary engineering design (30% plans)
 - Preliminary cost estimates (10% contingency)
 - Final engineering design (60%, 90%, 100%, Final plans)
 - Construction services

3.5.2 Phase Two –

- a. Beneficial Drive – Channelside Drive (East) to Garrison Channel (550± L.F.) – coordinate with private development for a mill overlay and enhancement of the existing facility to implement SAP provisions.
- Developer coordination
- b. Kennedy Boulevard – Meridian Avenue to Channelside Drive (North) (1,000± L.F.) – coordinate with private development for a mill overlay and enhancement of the existing facility to implement SAP provisions.



- Developer coordination
- c. South 11th Street - Whiting Street to Kennedy Boulevard (1,200± L.F.) - provide survey data, preliminary design, costs estimates, and final design for systems that are not contemplated to be completed by private development.
 - Survey data collection
 - Design development (15% plans)
 - Preliminary engineering design (30% plans)
 - Preliminary cost estimates (10% contingency)
 - Final engineering design (60%, 90%, 100%, Final plans)
 - Construction services
- d. South 12th Street - Cumberland Avenue to Kennedy Boulevard (2,000± L.F.) - provide survey data, preliminary design, costs estimates, and final design for systems that are not contemplated to be completed by private development.
 - Survey data collection
 - Design development (15% plans)
 - Preliminary engineering design (30% plans)
 - Preliminary cost estimates (10% contingency)
 - Final engineering design (60%, 90%, 100%, Final plans)
 - Construction services
- e. TECO Transmission Main Relocation (1,300± L.F.) – coordinate with utility provider to relocate existing transmission facility to implement SAP provisions.
 - TECO coordination
 - Construction services
- f. Adamo Drive Sanitary Sewer Improvement – Channelside Drive to North 15th Street (900± L.F.) - provide survey data, preliminary design, costs estimates, and final design for systems that are not contemplated to be completed by private development for a sanitary sewer extension.
 - Survey data collection
 - Design development (15% plans)
 - Preliminary engineering design (30% plans)
 - Preliminary cost estimates (10% contingency)
 - Final engineering design (60%, 90%, 100%, Final plans)
 - Construction services

3.5.3 Phase Three -

- a. Channelside Drive – Meridian Avenue to Adamo Drive (5,100± L.F.) - provide survey data, preliminary design, costs estimates, and final design for systems that are not contemplated to be completed by private development for a mill overlay and enhancement of the existing facility to implement SAP provisions.



- Survey data collection
 - Design development (15% plans)
 - Preliminary engineering design (30% plans)
 - Preliminary cost estimates (10% contingency)
 - Final engineering design (60%, 90%, 100%, Final plans)
 - Construction services
- b. East Washington Street - Meridian Avenue to Channelside Drive (900± L.F.) - provide survey data, preliminary design, costs estimates, and final design for systems that are not contemplated to be completed by private development for a 2-lane through with continuous turning movement.
- Survey data collection
 - Design development (15% plans)
 - Preliminary engineering design (30% plans)
 - Preliminary cost estimates (10% contingency)
 - Final engineering design (60%, 90%, 100%, Final plans)
 - Construction services

3.5.4 Phase Four -

- a. East Cumberland Avenue – Meridian Avenue to Channelside Drive (800± L.F.) - provide survey data, preliminary design, costs estimates, and final design for systems that are not contemplated to be completed by private development for a 2-lane through with continuous turning movement.
- Survey data collection
 - Design development (15% plans)
 - Preliminary engineering design (30% plans)
 - Preliminary cost estimates (10% contingency)
 - Final engineering design (60%, 90%, 100%, Final plans)
 - Construction services
- b. E. York Street – Remaining Improvements (850± L.F.) - provide survey data, preliminary design, costs estimates, and final design for systems that are not contemplated to be completed by private development for a 2-4 lane facility.
- Survey data collection
 - Design development (15% plans)
 - Preliminary engineering design (30% plans)
 - Preliminary cost estimates (10% contingency)
 - Final engineering design (60%, 90%, 100%, Final plans)
 - Construction services



- c. E. McKay Street – Remaining Improvements (400± L.F.) - provide survey data, preliminary design, costs estimates, and final design for systems that are not contemplated to be completed by private development for a 2-4 lane facility.
- Survey data collection
 - Design development (15% plans)
 - Preliminary engineering design (30% plans)
 - Preliminary cost estimates (10% contingency)
 - Final engineering design (60%, 90%, 100%, Final plans)
 - Construction services
- d. E. Harbor Street (850± L.F.) - provide survey data, preliminary design, costs estimates, and final design for systems that are not contemplated to be completed by private development for a 2-4 lane facility.
- Survey data collection
 - Design development (15% plans)
 - Preliminary engineering design (30% plans)
 - Preliminary cost estimates (10% contingency)
 - Final engineering design (60%, 90%, 100%, Final plans)
 - Construction services
- e. North 14th Street (700± L.F.) - provide survey data, preliminary design, costs estimates, and final design for systems that are not contemplated to be completed by private development for a 2-4 lane facility.
- Survey data collection
 - Design development (15% plans)
 - Preliminary engineering design (30% plans)
 - Preliminary cost estimates (10% contingency)
 - Final engineering design (60%, 90%, 100%, Final plans)
 - Construction services