RESOLUTION NO. 2022/2023-__

A RESOLUTION OF THE CLAY COUNTY UTILITY AUTHORITY FORMALLY ADOPTING THE AUTHORITY'S LAKE ASBURY MASTER PLAN AREA TRUNK MAIN CAPITAL COST RECOVERY POLICY; SUPPLEMENTING AUTHORITY RESOLUTION 2022/2023-__, RELATING TO THE AUTHORITY'S AUTHORIZED RATES, FEES AND CHARGES AND SERVICE AVAILABILITY POLICY BY THE FORMAL ADOPTION OF THE AUTHORITY'S LAMPA SERVICE AREA TRUNK MAIN CAPITAL COST RECOVERY POLICY AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the Board of Supervisors of the Clay County (Florida) Utility Authority (Authority) after having complied with the public notice and public hearing requirements imposed upon it by applicable law, approved by its formal action the adoption of amended and restated rates, fees and charges for fiscal year 2022/2023 (Rate Resolution) at a public meeting of the Board of Supervisors on October 4, 2022; and

WHEREAS, the Authority has adopted a Service Availability Policy (SAP) which has been amended from time to time throughout its existence. The current SAP, as of the date hereof, was adopted by the Authority on October 4, 2022, effective as of October 1, 2022, and is in full force and effect and made a part hereof by specific reference; and

WHEREAS, the Lake Asbury Master Plan Area (LAMPA) is projected to contain approximately 30,000 equivalent residential connections (ERCs) at build-out and will require transmission systems for potable water, wastewater, and reclaimed water for the primary benefit of the LAMPA as the benefitting area; and

WHEREAS, the Authority desires to create a specific supplemental service availability policy to provide service to the LAMPA and to adopt a specific master trunk main development program to be implemented immediately in order to coincide with the north/south extension of the First Coast Expressway and construction of associated arterial and collector roadways and so as to expand potable water and wastewater service, and when available, reclaimed water, to the existing and future LAMPA community; and

WHEREAS, it is not feasible to allow development within the LAMPA without the prior construction in an orderly, cost-effective, and environmentally conscious fashion of new and/or improved potable water, wastewater, and reclaimed transmission (trunk main) systems and ancillary facilities henceforth called "infrastructure"; and

WHEREAS, the Authority recognizes the potential for more than 12,000 new ERCs that will require access to potable water, wastewater, and reclaimed water service within the next 10 years, making such users the immediate beneficiaries of the infrastructure; and

WHEREAS, it is in the public interest that the Authority adopts this Policy to construct and extend potable water, wastewater, and, wherein available, reclaimed water transmission (trunk main) infrastructure to service LAMPA and to recover the cost of the extension of such infrastructure on a pro-rata and cost-effective basis by a fair appropriation of the cost thereof among the immediate benefitting users thereof; and

WHEREAS, all funds collected via this Policy will be expended within LAMPA to defray the cost of the extensions of said infrastructure; and

WHEREAS, the Authority conducted a public workshop on February 16, 2023, in order to receive public comment on its proposed LAMPA trunk main capital cost recovery policy; and

WHEREAS, to the extent that such action may constitute the creation or increase of the rates, fees, and charges imposed by the Authority, the Authority has duly noticed its formal adoption of the proposed LAMPA trunk main capital cost recovery policy for consideration at a Public Hearing conducted on September 12, 2023, thereby supplementing the Rate Resolution; and

WHEREAS, as a result of its receipt of information from the public, Board discussion and direction to Authority staff at its September 12, 2023 meeting, the Board of Supervisors, upon completion of the hearing, and by its approval of the attached revised LAMPA trunk main capital cost recovery policy, has by its formal action this date determined that it is in the public interest of the Authority, its ratepayers, and the present and future citizens of Clay County to adopt the Authority's LAMPA trunk main capital cost recovery policy in the form attached hereto.

NOW THEREFORE, BE IT RESOLVED BY THE BOARD OF SUPERVISORS OF THE CLAY COUNTY UTILITY AUTHORITY, AS FOLLOWS:

Section 1.

The foregoing recitations are true, correct, and incorporated herein by specific reference.

Section 2.

The Lake Asbury Master Plan Area Trunk Main Capital Cost Recovery Policy, in the form attached hereto, is hereby adopted.

Section 3.

The Rate Resolution is hereby supplemented by the adoption of this Resolution No. 2022/2023-__ and in the event of any conflict between the provisions of the Rate Resolution and the provisions of this Resolution regarding the administration of the LAMPA Trunk Main Capital Cost Recovery Policy, and any facilities extensions, connections and/or projects financed thereunder, the provisions of this Resolution shall control.

Section 4.

This Resolution shall take effect on the ninety-first (91st) day following the last of (i) its adoption by the Board of Supervisors or (ii) publication of notice of the effective date of this Resolution on the Authority's website.

PASSED, APPROVED, AND ADOPTED, this ____ day of _____, 2023.

(OFFICIAL SEAL)

CLAY COUNTY UTILITY AUTHORITY

_____, Chairman
Board of Supervisors

ATTEST:

_____
Janice Loudermilk, Secretary
Board of Supervisors

LAKE ASBURY MASTER PLAN AREA
TRUNK MAIN CAPITAL COST RECOVERY POLICY

THIS LAKE ASBURY MASTER PLAN AREA TRUNK MAIN CAPITAL COST RECOVERY POLICY (Policy) is adopted in connection with the extension of the First Coast Expressway (FCE) on a generally north/south axis within the Lake Asbury Master Plan Area (LAMPA), as well as associated arterial and collector roadways (a planning purpose map of which is attached hereto as Exhibit A), and which is wholly within the service area of Clay County Utility Authority (Authority). The LAMPA acreage is approximately 30,000 acres. It is recognized that the LAMPA is poised for the development of approximately 30,000 equivalent residential connections (ERCs)(the density factor) over a 25-year period, with an estimated 12,000 new ERCs projected within the next 10 years. In recognizing the Authority's obligation to provide potable water, wastewater, and reclaimed water utility service throughout its service area, and in recognition that the largest cost savings available to the Authority and its ratepayers is to build major trunk lines in conjunction with the construction of said FCE and associated arterial and collector roadways, where appropriate, and/or upgrade or otherwise improve existing Authority system infrastructure to adequately meet increased demands resulting from the LAMPA development, the Authority hereby finds that the adoption of an appropriate trunk main capital cost recovery Policy is in the public interest and a proper exercise of the duties assigned to the Authority by the Florida Legislature by its adoption of Chapter 94-491, Laws of Florida, Special Acts of 1994.

This Policy is intended to be a supplement to the Authority's existing Service Availability Policy (SAP), as may be amended from time to time, for the purpose of establishing a fair and equitable method to recover costs from immediate benefitting users associated with the extension of and/or improvements to the trunk potable water, wastewater, and reclaimed water mains and ancillary facilities necessary to provide service to the LAMPA as defined in Clay County's Future Land Use Policy. This policy is necessary to position the Authority to provide service to the LAMPA via new pipeline extensions and/or improvements to existing infrastructure on an as-needed basis. It is also necessary to place the Utility Authority in a position to deliver its services on a cost-effective basis as required at the time hereof and thereafter. Financial feasibility will require that the Authority address each future phase of the LAMPA service area development on an as-needed basis.

1. Intent: It is the intent of the Authority to extend backbone master trunk potable water, wastewater, and reclaimed water mains in conjunction with the

extension of the FCE, and associated arterial and collector roadways within the LAMPA (the Project), and/or upgrade of improving existing Authority system infrastructure, subject to budget restraints and financial feasibility and that a cost recovery program be established to equitably apportion the cost of the trunk main and associated transmission distribution, and collection system infrastructure identified preliminarily in the Dewberry Lake Asbury Master Plan Area Trunk Main Engineering Report – Revised Submittal dated August 10, 2023, attached as Exhibit B, to all properties receiving the benefit of that service.

2. Purpose: It is the purpose of this Policy to satisfy Florida's dual rationale nexus test. The Authority hereby finds that it has properly documented: (i) the anticipated potential growth within the LAMPA; (ii) that participation in the LAMPA trunk main capital cost recovery policy is necessary to serve that growth; (iii) that the Authority, its staff, and consultants, have performed a diligent analysis of the pro-rata cost of the participation in the LAMPA trunk main capital cost recovery project; (iv) that the intended charges to new users within the LAMPA are a fair appropriation of the cost of participating in the Project; (v) that the funds to be collected will primarily benefit new development; and (vi) all funds collected pursuant to this Policy will be disbursed to recover the capital costs expended to serve the growth within the LAMPA.

3. Applicability: This Policy shall apply to those properties found to have immediate direct benefit from the installation of one or more of the master trunk mains as defined in Section 1.1 of Exhibit B and displayed generally in Exhibits B-1, B-2, and B-3.

4. Cost Recovery System: In order to equitably allocate the costs, it is essential to establish a preliminary trunk main alignment and system design and based on that design, to establish a cost estimate to serve the entire LAMPA. It is also understood that future development obstacles, rights of way or easement acquisition issues, site acquisition, and development patterns may alter the final design, location, and routing of trunk main and associated distribution and collection systems; however, the Authority finds that based upon engineering studies commissioned heretofore, that the cost estimates established herein are a fair representation of the infrastructure cost for the LAMPA. The construction bid price for the CR 218 Extension utilities, plus estimates for trunk mains identified along the proposed Cathedral Oak Parkway and corridors to the north of the interchange with the FCE, are presented in the Dewberry LAMPA Trunk Main Engineering

Report – Revised Submittal dated August 10, 2023 (Exhibit B) and total $30.88 million. The cost recovery mechanism shall be calculated by utility, with a total apportioned cost of $29,131,000 for all three utilities. The potable water estimated apportioned cost of $7,858,000 over 9,364 ERCs yields an estimated trunk main and associated cost of $839 per ERC in present money value. The reclaimed water estimated apportioned cost of $10,003,000 over 9,364 ERCs yields an estimated trunk main and associated costs of $1,068 per ERC in present money value. The wastewater cost recovery mechanism for the estimated apportioned cost of $11,270,000 over 12,657 ERCs yields an estimated trunk main and associated costs of $890 per ERC in present money value. The costs not apportioned to ERCs within LAMPA under this Policy will be allocated according to CCUA's existing Service Availability Policy at the time of entering into future developer agreements.

5. Payment: Payment of the charges required hereunder shall be due and made at the time that the Authority signs off on the permitting of the potable water or reclaimed water distribution or wastewater collection system applicable to any parcel within the LAMPA for such uses as residential neighborhoods, multifamily housing, and any and all commercial, industrial, hotel, hospital or other such uses.

6. Annual Adjustments: The cost per ERC shall be adjusted annually so as to recover the Authority's carrying costs on the Authority's investment in the subject infrastructure, and to adjust from estimated costs to actual costs, taking into consideration the following:

(a) Financing/Carrying Costs: The financing/carrying costs are to be established based on the following priority as applicable to the specific situation from time to time. The rate shall be:

(1) 1-1/2% above the True Interest Cost (TIC) of the transaction which financed the project, or

(2) 1-1/2% above the TIC of the most recent capital financing transaction of the Clay County Utility Authority, or

(3) 1-1/2% above the variable rate of the Bond Market Association Municipal Swap Index (formerly PSA) at the website www.bondmarkets.com/research/psaswap.shtml

(b) Density: The Authority shall annually adjust the density factor in accordance with then-approved development entitlements for the properties within the LAMPA subject to being benefitted hereby.

(c) Timing of Annual Adjustments: The inflation, carrying cost, actual vs. estimated cost, and density adjustments will be established on July 1st of each year and will be presented at the Authority's Annual Budget and Rate Increase Public Hearings.

(d) The Authority reserves its lawful right to amend its rates and charges hereunder so as to impose fees that are just, equitable, compensatory, and not unduly discriminatory.

7. Rights of Way: The Authority has made it a standard of practice that where utility extensions occur adjacent to existing or future major roadways, it will use its best commercially feasible efforts to secure easements to accommodate such extensions. It is prudent to do so considering the likelihood that new roadway projects will be displaced or require expensive relocation of utilities placed within the rights of way. In keeping with this standard, the Authority will require developments subject to this Policy, which front on such roadways to provide easements to the Authority to accommodate its utility extensions. The Authority, at its sole discretion, may elect to substitute fulfillment of this requirement from time to time for specialized parkway segments that include an extensive right of way with full width required for all potential lane expansions and that leave sufficient dedicated rights of way space for all contemporaneous or future utility needs outside the furthest potential lanes and in a manner contemplated for both efficient transportation and utility construction and maintenance.

8. Other charges: This Policy is designed to create an equitable allocation of the cost of the extension of the Authority's backbone master trunk potable water, wastewater, reclaimed water distribution, and collection and storage systems through the LAMPA and is not intended to replace any of the other charges covered by the Authority's current SAP. Therefore, all other service availability charges, including connection charges, meter installations charges, inspection fees, plan review fees, fire flow connection fees, etc., are applicable to projects within the LAMPA.

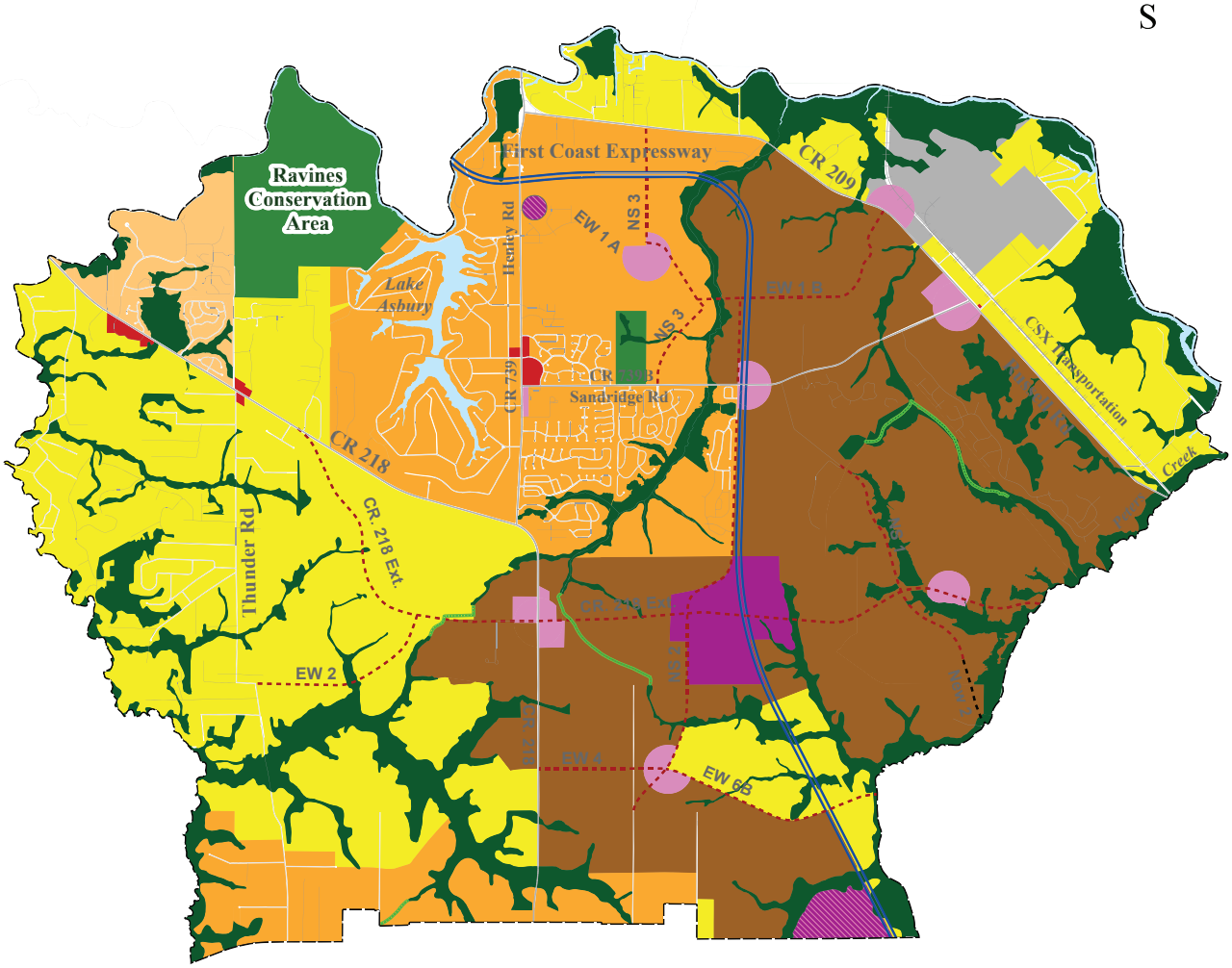
9. Limitations: Service will be extended within close proximity of all portions of the LAMPA but will not necessarily extend fully to each parcel. The

developer shall bear the cost of all on-site installations and off-site extensions to the nearest connection point. For certain situations where future developments are likely, and there is sufficient demand for service, the Authority may elect to invest in infrastructure extensions and/or improvements on a cost-sharing basis, as above.

10. Existing Residential Houses: Residences within the LAMPA with Certificates of Occupancy issued prior to official notice of the availability of service will not be required to connect to the Authority's system when service becomes available. However, an optional connection will be available at any time and as an incentive for the owner to disconnect and discontinue the use of any existing package plants, drain fields, septic tanks, and the like if the property owner elects to connect to the Authority's potable water, wastewater and/or reclaimed water service when available to the property, the service availability charges will be determined, assessed and financed by the Authority over a 10-year period.

11. Pump station sites: All necessary pump station sites required to implement this Policy shall be dedicated to the Authority at the sole cost and expense of the benefitted landowner(s) as a condition to receiving utility services from the Authority of the adjoining property. To the extent that such pump station sites benefit neighboring properties, the Authority shall charge and collect from such neighborhood property owners their pro rata share of the fair value of such sites on a refundable advance basis to the donor consistent with the Authority's SAP.

EXHIBIT A



Amendment Revised:

Adoption	June 26, 2018
Ord. 2021-24	08-10-2021
Ord. 2022-05	01-25-2022
Ord. 2022-06	01-25-2022
Ord. 2022-18	03-22-2022

Misc. Legend

- Greenbelt Zoning Overlay
- Future Roads
- First Coast Expressway
- Local Roads
- Collector Roads
- Arterial Roads
- Rail Road
- County Boundary
- Peter's Creek Business Park Improvements
- Municipal Boundary
- Masterplan Boundary
- Water

Future Land Use Legend

- LA RC
- LA RRSV
- LA RF
- LA MPC
- LA COM
- LA SOL
- LA VC
- LA AC
- LA IVC
- PC
- LA GW
- RP

Map Adoption: June 26, 2018

0 0.2 0.4 0.8 1.2 1.6 2 Miles

File Name: Current_2040_LA_FLUM_Map

2040 Lake Asbury Future Land Use Map

Created By:GIS Department
Map Prepared: 4/4/2022

EXHIBIT B

LAKE ASBURY MASTER PLAN AREA TRUNK MAIN ENGINEERING REPORT

An analysis of potable water, wastewater and reclaimed water trunk mains to support the development of the Lake Asbury Master Plan Area

REVISED SUBMITTAL ● August 10, 2023

Dewberry

ORIGINAL

SUBMITTED BY
Dewberry Engineers, Inc.
1479 Town Center Drive
Suite D214
Lakeland, FL 33803-7974

SUBMITTED TO
Clay County Utility Authority
3176 Old Jennings Road
Middleburg, FL 32068

Lake Asbury Master Plan Area
Trunk Main Engineering Report

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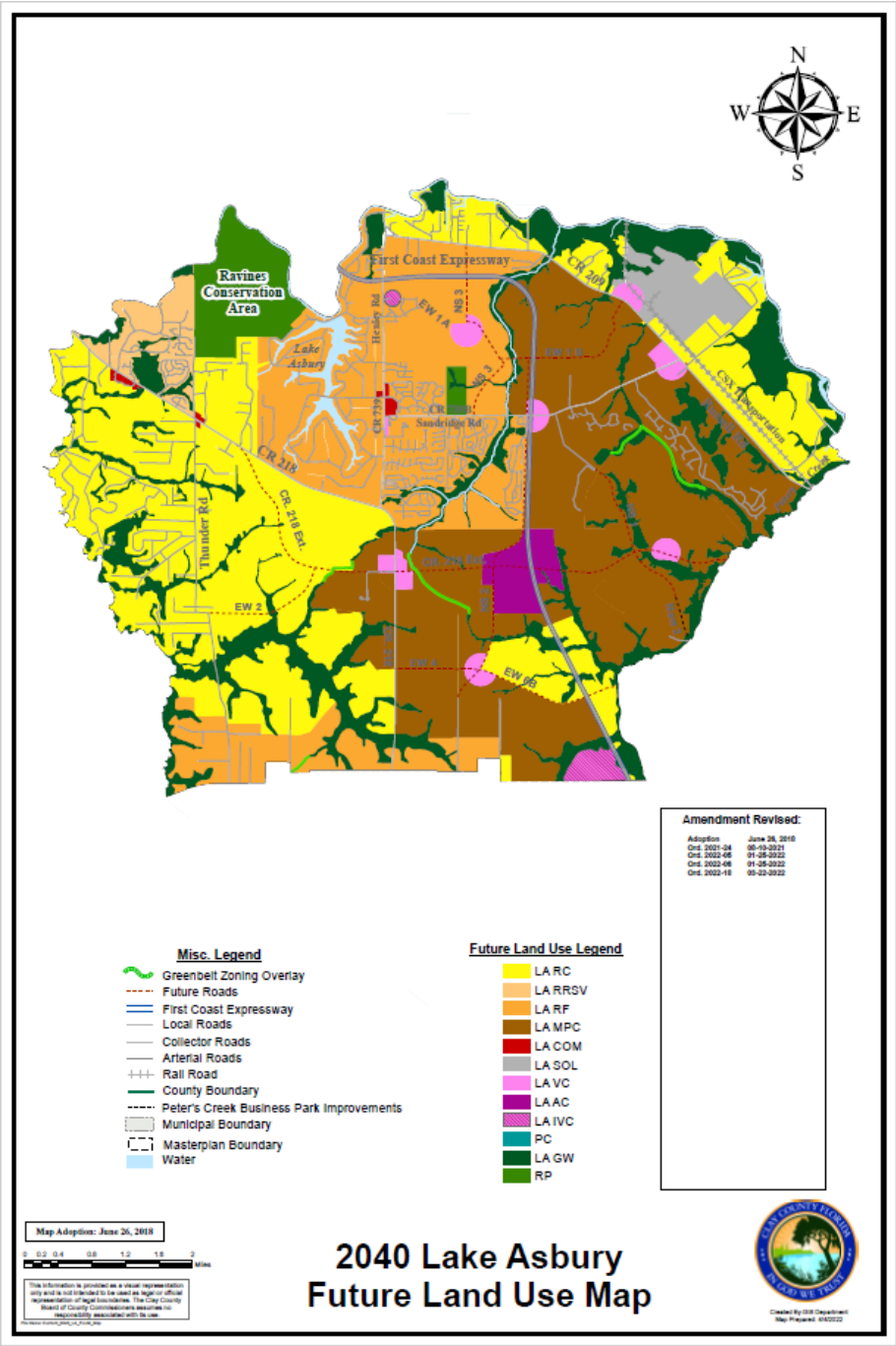
1. Introduction

In November 2006, the Clay County Board of County Commissioners adopted the current Lake Asbury Master Plan (Master Plan), which includes various policies covering future land use (LA FLU), community facilities (LA CFE), and conservation (LA CON). The Lake Asbury Master Plan Area, or LAMPA, is approximately 30,000 total acres, bounded by Black Creek to the north and west, Peters Creek to the east, and State Road (SR) 16 to the south.

The entirety of the LAMPA is within the Clay County Utility Authority service area. To reiterate CCUA's obligation to provide utility services, LA FLU Policy 1.3.2 states, "The Clay County Utility Authority *[CCUA]* shall provide potable water and wastewater facilities necessary to meet future demands."

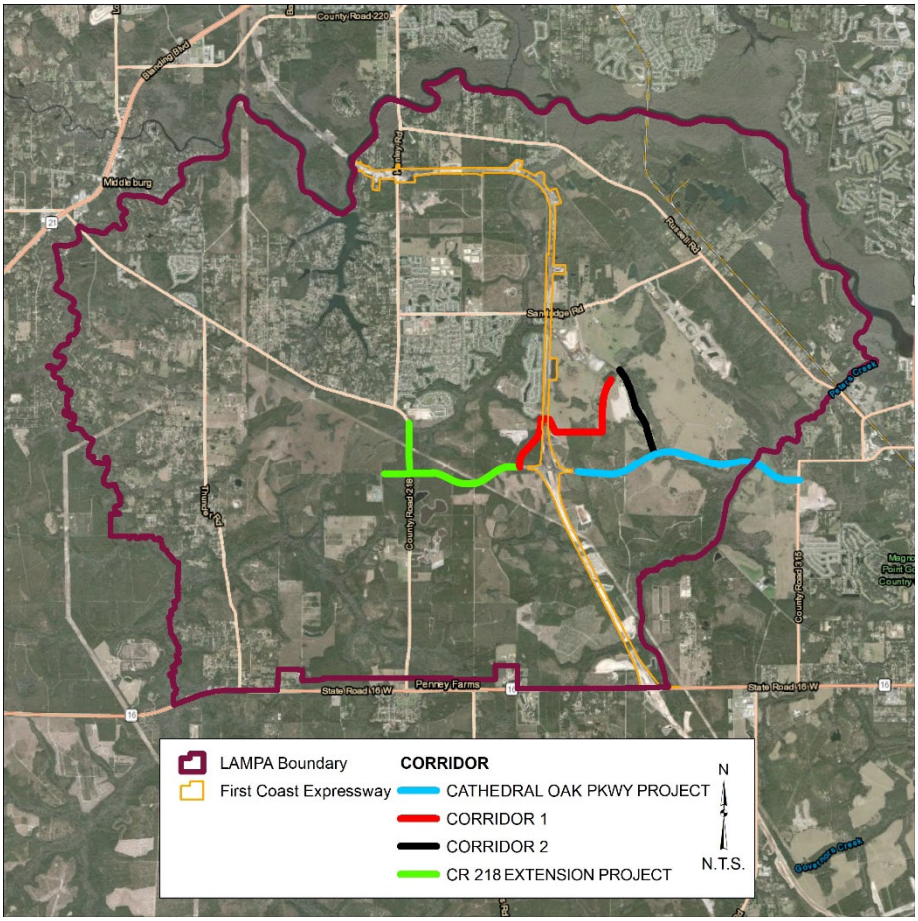
The development plan for LAMPA includes a mix of residential, commercial, municipal, and recreational uses. The current Future Land Use Map (FLUM), adopted in March 2022 and shown as **Figure 1.1**, shows most of the higher density suburban development concentrated in the south and east quadrants along the corridor of the future First Coast Expressway (FCE), currently under construction by the Florida Department of Transportation (FDOT). The north and west quadrants are slated to remain predominately lower density rural.

Figure 1.1 – Lake Asbury Future Land Use Map



CCUA seeks to support the success of the Lake Asbury development by pioneering key potable water, wastewater and reclaimed water transmission mains in the vicinity of the impending County Road (CR) 218 extension / Cathedral Oak Parkway, which will serve as east-west collector roads for the new FCE. CCUA expects those roads, which are slated to be complete by late 2024, will spur a significant increase in development along those corridors. Recognizing that the most expeditious and economical means of installing new utility infrastructure is in conjunction with planned projects, CCUA identified four corridors for inclusion in this feasibility and sizing evaluation that are within existing project scopes or rights of way/easements, as shown in **Figure 1.2**.

Figure 1.2 – Trunk Main Target Corridors



1.1 Objective

This Lake Asbury Master Plan Area Trunk Main Engineering Report evaluates both the current and future demands for potable water, wastewater and reclaimed water suggested in the LA FLU Policy to determine what trunk mains may be needed in the four target corridors identified by CCUA; the appropriate sizing of those trunk mains; and whether any existing infrastructure requires improvements to meet CCUA's obligation to provide potable water, wastewater and reclaimed water services in the LAMPA development through the full build-out by 2040. This Engineering Report includes the location, size and demand for projects deemed necessary for the total projected build-out of the LAMPA as outlined in the Master Plan; identifies the areas in the LAMPA that will most immediately directly benefit from the recommended projects; and provides a planning level capital cost estimates for those projects with a proposed apportionment of those costs to the ERCs projected within immediate benefitting areas. For the purposes of this analysis, "immediate direct benefit" is considered development anticipated within the next 10 years that would be dependent on the availability of one or more of the proposed trunk mains. CCUA chose 10 years as a reasonably foreseeable planning period, as opposed to a 15- or 20-year period, which it considers to be more speculative.

2. Existing Conditions and Planned Improvements

2.1 Potable Water System

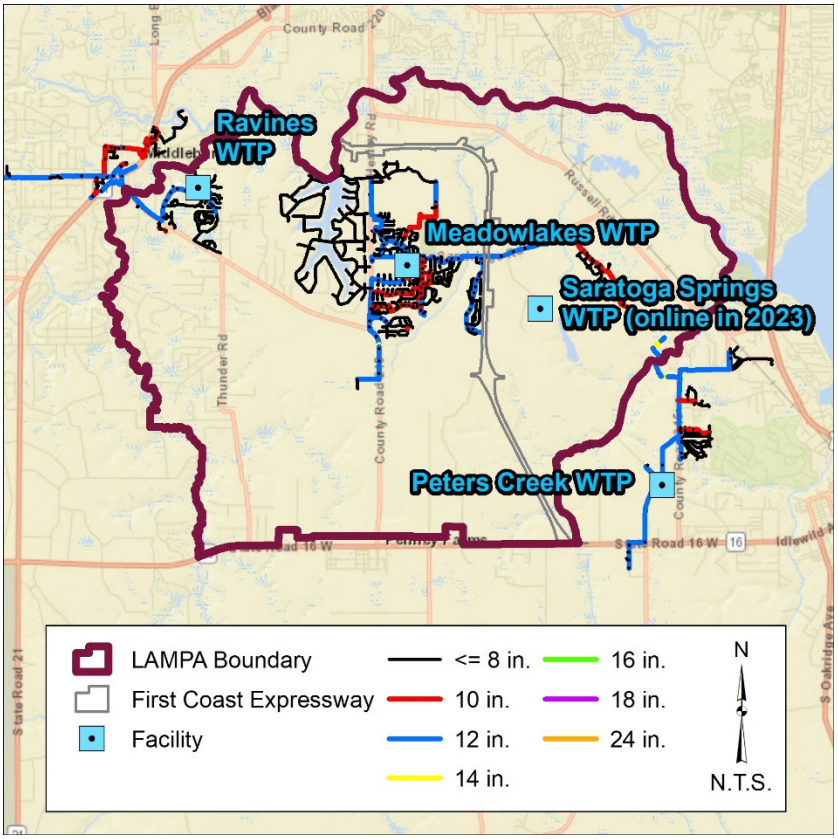
CCUA anticipates most of the potable water supplied to the LAMPA will originate from two existing water treatment plants (WTP): Meadow Lake (formerly known as Lake Asbury) and Peters Creek (formerly known as Green Cove West), as well as a third plant, Saratoga Springs, that is projected to be in service

in 2023. CCUA has upgrades under construction at the Meadow Lake WTP, however those improvements are focused on redundancy and reliability and will not increase design capacity. CCUA is planning an expansion at the Peters Creek WTP to increase the total permitted maximum day operating capacity to 4.03 MGD. These plants and associated improvements are described in greater detail in **Table 2.1.1**. **Figure 2.1.1** shows the existing potable water system in the vicinity of the LAMPA.

Table 2.1.1 – Existing Water Plants & Planned Improvements

FACILITY NAME	CURRENT PERMITTED CAPACITY (MGD)	NEW PERMITTED CAPACITY (MGD)	EST. PROJECT COMPLETION
Meadow Lake WTP	4.76	No Change	Fall 2023
Peters Creek WTP	0.74	4.03	Late 2024
Saratoga Springs WTP	n/a	2.30	Fall 2023

Figure 2.1.1 – Existing Potable Water System in LAMPA Vicinity



2.2 Wastewater System

CCUA has two advanced wastewater treatment (AWT) Wastewater Reclamation Facilities (WRF) whose service areas include the LAMPA: Mid-Clay Regional WRF (FDEP ID FLA011377) and Peters Creek WRF (FDEP ID FLA327841, formerly known as Green Cove West).

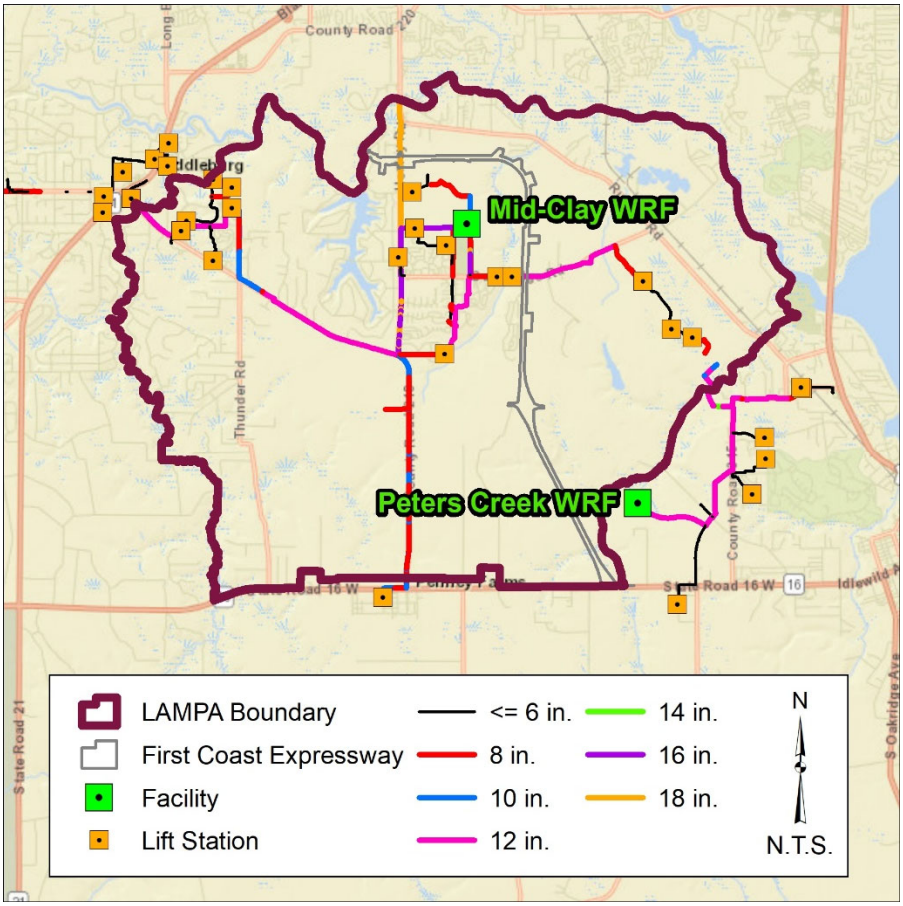
CCUA has completed construction to increase the wastewater treatment capacity of the Mid-Clay WRF from 1.5 to 3.0 MGD. Additionally, CCUA is currently constructing a new Peters Creek WRF (replacing the existing 0.2 MGD facility) with a regional facility with an initial capacity of 1.5 MGD. This regional facility will be expandable up to approximately 10 MGD in phases as the region grows. These plants and

associated improvements are described in greater detail in **Table 2.2.1**. The existing wastewater transmission network in the LAMPA vicinity is shown in **Figure 2.2.1**.

Table 2.2.1 - Existing Wastewater Plants & Planned Improvements

FACILITY NAME	CURRENT PERMITTED CAPACITY (MGD)	NEW PERMITTED CAPACITY (MGD)	EST. PROJECT COMPLETION
Mid-Clay Regional WRF	1.50	3.0	In Service
Peters Creek WRF	0.20	1.5	December 2024

Figure 2.2.1 – Existing Wastewater System in LAMPA Vicinity



2.3 Reclaimed Water System

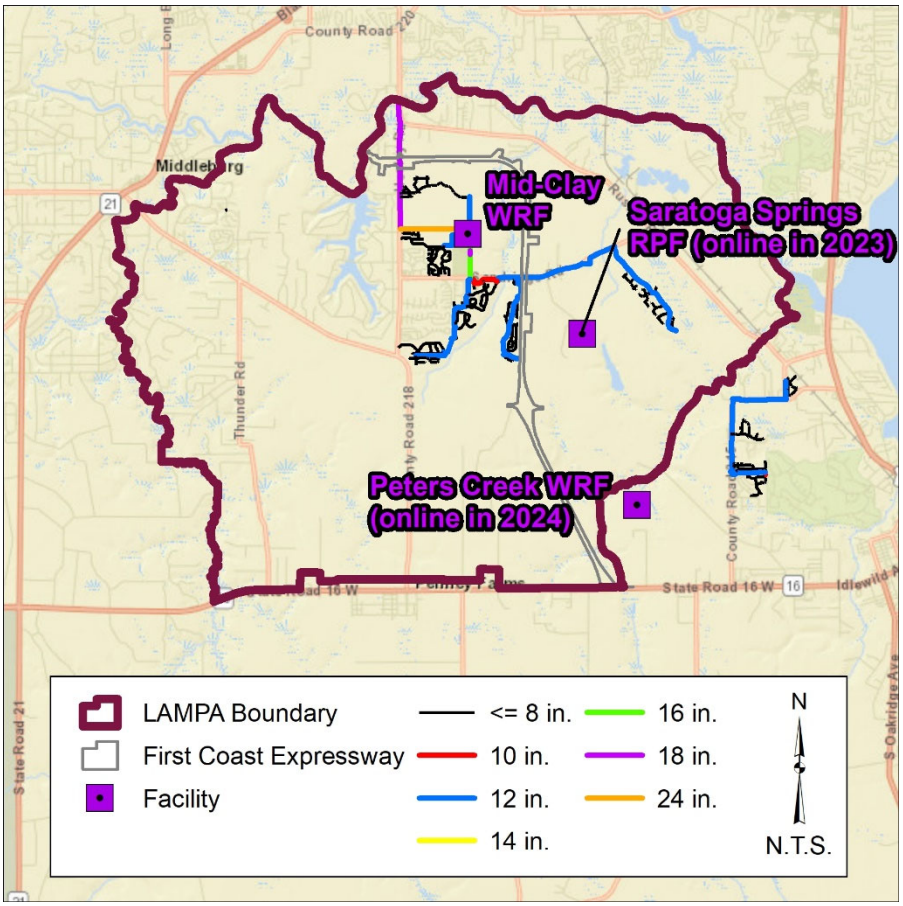
CCUA is deeply invested in the continued growth of its reclaimed water system, recognizing that full reclaimed utilization helps ease demands for potable water, thereby reducing reliance on the Floridan Aquifer and forestalling the need for more expensive alternative supply techniques. The CCUA Service Availability Policy requires installation and use of reclaimed water facilities in new developments, which is reiterated in the LA CFE Policy 1.2.2.

Public access reuse (PAR) water in the LAMPA is expected to be supplied by CCUA's two AWT WRFs, Mid-Clay and Peters Creek, and the Saratoga Springs Reclaimed Pumping Facility (RPF). The Saratoga Springs RPF will provide supplemental PAR from either a groundwater well or from treated water received from Mid-Clay. These plants and associated improvements are described in greater detail in **Table 2.3.1**. **Figure 2.3.1** illustrates the existing reclaimed water system in the LAMPA vicinity.

Table 2.3.1 – Existing Reclaimed Water Facilities & Planned Improvements

FACILITY NAME	CURRENT PERMITTED CAPACITY (PAR MGD)	NEW PERMITTED CAPACITY (PAR MGD)	EST. PROJECT COMPLETION
Mid-Clay Regional WRF	2.07	n/a	In Service
Peters Creek WRF	n/a	1.50	December 2024
Saratoga Springs RPF	n/a	2.30	Fall 2023

Figure 2.3.1 – Existing Reclaimed Water System in LAMPA Vicinity



3. Hydraulic Modeling and Trunk Main Sizing

The hydraulic model is a vital tool for understanding CCUA's potable water, reclaimed water, and wastewater systems' hydraulic behavior. It is also crucial to assessing the systems' capacities in relation to the estimated progression of the LAMPA development build-out, and in determining the feasibility and sizing of trunk mains in the four corridors identified by CCUA. The goal of the hydraulic modeling was to evaluate how the addition of new trunk mains in the four target corridors would support existing customers and future LAMPA demands, while maintaining appropriate levels of service (LOS). It also served to either affirm the sizing of existing trunk mains or suggest that improvements may be necessary.

CCUA engaged Dewberry Engineers, Inc. to update its current potable water, reclaimed water, and wastewater models based on CCUA's planned facility improvements. Beyond this immediate project, these updated hydraulic models will assist CCUA in evaluating the future projects, develop long-range Capital Improvement Plans, and provide minimum design standards for developments within LAMPA.

3.1 Future Demand Development

LA FLU Policy 1.1.5 states development within the LAMPA is limited to 21,281 residential units through 2040. Though the Master Plan contemplates commercial development, it does not provide an equivalent unit-based cap. **Table 3.1.1** provides the range of allowable land use densities as shown in LA FLU Policy 1.4.1, as well as the estimated total developable acreage. Dewberry worked with CCUA to calculate estimated "developable acreage" based on a high-level evaluation of property characteristics within LAMPA. Lands with one or more of the following attributes were omitted from the calculation of developable acreage:

- Development restricted based on land use (e.g. Lake Asbury Greenway - LA GW).
- Existing approved subdivision developments that are not subject to the requirements of the Master Plan pursuant to LA FLU Policy 1.4.13.
- Lands typically considered unsuitable for development based on environmental characteristics such as soil type, elevation, vegetation, and/or existing high-water areas.

Also, the analysis did not consider specific development allowances or restrictions that may be in the Master Plan and assumed ERC calculations that totaled more than 21,281 could reasonably be attributable to commercial development. Ultimately, the exact acreage would be confirmed by field analysis and through the permitting process prior to any development occurring and are only identified for planning purposes.

Table 3.1.1 - LAMPA Densities by Land Use

LAND USE CATEGORY	TYPE USE	BASE DENSITY	MAXIMUM DENSITY
LA Rural Community (LA RC)	Single-Family Detached	1 unit per 5 net acres	2 unit per net acre
LA Rural Fringe (LA RF)	Single-Family Detached	1 unit per net acre allowed	3 units per net acre
LA Rural Reserve (LA RR SV)	Single-Family Detached	1.5 units per gross acre allowed	1.5 units per gross acre
LA Master Planned Community (LA MPC)	Single-Family Detached	3 units per net acre allowed	5 units per net acre

LAND USE CATEGORY	TYPE USE	BASE DENSITY	MAXIMUM DENSITY
LA Master Planned Community (LA MPC)	Single-Family Attached	6 units per net acre allowed; 10 units per net acre allowed	12 units per net acre
LA Village Center (LA VC)	Single-Family Detached	5 units per net acre required	8 units per net acre
LA Village Center (LA VC)	Single-Family Attached / Multi-Family	6 units per net acre required; 10 units per net acre allowed	16 units per net acre
LA Activity Center (LA AC)	Single-Family Attached / Multi-Family	8 units per acre required; 10 units per net acre allowed	24 units per net acre

Based on conversations with CCUA and analysis of general development trends in Clay County, the density ranges were converted to Equivalent Residential Connections (ERCs) as low, medium and high singular values per net acre for each land use type, as shown in **Table 3.1.2,** then allocated in the model to the land uses' developable acreage.

The methodology for setting the ERC values varied by land use type as follows:

- **LA RC**: Low ERC value determined by calculating the per one (1) acre equivalent of 1 unit per 5 acres. Medium value is average of Low and High, and High value is Master Plan maximum density.
- **LA RF**: Low and High are Master Plan densities; Medium is their average.
- **LA MPC**: Because the Master Plan contained two ranges for this land use, the Low and High values are the base and maximum across both ranges. The Medium represents the average of the base and maximum for Single-Family Detached, which most closely represents CCUA's understanding of current typical development patterns in Clay County.
- **LA VC**: Similar to LA MPC, the Low and High values are the base and maximum across both ranges provided for this land use. The Medium value is the average of the Single-Family Detached range average and the Single-Family Attached/Multifamily range average.
- **LA AC**: The Master Plan density table provides a base, middle and maximum value in the range for this land use.

Additionally, since commercial square-footage is not known, all net acreage was converted to ERCs.

Table 3.1.2 – ERC Values by Category

LAND USE CATEGORY	LOW ERC PER NET ACRE	MEDIUM ERC PER NET ACRE	HIGH ERC PER NET ACRE	DEVELOPABLE ACRES (ROUNDED)
LA Rural Community (LA RC)	0.2	1.1	2	2,176
LA Rural Fringe (LA RF)	1	2	3	521
LA Master Planned Community (LA MPC)	3	4	12	4,670

LAND USE CATEGORY	LOW ERC PER NET ACRE	MEDIUM ERC PER NET ACRE	HIGH ERC PER NET ACRE	DEVELOPABLE ACRES (ROUNDED)
LA Village Center (LA VC)	5	8	16	122
LA Activity Center (LA AC)	8	10	24	287

Future demands were developed using an annual average daily flow (AADF) gallons per day (GPD) per ERC for potable water, wastewater, and reclaimed water. The flows per ERC utilized in the updated hydraulic models were based on engineering judgement, CCUA historic billing data, and consultation with CCUA staff.

3.2 Potable and Reclaimed Water

3.2.1 Potable and Reclaimed Water Model Development

CCUA's existing potable and reclaimed water models were developed in InfoWater Pro and use the Hazen-Williams equation to calculate flows, pressures, head loss, and velocities in the pipes and junctions. The goal of the hydraulic modeling was to evaluate how the addition of new potable and reclaimed water trunk mains in the four target corridors would support existing customers and future LAMPA demands, while maintaining appropriate levels of service (LOS). It also served to either affirm the sizing of existing potable water mains or suggest that improvements may be needed.

The modeling focused on the main distribution trunk lines with stub-outs to the proposed developable areas; internal distribution piping for the developable areas were not included. Because of this, the hydraulic analysis did not consider fire flow and focused on the peak hour demand scenario that would be applicable for major trunk mains.

The scenarios used to evaluate the future conditions included Average Daily Demand (ADD) and Peak Hour Demand (PHD) and are explained further in **Table 3.2.1**. The main trunk lines were sized to handle the PHD.

Table 3.2.1 – Potable/Reclaimed Water System Criteria

CRITERIA	POTABLE STANDARD*	RECLAIMED STANDARD*
Maximum Velocity	6 ft./sec	6 ft./sec
Minimum Transmission Pressure	40 psi / peak hour	35 psi / peak hour
Maximum Transmission Pressure	100 psi	100 psi
Minimum Distributions Pressure	40 psi / peak hour	35 psi / peak hour
Annual Average Daily Flow per ERC	225 GPD/ERC	416 GPD/ERC**

*Peaking Factor = 4
**Model assumed only half of all possible ERCs using the service at any given time.

3.2.2 Future Demand Allocations

Future demands were allocated from the ERCs calculated from each land use's densities. Those ERCs were then spatially apportioned based on the estimated developable acreage in conjunction with engineering judgment and CCUA input.

An integrated looped potable water system was developed looping the Meadow Lakes WTP, Peters Creek WTP, and the Saratoga Springs WTP currently under construction. Similarly, an integrated reclaimed water system was developed by looping the Mid-Clay WRF, the future Peters Creek WRF, and the Saratoga Springs RPF that is under construction.

The analysis considered the total estimated demands at the LAMPA build-out to evaluate the hydraulic sufficiency, and main trunk lines were evaluated for location and size, while maintaining the required LOS throughout the integrated and looped potable and reclaimed water distribution systems.

3.2.3 Potable Water Trunk Main Sizing

The results of the hydraulic analysis found that the addition of potable water trunk mains is necessary in all four proposed corridors to support the full LAMPA build-out and are particularly critical to pioneer utilities that will allow for the development anticipated within the next 10 years.

The model suggests retaining a 12-inch potable main from the western terminus of the CR 218 Extension project east to connect to a new 16-inch potable trunk main, where it would connect to a 16-inch potable trunk main proposed for Corridor 1 (shown in red on the **Figure 1.2**). That main would run north then turn east via an existing casing under the FCE, finally turning north again to its terminus at the Saratoga Springs WTP.

The analysis for Corridor 2, shown in black on **Figure 1.2**, indicates a 12-inch potable trunk main is necessary to convey flows south from the Saratoga Springs WTP and connect to a short run of a 12-inch main on Cathedral Oak Parkway (blue on **Figure 1.2**), running west approximately 1,550 LF to a dead end pending a future connection to support for development to the south.

Exhibit B-1 presents the proposed alignment of the potable water trunk mains, the estimated directly benefitting developable areas and the number of ERCs associated with those areas. The estimated capital costs are detailed in **Table 3.2.2;** because the CR 218 Extension project has already been bid, the value shown reflects the actual bid values, including a pro-rata share of miscellaneous items such as general conditions, bonds and insurance, and permitting. The total actual and estimated capital costs for potable water trunk mains is **$8,540,725.85**.

Table 3.2.2 – Recommended Potable Water Trunk Mains

CORRIDOR	TRUNK MAIN DIAMETER (in)	TOTAL LENGTH (linear feet)	EST. BASE CAPITAL COST (rounded)	TOTAL EST. CAPITAL COST (incl. 20% contingency)
CR 218 Extension (green)	12 & 16	12,455	n/a	*$3,013,525.85 --actual--*
Cathedral Oak Pkwy (blue)	12	1,550	$317,000	$380,400
Corridor 1 (red)	16	10,930	$2,973,000	$3,567,600
Corridor 2 (black)	12	6,450	$1,316,000	$1,579,200
			TOTAL ESTIMATED COST:	**$8,540,725.85**

3.2.4 Reclaimed Water Trunk Main Sizing

The hydraulic analysis for the reclaimed water system indicated the same corridors as potable water are necessary, with some slightly different pipe sizes and a few notable additions. An additional segment of

reclaimed main is necessary east of the existing CR 218 to Shadowlawn Elementary, as well as from the existing CR 218 intersection with Shadowlawn Drive north to the vicinity of Henley Road.

The trunk main alignments are illustrated in **Exhibit B-2**. The estimated capital costs for the installation of new reclaimed water trunk mains are presented in **Table 3.2.3;** because the CR 218 Extension project has already been bid, the value shown reflects the actual bid values, including a pro-rata share of miscellaneous items such as general conditions, bonds and insurance, and permitting. The total estimated capital cost for reclaimed water trunk mains is **$10,206,221.28**.

Table 3.2.3 – Recommended Reclaimed Water Trunk Mains

CORRIDOR	TRUNK MAIN DIAMETER (in)	TOTAL LENGTH (linear feet)	EST. BASE CAPITAL COST (rounded)	TOTAL EST. CAPITAL COST (incl. 20% contingency)
CR 218 Extension (green)	12 & 20	16,775	n/a	*$4,679,021.28 --actual--*
Cathedral Oak Pkwy (blue)	12	1,550	$317,000	$380,400
Corridor 1 (red)	16	10,930	$2,973,000	$3,567,600
Corridor 2 (black)	12	6,450	$1,316,000	$1,579,200
			TOTAL ESTIMATED COST:	**$10,206,221.28**

3.3 Wastewater

3.3.1 Wastewater Model Development

CCUA's existing wastewater model, developed in InfoSewer, uses the Hazen-Williams equation to calculate flows, pressures, head loss, and velocities in the pipes and junctions in the model. The existing model contained both gravity systems and force main systems that contribute flows to the two WRFs that will serve the LAMPA, Mid-Clay and Peters Creek.

The hydraulic analysis for the wastewater system anticipates expanding the Mid-Clay service area for LAMPA developments west of the FCE and north of CR 218, and the Peters Creek service area for developments east of the FCE and predominantly south of CR 218.

Table 3.3.1 – Wastewater System Evaluation Criteria

CRITERIA	STANDARD*
Maximum Velocity	6 ft./sec
Minimum Velocity	2 ft./sec
Annual Average Daily Flow per ERC	169 GPD/ERC**

*Peaking Factor = 4, all pumps running condition.
**Wastewater flow reflects 3:4 ratio to potable

3.3.2 Future Demand Allocations

Future demands were allocated from the ERCs calculated from each land use's densities. Those ERCs were then spatially allocated based on the estimated developable acreage in conjunction with engineering judgment and CCUA input. The analysis of the full LAMPA demands was used to evaluate the hydraulic

sufficiency, and accordingly the main trunk lines were sized while maintaining the required LOS throughout the system.

3.3.3 Wastewater Force Main Sizing

The initial evaluation of the four trunk main corridors revealed that force mains in Corridors 1 and 2 (red and black on **Figure 1.2**) would be unnecessary due to the existing service area boundaries of Mid-Clay and Peters Creek WRFs. Therefore, the model used the hydraulic standards shown in Table 3.3.1 to facilitate sizing of the force main in the CR 218 Extension and along the planned Cathedral Oak Parkway, which will be an east-west connector between the FCE and CR 315.

For the CR 218 Extension, the hydraulic analysis calls for a 10-inch force main from the eastern terminus of the project (near the FCE interchange) running west approximately 1,100 LF, transitioning to a 12-inch force main to connect with the existing force main system on CR 218. A 1,700 LF section of 10-inch force main is needed from Shadowlawn Elementary to move flow east to the existing CR 218 system, which will convey flows north to Mid-Clay.

On the east side of the FCE, the model suggests a 6-inch force main from the Cathedral Oak/FCE interchange, increasing to short run of 10-inch force main before transitioning to 16-inch to connect to the existing 12-inch force main system on CR 315, which will move flows south to Peters Creek.

However, that existing 12-inch force main can only accommodate an additional flow equivalent to roughly 1,250 ERCs before reaching maximum operating capacity. This is insufficient to support the projected build-out of the portion of the LAMPA that would be served by this force main system in addition to the dependent developments outside of LAMPA. To adequately convey future flows from within the LAMPA, as well as additional development projected outside the LAMPA boundary, the model indicates the system will require approximately 9,100 LF of 20-inch force main parallel to the 12-inch along CR 315, to run south and connect to a 24-inch force main to convey flow west to Peters Creek WRF.

The wastewater trunk main alignments are illustrated in **Exhibit B-3**. The estimated capital costs for the installation of new wastewater water trunk mains are presented in **Table 3.3.2**; because the CR 218 Extension project has already been bid, the value shown reflects the actual bid values, including a pro-rata share of miscellaneous items such as general conditions, bonds and insurance and permitting. The total estimated capital cost for wastewater trunk force mains is **$12,128,168.44**.

Table 3.3.2 – Wastewater Trunk Main Sizing

CORRIDOR	TRUNK MAIN DIAMETER (in)	TOTAL LENGTH (linear feet)	EST. BASE CAPITAL COST (rounded)	EST. TOTAL CAPITAL COST (incl. 20% contingency)
CR 218 Extension (green)	10 & 12	9,415	n/a	*$1,509,368.44 --actual--*
Cathedral Oak Pkwy (blue)	6	1,820	$3,409,000	$4,090,800
	10	1,800		
	16*	10,720		
-New Segment- CR 315 Parallel Main & Peters Creek WRF Spur	20	9,100	$5,440,000	$6,528,000
	24	5,750		
			TOTAL ESTIMATED COST:	**$12,128,168.44**

*The model indicated a peak flow velocity of 5.26 ft/s would occur in a 7,200 LF section of the 16-inch segment on Cathedral Oak Parkway. While that is higher than typically desired, it is still within tolerance and less than the maximum acceptable velocity of 6 ft/s, and the model ran in an "all pumps on" scenario, which would be a very rare occurrence. That section could be upsized to 20-inch force main to reduce that peak velocity, but with an increased cost of more than $600,000 as shown in **Table 3.3.3**. We do not believe this change yields sufficient benefit compared to the recommended trunk main sizing at an estimated $4,090,800 as shown in **Table 3.3.2**.

Table 3.3.3 – Cathedral Oak Pkwy Alternate Force Main Sizing

CORRIDOR	TRUNK MAIN DIAMETER (in)	TOTAL LENGTH	PEAK VELOCITY (ft/s)	TOTAL EST. CAPITAL COST (incl. 20% contingency)
Cathedral Oak Pkwy (blue)	6	1,800	3.13	$4,717,200
	10	2,000	2.35	
	16	3,500	3.12	
	20	7,220	3.36	

4. Report Summary and Recommendations

Based on the results of the hydraulic modeling, the immediate and future development of the Lake Asbury Master Plan Area is reliant on the installation of several key trunk mains for potable water, wastewater, and reclaimed water. Without this critical infrastructure, CCUA cannot commit to provide those services in a timely and cost-effective manner within the LAMPA.

CCUA has elected to pioneer these trunk mains to ensure they are in service in a timely fashion to support impending development in the LAMPA, rather than await installation by private entities under its existing Service Availability Policy. A summary of recommended trunk mains and their associated total capital costs is presented in **Table 4.1**.

CCUA directed Dewberry to fairly and equitably apportion the estimated costs of the recommended trunk mains to the ERCs projected to develop within the next 10 years and thus most immediately benefit from the availability of service. The utilities were evaluated independently, so that the costs are apportioned only amongst those ERCs that would benefit from a particular utility service.

More specifically, Dewberry calculated, to the best of their ability and based upon local information available at the time, the number of ERCs dependent on the availability of each trunk main, then calculated the percent of each trunk main's total capacity that would be required by those ERCs. That percentage was then applied to the total cost of each main, then divided by the number of ERCs to produce a cost per ERC as shown in **Table 4.2**. The number of ERCs presented in **Table 4.2** represent the Medium values as described in Section 3.1 – Future Demand Development, and shown in **Table 3.1.2**. Exhibits B-1, B-2 and B-3 provide the estimated Low, Medium and High ERC values and the corresponding estimated costs per ERC.

The calculation of the cost per ERC for potable water, reclaimed water, and wastewater trunk main availability is designed to have a rational nexus both as to the need for additional capital facilities and as to the expenditure of funds collected and the benefits accruing to the first phases of development within the Lake Asbury Master Plan Area.

Table 4.1 – Summary of Recommended Trunk Mains

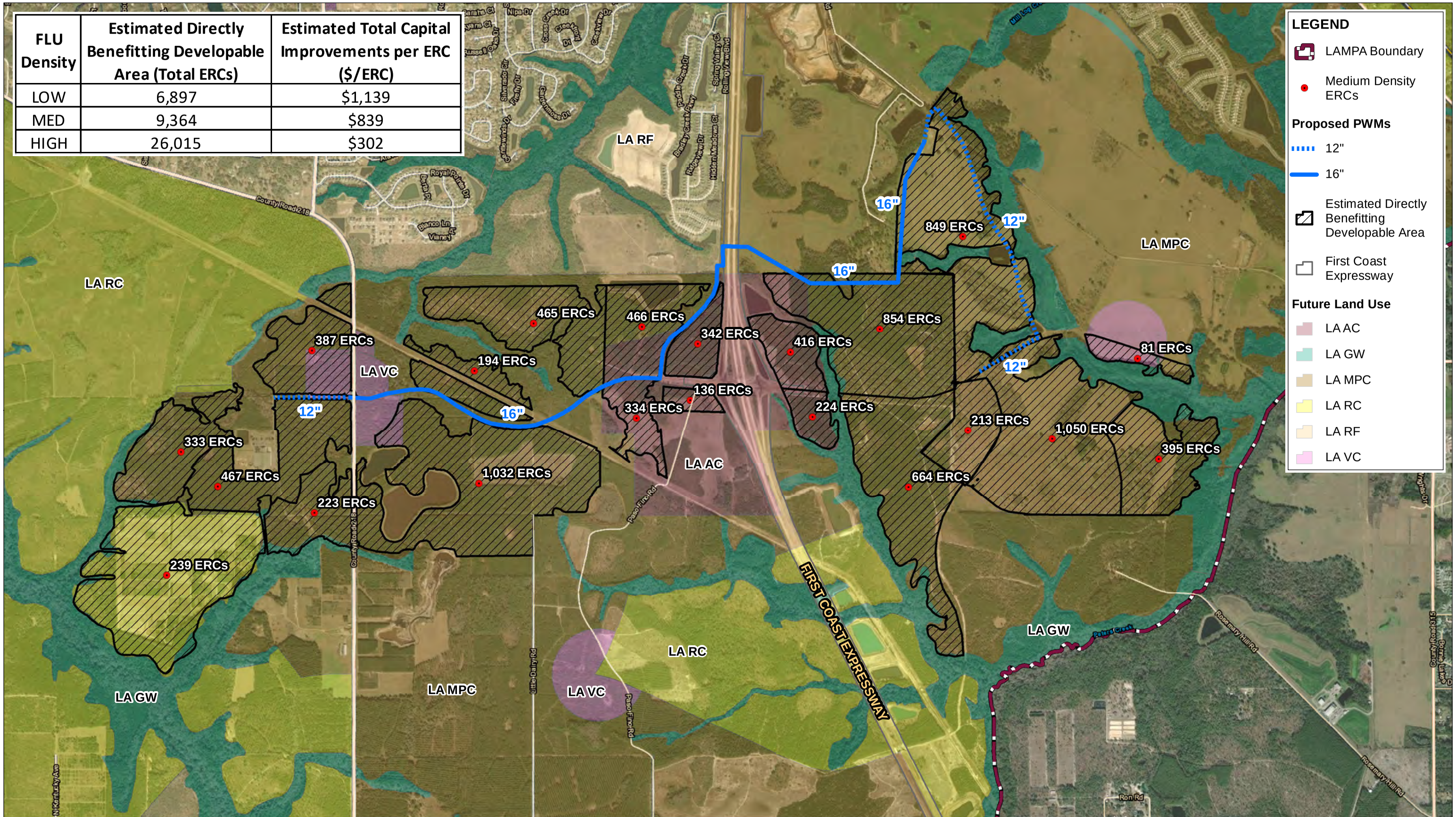
CORRIDOR	UTILITY	EST. CAPITAL COST BY UTILITY (incl. 20% contingency)	TOTAL EST. CAPITAL COST BY SEGMENT
CR 218 Extension (green)	Potable Water	$3,013,525.85	*$9,201,915.57 --actual--*
	Reclaimed Water	$4,679,021.28	
	Wastewater	$1,509,368.44	
Corridor 1 (red)	Potable Water	$3,567,600	$7,135,200
	Reclaimed Water	$3,567,600	
Corridor 2 (black)	Potable Water	$1,579,200	$3,158,400
	Reclaimed Water	$1,579,200	
Cathedral Oak Parkway (blue)	Potable Water	$380,400	$4,851,600
	Reclaimed Water	$380,400	
	Wastewater	$4,090,800	
-New Segment- CR 315 / Peters Creek Spur	Wastewater	$6,528,000	$6,528,000
	TOTAL ESTIMATED UNAPPORTIONED COST:		**$30,875,115.57**

Table 4.2 – Estimated Direct Benefit ERCs and Cost per ERC by Utility

UTILITY	TOTAL ESTIMATED COST	% APPORTIONED	APPORTIONED COST (rounded)	ERCs*	COST PER ERC
Potable Water	$8,540,725.85	92%	$7,858,000	9,364	$839
Reclaimed Water	$10,206,221.28	98%	$10,003,000	9,364	$1,068
Wastewater**	$12,128,168.44	Approx. 93%	$11,270,000	12,657	$890
	$30,875,115.57		**$29,131,000**		**$2,798**

*Based on Medium density as shown in Table 3.1.2
**Apportioned cost derived from calculations for segments of Cathedral Oak Pkwy and CR 315 inside and outside the LAMPA to isolate capacity usage solely by flows originating from the LAMPA benefitting ERCs. The % apportioned is the quotient of the apportioned cost and the total estimated cost.

FLU Density	Estimated Directly Benefitting Developable Area (Total ERCs)	Estimated Total Capital Improvements per ERC ($/ERC)
LOW	6,897	$1,139
MED	9,364	$839
HIGH	26,015	$302



GLAY COUNTY UTILITY AUTHORITY

Dewberry

N W E S

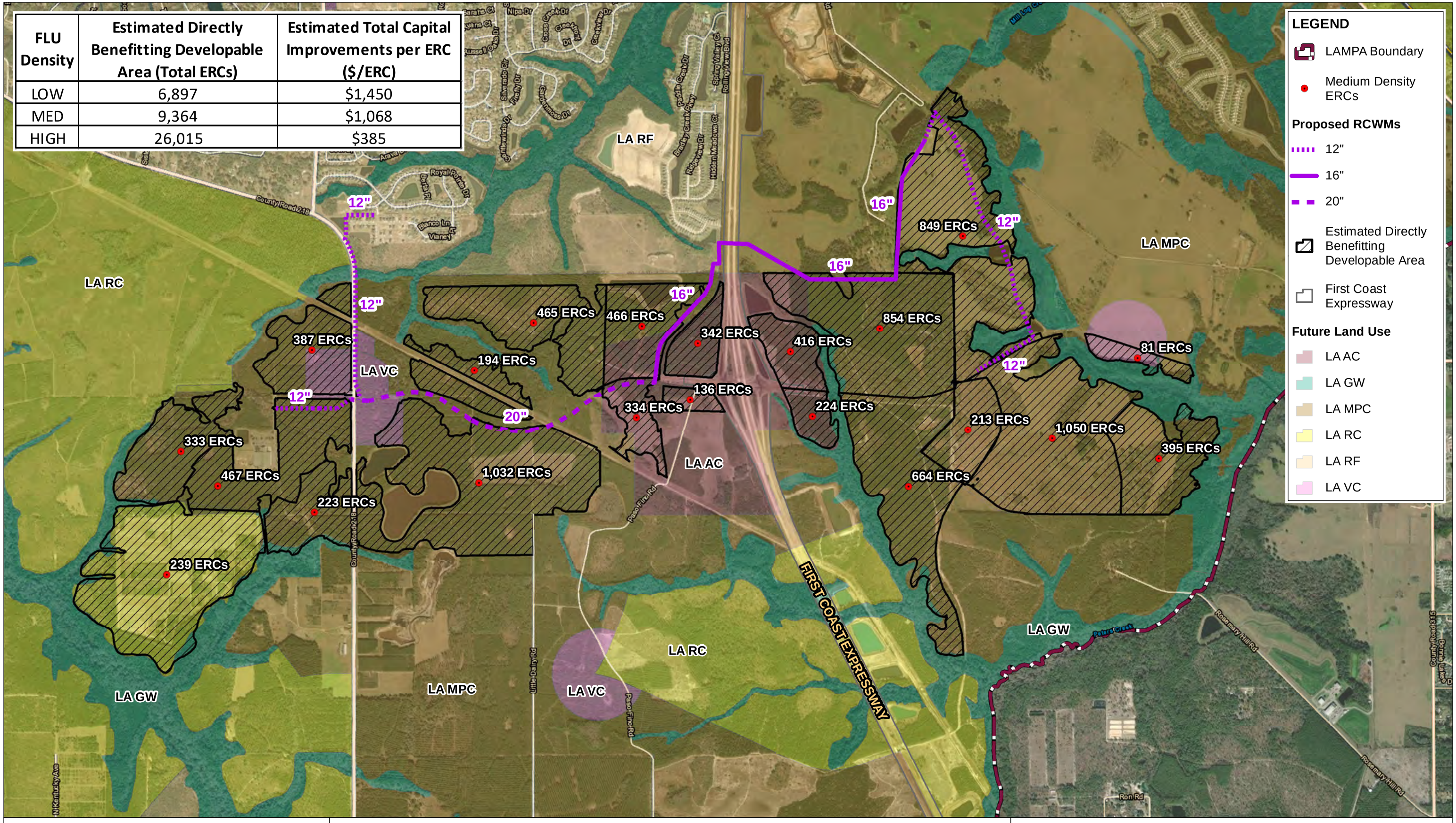
0 1,000 2,000 Feet

1 inch = 2,000 feet

NOTE:
Future Land Use per Clay County, Florida (Nov-2022)
Medium Future Land Use Densities Shown

LAKE ASBURY MASTER PLAN AREA
TRUNK LINE CAPITAL COST RECOVERY POLICY
EXHIBIT B-1: POTABLE WATER

FLU Density	Estimated Directly Benefitting Developable Area (Total ERCs)	Estimated Total Capital Improvements per ERC ($/ERC)
LOW	6,897	$1,450
MED	9,364	$1,068
HIGH	26,015	$385



CLAY COUNTY UTILITY AUTHORITY

Dewberry

N
W E
S

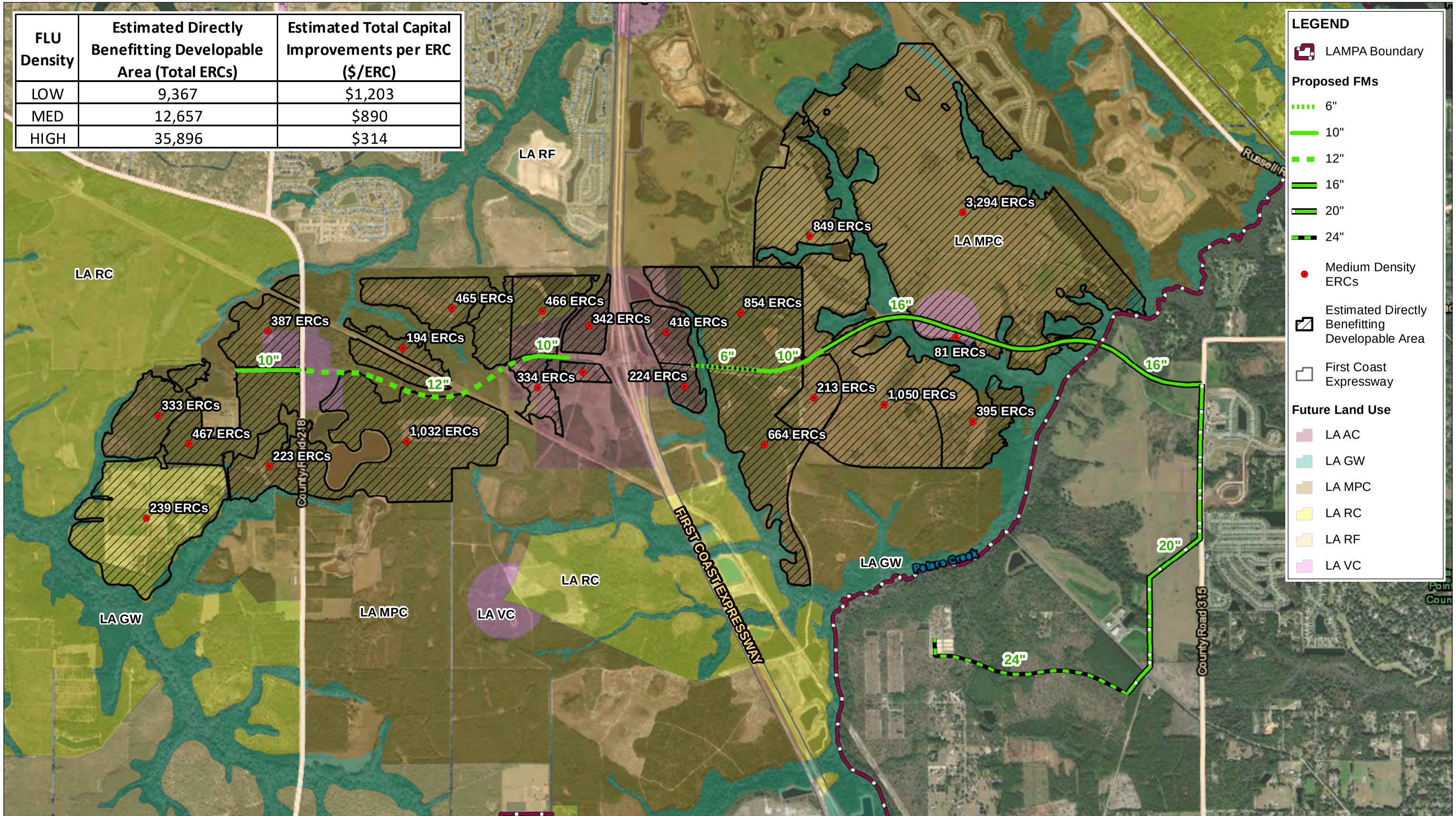
0 1,000 2,000 Feet

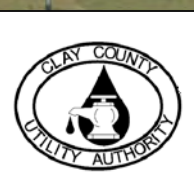
1 inch = 2,000 feet

NOTE:
Future Land Use per Clay County, Florida (Nov-2022)
Medium Future Land Use Densities Shown

LAKE ASBURY MASTER PLAN AREA
TRUNK LINE CAPITAL COST RECOVERY POLICY
EXHIBIT B-2: RECLAIMED WATER

FLU Density	Estimated Directly Benefitting Developable Area (Total ERCs)	Estimated Total Capital Improvements per ERC ($/ERC)
LOW	9,367	$1,203
MED	12,657	$890
HIGH	35,896	$314





Dewberry

0 1,200 2,400 Feet

1 inch = 2,400 feet

NOTE:
Future Land Use per Clay County, Florida (Nov-2022)
Medium Future Land Use Densities Shown

LAKE ASBURY MASTER PLAN AREA
TRUNK LINE CAPITAL COST RECOVERY POLICY
EXHIBIT B-3: WASTEWATER