CONNECTED CITY

CONCEPTUAL UTILITY PLAN

November 10, 2016 Draft

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METRO DEVELOPMENT GROUP

PASCO COUNTY FLORIDA
OPEN SPACES. VIBRANT PLACES.

CONTENTS

	PAGE
Introduction	1
CCSPA Boundary Map	2
Potential Utility Locations	3-4
Summary of Existing Facilities and Treatment Facilities	5-8
Potable Water Plan	9
Summary of Proposed System	9
Summary of Anticipated Flows	9
Conceptual Potable Water Plan	10
Wastewater Plan	11
Summary of Proposed System	11
Summary of Anticipated Flows	11
Conceptual Wastewater Plan	12
Reclaimed Water Plan	13
Summary of Proposed System	13
Summary of Anticipated Flows	13
Conceptual Reclaimed Water Plan	14

INTRODUCTION

The purpose of the Utilities System within the Connected City is to provide the basic utility infrastructure to create cleaner and healthier communities. The transition from the existing conditions to the proposed vision will require a robust potable water transmission system, wastewater collection system and reclaimed water distribution system. These utilities are anticipated to be all underground and located within the public rights-of-ways associated with the Connected City Master Roadway Plan. The limits of the Connected City are shown on the following CCSPA Boundary map.

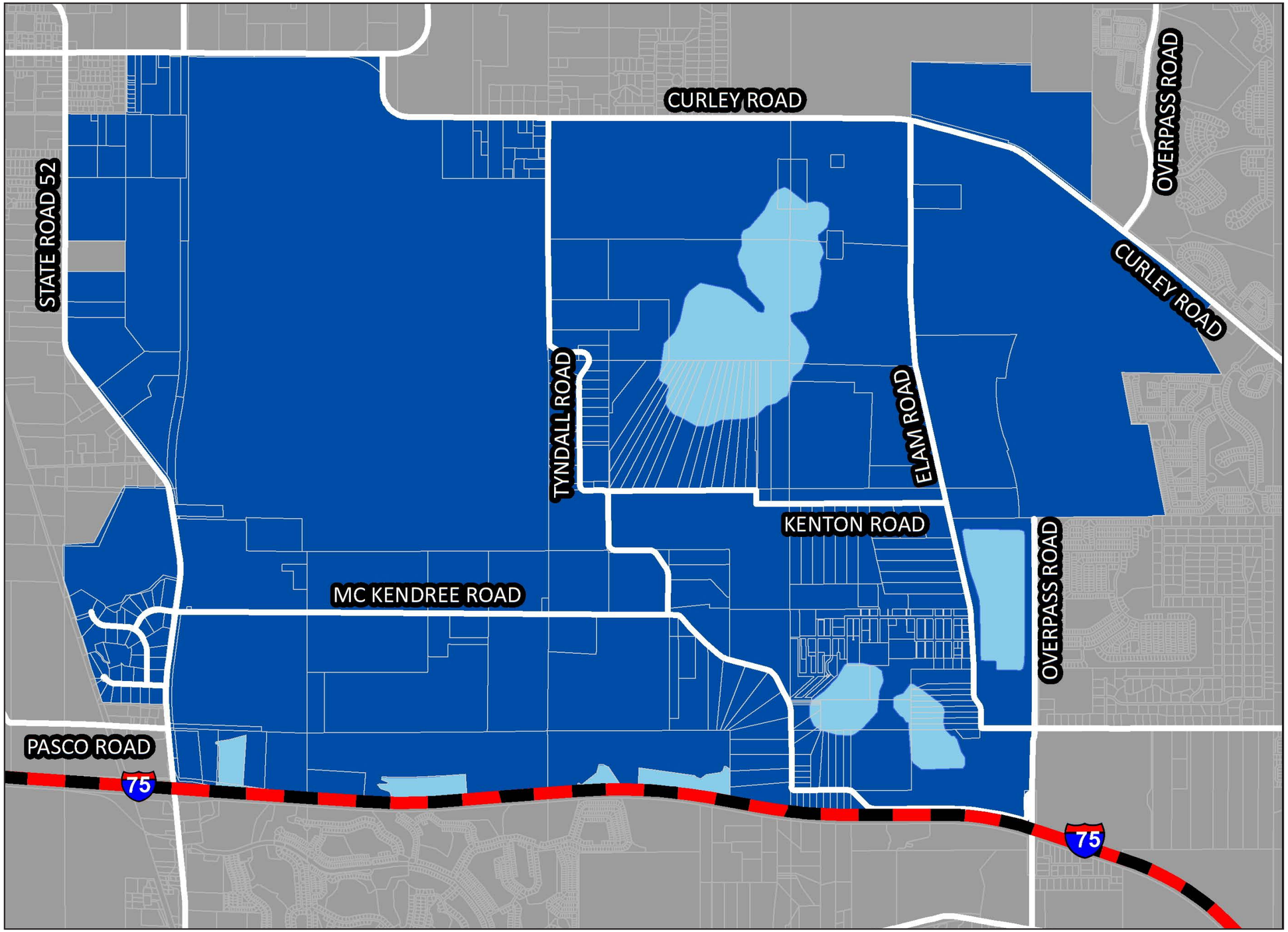
The Conceptual Utility Plan for the Connected City consists of a Potable Water Plan, Wastewater Plan, and Reclaimed Water Plan. The term “conceptual” is to denote the evolving nature of both this specific development and the industry as a whole, given the 50 year time frame. For example, a 50 year Conceptual Utility Plan generated in 1966 would not have envisioned the presence of reclaimed water which is a reality in this current planning year. The plans for Potable Water, Wastewater and Reclaimed Water will be adopted by ordinance and maintained by the Connected City Stewardship District. The Connected City Stewardship District will update the Conceptual Utility Plan in conjunction with the Financial Plan updates or as otherwise required for significant changes. The Conceptual Utility Plan presents hydraulic capacities required of major trunk lines to deliver/collect flows projected using the entitlements from the Connected City Special Planning Area Overlay. The remainder of the collection and distribution systems that will be required to complete the utility systems shall be the responsibilities of individual applicants seeking service. Applications shall meet all specific submittal and permitting applications in effect at the date of the submittal.

The intent of the Utilities System within the Connected City is to provide the most predictable blueprint possible for the incremental implementation of the extensive utility systems necessary to achieve the vision within the planning horizon. The initial applicants must be able to rely upon the clear and consistent implementation over time by future applicants to achieve the extensive and interconnected systems. This will be accomplished through a combination of required Master Utility Plans by the individual applicants and the as needed updates previously mentioned to account for the ongoing progression of the project, the utility industry, and implemented standards.

The applicants seeking service will be required to connect to the Utility Plan infrastructure with the collection and distribution systems they require to provide service to their intended development applications. Additionally, the applicants will be required to construct the necessary portion of each of the Utility Plans that they may require to obtain a point of connection for service, or additionally, extend the Utility Plan infrastructure to ensure the proper and safe performance of the overall systems as determined by the applicant’s Master Utility Plan. The following figures illustrate some possible locations of proposed utilities within the rights of way of the Connected City.

Lastly, the use of technology will be encouraged by everyone within the Connected City. For utilities, currently this includes the use of Smart Irrigation Systems and Smart Water Meters to reduce consumption rates and the availability of the Fiber network to optimize control of the system. In the future, additional new technologies will be incorporated into the system.

CCSPA BOUNDARY MAP



Map Created by:

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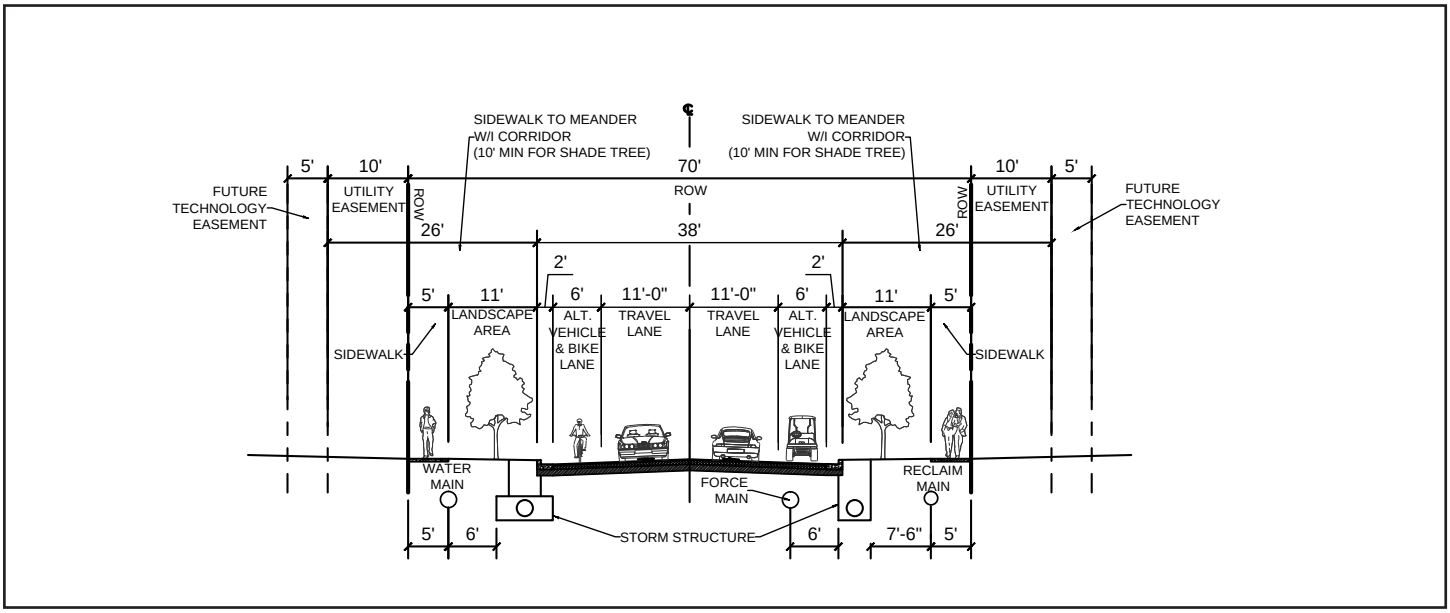
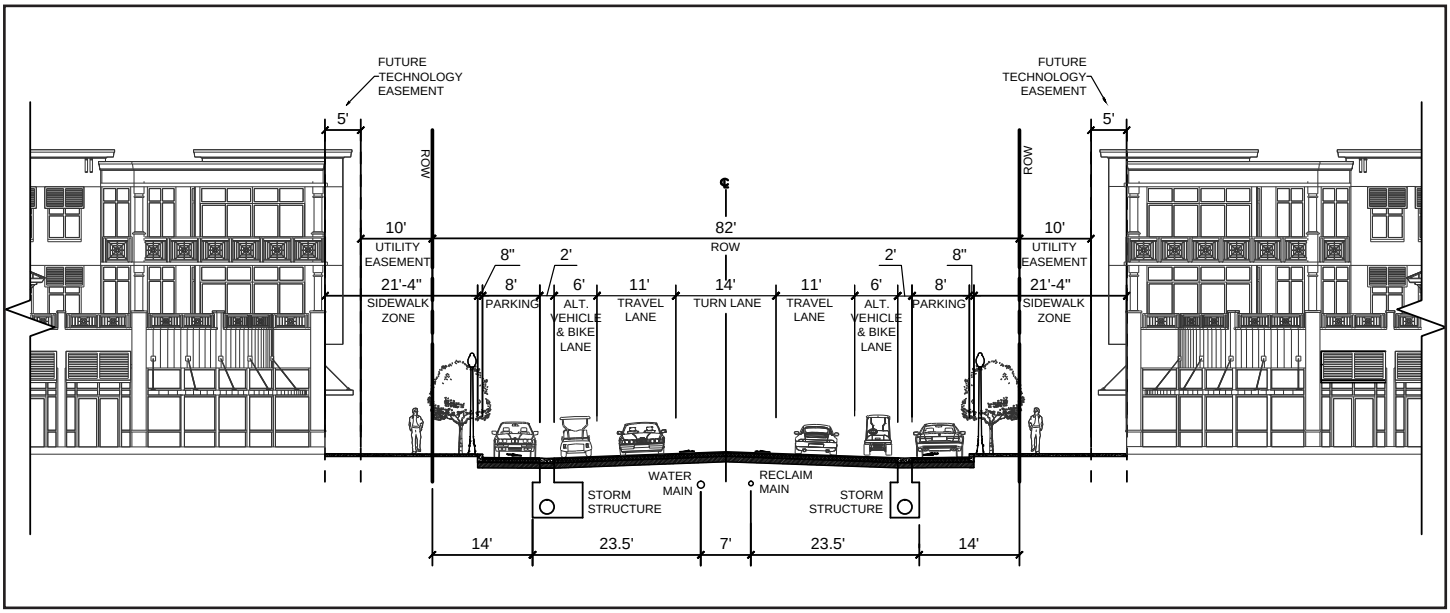
Parcel Data; PAO; March 3, 2016

TYPICAL SECTION 70AA



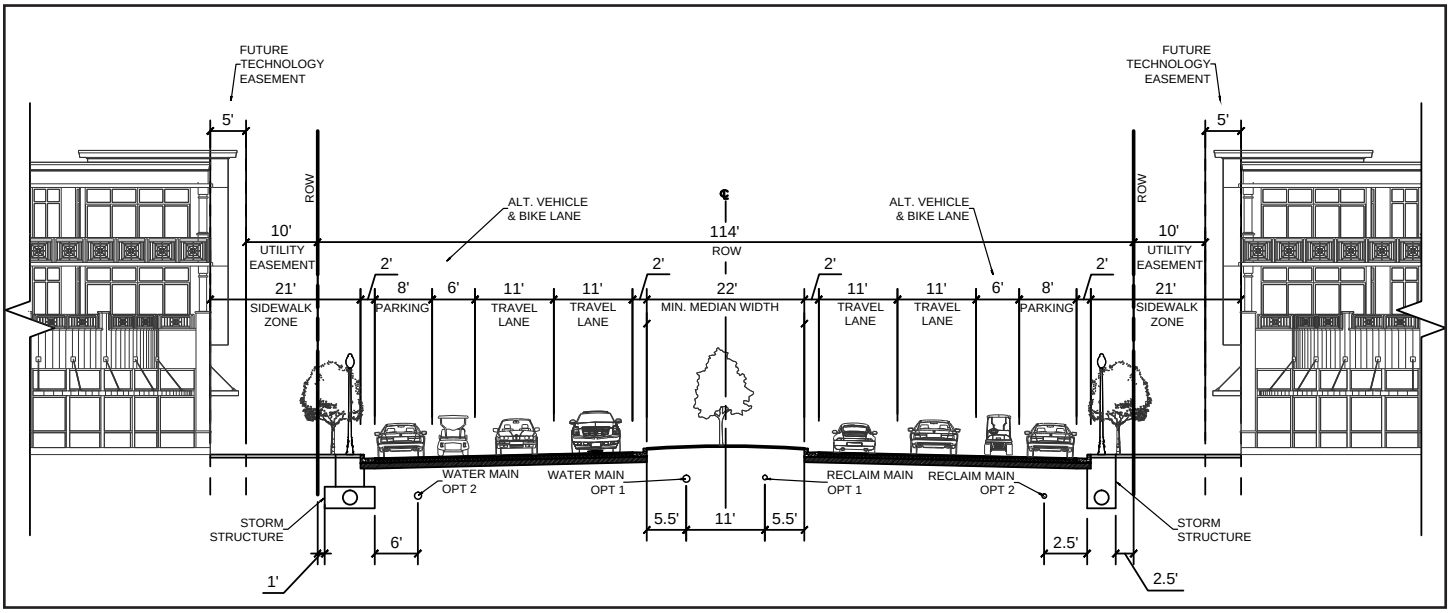
70’ ROW 2 LANE INTERMEDIATE ROAD

TYPICAL SECTION 82AA



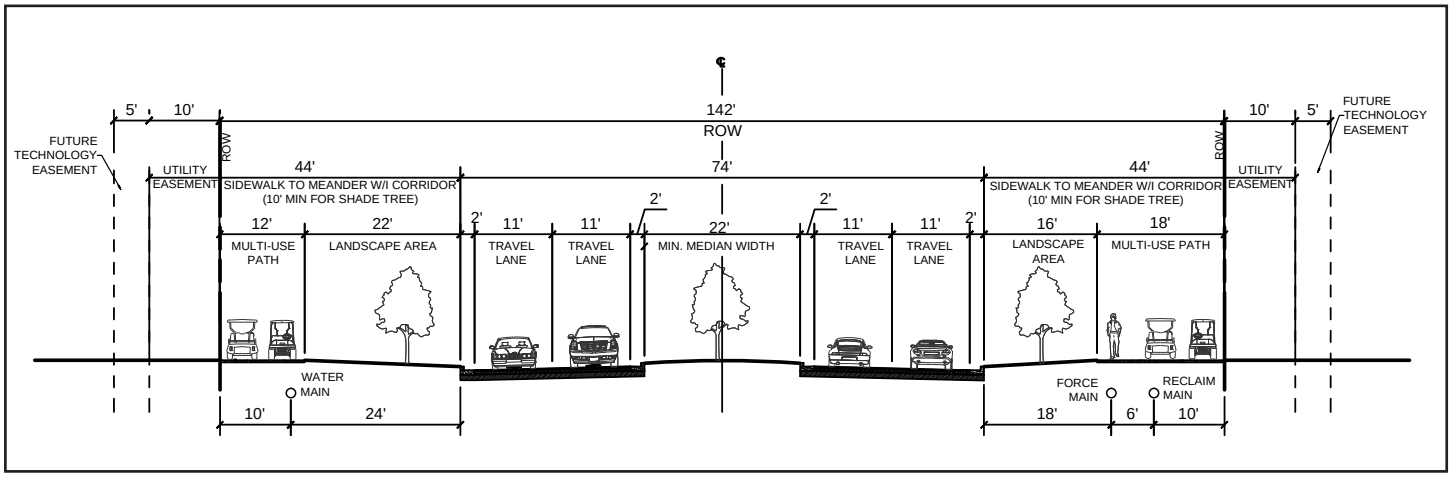
82’ ROW 2 LANE INTERMEDIATE ROAD W/ TURN LANE

TYPICAL SECTION 114BB



114’ ROW 4 LANE PRIMARY ROAD

TYPICAL SECTION 142BB-2



142’ ROW 4 LANE PRIMARY ROAD

SUMMARY OF EXISTING FACILITIES AND TREATMENT FACILITIES

Pasco County Utilities is a self-supporting enterprise operation that is funded through user fees and system revenues. Additionally, Pasco County Utilities is bound by current financial covenants. The activities of this special district shall not conflict with these covenants.

POTABLE WATER

The primary supplier of potable water supply for the study area will be the Pasco County Utilities Services Branch. Pasco County Utilities receives potable water from regional utility provider Tampa Bay Water and a limited water supply capacity from existing County-owned well facilities. The 35-year agreement with Tampa Bay Water provides for a guarantee of necessary water supply capacity for future water demand created by planned growth in Pasco County. The amendment area will be subject to Pasco County's Land Development Code (LDC) Section 905.4 which establishes standards for water efficient landscaping and irrigation.

At the northern end of the study area, there is a 12-inch PVC potable water main located along the south side of SR 52 that extends from I-75 eastward to McKendree Road. An existing rural enclave located adjacent to the northeast corner of the Special Planning Area boundary is within the City of San Antonio Water System.

There are no potable water mains currently located in and along the western boundary of the study area. Near the southern boundary of the study area, there are several existing water mains located in and along the project area. The study area encompasses the Boyette Water Treatment Plant which receives water from Tampa Bay Water through a recently constructed 24-inch water main located along the east side of Boyette Road. Potable water is delivered from the treatment plant through a network of pipes consisting of:

- 12-inch PVC water main on the south side of Overpass Road from Boyette Road to the eastern edge of the Palm Cove community; and
- 24-inch ductile iron (DIP) main on the south side of Elam Road from Overpass Road eastward to Curley Road; and
- 16-inch DIP water main from the intersection of Elam and Curley Roads southward to the intersection of Curley and Overpass Roads

The study area's eastern boundary abuts the Villages of Pasadena Hills (VOPH). Pasco County has recently prepared a Master Water Plan to serve Pasadena Hills. This plan proposes to extend the 24-inch DIP water main at the corner of Elam and Curley Roads eastward along Elam Road into the Pasadena Hills Study Area. In addition, the 12-inch PVC water main along Overpass Road is proposed to be extended to connect between the eastern edge of the Palm Cove community and Curley Road. According to Pasco County's 5-Year CIP for potable water, there are no planned potable water improvements near the study area.

The above-described existing potable water transmission facilities create a robust delivery framework along the southern and northern reaches of the study area. For development that will occur inside this skeleton, it will be necessary for future project developers to expand and extend the network to their specific project locations at such time as construction of their respective projects is initiated. To date, four projects within the study area have previous approvals: Cannon Ranch, Epperson Ranch South, Ashley Groves, and EPCO Ranch North. Each of these sites has prepared a master utility plan showing proposed potable water infrastructure. Epperson Ranch South shows the continuation of the 12-inch PVC water main shown in the VOPH Master Water Plan along Overpass Road. The remaining

portions of the plan propose local lines to serve the Epperson Ranch South project area with an 8-inch water main connecting the existing lines between Elam Road and Overpass Road. EPCO Ranch North proposes to connect to the existing 24-inch main along Elam Road to serve the project area with no proposed looping external to the site. Cannon Ranch's master plan proposes to extend the existing 12-inch water main from the intersection of SR 52 and McKendree Road eastward to Curley Road and extend a new 16-inch water main from the intersection of Curley and Elam Roads northward to Tyndall Road and continuing on to the project entry along Curley Road. In addition, to serve proposed development internal to the site, there will be 12-inch water mains that connect SR 52, Curley Road, and Tyndall Road through the development.

WASTE WATER

The primary supplier of wastewater services for the study area will be the Pasco County Utilities Services Branch. Pasco County Utilities currently treats wastewater for this area of the County at the Wesley Center Wastewater Treatment Plant (WWTP) located on the west side of Boyette Road, south of Overpass Road.

At the northern end of the study area, there is a 12-inch PVC wastewater force main located along the south side of SR 52 that extends from I-75 eastward to McKendree Road. The force main then extends southward along McKendree Road to Overpass Road where it increases in size to a 16-inch DIP and enters the Wesley Center site.

North of the intersection of Tyndall Road and McKendree Road, a 12-inch PVC force main ties into the McKendree pump station. This force main brings wastewater from Lake Jovita and St. Leo University with plans to expand service to San Antonio. The force main extends along Curley Road from the intersection of SR 52 southward to the intersection with Tyndall Road. From here, the force main turns westward along Tyndall Road and connects to the McKendree pump station as described above.

Near the southern boundary of the study area, there are several existing force mains located in and along the project area. Wastewater is transmitted to the Wesley Center through a series of force mains as described below:

- 12-inch PVC force main on the north side of Overpass Road from Boyette Road to the eastern edge of the Palm Cove community; and
- 16-inch ductile iron (DIP) force main on the north side of Elam Road from Overpass Road eastward to Curley Road; and
- 16-inch DIP force main from the intersection of Boyette and Overpass Roads along Boyette Road into Wesley Center.

Additionally, there is an existing 8-inch force main along the west side of Curley Road, south of Overpass Road. This connects to the existing 8-inch force main running along Overpass Road, flowing eastward to the Southeast WWTP. As part of the Pasadena Hills wastewater master plan (further described below), the County is proposing to convert the Southeast plant into a high service booster station and pump the flows to the Wesley Center for treatment.

The study area's eastern boundary abuts the Villages of Pasadena Hills (VOPH). Pasco County has recently prepared a Master Sewer Plan to serve Pasadena Hills. This plan proposes a master pump station near the intersection of Curley Road and the future Clinton Avenue extension. A 24-inch force main would extend from this master station southward along Curley Road to Elam Road. The existing 16-inch force main along Elam would be increased to a 24-inch pipe along Elam and Boyette Roads, becoming a 30-inch force main entering the Wesley Center plant site.

According to Pasco County's 5-Year CIP for wastewater, there are two wastewater improvements near the study area. The first is installation of a force main along Wells Road, which will ultimately be used for the linkage between the Southeast and Wesley Center WWTPs. The second is the expansion of Wesley Center to accommodate future flows.

The above-described existing wastewater transmission facilities create a framework along the study area. For development that will occur inside this skeleton, it will be necessary for future project developers to expand and extend the network to their specific project locations at such time as construction of their respective projects is initiated. It is anticipated that, similar to the potable water supply system, wastewater generated in the study area will be collected and pumped to the County's facilities via developer-installed master pump stations and force main extensions, subject to the County's standard service policy, which requires developers to create a Wastewater Master Plan for their projects as part of their Utility Service Agreement (USA) with the County. These developments will be planned and constructed in accordance with the USA and the Connected City Special Planning Area requirements.

To date, four projects within the study area have previous master plans prepared: Epperson Ranch South, Ashley Groves, EPCO Ranch North, and Cannon Ranch. Each of these sites has prepared a master utility plan showing proposed wastewater infrastructure. Epperson Ranch South shows the continuation of the 12-inch PVC force main along Overpass Road eastward to the main entrance of the project and an 8-inch force main to the intersection of Overpass and Curley Road. The remaining portions of the plan propose local lines to serve the Epperson Ranch South project area. EPCO Ranch North proposes to connect to the existing 16-inch force main along Elam Road to serve the southern portion of the project area, while the northern portion of the project area will be served with a connection to the existing 12-inch force main along Tyndall Road. The Cannon Ranch master plan proposes to extend a new 20-inch force main from the entrance along Curley Road southward to the intersection of Curley and Elam Roads to serve the southeastern portion of the project. In addition, a new 8-inch force main is proposed from the intersection of SR 52 and McKendree Road eastward to the project entrance along the Clinton Avenue extension.

RECLAIMED WATER

The primary supplier of reclaimed water services for the study area will be the Pasco County Utilities Services Branch. Pasco County Utilities produces public access quality reclaimed water from the regional reclaimed water system.

Near the southern boundary of the study area, there are several existing reclaimed water mains located in and along the project area. Reclaimed water is delivered from the treatment plant or the associated reservoir through a network of pipes consisting of:

- 20-inch ductile iron (DIP) main on the north side of Elam Road from Overpass Road eastward to Curley Road; and
- 20-inch DIP main along Curley Road northward from Elam Road to the intersection at Kiefer Road; and
- 16-inch DIP main along Curley Road northward to the intersection at Tyndall Road turning westward along Tyndall for approximately ½ mile; and
- 16-inch DIP main along Curley Road southward from Elam Road to Overpass Road, becoming 12-inch main southward of Overpass; and
- 16-inch DIP water main from the intersection of Boyette and Overpass Roads along Boyette road from Wesley Center; and
- 24-inch DIP water main from Wesley Center along the north access road to the intersection of Boyette and Overpass Roads

To date, three projects within the study area have previous master plans prepared: Epperson South, EPCO Ranch, and Cannon Ranch. Each of these sites has prepared a master utility plan showing proposed reclaimed water infrastructure. Epperson South shows a 12-inch reclaimed main along Overpass Road westward to the main entrance from Curley Road. In addition, it shows a 12-inch main needed internal to the project between Overpass and Elam Roads. The remaining portions of the plan propose local lines to serve the Epperson South project area. EPCO Ranch proposes to connect to the existing 12-inch main along Elam Road to serve the southern portion project area. The Mirada master plan proposes to extend a new 16-inch reclaimed water main from the entrance along Curley Road southward to the intersection of Curley and Tyndall Roads and to connect to the existing 16-inch main along Tyndall Road.

According to Pasco County's 5-Year CIP for reclaimed water, there are four (4) reclaimed water improvement projects near the study area. The first is the completion of the Boyette Road Reservoir project, which will be one of the primary sources of reclaimed water for the study area. The second is additional reclaimed water storage capacity improvements at the Tampa Bay Golf and Tennis Club located just to the west of I-75 and south of SR 52. The Oakley Grove Nitrogen management project will reduce the amount of nitrogen within the reclaimed water provided to the study area. Lastly, valve replacements at the Wesley Center as part of ongoing maintenance and system improvements are to be completed.

The above-described existing transmission facilities create a robust delivery framework along the study area's southern boundary. Similar to the potable water and wastewater networks, development that will occur inside this skeleton will expand and extend the network to their specific project locations at such time as construction of their respective projects is initiated. This will require each site to develop a Reclaimed Water Master Plan for their developments as part of entering into a Utility Service Agreement with the County. These agreements must be executed between the County and developer(s) prior to construction approval for specific projects

POTABLE WATER PLAN

The County will, as a matter of standard utility service policy, require necessary line extensions by the developers in accordance with the provisions of its Utilities Ordinance, Chapter 110 of the Pasco County Code, its Utilities Service Agreement and the Connected City Special Planning Area requirements. These USAs must be executed between the County and developer(s) prior to construction approval for specific projects.

SUMMARY OF PROPOSED SYSTEM

A series of new water mains ranging in size from 8 inches to 24 inches in size would need to be constructed, either as a new water main or to replace an existing undersized water main along the proposed roadway network to serve the site as shown on the Proposed Utilities map.

The proposed infrastructure shown on the Proposed Utilities Map outlines what is needed to serve the Connected City site at the proposed level of entitlements. Larger pipes may be required to serve future development outside of the Connected City to the east including the Villages of Pasadena Hills and anticipated growth within St Leo and Lake Jovita.

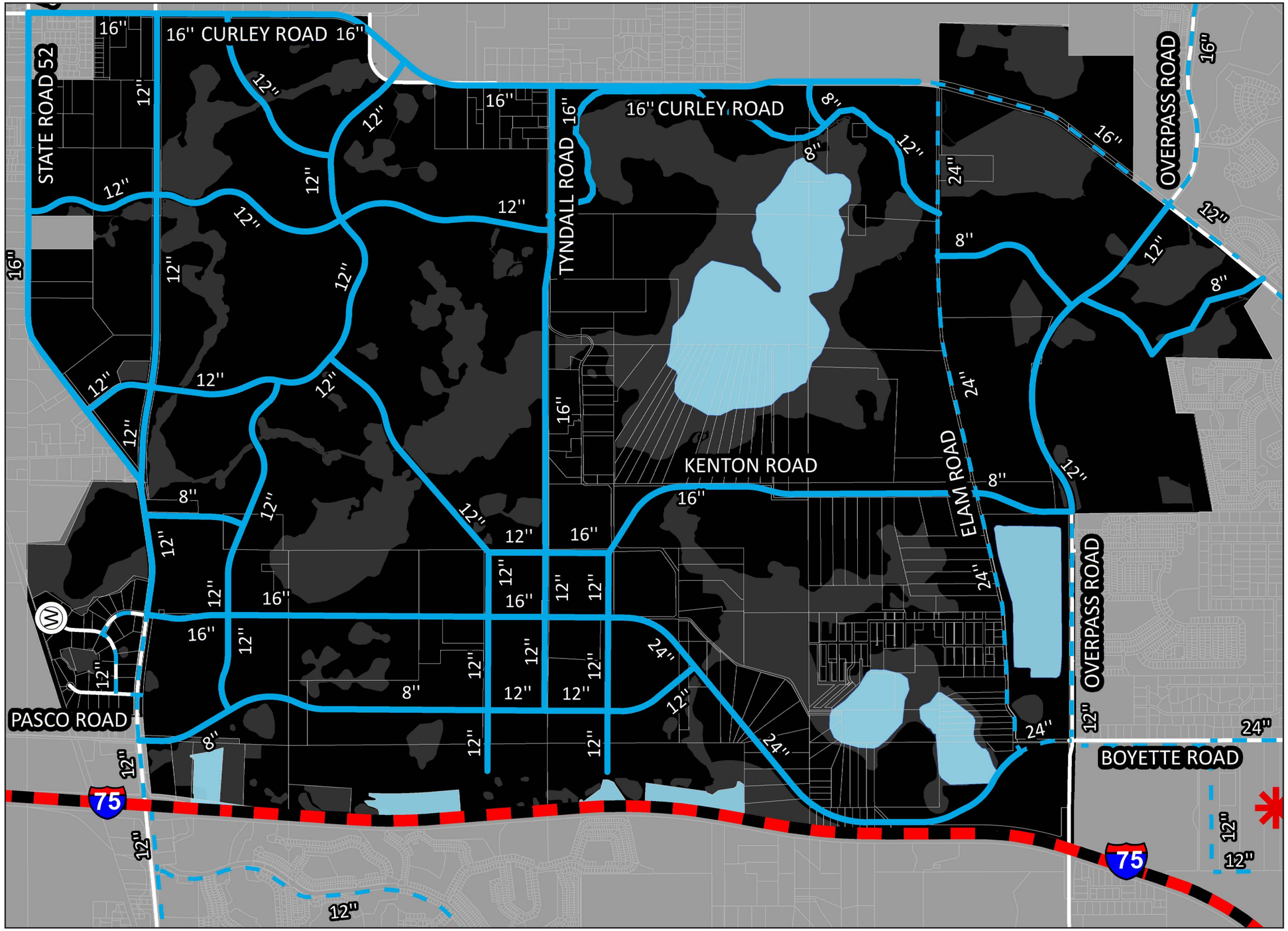
SUMMARY OF ANTICIPATED FLOWS

The Pasco Comprehensive Plan adopted level of service standard for potable water is to provide an average of 215 gallons per equivalent residential dwelling unit per day and 0.15 gallons per square footage of non-residential usage. The estimated daily average potable water demand (AADD) associated with the Connected City Special Planning Area at build out is 9.5 MGD.

It should be noted that, in accordance with existing future land use entitlement levels, the demand would be 25.5 MGD. The requested amendment proposes a 16.0 MGD decrease in future potable water demand from the currently approved build-out population. Connected City is adjacent to the County's South Central and Southeast potable water treatment plant service areas.

Smart water meters record consumption as part of an Advanced Metering Infrastructure (AMI) to facilitate automatic readings for more accurate water meter reading and identification of potential leaks to avoid waste and improve customer satisfaction. Smart water meters will be installed in all residential land uses subject to the Connected City requirements.

CONCEPTUAL POTABLE WATER PLAN



The Conceptual Utility Plan presents hydraulic capacities required of major trunk lines to deliver/collect flows projected using the entitlements from the Connected City Special Planning Area Overlay as shown on the Illustrative Plan. The remainder of the collection and distribution systems that will be required to complete the utility systems shall be the responsibilities of individual applicants seeking service. Applications shall meet all specific submittal and permitting applications in effect at the date of the submittal. The installation of any water and utility facilities to the sizes required herein, and the cost associated therewith, shall be addressed in utility service agreements between the County and the individual landowner/developer.

The proposed infrastructure shown on the Proposed Utilities Map outlines what is needed to serve the Connected City site at the proposed level of entitlements. Larger pipes will be required to serve future development outside of the Connected City to the east including the Villages of Pasadena Hills and anticipated growth within St Leo and Lake Jovita.

LEGEND

- Existing Wells
- Wesley Chapel WWTP
- PROPOSED WATER
- EXISTING WATER

Map Created by:

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Parcel Data; PAO; March 3, 2016

WASTEWATER PLAN

SUMMARY OF PROPOSED SYSTEM

A series of new force mains ranging in size from 12 inch to 42 inches in size would need to be constructed, either as a new force main or to replace an existing undersized force main along the proposed roadway network to serve the site as shown on the Wastewater Plan. In addition to the transmission force mains, several local and master pump stations will be needed to serve the area.

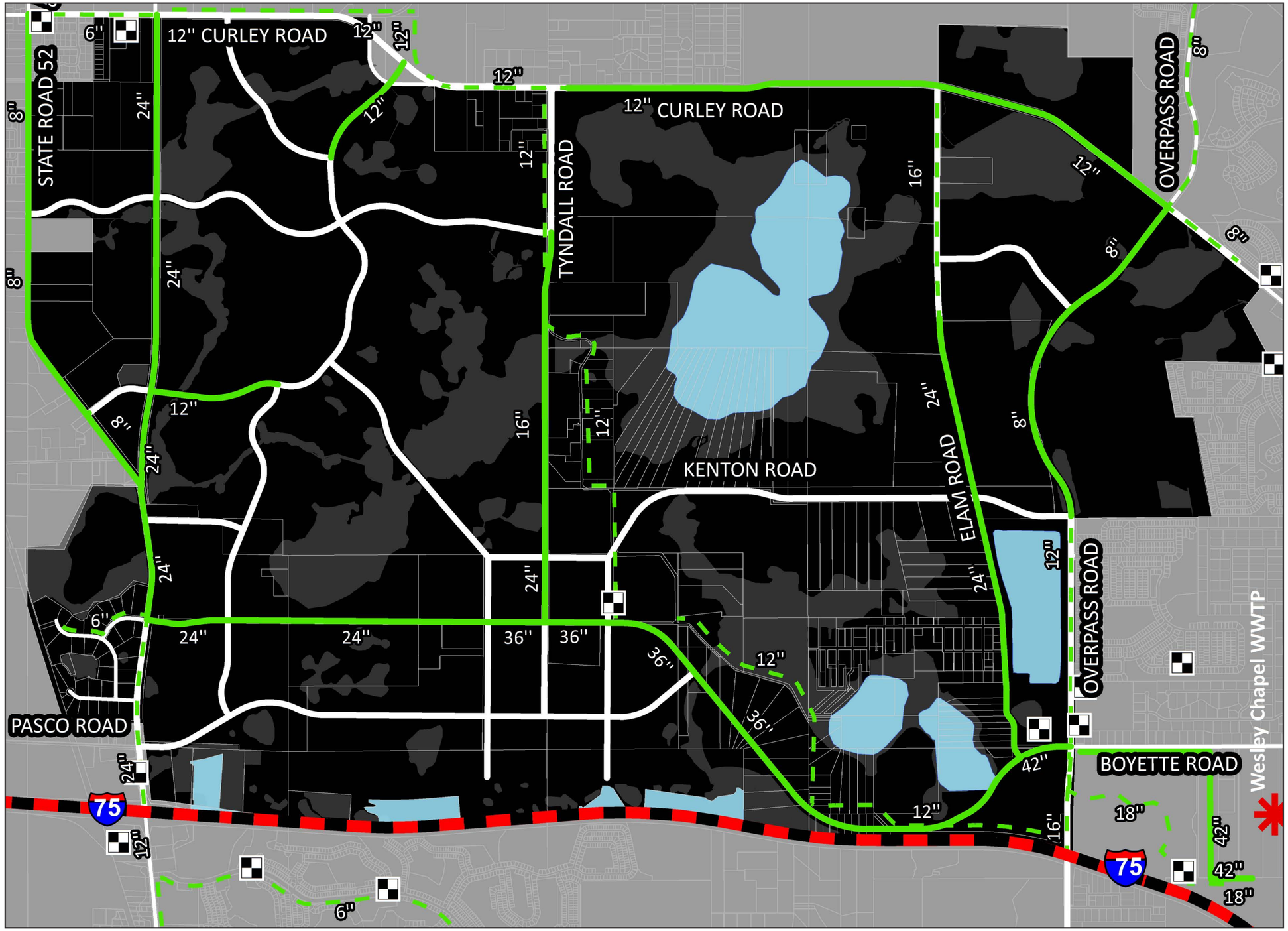
The proposed infrastructure shown on the Wastewater Plan outlines what is needed to serve the Connected City site at the proposed level of entitlements. Larger pipes may be required to serve future development outside of the Connected City to the east including the Villages of Pasadena Hills and anticipated growth within St. Leo and Lake Jovita.

SUMMARY OF ANTICIPATED FLOWS

The Pasco Comprehensive Plan adopted level of service standard for sanitary sewer is to provide an average of 200 gallons per equivalent residential dwelling unit per day and 0.15 gallons per square footage of non-residential usage. The estimated daily average wastewater generation associated with the Connected City Area Plan at build out is 8.6 MGD.

It should be noted that, in accordance with existing future land use entitlement levels, the wastewater generation would be 24.9MGD. The requested amendment proposes a 16.3 MGD decrease in future waste water flow from the currently approved build-out population.

CONCEPTUAL WASTEWATER PLAN



The Conceptual Utility Plan presents hydraulic capacities required of major trunk lines to deliver/collect flows projected using the entitlements from the Connected City Special Planning Area Overlay as shown on the Illustrative Plan. The remainder of the collection and distribution systems that will be required to complete the utility systems shall be the responsibilities of individual applicants seeking service. Applications shall meet all specific submittal and permitting applications in effect at the date of the submittal. The installation of any wastewater and utility facilities to the sizes required herein, and the cost associated therewith, shall be addressed in utility service agreements between the County and the individual landowner/ developer.

The proposed infrastructure shown on the Proposed Utilities Map outlines what is needed to serve the Connected City site at the proposed level of entitlements. Larger pipes will be required to serve future development outside of the Connected City to the east including the Villages of Pasadena Hills and anticipated growth within St Leo and Lake Jovita.

LEGEND

- Wesley Chapel WWTP
- Existing Pump Stations
- PROPOSED FORCE
- EXISTING FORCE

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Parcel Data; PAO; March 3, 2016

RECLAIMED WATER PLAN

SUMMARY OF PROPOSED SYSTEM

A series of new reclaimed water mains ranging in size from 8 inch to 24 inches in size would need to be constructed, either as a new main or to replace an existing undersized reclaimed water main along the proposed roadway network to serve the site as shown on the Reclaimed Water Plan.

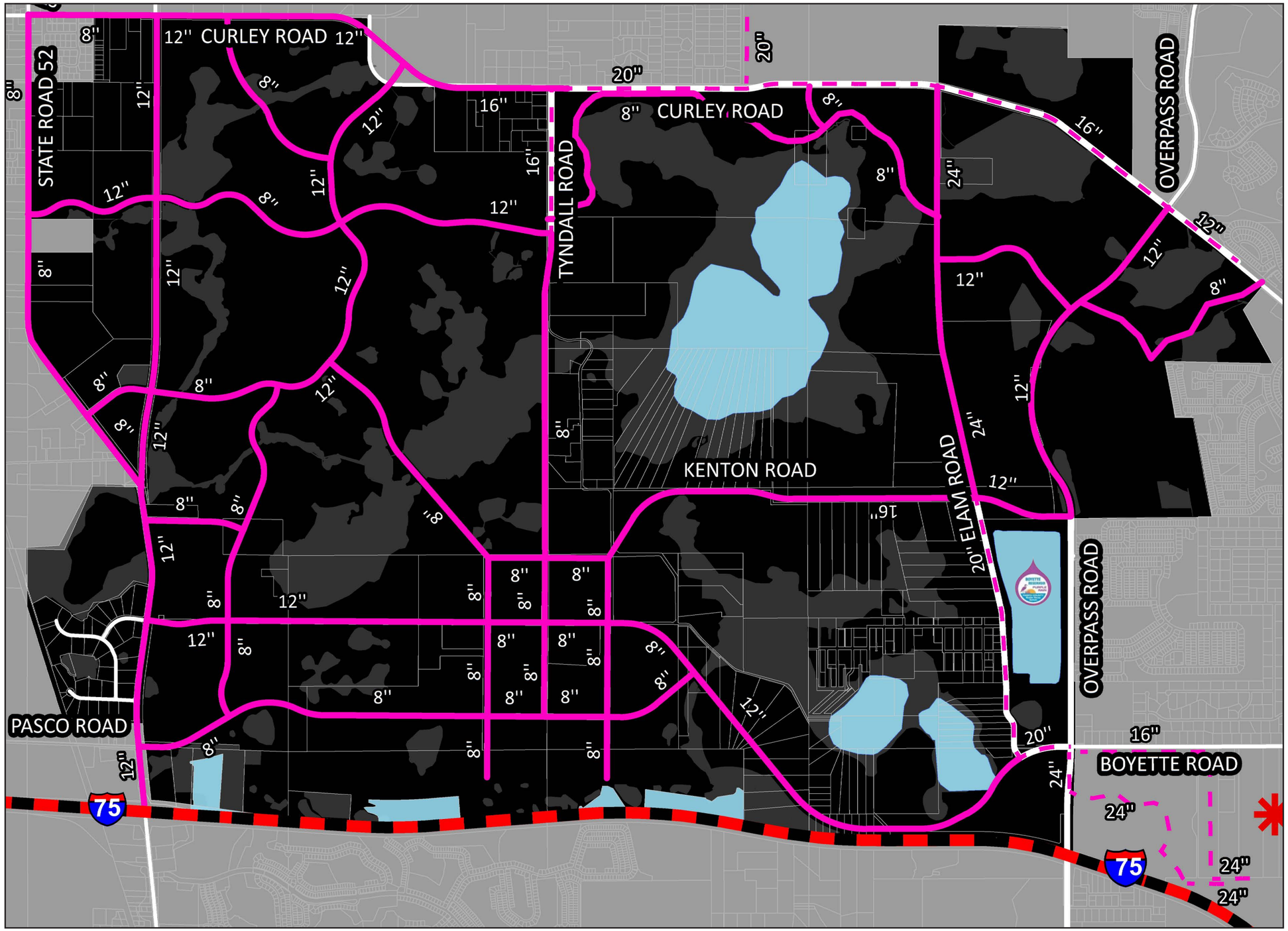
The proposed infrastructure shown outlines what is needed to serve the Connected City site at the proposed level of entitlements. Should the County wish to extend service to the east beyond those currently being served, larger pipes than those shown on the map would likely be needed to serve the additional service areas.

SUMMARY OF ANTICIPATED FLOWS

The Pasco Comprehensive Plan adopted level of service standard for reclaimed water demand is to provide approximately 1.5 inches of irrigation water to 50% of the irrigable area for the project. The estimated average reclaimed water demand associated with the Connected City Special Planning Area at build out is 5.5 MGD.

Smart irrigation systems utilize moisture sensors and record consumption to enable customer feedback and easily adjust irrigation times and durations to recognize significant cost savings and lower consumption rates. Smart irrigation systems will be encouraged in all residential land uses within the Connected City.

CONCEPTUAL RECLAIMED WATER PLAN



The Conceptual Utility Plan presents hydraulic capacities required of major trunk lines to deliver/collect flows projected using the entitlements from the Connected City Special Planning Area Overlay as shown on the Illustrative Plan. The remainder of the collection and distribution systems that will be required to complete the utility systems shall be the responsibilities of individual applicants seeking service. Applications shall meet all specific submittal and permitting applications in effect at the date of the submittal. The installation of any reclaimed water and utility facilities to the sizes required herein, and the cost associated therewith, shall be addressed in utility service agreements between the County and the individual landowner/developer.

The proposed infrastructure shown on the Proposed Utilities Map outlines what is needed to serve the Connected City site at the proposed level of entitlements. Larger pipes will be required to serve future development outside of the Connected City to the east including the Villages of Pasadena Hills and anticipated growth within St Leo and Lake Jovita.

LEGEND

- Wesley Chapel WWTP
- PROPOSED RECLAIMED
- EXISTING RECLAIMED
- Boyette Reclaimed Water Reservoir

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