# Task 4: Final Project Report

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## REVISION HISTORY

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| 1.0 | 9/30/2016 | E. Ursin | Initial Draft |
| 1.1 | 10/14/2016 | E. Ursin | Drafting Document Sections |

## TABLE OF CONTENTS

# Section 1 - BACKGROUND

## Purpose of Report

The purpose of this report is to provide a comprehensive summary of the work completed for the Florida Water Management Inventory Project under DEP Contract Number G0431.  This report covers the entire Cycle 1 of the project, which covers work started in April, 2014 and completed in September, 2016.

Nonpoint source pollution from onsite sewage treatment and disposal systems (OSTDS) can have significant impacts on surface water and groundwater quality.  Approximately thirty percent of Florida's population uses an OSTDS as their method of wastewater disposal (Florida Department of Health website).  Electronic permitting data records for OSTDS, which have been collected by the Florida Department of Health since the late 1990's, do not include a record for every OSTDS in the state (Hall and Clancy 2009).  Systems are added to the statewide database when there is new construction, a system is in failure and needs repair, a system modification is required, the existing system needs approval to proceed with state or local building requirements, or when the existing system is abandoned.  Not having a comprehensive and updateable inventory utilizing best available information has made it difficult to assess the potential impacts from this nonpoint pollution source.  As the Florida Department of Environmental Protection (FDEP) works with stakeholders to develop Basin Management Action Plans (BMAPs) to reduce pollutant loadings to impaired waters, there is a need for a comprehensive inventory to help determine OSTDS impacts.

The Florida Onsite Sewage Treatment and Disposal Systems Inventory will identify and map the location of all (OSTDS) in the state of Florida. Geographic Information System (GIS) data and maps will provide information facilitating statistical analysis necessary for the reduction of nonpoint source pollution.  Some examples include OSTDS regional density; OSTDS locations within known sewer service area boundaries; and OSTDS locations and density in or near biologically or geographically sensitive areas, such as springsheds, wetlands, and other protected water bodies or groundwater recharge areas.  Another vital use of the GIS data and maps will be to provide the location and density of OSTDS in floodplains or storm surge areas which will aid in public health and environmental disaster preparedness and response planning and execution.

## History

The 2008-2009 Florida Legislature tasked the Florida Department of Health with providing a statewide inventory of Onsite Wastewater systems. The project was completed in June 2009 (Hall and Clancy 2009).  Some of the data were known and verified but some were estimated. The dataset has not been updated since that time.  A coordinated effort was needed between the Department, the DEP, county governments, and utility providers to bring this inventory up to date. The absence of a lead facilitator to direct this project led to a delay until 2014, when the Department started a project to update and maintain this inventory.

The projects initial financial support came from the Centers of Disease Control, through Florida Disaster Preparedness funds.  Once those funds were expended, the Department of Health's Environmental Health trust funds were used until grant funds from the Section 319 Nonpoint Source Management Program from the U.S. Environmental Protection Agency were secured

through a contract with the Nonpoint Source Management Section of the Florida Department of Environmental Protection.

## Project Need

Information about drinking water sources and wastewater treatment methods are vital for environmental risk assessments, disaster preparedness and response activities, and local planning evaluations.  These activities relate to environmental health and the protection of public health by detecting and preventing disease caused by natural and manmade factors in the environment.

Multiple state and local agencies across the state of Florida gather information about drinking water sources and wastewater treatment methods; however, historic data gathering methods have been fragmented. This results in the lack of readily accessible information to evaluate impacts to Florida's water quality and quantity.

The Florida Department of Health (Department) is developing a centralized comprehensive mapping tool to provide Geographic Information System (GIS) data.

## Project Benefits

A comprehensive drinking water and wastewater inventory of the approximate 6.5 million developed parcels in the State of Florida will provide many benefits including:

- Enhanced customer service, permitting, development review, and planning activities for state agencies, local government, utilities, citizens, and other interested parties through data sharing; it will also identify redundancies and information gaps for future work
- Improved disaster preparedness and response activities resulting in accurate estimates of impacts on public health and infrastructure during disasters
- Enhanced resources for homeowners, home-buyers, realtors, and other entities interested in potable water and wastewater services
- Centralized web portal of maps and data, consolidated project results, all accessible to the public

Collaboration with stakeholders is an essential part of this inventory project. Aside from the Department of Health state and county offices, participating stakeholders include public and private utilities; Florida Departments of Environmental Protection, Business and Professional Regulation, Emergency Management, and Agriculture and Consumer Services; Water Management Districts; Public Service Commission; various county and municipal governments; and many others (Table 1).

*Table 1. Cooperating Partners*

| Organization | Participation Level |
|---|---|
| Florida Department of Environmental Protection: Nonpoint Source Management Section | Sponsor project in 2016, total funded: $390,800 |
| Centers for Disease Control and Prevention | Sponsor project in 2014, total funded: $106,500 |
| Strategic Planning Oversight Team, Public Health and HealthCare Preparedness Cooperative Agreement | Sponsor project and provide funding allocations in 2014 |
| Florida State Emergency Response Team | Receive project information and coordinate incorporation into the Geospatial Assessment Tool for Operations and Response (GATOR) |
| Florida Department of Health, Division of Disease Control and Health Protection, Bureau of Environmental Health | Manage and coordinate project, responsible for deliverables, provide Water and wastewater data extracts from the statewide Environmental Health Database (EHD), geodatabase design |
| Florida Department of Health, Division of Disease Control and Health Protection, GIS Section | Web mapping front end development (through a contract), ArcGIS REST endpoint, provide technical support for project |
| Florida Department of Health, Information Technology Office | Assist with publishing information to the FDOH website, assist with data collection and integration |
| Florida Department of Health, Sixty-Seven County Offices | Assist with data collection efforts, provide contact information |
| Florida Department of Health, Research Review and Advisory Committee | Provide technical support, review project reports, public meeting forum for contact with key stakeholders and public |
| Florida Department of Environmental Protection: Water Resource Management | Provide technical support, provide water and wastewater facility locations and contact information, provide GIS data, collaborate on contact letters, review project reports, assist with work plan development |
| Florida Department of Environmental Protection (multiple sections): Florida Geological Survey, Environmental Assessment and Restoration, Water Management Districts | Provide technical support, provide water and wastewater facility locations and contact information, provide GIS data |
| Florida Department of Business and Professional Regulation | Provide regulated facility locations |
| Florida Department of Agriculture and Consumer Services | Provide regulated facility locations |
| Florida County or City Government | Provide relevant information and indicate interest in dissemination of project information |
| Public and Private Drinking Water and Wastewater Facilities across Florida | Provide information on drinking water source and wastewater disposal for customers within service areas |

# Project Goal

The goal of the Florida Water Management Inventory project is to link each built property in the state to information about the drinking water source type (public water or private well) and the wastewater treatment method (central sewer or onsite sewage).

More detailed goals of the project include:

1) Document and map the Wastewater treatment method and the Drinking Water source for the more than 6 million improved ("built") parcels in the state
2) Collect and maintain Data Contacts (who), Data Sources (where), and Data Sets (what) to support Geographic Information System (GIS) Mapping and Summary Reporting for the Inventory
3) Analyze and process collected Data Sets for standardization and readiness for GIS import
4) Collect, import, analyze, and maintain information in the GIS for all property parcels in the state
5) Create GIS Maps & Summary Reports for all 67 Florida counties
6) Create a publically accessible web site with GIS data, maps, and other project information
7) Conduct outreach activities for communication and education of stakeholders regarding the Inventory needs, benefits, and results
8) Provide regular status reporting to all project stakeholders at a level that is appropriate to their needs and/or their role in the project
9) Take all steps possible to position the FLWMI Project to continue as a recurring, annual Statewide Inventory

# Project Scope Statement

The project scope statement provides a detailed description of the project, deliverables, constraints, exclusions, assumptions, and acceptance criteria. Additionally, the scope statement includes what work should not be performed in order to eliminate any implied but unnecessary work which falls outside the of the project's scope.

This project is to design and develop a system to collect, analyze, and display drinking water and wastewater information for every built property in the State of Florida. The deliverables for this project are completed GIS maps showing the required information. The flexibility to modify and update the drinking water and wastewater information will be accounted for within the project plan, the GIS data structure, and the methodologies developed during this project. This project is accepted once the GIS maps are completed for each of the 67 counties in Florida. This project does not include ongoing operations and maintenance. If opportunities for collaboration and project enhancement arise, regardless of whether they are internal or external personnel and resources, they may be used for this project provided that such opportunities do not expand the scope or negatively impact successful completion of the project. Additionally, the project is funded through September 2016.

## Project Team

The project team for this cycle is shown in
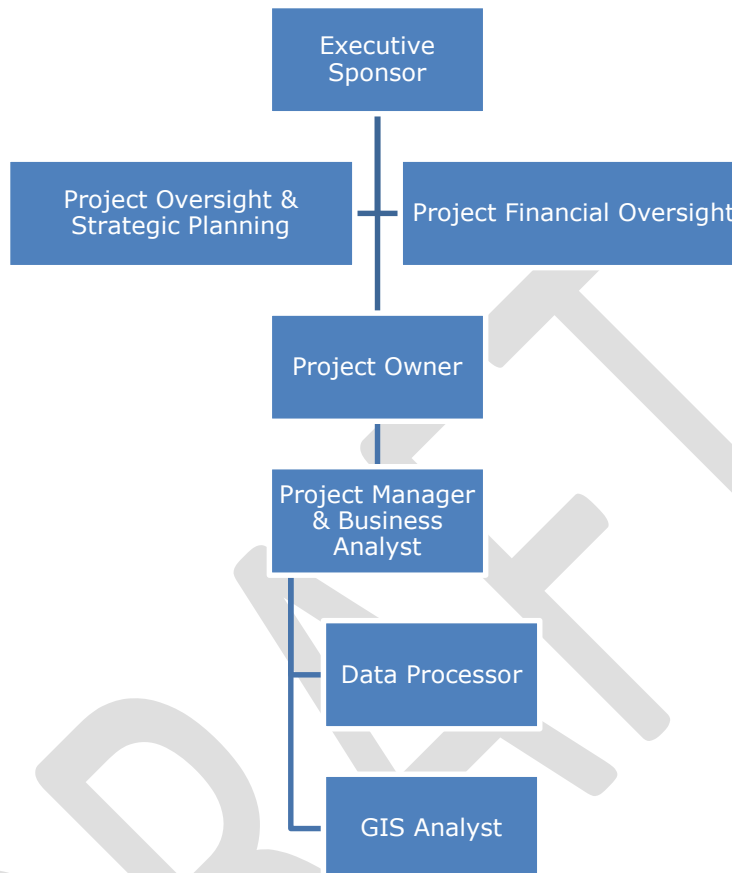


*Figure 1.  Project Team for the Florida Water Management Inventory*

## Work Breakdown Structure

In order to effectively manage the work required to complete this project, it was subdivided into individual work packages. This allowed the Project Manager to more effectively manage the project's scope as the project team works on the tasks necessary for project completion. The project is broken down into five main components: process development, data structure development, quality management and assurance, data collection, and project management. Each of these components is then subdivided further down, see WBS structure in Figure 1.  The sections that follow will provide information for each of the main components identified.  This report satisfies project component 5.11 in Figure 2: Prepare Final Project Report.
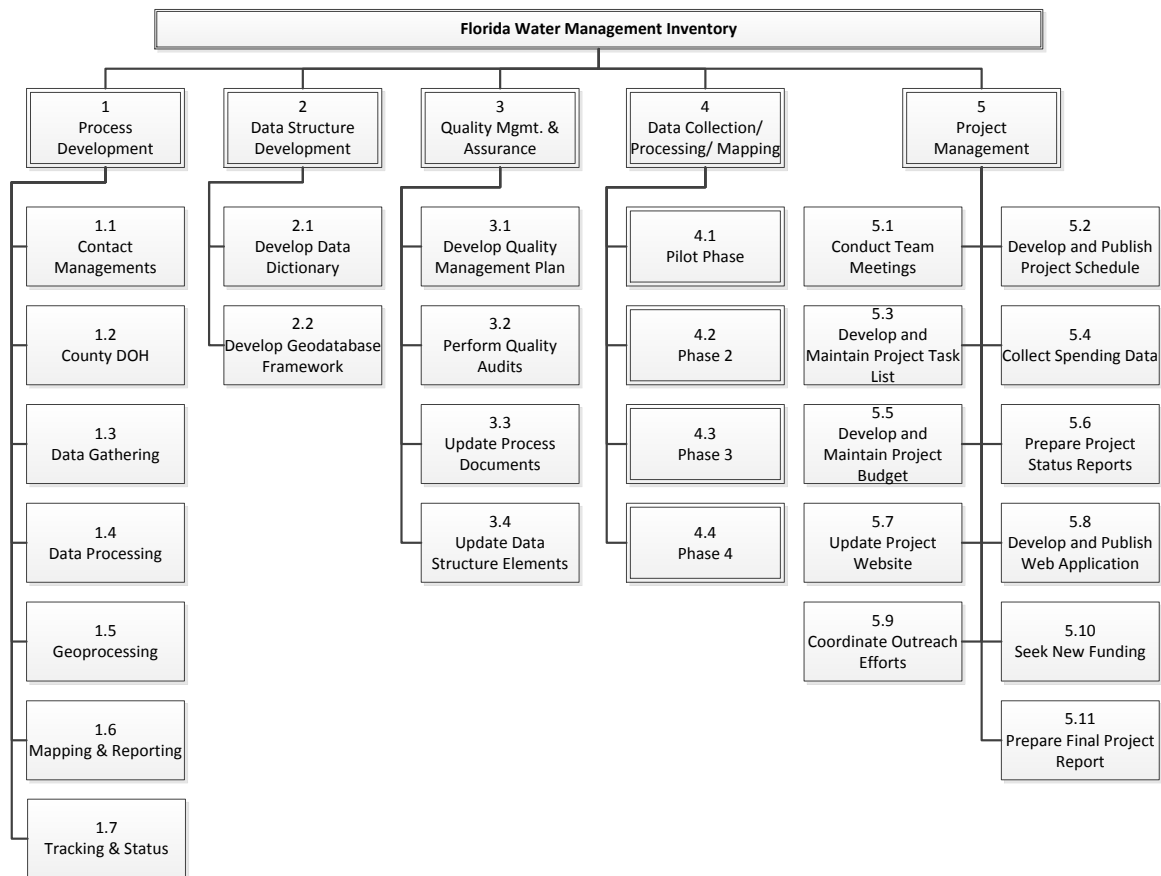
*Figure 2.  Project Work Breakdown Structure*

# Section 2 - PROCESS DEVELOPMENT

## Project Business Processes

Overall, there are several guiding documents that provide background and an overview of the project as a whole.  Each of these documents can be found in the Process Documents folder on the project FTP site: http://ww10.doh.state.fl.us/pub/bos/Inventory/ProcessDocuments/.

The guiding documents are:

1. **Project Charter** – Developed prior to work began on the project, when the project was funded by Emergency Preparedness.  The project charter defines the scope, objectives, and overall approach for the work to be completed. It is a critical element for initiating, planning, executing, controlling, and assessing the project. It should be the single point of reference on the project for project goals and objectives, scope,

organization, estimates, work plan, and budget. In addition, it serves as a contract between the Project Team and the Project Sponsors, stating what will be delivered according to the budget, time constraints, risks, resources, and standards agreed upon for the project.

2. **Project Management Plan** – The purpose of the project management plan (PMP) is to provide a comprehensive baseline of what has to be achieved by the project, how it is to be achieved, who will be involved, how it will be reported and measured, and how information will be communicated. The intended audience of the Florida Water Management Inventory (FLWMI) PMP is all project stakeholders including the project sponsor, senior leadership, and the project team.

3. **Operational Work Plan** – This plan provides the basis for the consensus objectives and expectations of the Project Team and stakeholders related to project work for the time period of October 2015 through September 2016.

4. **Status Update** – Provides a snapshot of the current status of the project as of the date on the document.

5. **General Business Rules** – The Business Rules constitute ongoing documentation related to business process and procedural steps for different stages in the Inventory Workflow. Presently, the project's formal Business Processes and Standard Operating Procedures are not static and are constantly being improved for accuracy and efficiency. Relevant Business Rules are captured, on an ongoing basis, within this document, until finalized documentation is completed.

6. **Frequently Asked Questions** – Document available on the project website to help address several frequently asked questions. This document is updated as needed to help provide clarity for areas where it is needed.

Figure 3 shows a diagram of the workflow for the Florida Water Management Inventory. This diagram outlines the major components of the business process documents that are included on the pages that follow.

# Workflow Diagram



| CONTACT MANAGEMENT | COUNTY DOH | DATA GATHERING | DATA PROCESSING | GEOPROCESSING | MAPPING & REPORTING | TRACKING & STATUS |
|---|---|---|---|---|---|---|
| • WW Contacts from DEP<br>• DW Contacts from DEP<br>• DOACS<br>• DBPR<br>• WMDs<br>• County DOH<br>• County GIS<br>• Other Projects and/or Studies (such as BMAP, etc.)<br>• Data from Delegated Counties (wells, sewer, drinking water, etc.)<br>• Other Contacts | • Participation<br>• Contacts for Utilities<br>• Contacts for GIS<br>• Data Scrubbing<br>• DB or Spreadsheet for Delegations | • Website<br>• GIS Requests<br>• BMAP and similar requests for data<br>• Data Request Emails<br>• Reminder Emails<br>• County follow-up<br>• Data Sheet Template<br>• GIS Response Tracking<br>• Inventory Tracking Sheet<br>• Inventory DB<br>• County Indexes<br>• External Sources and EHD, DOACS, DBPR<br>• Parcels (obtaining most recent DOR polygons and tables) | • Standardizing Data Sheets<br>• Determining if Geocoding is required<br>• Geocoding Data Sheets<br>• Updating County Indexes<br>• GIS review, standardization, and preparations for geoprocessing | • Determining Built / Not-Built<br>• 2009 Crosswalk<br>• Pre-Assignment Geoprocessing<br>• Assign DW & WW Values | • GIS Maps<br>• Data Products<br>• Other non-GIS Reporting<br>• Publishing<br>• Online Hosting for Map Server | • Team Weekly Status Reports<br>• Weekly Project Reports (leadership)<br>• Weekly Executive Summary<br>• GIS Workflow Tracking Spreadsheet<br>• County Indexing<br>• Other status, tracking, Ad Hoc requests, etc.<br>• Organization<br>• Collaboration |

*Figure 3. Workflow Diagram for the Florida Water Management Inventory*

## Contact Management

Process documents relating to Contact Management are found on this webpage:
http://ww10.doh.state.fl.us/pub/bos/Inventory/ProcessDocuments/1ContactManagement/

The documents included are:
1. **Identifying and Maintaining Data Contacts** – this document addresses these primary business goals: (1) How to identify data contact information, (2) How to update data contact information, and (3) How to maintain data contact information.
2. **Data Sets Sources and Contacts** – A matrix of dataset tables that explain what types of information and data will be necessary to conduct the Florida Water Management Inventory on a cyclical, ongoing basis. For Parcels, Wastewater, and Drinking Water, each table explains the specific Data Set (what), the Data Source (where), and the Data Contacts (who) for obtaining the required information.
3. **Workflow Analysis and Improvement for Contacts** – A Strategic Planning activity was conducted for each of the main project components, where the project team listed the projects Strengths, Weaknesses, Opportunities, and Threats (SWOT). This document outlines the results of the SWOT analysis for the Contacts component.

## County DOH

Process documents relating to County DOH are found on this webpage:
http://ww10.doh.state.fl.us/pub/bos/Inventory/ProcessDocuments/2CountyDOH/

The documents included are:
1. **Solicitation Email Example** – This document is an example of the solicitation emails that are sent to each County Health Department Director and Environmental Health Director when initiating a county.
2. **Orientation Sign Up Template** – This document is a template for recording individuals that sign up for an orientation meeting.
3. **Orientation Meetings Attendees Template** – This document is a template for recording individuals that attended an orientation meeting.
4. **Example Orientation Presentation** – This is an example of the Phase 3 orientation presentation.
5. **Workflow Analysis and Improvement for County DOH** – A Strategic Planning activity was conducted for each of the main project components, where the project team listed the projects Strengths, Weaknesses, Opportunities, and Threats (SWOT). This document outlines the results of the SWOT analysis for the County DOH component.

## Data Gathering

Process documents relating to Data Gathering are found on this webpage:
http://ww10.doh.state.fl.us/pub/bos/Inventory/ProcessDocuments/3DataGathering/

The documents included are:

1. **Requesting and Importing Data Sets** – This document addresses three primary business goals: (1) How to request data sets from data providers, (2) How to transmit data sets from data providers to DOH, and (3) How to store data sets on the DOH network.
2. **Data Sheet Template** – This document is a template for submitting data sets. There are two templates: one for smaller wastewater treatment plant or public water systems which serve only one single parcel (for example, a Mobile Home or RV Park, a small commercial or industrial building, a state or municipal park, etc.), then this would be a single record or just a single row in the spreadsheet template. If the facility(s) serves multiple parcels, then there would be multiple corresponding records (or rows). If, however, the facility(s) serves many property parcels and/or customer addresses (dozens, hundreds, or thousands), the second template for larger data set would be used, providing a list of all the customer properties served by the facility(s).
3. **MOVEit Instructions for Inventory Team** – The Department of Health (DOH) MOVEit DMZ application is utilized for secure transmission of large files (>8MB). DOH staff will create a "Package" within the MOVEit DMZ application and email the "Package" to the organization's contact person that will be transmitting files.  This document provide instructions for the inventory team on how to use this program.
4. **MOVEit Instructions for External Submitters** – The Department of Health (DOH) MOVEit DMZ application is utilized for secure transmission of large files (>8MB). DOH staff will create a "Package" within the MOVEit DMZ application and email the "Package" to the organization's contact person that will be transmitting files.  This document provide instructions for anyone submitting data on how to use this program.
5. **Data Request Templates** – This is a folder containing templates for data requests to multiple stakeholders in multiple scenarios such as initial contacts to county municipal governments, DEP regulated facilities (both those that did respond to our 2009 request for data and those that did not), state agencies, and water management districts; and follow-up messages to DEP regulated facilities that did not respond to previous data requests.
6. **Template Script for Contacting Data Providers** – This process map shows an example of how a data request might flow.
7. **Data Gathering Escalation Process** – This process map shows how to handle a DEP regulated facility that does not submit data.
8. **Workflow Analysis and Improvement for Data Gathering** – A Strategic Planning activity was conducted for each of the main project components, where the project team listed the projects Strengths, Weaknesses, Opportunities, and Threats (SWOT).  This document outlines the results of the SWOT analysis for the Data Gathering component.

## Data Processing

Process documents relating to Data Processing are found on this webpage:
http://ww10.doh.state.fl.us/pub/bos/Inventory/ProcessDocuments/4DataProcessing/

The documents included are:

1. **Processing Inventory Data Sets** – This document addresses how to process Data Sets received from utility providers to prepare them for import, analysis, and

reporting in the Geographic Information System (GIS). This process and information is specific to the Florida Department of Health Statewide Inventory Project.

2. **Compiling Parcel Data**– This procedural document is utilized for compiling parcel data by receiving property records, importing the records into the Inventory Database, compiling all associated parcel information, and maintaining the parcel data.

3. **Compiling Wastewater and Drinking Water Data** – This procedural document is utilized for compiling data received from all data sources for assigning wastewater methods and drinking water sources to compiled parcel data.

4. **Estimation Methodology Procedure** –Some data gathered for parcels, drinking water sources, or wastewater treatment methods will not be sufficient to make an exact designation. In those cases, estimation methods will be utilized as defined within this procedure.  The methods documented within will be utilized to perform the first iteration of the Statewide Inventory.

5. **Creating a County Index** – The purpose of a County Index is to provide a "road map" for where the Data Sets for each Parent Organization within each County is located. The Data Gatherer creates the County Index and the Data Processor populates and maintains the Data Set details for each listed Parent Organization. The GIS Database Analyst also refers to the Index when importing Data Sets into the GIS.

6. **Environmental Health Database Data Extraction** – This document lists the queries used to pull data from the Environmental Health Database for incorporation into the Inventory.

7. **Steps for Small Facility Research** – This document lists the steps to go through when researching DEP regulated WWTP and PWS that have a small flow or serve a small population.  The likelihood of these facilities only serving one parcel is greater than for a large facility and following this process will reduce the need to contact these facilities.

8. **OSTDS Variance Database Data Extraction** – This document lists the queries used to pull data from the OSTDS Variance Database for incorporation into the Inventory.

9. **Steps to Update DEP WWTF and PWS Facilities** – This document lists the steps to take to update the contact tracking database with the latest DEP facility data.

10. **Steps to Update DOACS and DBPR Data Tables** – This document lists the steps to take to pull data received from DOACS and DBPR for incorporation into the Inventory.

11. **Process to Update Environmental Health Database Datasets** – This document lists the steps to take to pull updated data from the Environmental Health Database for incorporation into the Inventory.

12. **Workflow Analysis and Improvement for Data Processing** – A Strategic Planning activity was conducted for each of the main project components, where the project team listed the projects Strengths, Weaknesses, Opportunities, and Threats (SWOT).  This document outlines the results of the SWOT analysis for the Data Processing component.

## Geoprocessing

Process documents relating to Geoprocessing are found on this webpage:
http://ww10.doh.state.fl.us/pub/bos/Inventory/ProcessDocuments/5Geoprocessing/

The documents included are:

1. **GIS Source Data Processing Steps Outline** – This document outlines the steps to take for data processing in GIS for the project.
2. **GIS Process for DOH Parcel and Tax Roll Data** – This is the first process to follow in conducting the inventory. These instructions only apply to bringing in completely new parcel data. Subsequent work on the inventory should include steps where new parcel data is 'inserted' into the existing feature class where the parcel characteristics have changed over time. These changes would occur with parcel splits, parcel combines, parcel sales, new construction, demolition, redevelopment, and other such events.
3. **GIS Process for Source Data Processing and Assignment to Parcels** – Source data for wastewater and drinking water should be processed and assigned to parcels according to the instructions outlined in this process document.
4. **Assignment of Inventory Values for Wastewater Method** – This document shows the historical background on assignment of inventory values for wastewater.
5. **Geocoding with Google Earth Pro** – This document outlines the steps taken to geocode source data with Google Earth Pro.
6. **Quality Control for Geocoding** – This document outlines the quality control steps to take to verify geocoding was done correctly.
7. **Workflow Analysis and Improvement for Geoprocessing** – A Strategic Planning activity was conducted for each of the main project components, where the project team listed the projects Strengths, Weaknesses, Opportunities, and Threats (SWOT). This document outlines the results of the SWOT analysis for the Geoprocessing component.

## Mapping & Reporting

Process documents relating to Mapping & Reporting are found on this webpage:
http://ww10.doh.state.fl.us/pub/bos/Inventory/ProcessDocuments/1ContactManagement/

The documents included are:

1. **Template for Single Panel Wastewater Map** – This document shows the colors and layout for the final reporting single panel wastewater map.
2. **Template for Multi Panel Wastewater Map** – This document shows the colors and layout for the final reporting multi panel wastewater map.
3. **Template for Single Panel Drinking Water Map** – This document shows the colors and layout for the final reporting single panel drinking water map.
4. **Template for Multi Panel Drinking Water Map** – This document shows the colors and layout for the final reporting multi panel drinking water map.
5. **Workflow Analysis and Improvement for Mapping and Reporting** – A Strategic Planning activity was conducted for each of the main project components, where the project team listed the projects Strengths, Weaknesses, Opportunities, and Threats (SWOT). This document outlines the results of the SWOT analysis for the Mapping and Reporting component.

## Tracking & Status

Process documents relating to Tracking & Status are found on this webpage:
http://ww10.doh.state.fl.us/pub/bos/Inventory/ProcessDocuments/1ContactManagement/

The documents included are:
1. **Weekly Status Report Sample** – This document is used for team members to report the current status of the work they performed during the week.
2. **Weekly Project Status Report Template** – This document is put together by the project manager to provide a weekly update on the project to leadership.
3. **Workflow Analysis and Improvement for Tracking and Status** – A Strategic Planning activity was conducted for each of the main project components, where the project team listed the projects Strengths, Weaknesses, Opportunities, and Threats (SWOT). This document outlines the results of the SWOT analysis for the Tracking and Status component.

# Section 3 - DATA STRUCTURE DEVELOPMENT

## Develop Data Dictionary

The project data dictionary, as of November 25, 2015 can be found on this webpage: http://ww10.doh.state.fl.us/pub/bos/Inventory/Deliverables/. The data dictionary outlines the GIS Feature Classes and Tables for the Florida Water Management Inventory. Specifically, the project data dictionary shows the layer names, layer descriptions, field names, field descriptions, and format for the project geodatabases. The contents of the final GIS dataset, the edit version hosted on the DOH website, and the primary feature classes and tables that are used in conducting the inventory are shown in Figure 4.

**Florida Water Management Inventory GIS Database Diagram**

**Final GDB for public distribution**
fwmi_cnty_public.gdb
- Parcels_public
  - par11Alachua
  - par13Bay
  - . . .
  - . . .
  - . . .
  - par76Walton
  - par77Washington

**Proposed GDB for web application**
fwmi_cnty_web.gdb
- Parcels_web
  - parNoName
  - parNoName

**Editing and Inventory Development GDB**
fwmi_cnty_working.gdb
- Parcels
  - ParNoNameYYYY*
- LOC_NoFYYYY*
- VI_NoFYYYY*
- * one FC/TBL set per county
- DOR (staging area for importing DOR shapefiles)
- Inv2009 (staging area for migrating 2009 Inventory data to current parcel feature classes)

DEVELOPMENT/WORKING GDB
Feature Classes and Tables

**parNoNameYYYY**

| PK | PARCELNO |
|----|----------|
| | CO_NO |
| | LANDUSE |
| | BLT_STATUS |
| | BLT_UPD |
| | ALT_KEY |
| | NAL_MTCH |
| | PHY_ADD1 |
| | PHY_ADD2 |
| | PHY_CITY |
| | PHY_ZIPCD |
| | S_LEGAL |
| | OWNER_NAME |
| | GIS_ACRE |
| | INCORP |
| | PAR_CHAR |
| | WW |
| | WW_UPD |
| | WW_SRC_TYP |
| | WW_SRC_NAME |
| | WW_GEO |
| | ... wastewater |
| | ... sources |
| | ... information |
| | COMMENTS |
| | DW |
| | DW_UPD |
| | DW_SRC_TYP |
| | DW_SRC_NAME |
| | DW_GEO |
| | ... drinking water |
| | ... sources |
| | ... information |
| | ASMNT_YR |
| | PAR_UPD |
| | PAR_UPD_TYPE |
| | COUNTYFP |

| ... wastewater sources | ... drinking water sources |
|---|---|
| Util_WW | Util_DW |
| Util_WW_SRC | Util_DW_SRC |
| Util_WW_GEO | Util_DW_GEO |
| EHDConst_WW | EHDConst_DW |
| EHDConst_WW_SRC | EHDConst_DW_SRC |
| EHDOp_WW | EHDLU_DW |
| EHDOp_WW_SRC | EHDLU_DW_SRC |
| EHDFac_WW | EHDFac_DW |
| EHDFac_WW_SRC | EHDFac_DW_SRC |
| EHDOth_WW | EHDOth_DW |
| EHDOth_WW_SRC | EHDOth_DW_SRC |
| CHD_WW | CHD_DW |
| CHD_WW_SRC | CHD_DW_SRC |
| CHD_WW_GEO | CHD_DW_GEO |
| FAC_WW | FAC_DW |
| FAC_WW_SRC | FAC_DW_SRC |
| FAC_WW_GEO | FAC_DW_GEO |
| Gov1_WW | WMD_DW |
| Gov1_WW_SRC | WMD_DW_SRC |
| Gov1_WW_GEO | WMD_DW_GEO |
| Gov2_WW | Gov1_DW |
| Gov2_WW_SRC | Gov1_DW_SRC |
| Gov2_WW_GEO | Gov1_DW_GEO |
| Gov3_WW | Gov2_DW |
| Gov3_WW_SRC | Gov2_DW_SRC |
| Gov3_WW_GEO | Gov2_DW_GEO |
| Other_WW | Gov3_DW |
| Other_WW_SRC | Gov3_DW_SRC |
| Other_WW_GEO | Gov3_DW_GEO |
| WW_09Inv | Other_DW |
| OrigWW_09Inv | Other_DW_SRC |
| PRB_09Inv | Other_DW_GEO |

**VI_NOFYYYY**

| PK | PARCEL_ID |
|----|-----------|
| FK1 | PARCELNO |
| | CO_NO |
| | ALT_KEY |
| | BLT_STATUS |
| | BLT_MTHD |
| | LANDUSE |
| | BAS_STRT |
| | DOR_UC |
| | PUBLIC_LND |
| | JV_HMSTD |
| | JV_NON_HMSTD_RESD |
| | JV_CLASS_USE |
| | NCONST_VAL |
| | PAR_SPLT |
| | LND_VAL |
| | EFF_YR_BLT |
| | ACT_YR_BLT |
| | TOT_LVG_AREA |
| | NO_BULDNG |
| | NO_RES_UNTS |
| | VI_CD1 |
| | SALE_YR1 |
| | VI_CD2 |
| | SALE_YR2 |
| | MULTI_PAR_SAL1 |
| | SAL_CHNG_CD1 |
| | MULTI_PAR_SAL2 |
| | SAL_CHNG_CD2 |
| | FC_MTCH |

**LOC_NOFYYYY**

| PK | PARCEL_ID |
|----|-----------|
| | CO_NO |
| | ALT_KEY |
| | PHY_ADDR1 |
| | PHY_ADDR2 |
| | PHY_CITY |
| | PHY_ZIPCD |
| | S_LEGAL |
| | OWN_NAME |
| | LND_SQFOOT |
| | CALC_ACRE |
| | CENSUS_BK |
| | TWN |
| | RNG |
| | SEC |
| | FC_MTCH |
| FK1 | PARCELNO |

**FINAL GDB**
Parcels_public FDS

**parNoName**

| PK | PARCELNO |
|----|----------|
| | CO_NO |
| | LANDUSE |
| | BLT_STATUS |
| | ALT_KEY |
| | PHY_ADD1 |
| | PHY_CITY |
| | PHY_ZIPCD |
| | GIS_ACRE |
| | WW |
| | WW_UPD |
| | WW_SRC_TYP |
| | WW_SRC_NAME |
| | WW_GEO |
| | DW |
| | DW_UPD |
| | DW_SRC_TYP |
| | DW_SRC_NAME |
| | DW_GEO |
| | ASMNT_YR |
| | COUNTYFP |

**WEB GDB**
Parcels_web FDS

**parNoName**

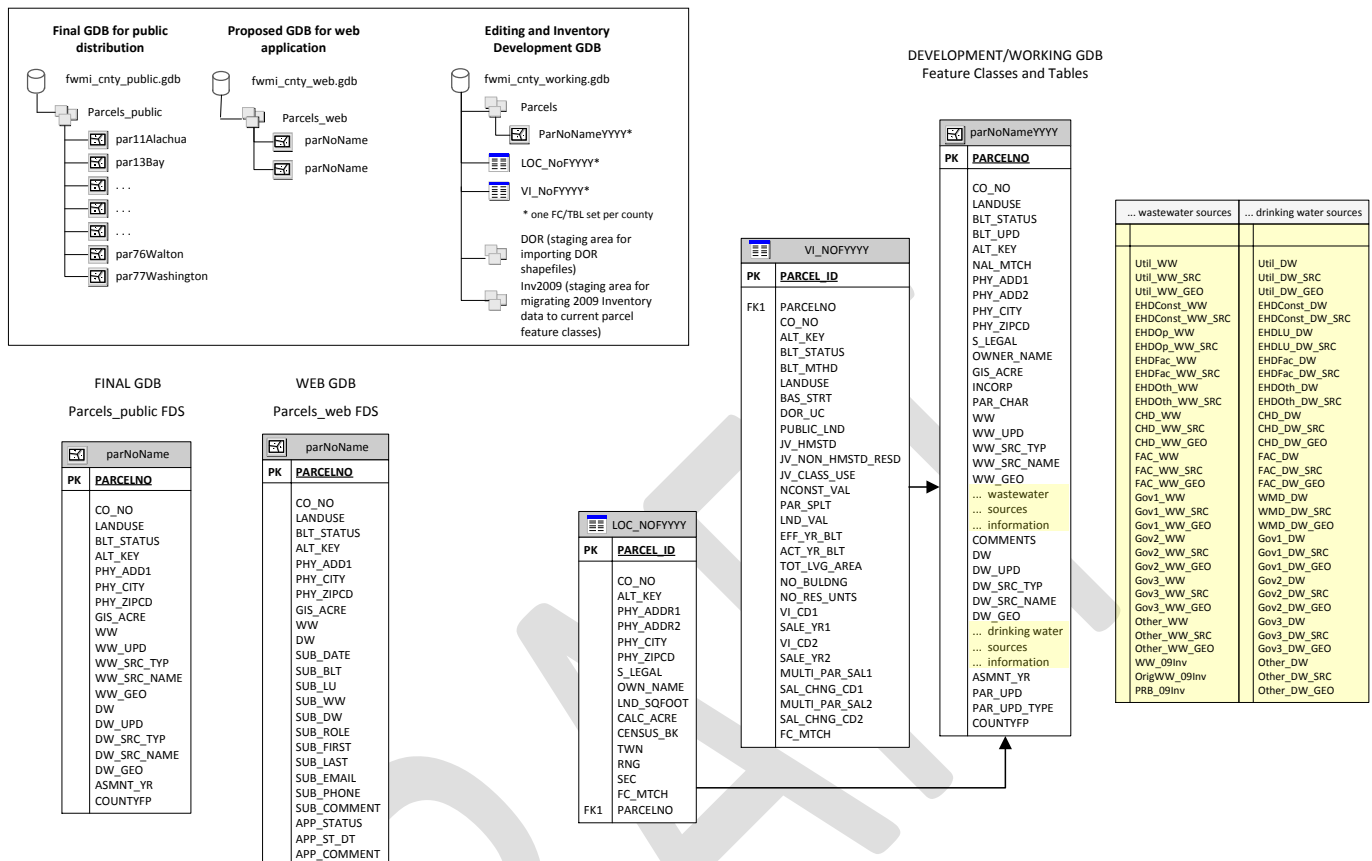| PK | PARCELNO |
|----|----------|
| | CO_NO |
| | LANDUSE |
| | BLT_STATUS |
| | ALT_KEY |
| | PHY_ADD1 |
| | PHY_CITY |
| | PHY_ZIPCD |
| | GIS_ACRE |
| | WW |
| | DW |
| | SUB_DATE |
| | SUB_BLT |
| | SUB_LU |
| | SUB_WW |
| | SUB_DW |
| | SUB_ROLE |
| | SUB_FIRST |
| | SUB_LAST |
| | SUB_EMAIL |
| | SUB_PHONE |
| | SUB_COMMENT |
| | APP_STATUS |
| | APP_ST_DT |
| | APP_COMMENT |

*Figure 4. GIS Database Diagram*

There are three different GIS geodatabase datasets: the final one for public distribution (fwmi_cnty_public.gdb), one that is used in the online web application (fwmi_cnty_web.gdb), and an editing and development geodatabase (fwmi_cnty_working.gdb). The parcel data were acquired from the Florida Department of Revenue. Data and other information relative to the drinking water and wastewater were obtained from various sources acquired through the data collection process.

The public geodatabase contains the feature classes of county parcels with inventoried drinking water and domestic wastewater information. The county feature classes of parcels are named according to the following concatenated values: "par", DOR County number, County Name (i.e. par11Alachua).

The web application geodatabase is hosted on the web with feature classes of county parcels containing inventoried drinking water and domestic wastewater information. The county feature classes of parcels are named according to the following concatenated values: "par", DOR County number, County Name (i.e. par11Alachua). Currently the web application allows for a user to select parcel polygon(s) by searching on the address or Parcel Number and export data. The feature classes allow for proposed edits to be submitted through the web application. This edit functionality has not been built, but the structure is there for future development. The conceptual process is that the user would be able to enter requested edits into a web-based form that will contain both mandatory and

optional fields for the Submitter's Role, First and Last Name, email, phone, and comments. The polygon(s) will be copied from the original feature class to the edit feature class, and those attributes with the 'SUB' prefix will be populated according to what the submitter provides. These changes will be reconciled back into the original after approval. The submitter fields are not included in the final feature class.

The editing and development geodatabase is the working geodatabase with feature classes and tables for county parcels with inventoried drinking water and domestic wastewater information. The county feature classes of parcels are named according to the following concatenated values: "par", DOR County number, County Name (i.e. par11Alachua), Tax Assessment Year (i.e. 2014). Note that the year suffix reflects the currency of the parcel geometry, and not necessarily the year in which the inventory was conducted.

Table VI_NOFYYYY, in the editing and development geodatabase, includes fields to be used to determine Built status. This table is extracted from the Florida Department of Revenue (DOR) Real Property Name – Address – Legal (NAL) file. The majority of attributes are populated directly from the NAL file. Specific information about the data in the NAL file can be found in the DOR User's Guide (http://dor.myflorida.com/dor/property/rp/dataformats/). The BLT_STATUS, BLT_MTHD, LANDUSE attributes are populated as part of the inventory process. 'NO' in the title is the DOR county number and matches the number in the feature class.

Table LOC_NOFYYYY, in the editing and development geodatabase, includes fields related to the location and size of the parcel. This table is extracted from the Florida Department of Revenue (DOR) Real Property Name – Address – Legal (NAL) file. The majority of attributes are populated directly from the NAL file. Specific information about the data in the NAL file can be found in the DOR User's Guide. 'NO' in the title is the DOR county number and matches the number in the feature class.

The wastewater sources and drinking water sources tables include information on the sources of data used to calculate the final drinking water and wastewater determination. These values are evaluated in the data model to help determine known, likely, somewhat likely, unknown, conflicting, and NA values for each parcel.

## Develop Geodatabase Framework

The geodatabase framework can be found on this webpage: http://ww10.doh.state.fl.us/pub/bos/Inventory/Deliverables/. There are templates for each of the three different GIS geodatabase datasets: the final one for public distribution (fwmi_cnty_public.gdb), one that is used in the online web application (fwmi_cnty_web.gdb), and an editing and development geodatabase (fwmi_cnty_working.gdb).

# Section 4 – QUALITY MANAGEMENT AND ASSURANCE

## Develop Quality Management Plan

The quality management plan for this project provides the basis for the consensus objectives and expectations of the project team and sponsors as they relate to managing data quality for the Florida Water Management Inventory Project.  The plan documents the data to assess, identifies quality objectives and metrics, and develops methods to reconcile assessment results.  The quality management plan, as of September 28, 2016 can be found on this webpage: http://ww10.doh.state.fl.us/pub/bos/Inventory/Deliverables/.

The quality management plan for this project was initially outlined in June, 2014.  As the project commenced and process documentation was developed, the quality management plan was adjusted.  As Phase 3 of the project completed, the plan was fleshed out.  Audits were performed throughout Phase 4 and continued after completion of Phase 4 to help develop the plan for the next project cycle. The quality management plan was updated after Phase 4 based on audit results.

The plan includes a list of the attributes to check and manage for information items to manage for each major project area.  The plan also includes the audit schedule, which lists the frequency, responsible staff, and procedure for each information item.

*Table 2.  Quality Management Plan Components*

| Audit Group | Information Item |
|---|---|
| **Contact Management** | Public Water Systems Facilities & Contacts from DEP |
| | Wastewater Treatment Facilities & Contacts from DEP |
| | Water Management District Contacts |
| | County DOH Contact List |
| **Data Gathering** | Parent Organization Grouping |
| | Inventory Database Tracking Sheet |
| | County Indexes |
| **Data Processing** | Standardization of Data Sheets |
| | Geocoded Spreadsheets (Google Earth or ArcGIS Street Mapper) |
| **GIS** | Status Map |
| | County Parcels |
| | Parcel Built Status |
| | Source Datasets |
| | Utility services encompassing multiple counties |
| | State-level source assignment to parcels |
| | County-level source assignment to parcels |
| | GIS Workflow Tracking Datasheet |
| | Environmental Health Database Queries |
| | Final Wastewater Disposal Method |
| | Final Drinking Water Source |
| | County Inventory Maps |
| | Public GIS dataset |
| | Final GIS related products |
| **Inventory Database (IDB)** | IDB |
| | Last Modification to Record in IDB |
| **Web** | Internal Map Server |
| | External Map Server |
| | Website Content |

## Perform Quality Audits

Quality audits were performed throughout the project.  Some processes include the audit procedures within the process itself; other audits occur at the start or end of a project phase or cycle; while still other audits occur on a set timeframe such as weekly, monthly, or quarterly.  These are outlined in the audit schedule within the quality management plan.

## Update Process Documents

The process documents developed for this project, as described in Section 2 of this report, are evaluated and updated at the beginning of each project phase or as needed. New process documents are created when necessary. One of the major project strengths is the level of detail contained within the process documentation. This allows for replication of processes, streamlining efforts, and a high quality end product.

## Update Data Structure Elements

Data structure elements, such as the geodatabase framework described in Section 3 of this report, were carefully designed during the process development stage done during the Phase 1 (pilot phase) of the project. Once Phase 2 was complete, and a quality audit was done on the built/not-built parcels, the data structure elements were updated to standardize the format for all county datasets. Other data structure elements include the final project maps, the inventory database for tracking and reporting on the data gathering effort, and the frequency spreadsheets for each county. Elements were updated and added throughout the project as needed. For example, the shared public data includes an Excel spreadsheet of the attribute table in the final GIS maps. This was not one of the original data elements, but after a suggestion from someone who did not have GIS software and wanted to analyse the data, this element was added. Such enhancements allow for wider use of the end products.

# Section 5 - DATA COLLECTION / PROCESSING / MAPPING

## First Cycle Overview

Florida was split into implementation phases to make this project more manageable and to allow for ongoing development and improvement of business processes and standard operating procedures and methodologies (Figure 5). The basic processes were to collect all relevant data available, compile, analyse, and finally map these data and make them available to the public.
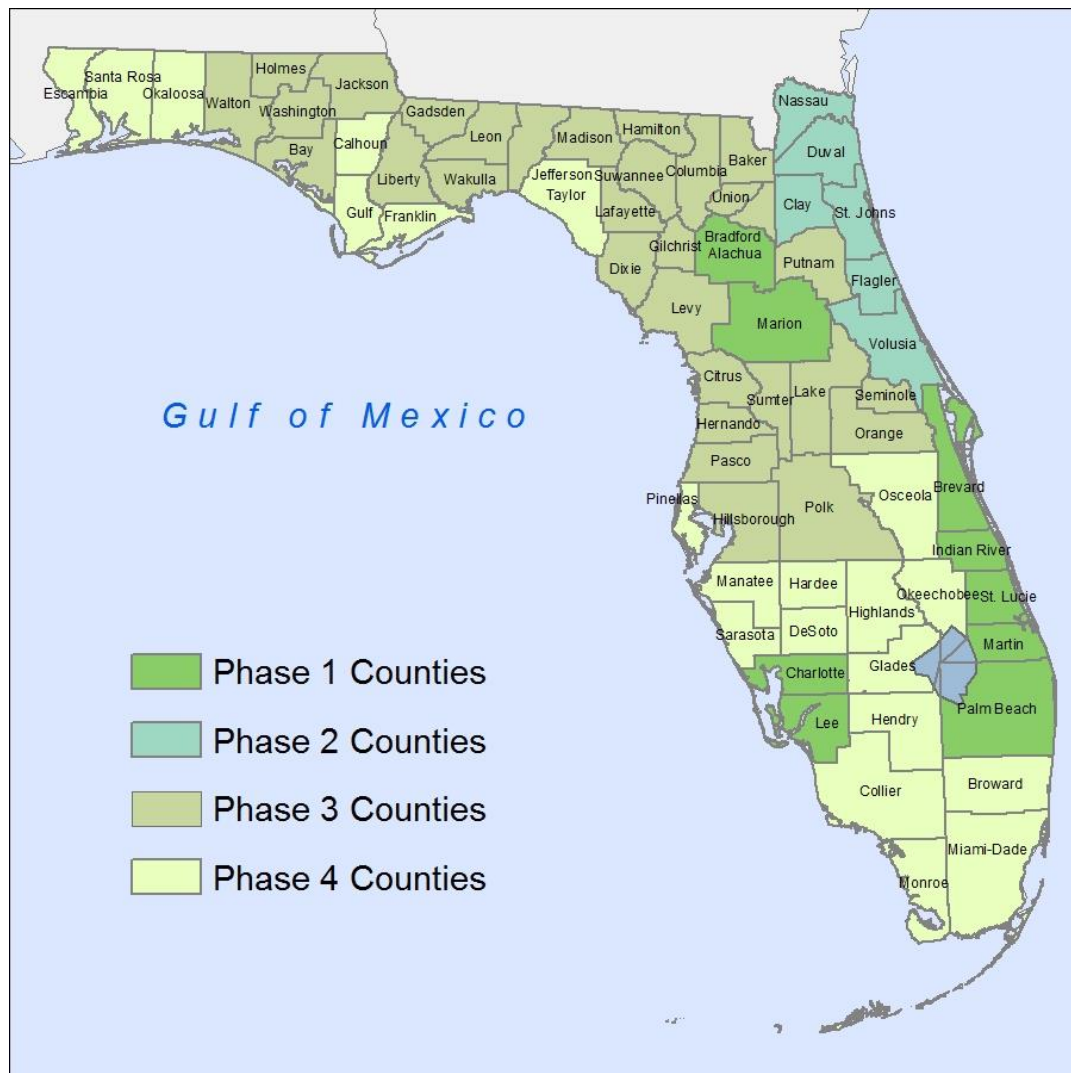
*Figure 5.  Phases of the Florida Water Management Inventory*

At the beginning of the data collection effort, Department county environmental health offices were asked for their assistance in locating local contacts (i.e. organization names, email addresses, websites) that may have relevant information.  The data collection effort was a two-step process, with an initial attempt to acquire GIS datasets, followed by other types of information and/or data.  There were several counties that completed similar projects at the local level.  The information and local knowledge from these projects have been a tremendous help.  Additionally, many of the utilities have been able to provide GIS data representing addresses that receive public water and sewer service.  Assistance at the local level has been invaluable.

Sources of information included organizations and state agencies such as the Department, DEP, Department of Business and Professional Regulation (DBPR), Department of Agriculture and Consumer Services (DACS), county governments, utilities, and water management districts.  Data from onsite wastewater treatment system permits, utility customer address lists, and multiple other sources were compiled to link the drinking water source and wastewater disposal method to a specific property.

| | |
|---|---|
| **Property Appraisers & DOR** | • Parcel Data |
| **DEP** | • Locations of Wastewater Treatment Facilities<br>• Location of Public Water Systems |
| **Water Management Districts** | • Private Well Permitting Data |
| **County DOH Offices** | • Septic Tank Permitting Data<br>• Private Well Permitting Data *(Delegated Counties)* |
| **DOH Central Office** | • Environmental Health Database (EHD) |
| **Public Service Commission** | • Utility Service Area Boundaries |
| **DBPR** | • Limited Data on Licensed Businesses |
| **DACS** | • Limited Data on Licensed Businesses |
| **Utilities** | • Locations of Properties Served |

*Figure 6.  Data Sources and What Types of Data They Have*

The main data sources were:

### 1. Parcel Information

A base parcel layer was acquired from the Florida Department of Revenue (DOR).  Parcel data are released annually by the DOR, which are a compilation of data submitted by the property appraiser for each county. A series of queries were developed to determine which parcels likely had a structure with the potential for using drinking water or generating wastewater.

### 2. Environmental Health Database

The Environmental Health Database (EHD) is a statewide web-based database, maintained by the Department, with information on environmental health permitting and inspections for facilities regulated by the Department. EHD has electronic permitting and inspection data for onsite wastewater treatment systems covering a period from the mid-1990s onward.  The database was queried based on several criteria to develop variable levels of confidence (known, likely, or somewhat likely) related to the presence of a working onsite wastewater system.  Some of the query conditions included permits with the following criteria:

- Construction permits for onsite wastewater systems:

- o Known sewer – abandonment permit applied for indicating sewer is available
- o Known septic – not known sewer and has construction/final approval data
- o Private domestic well or public water – as indicated on the permit application
- • Operating permits for commercial strength sewage waste, industrial or manufacturing zoned or equivalent usage, aerobic treatment units, or performance-based treatment systems:
  - o Known septic if permit is not expired, or inspection was recently completed
  - o Likely septic for all others

The EHD was also queried with data from other environmental health programs that record permitting and inspection information in the database. Some programs have information about water and wastewater infrastructure. These included: limited use water wells, public swimming pools, private domestic water wells, public water, mobile home parks, food hygiene facilities, group care facilities, migrant labor camps, and foster home programs. Information from any source that did not directly permit the drinking water source or wastewater disposal method was classified as likely or somewhat likely.

### 3. Other Sources within the Department
GIS statewide inventory of onsite wastewater treatment systems that was completed by a private contractor in 2009 (EarthSTEPS and GlobalMind, 2009) was used. Also used were statewide Well Surveillance Program data collected by the Department's drinking water program.

Assistance was requested from Department offices within each county to collect well or onsite wastewater treatment system data not in EHD. Local offices also informed us about other professionals who might have similar data and let us know whether there were any planned onsite wastewater treatment to sewer conversions or utility expansions. County-level inspectors also have direct knowledge about environmental health regulated facilities inspected by the Department at the local level. This streamlined the process and resulted in us not having to contact several utilities and organizations. The local office provided assistance in contacting utility service providers who did not respond to repeated requests for data collection. Leveraging local knowledge, expertise, and relationships improved data acquisition and quality information.

### 4. Utility sources
In Florida, DEP regulates larger public water systems and central sewer systems and collects data on the wastewater treatment plants under their jurisdiction such as the permitted capacity and sample results. They do not collect location information on sewer laterals or which properties contribute wastewater to the facility. This information was obtained directly from individual utilities and treatment plants.

DEP regulated facilities were compiled together in the project tracking database, and facilities that had similar contact information were grouped to minimize the total number of contacts needed. This process, which the team coined "Parent org grouping" was an important step in the success of this process. Having a single point of contact for a large utility that handles multiple drinking water and wastewater facilities, ensured that the work was consistent across the utility and no effort was wasted.

### 5. Other sources

In addition to collecting data at the local level, data are also collected at the state and sub-state levels. State level data include any available Florida DEP GIS coverages for domestic wastewater facilities and public water systems, statewide information from Department of Business and Professional Regulation and Department of Agriculture and Consumer Services relative to licensed establishments with food service. Sub-state data have been provided by the water management districts and several large utilities.

When looking at the overall success of the data gathering effort, 48% of the facilities were manually researched (Figure 7). Manual research was done for regulated facilities with a small treatment capacity, which often only serve one or two parcels. Examples of these types of facilities included apartment complexes, mobile home parks, bars, and convenience stores. These facilities provide drinking water for a very small population and treat very little wastewater (7% and <6% of the overall total) (Table 1). County property appraiser records were investigated for the physical facility address and aerial maps were used to identify parcel locations. Several business rules were created that prevented making unnecessary contacts and, DEP facility data were also utilized to improve efficiency.
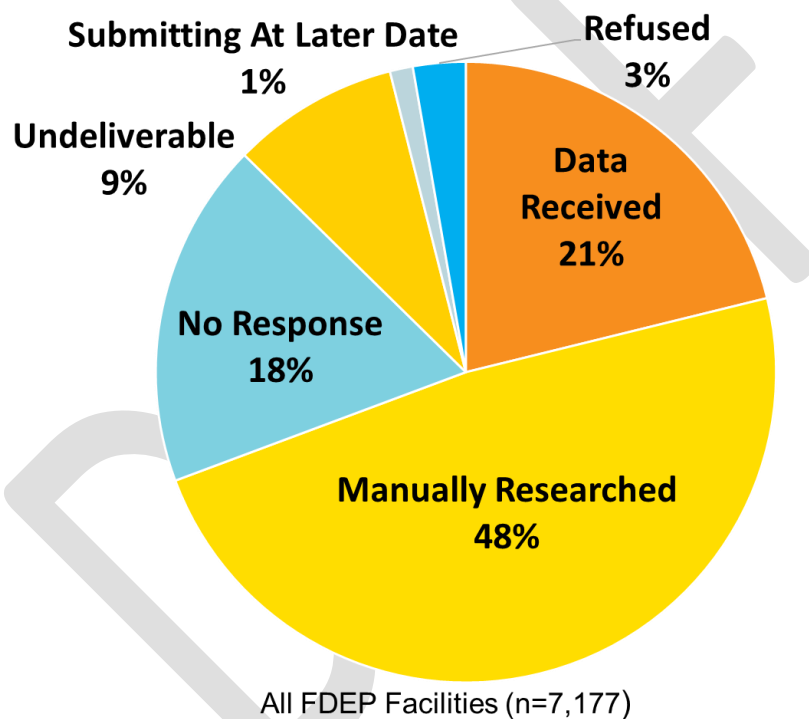


Figure 7. Data Receipt Summary for all FDEP Regulated Drinking Water and Wastewater Systems

*Table 3.  Summary of FDEP Facility Data Collection Results*

| | # of WW Facilities | # of DW Facilities | WW % | DW % |
|---|---|---|---|---|
| **Data Received** | 647 | 871 | 77% | 74% |
| **Manually Researched** | 403 | 3,048 | 6% | 7% |
| **No Response** | 387 | 899 | 12% | 13% |
| **Undeliverable** | 316 | 309 | 2% | 1% |
| **Submitting at Later Date** | 19 | 67 | 1% | 2% |
| **Refused** | 51 | 145 | 2% | 4% |
| **Subtotal** | 1,823 | 5,339 | | |
| **Grand Total** | 7,162 | | 100% | |

Even though only 21% of the total number of facilities submitted data, this accounted for 77% of the treated wastewater and 74% of the population served by drinking water facilities. Those facilities that either refused or were unable to submit data were mainly privately owned utilities.

*Table 4.  Data sets available for mapping by project phase*

| Data Sets Available for Mapping by Project Phase | | | | |
|---|---|---|---|---|
| **Project Phase** | **Wastewater Permitted Capacity (millions of gallons per day)** | **Drinking Water Population Served** | **WW %** | **DW %** |
| **Phase 1** | **458.0** | **3,860,135** | | |
| **YES** | 428.4 | 2,869,827 | 94% | 74% |
| **NO** | 29.7 | 990,308 | 6% | 26% |
| **Phase 2** | **251.9** | **1,774,688** | | |
| **YES** | 217.7 | 1,429,085 | 86% | 81% |
| **NO** | 34.2 | 345,603 | 14% | 19% |
| **Phase 3** | **723.7** | **5,921,640** | | |
| **YES** | 572.4 | 4,101,553 | 79% | 69% |
| **NO** | 151.3 | 1,820,087 | 21% | 31% |
| **Phase 4** | **1232.7** | **8,068,515** | | |
| **YES** | 1196.8 | 7,511,658 | 97% | 93% |
| **NO** | 35.9 | 556,857 | 3% | 7% |
| **Total Data Available** | **2666.3** | **19,624,978** | **91%** | **81%** |

Another method used for gathering county specific data was a centralized approach, where the local Environmental Health office coordinated meetings with county, municipal, and large utility entities.  All GIS datasets were gathered and compiled by one centralized staff member, leveraging local knowledge and relationships.  Three counties used this approach: Indian River, Duval, and Leon.

Obtaining GIS datasets is one key to efficiency in data collection and for more robust, useful information.  The project team gathered contacts for GIS resources within each county.  Larger utilities, as well as county or city level governments, were the most frequent sources

for GIS data. The GIS data varied across organizations, from coarse service area boundaries to detailed service representations directly linked to parcels.

GIS datasets for 488 facilities were collected in this first cycle of the project (Table 5). While this represents a fairly low percentage of all facilities (7%), it represents 67% of the total wastewater capacity (millions of gallons per day) and 61% of the population served by public drinking water. It includes regional, county, city, municipal, and private utility providers. Figure 7 shows the breakdown of this by phase. These statistics reinforce the strategy to focus initial information gathering efforts on GIS data from larger facilities and organizations.

*Table 5. Summary of GIS Data Showing the Percentage of Facilities, Wastewater Capacity, and Drinking Water Population Served for Facilities That Did and Did Not Submit GIS Data*

| GIS Data Sets Available? | Count of Facilities | % Facilities | % Wastewater Capacity | % Drinking Water Population Served |
|---|---|---|---|---|
| **Yes** | 488 | 7% | 67% | 61% |
| **No** | 7,177 | 93% | 33% | 39% |
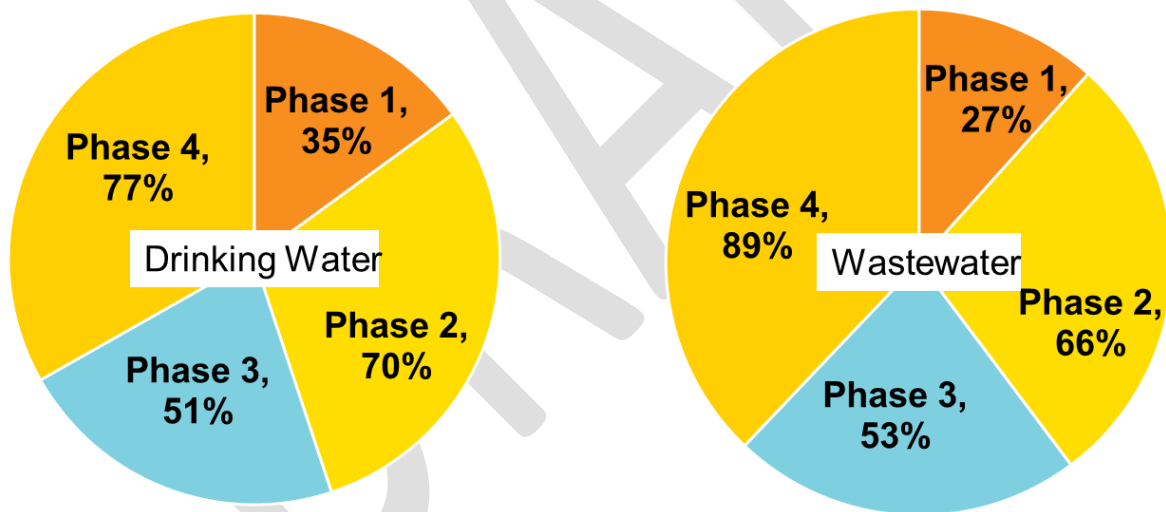


*Figure 8. Percent of Population Served by Drinking Water and Wastewater Permitted Capacity Submitting GIS Data by Phase*

Summary of data received by county is shown in Appendix A. Appendix B shows shows, for each county, a summary of the final parcel counts for wastewater and drinking water, the percent of FDEP wastewater and drinking water where we received data, and a list of the large permitted facilities that did not submit data for incorporation into the project. Large wastewater facilities are defined as having a permitted capacity of greater than 1 million gallons per day. Large drinking water facilities are defined as have a permitted population of more than 500.

When evaluating the data gathered by facility size (Table 6), it becomes clear that the larger the facility, whether wastewater or drinking water, the more likely it becomes that the data is submitted.  There was less success with smaller facilities most likely because having electronic data in a readily exportable format is not a cost efficient option.  This could be due to funding limitations, staffing size or experience, or because the facility utilizes a private company for maintenance and/or billing which is listed as the contact in the DEP facility data.

*Table 6.  First Cycle Data Gathered by Facility Size*

| 1st Cycle Data Gathered by Facility Size | | |
|---|---|---|
| **Facility Size** | **Sizing Criteria** | **% of Facilities** |
| **Giant Metro DW** | ≥100k population | **83%** |
| **Giant Metro WW** | >50 MGD | **91%** |
| **Large DW** | ≥10k population | **69%** |
| **Large WW** | >15 MGD | **84%** |
| **Mid-Size DW** | ≥1k population | **54%** |
| **Mid-Size WW** | >2 MGD | **74%** |
| **Small DW** | ≥100  population | **66%** |
| **Small WW** | >.05 MGD | **50%** |
| **Tiny DW (Single or Small # Parcel)** | ≤ 99 population | **79%** |
| **Tiny WW (Single or Small # Parcel)** | ≤. 05 MGD | **57%** |
| *\*Does not include 2009 data that is available for mapping; only newly gathered data* | | |

Data were requested in a standardized Excel format for those without GIS data.  However, almost every spreadsheet submitted had some irregularity that required standardization.  Key elements required to identify parcels being served were Parcel ID, latitude/longitude, or physical address.  If valid parcel ID numbers or latitude and longitude information was not provided, physical addresses were geocoded and prepared for import into the project geodatabase.  Not all geocoding programs were the same.  Using a program that geocodes addresses to the street segment does not provide direct linkage to the parcel, and require additional geoprocessing.  Other geocoding programs place the point in the centroid of the property.  This allowed for much greater accuracy when merging geocoded data with parcel data, and was the methods used with Google Earth Pro (initially) and ArcGIS Street Mapper (Phase 4) (Figure 9).
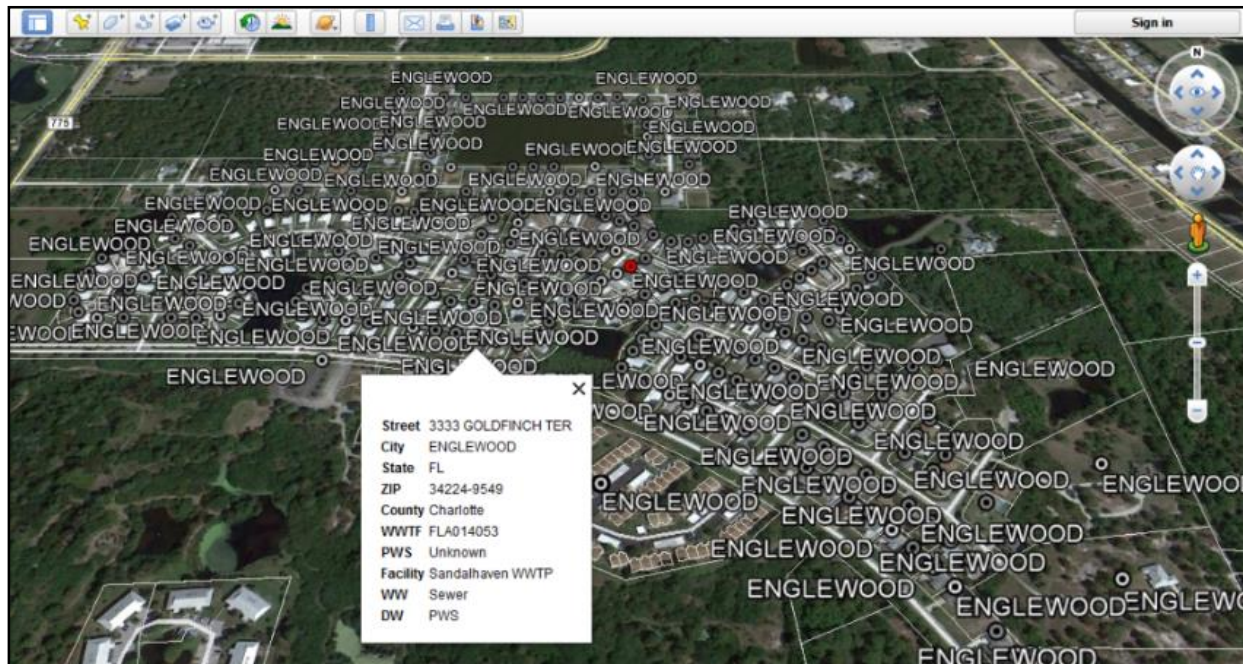
*Figure 9.  Screenshot of Geocoding via Google Earth*

The geodatabase (Figure 10), was started with base parcel layers provided by the Department of Revenue.  Within the geodatabase, each county is represented by one feature class and two tables for the most recent tax assessment year.  Another geodatabase was developed for hosting the inventory results on-line.  The on-line version provides a means by which the information for a parcel may be researched, along with a mechanism to submit corrections.

# Florida Water Management Inventory GIS Database Diagram

**GDB for Web Application**

fwmi_final.gdb

FL_WaterMngInventory

fwmi

fwmi_edit

**GDB for Editing and Inventory Development**

fwmi_cnty.gdb

Parcels

parNoNameYYYY*

LOC_NOFYYYY*

VI_NOFYYYY*

* one FC/TBL set per county

**fwmi**

| PK | **PARCELNO** |
|----|----------|
| | CO_NO |
| | BLT_STATUS |
| | BLT_UPD |
| | LANDUSE |
| | GIS_ACRE |
| | DW |
| | DW_UPD |
| | DW_SRC_TYP |
| | DW_SRC_NAME |
| | DW_SRC_GEO |
| | WW |
| | WW_UPD |
| | WW_SRC_TYP |
| | WW_SRC_NAME |
| | WW_SRC_GEO |
| | ALT_KEY |
| | PHY_ADDR1 |
| | PHY_CITY |
| | PHY_ZIPCD |
| | COUNTYFP |
| | COMMENTS |

**fwmi_edit**

| PK | **PARCELNO** |
|----|----------|
| | CO_NO |
| | BLT_STATUS |
| | LANDUSE |
| | DW |
| | WW |
| | ALT_KEY |
| | PHY_ADDR |
| | PHY_CITY |
| | PHY_ZIPCD |
| | SUB_DATE |
| | SUB_BLT |
| | SUB_LU |
| | SUB_DW |
| | SUB_WW |
| | SUB_ROLE |
| | SUB_FIRST |
| | SUB_LAST |
| | SUB_EMAIL |
| | SUB_PHONE |
| | SUB_COMMENT |
| | APP_STATUS |
| | APP_ST_DT |
| | APP_COMMENT |

**parNoNameYYYY**

| PK | **PARCELNO** |
|----|----------|
| | CO_NO |
| | BLT_STATUS |
| | BLT_UPD |
| | LANDUSE |
| | GIS_ACRE |
| | DW |
| | DW_UPD |
| | DW_SRC_TYP |
| | DW_SRC_NAME |
| | WW |
| | WW_UPD |
| | WW_SRC_TYP |
| | WW_SRC_NAME |
| | ALT_KEY |
| | PAR_UPD |
| | NAL_MTCH |
| | COUNTYFP |
| | COMMENTS |

*Figure 10.  Inventory Geodatabase Diagram*

A series of queries were developed to determine which parcels likely had a structure.  These parcels have the potential for using drinking water or generating wastewater, and was the focus of the inventory.  Information from the 2009 wastewater inventory was brought into the parcel feature classes.  Drinking water and wastewater data were compiled, converted, imported and assigned to associated parcels within the geodatabase.  The qualifiers "known", "likely", and "somewhat likely" were assigned, based on the relative confidence in the tabular

information.  For example, utility account records would receive the qualifier "known", while septic permits that were never inspected may receive the qualifier "likely".   A detailed summary of the estimation criteria used in this project can be found in Appendix E.

The method by which the source was imported into the GIS and assigned to a particular parcel is represented by the attribute values "spatial", "geocode", and "parcel".  "Parcel" represented a direct table import where the source data had a parcel identifier matching the parcel feature in the inventory feature class.  These records may be assumed to have the highest level of horizontal accuracy.  A value of "geocode" was assigned to records where the GIS feature was geocoded from address information provided by the source.  "Spatial" was assigned where GIS data were provided by the source.  One or more geoprocessing operations were performed in assigning the values for those records coded with "geocode" and "spatial".  These records will have varying levels of horizontal accuracy.

Figure 11 shows a small selection of the different source datasets that were received for Clay County specific to drinking water.  The "EHD Construction" and "CHD Well Permits" points were geocoded from the addresses found in the respective databases.  The "Utility Water Accounts" were directly imported into the GIS using Parcel Identifiers and/or coordinates.  Other data depicted were provided in GIS format.
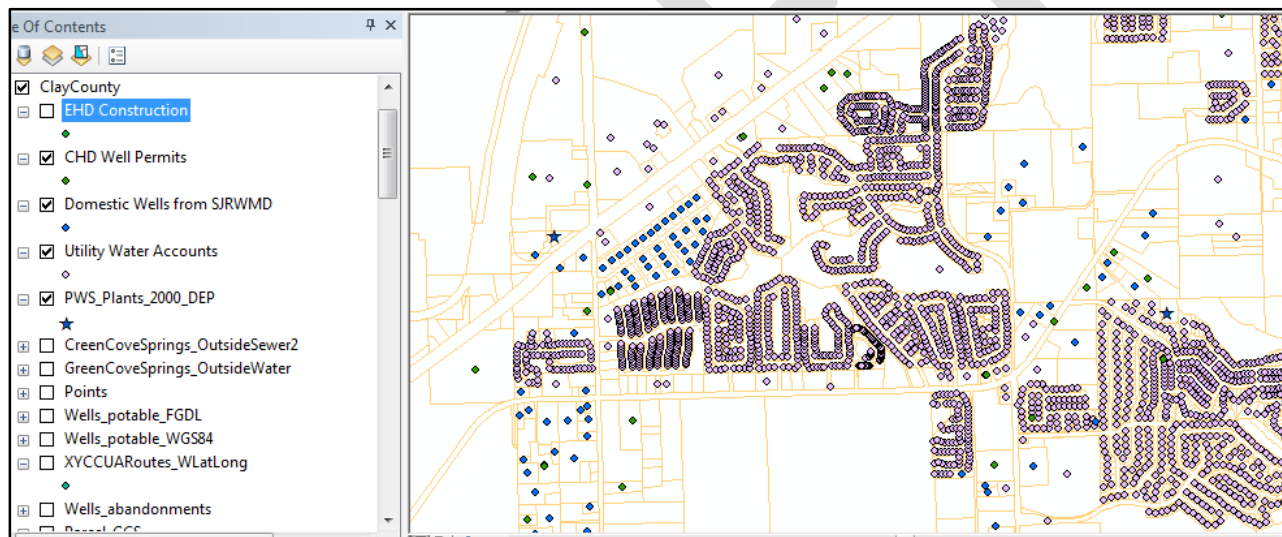


*Figure 11.  Sources for Drinking Water Information*

After all data sources for a county were compiled, the various drinking water and wastewater values were analysed with final values assigned for each parcel (Figure 12). Generally, data from a utility took precedence over any other data source.  Values that included the qualifier "known" had the next level of priority over any other data source with qualifier of "likely" or "somewhat likely".  Final values of "undetermined" or "unknown" were assigned where either two or more sources list equal opposing values, or no information was provided for a built parcel.  Any parcel that was evaluated as being "not built" and had no source data for water or wastewater was assigned value of "not applicable".

| BLT_STATUS | PARCELNO | PHY_ADD1 | WW | WW_UPD | WW_SRC_TYP | WW_SRC_NAME | WW_GEO |
|---|---|---|---|---|---|---|---|
| NBLT | 0622850710 | 171 BARBERRY LN | KnownSewer | 2015 | Utility | St Johns County Utilities - accounts | spatial |
| BLT | 0622850810 | 181 WATER OAK DR | KnownSewer | 2015 | Utility | St Johns County Utilities - accounts | spatial |
| BLT | 0622850820 | 182 WATER OAK DR | KnownSewer | 2015 | Utility | St Johns County Utilities - accounts | spatial |
| BLT | 0622850830 | 183 WATER OAK DR | KnownSewer | 2015 | Utility | St Johns County Utilities - accounts | spatial |
| BLT | 0622920000 | TPC BLVD | KnownSewer | 2015 | Utility | St Johns County Utilities - accounts | spatial |
| BLT | 0657400000 | 260 N ROSCOE BLVD | LikelySeptic | 2009 | <Null> | 2009 Inventory  Septic | spatial |
| NBLT | 0657510000 | N ROSCOE BLVD | NA | 2015 | <Null> | not built | <Null> |
| BLT | 0657600000 | 270 N ROSCOE BLVD | KnownSeptic | 2015 | DOH-HQ | Centrax 55-SS-05666  EHDConst.sql  OSTDS New | geocode |
| NBLT | 0657600290 | 274 N ROSCOE BLVD | KnownSeptic | 2015 | DOH-HQ | Centrax 55-SS-03762  EHDConst.sql  OSTDS Existing | geocode |
| NBLT | 0657600300 | 276 N ROSCOE BLVD | KnownSeptic | 2015 | DOH-HQ | Centrax 55-SS-01124  EHDConst.sql  OSTDS New | geocode |
| NBLT | 0657600325 | 280 N ROSCOE BLVD | NA | 2015 | <Null> | not built | <Null> |
| NBLT | 0657600330 | N ROSCOE BLVD | NA | 2015 | <Null> | not built | <Null> |
| BLT | 0657600340 | 286 N ROSCOE BLVD | LikelySeptic | 2009 | <Null> | 2009 Inventory  EstSeptic | spatial |
| BLT | 0657700000 | 300 N ROSCOE BLVD | LikelySeptic | 2009 | <Null> | 2009 Inventory  EstSeptic | spatial |
| BLT | 0888500000 | 525 STATE ROAD 16 | KnownSewer | 2015 | Utility | St Johns County Utilities - accounts | spatial |
| BLT | 0889000000 | 561 LAWRENCE AVE | LikelySeptic | 2015 | DOH-HQ | Centrax 55-SS-08876  EHDConst.sql  OSTDS New | geocode |
| BLT | 0889200001 | 2717 S COLLINS AVE | LikelySeptic | 2009 | <Null> | 2009 Inventory  EstSeptic | spatial |
| BLT | 0889300000 | 521 LAWRENCE AVE | LikelySeptic | 2009 | <Null> | 2009 Inventory  EstSeptic | spatial |

*Figure 12.   Screen Shot of Final Assigned Wastewater Value, Year Determination was Made, Type of Source, Source Name, and Method by Which the Source Coordinate was Derived*

Final graphic data maps were designed to display high-level details in an easy-to-read format.  When comparing two data maps, (Palm Beach County's inventory results (Figure 13) and Marion County (Figure 14)), Palm Beach has a high number of sewered parcels (87% sewer) and Marion County has a high number of parcels on septic (73% septic). Unknown data, which includes parcels with no submitted data or with conflicting data, is a relatively small percentage of the overall map (2% for Palm Beach, 4% for Marion).  Much of the unknown data are from utilities that did not respond to the data request.  These utilities might be the focus for the next iteration of data gathering for these counties.

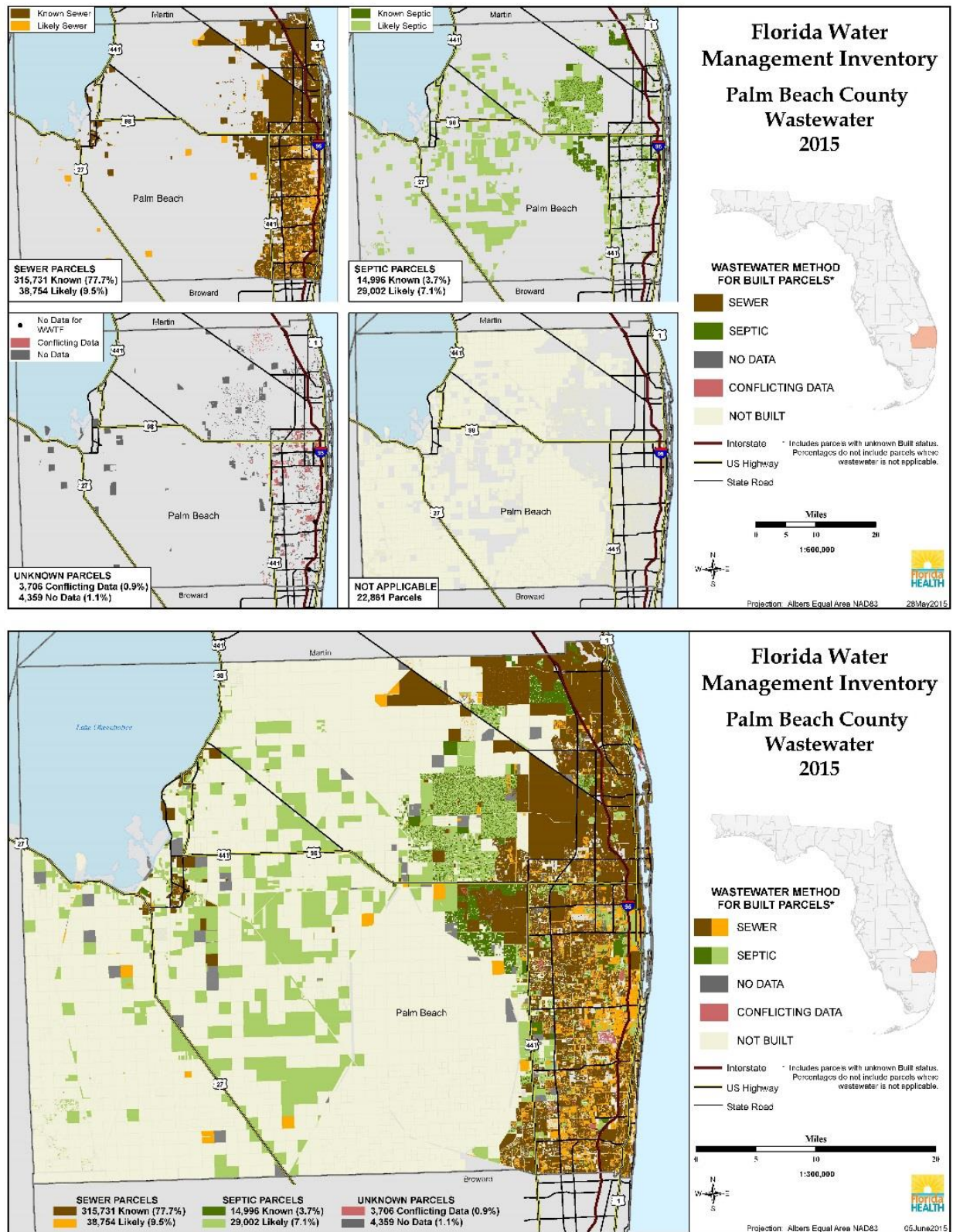*Figure 13.  Florida Water Management Inventory Final Map Results for Palm Beach County: Four Panel Map Showing Sewer, Septic, Unknown, and Not Applicable Parcels, and Single Panel Map Overlaying All Data*
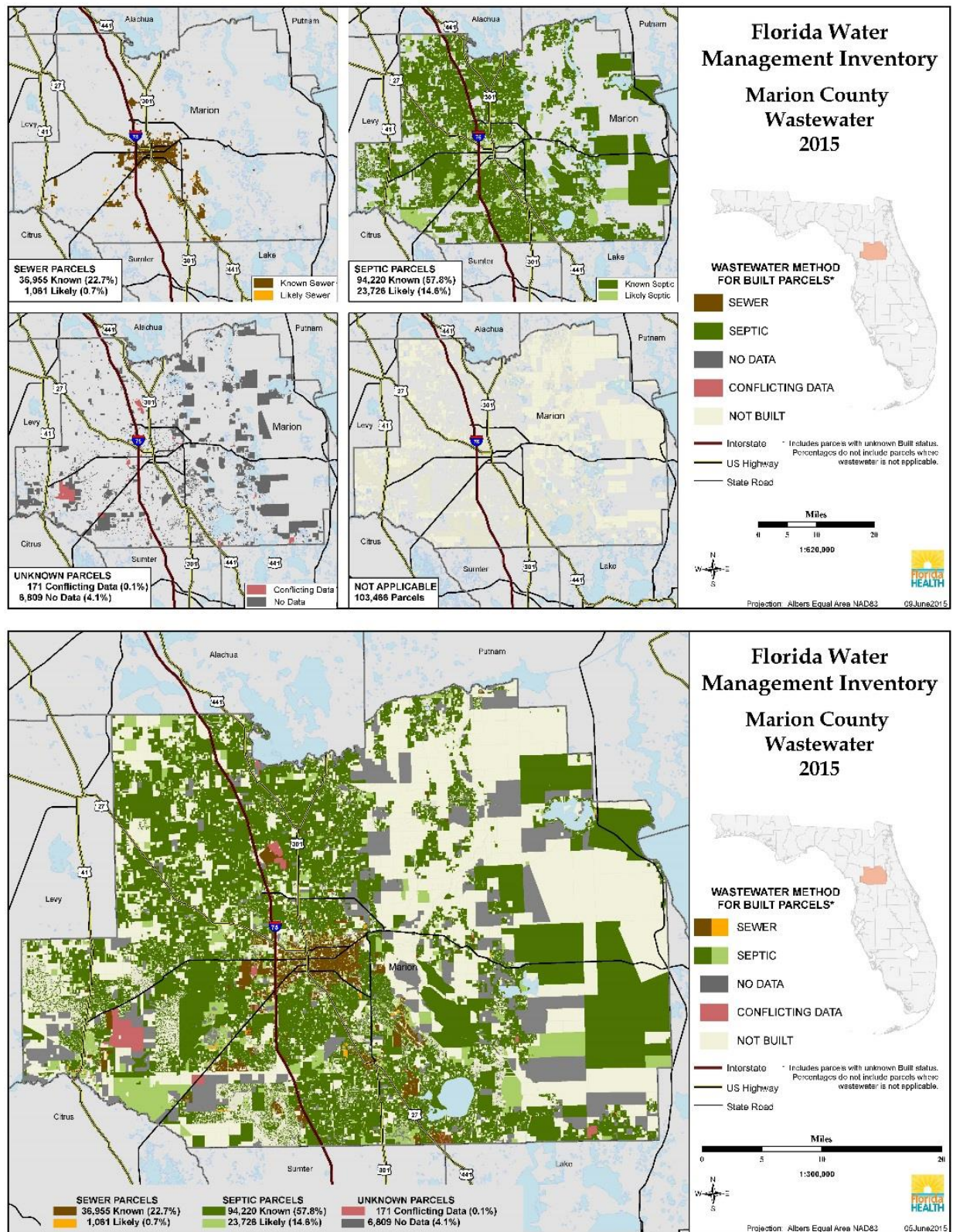
*Figure 14. Florida Water Management Inventory Final Map Results for Marion County: Four Panel Maps Showing Sewer, Septic, Unknown, and Not Applicable Parcels, and Single Panel Map Overlaying All Data*

Finally, GIS maps and summary reports were created, posted on a public website (http://floridahealth.gov/FLWMI), and interested parties were notified via email. As of September 2016, mapping and summary reporting is completed in all 67 counties in Florida, and posted on the project website.

# Phase 1

Phase 1 counties, also referred to as pilot counties, were selected based on several target criteria shown in Table 7.

*Table 7. Counties in Phase 1 and Reason for Inclusion in the Pilot Phase*

| County | Reason for Inclusion in the Pilot Phase |
|---|---|
| Alachua | Example of a mostly complete county from the 2009 inventory |
| Brevard | Indian River Lagoon county |
| Charlotte | County with numerous onsite wastewater treatment systems |
| Indian River | Indian River Lagoon county |
| Lee | County with numerous onsite wastewater treatment systems |
| Marion | Example of a mostly incomplete county from the 2009 inventory |
| Martin | Indian River Lagoon county |
| Palm Beach | County had interest in participation, letter of support received for CDC funding in 2014 |
| St. Lucie | Indian River Lagoon county |

# Phase 2

Phase 2 counties were selected to complete the northern part of the eastern coast of Florida. There was interest from the St. Johns River Water Management District in having a completed inventory for these counties, and assistance was provided in gathering support from DEP regulated facilities.

These are the counties included in Phase 2:
1. Clay
2. Duval
3. Flagler
4. Nassau
5. St. Johns
6. Volusia

# Phase 3

Phase 3 counties were selected based on whether they contained areas located in a DEP Basin Management Action Plan for springs areas. Counties on the following list with a "3A" after the name, were completed first based on a new process that identified efficiencies with contacting predominantly rural counties first and focusing efforts on obtaining GIS datasets from the remaining ones through a targeted email campaign.

1. Baker – 3A
2. Bay
3. Bradford
4. Citrus
5. Columbia
6. Dixie
7. Gadsden
8. Gilchrist
9. Hamilton – 3A
10. Hernando
11. Hillsborough
12. Holmes – 3A
13. Jackson
14. Jefferson – 3A
15. Lafayette – 3A
16. Lake
17. Leon
18. Levy
19. Liberty – 3A
20. Madison – 3A
21. Orange
22. Pasco
23. Polk
24. Putnam
25. Seminole
26. Sumter
27. Suwannee
28. Union – 3A
29. Wakulla – 3A
30. Walton
31. Washington

# Phase 4

Phase 4 was strategically planned and executed according to the following criteria:

1. Separate Phase 4 into individual, discreet sub-phases, as was done in Phase 3, grouping counties and facilities with similar characteristics to achieve the maximum results given the time constraints
2. Balance the workload and gathering tasks across these sub-phases in an effort to ensure a more continuous flow of data sets being requested and received
3. Ensure that there are data sets gathered and processed that are ready for geoprocessing, causing no lag in mapping and summary reporting between Phases 3 and 4

## COUNTY BREAKDOWN STRUCTURE

Phase 4 consisted of the following sub-phases and their corresponding counties:

### PHASE 4A

Characteristics:  9 mostly-rural counties with little or no GIS and relatively low facility counts

1. Calhoun
2. Desoto
3. Franklin
4. Glades
5. Gulf
6. Hardee
7. Hendry
8. Okeechobee
9. Taylor

### PHASE 4B

Characteristics:  9 counties with a mixture of metropolitan and suburban municipalities possessing moderate levels of GIS, with some of the counties consisting of very high facility counts and medium to high WW capacity and DW volumes

10. Collier
11. Escambia
12. Highlands
13. Manatee
14. Monroe
15. Okaloosa
16. Osceola
17. Santa Rosa
18. Sarasota

**PHASE 4C**

Characteristics:  3 very dense, urban counties with a high likelihood of GIS data sets to be gathered and moderate facility counts, with the exception of Miami-Dade County, which has the second-largest number of facilities in Phase 4

19. Broward
20. Miami-Dade
21. Pinellas

# Section 6 – PROJECT MANAGEMENT

## Conduct Team Meetings

Team meetings were conducted on a biweekly schedule or as needed throughout the project.  The team utilized several formats for the meetings, including in-person, conference call, and web-conference meetings.

## Develop and Publish Project Schedule

The project schedule was created at the beginning of the project and maintained throughout the project.  Due to the start and stop of funding from 2014 through 2016, there were several delays that could have been avoided had there been consistent funding.  The project team did meet the final deadline from the final funding source.

## Develop and Maintain Project Task List

The project schedule launched a more detailed project task list, which was maintained throughout the project.  The task list outlined the various tasks, who they were assigned to, when they were due, and any deviations from the original due date along with related comments.

## Collect Spending Data

Spending data was collected at several key points through the project.  Once the EPA Nonpoint Source funding was allocated to the project, a separate accounting code was created to assist with categorizing funds and simplifying reporting.

## Develop and Maintain Project Budget

The project budget was maintained throughout the project.

## Prepare Project Status Reports

Figure 15 shows the project status as of October 1, 2015 as an example of what the project status maps looked like.  These maps were posted to the project website and sent regularly to key project contacts.  Appendix F shows the final project summary update for the first cycle.
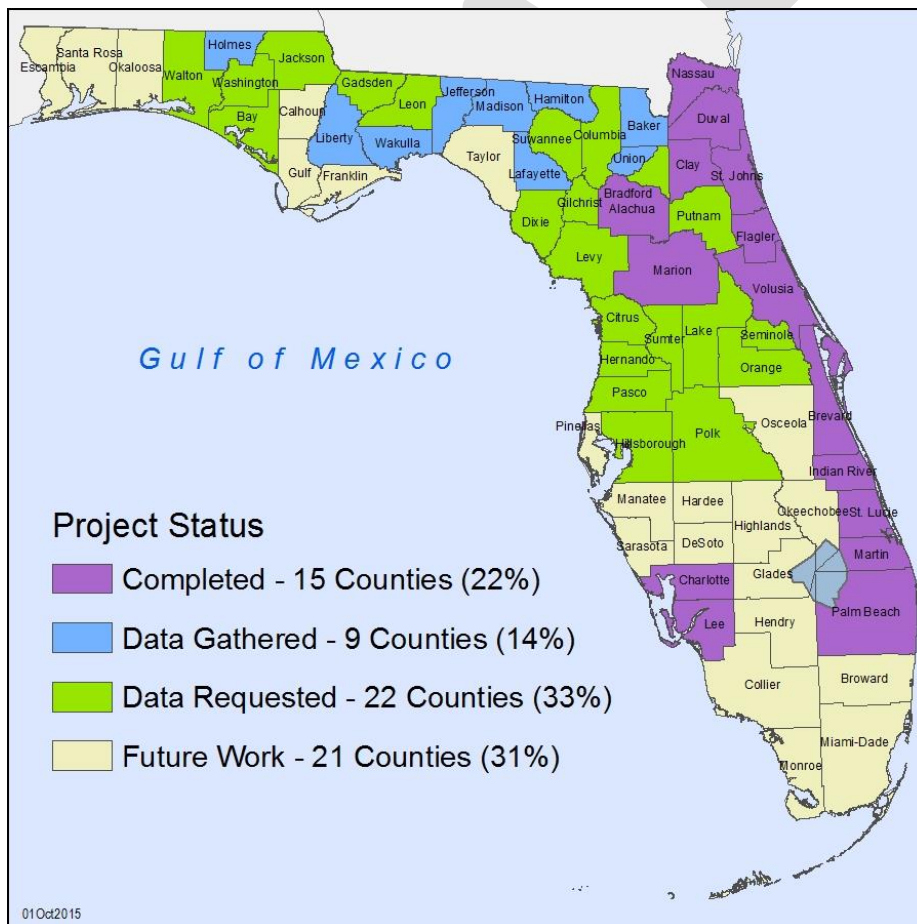


*Figure 15.  Example of Project Status Map Posted to Project Website and Sent in Weekly Status Updates*

# Update Project Website

The project website (http://floridahealth.gov/flwmi) was maintained throughout the project to show the most up-to-date status and data available.  The website has the following sections:

- Purpose
- Benefits
- Status
- Requested Data Sets
- Data Fields & Formats (including a Data Sheet spreadsheet template to use for submitting the requested data)
- Knowing What to Submit in Your Data Set
- Submitting Your Data Set to the Project Team
- FAQ
- Contact Information
- Thank You

Development is ongoing to create a clickable interface which will allow individuals to click on the county on a statewide map and be directed to a webpage for detailed summary information.  Figure 16 shows a screenshot of the project FTP site where the GIS maps, pdf maps, and spreadsheet data can be downloaded.  Figure 17 shows an example of the project snapshot webpage for Alachua County.

| Name | Last modified | Size | Description |
|---|---|---|---|
| Parent Directory | | - | |
| Alachua_DW.pdf | 04-Dec-2015 10:02 | 2.4M | |
| Alachua_DW_singlePanel.pdf | 04-Dec-2015 10:09 | 3.0M | |
| Alachua_WW.pdf | 04-Dec-2015 10:19 | 1.4M | |
| Alachua_WW_singlePanel.pdf | 04-Dec-2015 10:26 | 3.0M | |
| FLWMI_Alachua.xlsx | 21-Apr-2016 14:25 | 12M | |
| alachua_fre.xlsx | 07-Dec-2015 04:38 | 11K | |
| alachua_public.zip | 07-Dec-2015 06:59 | 14M | |

*Figure 16.  Screenshot of the FTP Website where County-Specific Data and Maps Can Be Downloaded*
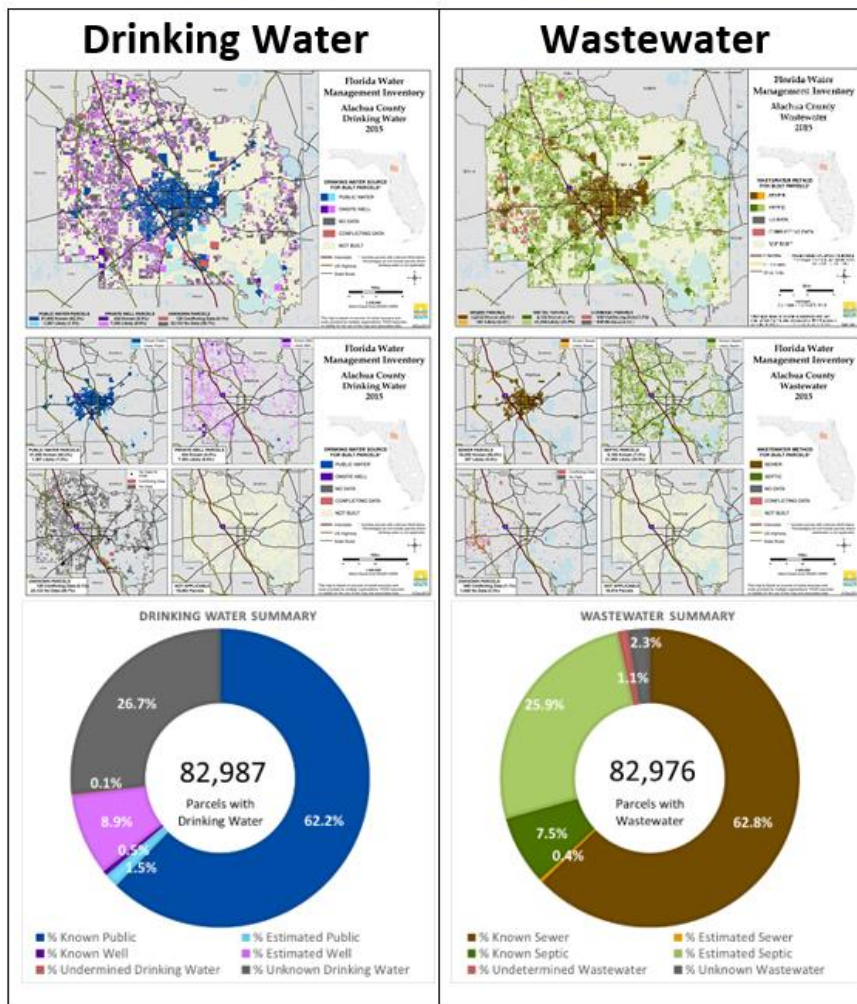
Figure 17. Example of the County Snapshot Webpage for Alachua County

## Develop and Publish Web Application

A web application was created and published at this site: https://gis.flhealth.gov/FLWMI/.
Figure 18 shows a screenshot of the interactive web application that was developed for this
project. This web application allows for searching by address, exporting data, and
developing personal maps.
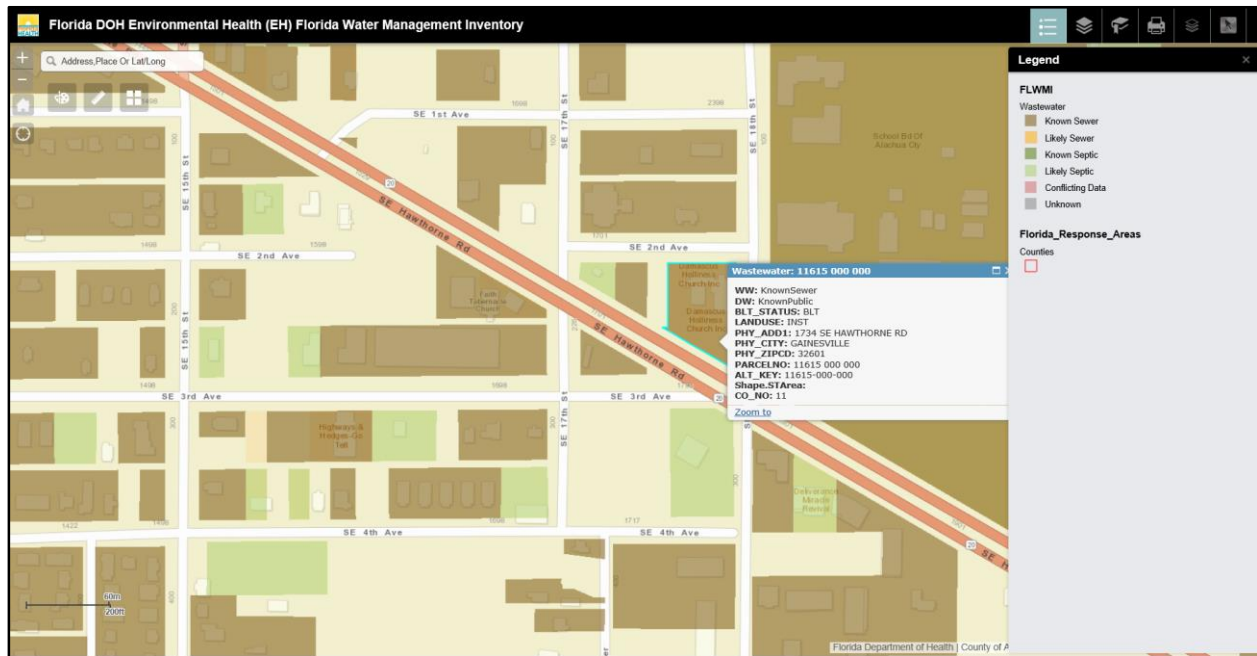
*Figure 18. Screenshot of the Interactive Web Application*

# Coordinate Outreach Efforts

Data was shared with multiple entities throughout the project.

During Hurricane Matthew, several maps were created and used to assist with the environmental response activities relating to flooded drinking water wells and onsite wastewater systems that were damaged by the storm.

We have collaborated with multiple public and private entities throughout the project. A list of these efforts is forthcoming.

# Seek New Funding

Funding for part of the second cycle has been secured through the EPA Nonpoint Source Protection program. Other efforts are ongoing to see if funds from CDC and other state sources can be secured so we can keep this project ongoing.

# Section 7 - RECOMMENDATIONS AND CONCLUSIONS

## Recommendations

Some planned improvements include:

- Online data accessibility
  - Developing standardized webpage for each county
  - Improvements to the interactive mapping tool
  - Integration with needs for other state programs
    - Public Health Dental Program and fluoridated drinking water systems
    - Environmental Public Health Tracking to improve reporting to CDC
    - Integration with the State Emergency Response Team (SERT) Geospatial Assessment Tool for Operations and Response (GATOR) system to improve disaster response
- Enhancements to the Environmental Health Database (EHD)
  - Linking points back to EHD for better geo-spatial references
- Updating county data to fill in blanks and refine estimations
- Ground-truthing data

## Conclusions

Collaboration with stakeholders was found to be an essential part of this inventory project. Working closely with local experts allowed for a more comprehensive and accurate final product. There is a great deal of interest in these results, but not having a dedicated funding source is a challenge. The Department has received approval to start work on the next cycle of data gathering through a grant with the Environmental Protection Agency's 319 Nonpoint Source Pollution Program administered by DEP.

Having a comprehensive drinking water and wastewater inventory of the approximate 6.5 million developed parcels in Florida is extremely beneficial. It will help improve government customer service, permitting, development review, and planning activities. It is available at no charge to both the public and other entities. This project will improve disaster preparedness and response activities by providing accurate estimates of public health and infrastructure that may be impacted during disasters. The resulting data and associated map products will be a resource that researchers can use to help evaluate connections between various public health and environmental factors. This will also be a great resource for homeowners, home-buyers, realtors and other entities interested in potable water and wastewater services. All of the maps and data are available in one place through a web portal, with the project results consolidated and accessible to the public.

Visit the project website (http://www.floridahealth.gov/FLWMI) to download data, access the interactive web application, and for an up-to-date status of this project.

# Section 8 - ACKNOWLEDGEMENTS

We would like to acknowledge the U.S. Centers for Disease Control and Prevention (CDC) and the Section 319 Nonpoint Source Management Program with the U.S. Environmental Protection Agency for providing funding support for this project.  Several sections within the Florida Department of Environmental Protection have also provided administrative support. We also acknowledge the Florida Department of Health's Research Review and Advisory Committee which ranked this project as the number one priority for onsite sewage research efforts in Florida.  This work would not have happened without the project team including Levi Owens and Liz Sabeff with Global Information Services, Inc. who provided project management, data analysis, and GIS administration for this project; Diane Hood and Alx Walter who provided data processing assistance with this project; Pranathi Gannapureddy with Brandt Information Services who developed a method to capture abandonments by utility in the Environmental Health Database; and all the Florida Agricultural and Mechanical Masters in Public Health students that have provided assistance with data analysis and website content.  Collaboration with stakeholders is an essential part of this inventory project. Many professionals within the Florida Department of Health state and county offices provided unmeasurable amounts of support for this project.  This project would not be possible without the help from participating stakeholders including public and private utilities; Florida Departments of Environmental Protection, Business and Professional Regulation, Emergency Management, and Agriculture and Consumer Services; Water Management Districts; Public Service Commission; various county and municipal governments; and many others.  We have developed a webpage to thank all the public and private drinking water and wastewater facilities that contributed data to this project: http://www.floridahealth.gov/environmental-health/onsite-sewage/research/FLWMI/thankyou.html.

Some of this report includes text previously published at the proceedings of the 2015 National Onsite Wastewater and Recycling Association Onsite Wastewater Mega-Conference.

# Section 9 - REFERENCES

Florida Department of Health Onsite Sewage Programs Website. http://www.floridahealth.gov/environmental-health/onsite-sewage/index.html

Florida Department of Health Florida Water Management Inventory Website. http://www.floridahealth.gov/flwmi

Hall, Pamela and Stephen Clancy.  2009.  Statewide Inventory of Onsite Sewage Treatment and Disposal Systems in Florida.  Report to the Florida Department of Health.  http://www.floridahealth.gov/environmental-health/onsite-sewage/research/_documents/research-reports/_documents/inventory-report.pdf

## APPENDIX A – RESPONSE FROM FDEP PERMITTED WASTEWATER TREATMENT FACILITIES AND PUBLIC WATER SYSTEMS

This table shows the data available by county for both wastewater and drinking water facilities permitted by FDEP.

| Column | Description |
|---|---|
| County | County name |
| WW Facilities | Count of the number of permitted FDEP wastewater systems |
| DW Facilities | Count of the number of permitted FDEP drinking water systems |
| % of Total WW | Sum of the permitted wastewater capacity, in millions of gallons per day converted to a percent of the total |
| % of Total DW | Sum of the population served converted to a percent of the total |

| Data Available by County | | | | |
|---|---|---|---|---|
| County | WW Facilities | DW Facilities | % of Total WW | % of Total DW |
| **Alachua** | | | | |
| YES | 14 | 52 | 92.9% | 91.5% |
| NO | 4 | 11 | 7.1% | 8.5% |
| **Baker** | | | | |
| YES | 3 | 12 | 98.5% | 39.4% |
| NO | 1 | 3 | 1.5% | 60.6% |
| **Bay** | | | | |
| YES | 8 | 43 | 100.0% | 54.1% |
| NO | | 6 | 0.0% | 45.9% |
| **Bradford** | | | | |
| YES | 3 | 22 | 100.0% | 43.7% |
| NO | | 4 | 0.0% | 56.3% |
| **Brevard** | | | | |
| YES | 37 | 60 | 73.6% | 71.4% |
| NO | 18 | 25 | 26.4% | 28.6% |
| **Broward** | | | | |
| YES | 17 | 55 | 100.0% | 93.0% |
| NO | | 3 | 0.0% | 7.0% |
| **Calhoun** | | | | |
| YES | 1 | 9 | 100.0% | 84.0% |
| NO | | 2 | 0.0% | 16.0% |

| County | WW Facilities | DW Facilities | % of Total WW | % of Total DW |
|--------|---------------|---------------|---------------|---------------|
| **Charlotte** | | | | |
| YES | 21 | 19 | 85.6% | 24.9% |
| NO | 5 | 12 | 14.4% | 75.1% |
| **Citrus** | | | | |
| YES | 24 | 119 | 37.4% | 72.9% |
| NO | 31 | 52 | 62.6% | 27.1% |
| **Clay** | | | | |
| YES | 15 | 68 | 36.0% | 13.0% |
| NO | 5 | 18 | 64.0% | 87.0% |
| **Collier** | | | | |
| YES | 17 | 47 | 99.2% | 96.6% |
| NO | 3 | 4 | 0.8% | 3.4% |
| **Columbia** | | | | |
| YES | 17 | 45 | 53.9% | 15.0% |
| NO | 4 | 16 | 46.1% | 85.0% |
| **Desoto** | | | | |
| YES | 13 | 47 | 41.4% | 63.1% |
| NO | 4 | 2 | 58.6% | 36.9% |
| **Dixie** | | | | |
| YES | 2 | 19 | 23.5% | 18.0% |
| NO | 1 | 10 | 76.5% | 82.0% |
| **Duval** | | | | |
| YES | 14 | 58 | 99.3% | 94.4% |
| NO | 5 | 47 | 0.7% | 5.6% |
| **Escambia** | | | | |
| YES | 7 | 10 | 98.0% | 93.5% |
| NO | 1 | 5 | 2.0% | 6.5% |
| **Flagler** | | | | |
| YES | 13 | 21 | 78.0% | 100.0% |
| NO | 4 | 1 | 22.0% | 0.0% |
| **Franklin** | | | | |
| YES | 4 | 3 | 14.3% | 2.0% |
| NO | 2 | 6 | 85.7% | 98.0% |
| **Gadsden** | | | | |
| YES | 6 | 13 | 49.8% | 36.8% |
| NO | 4 | 12 | 50.2% | 63.2% |

| County | WW Facilities | DW Facilities | % of Total WW | % of Total DW |
|---|---|---|---|---|
| **Gilchrist** | | | | |
| YES | 3 | 22 | 77.4% | 98.7% |
| NO | 2 | 2 | 22.6% | 1.3% |
| **Glades** | | | | |
| YES | 14 | 10 | 77.6% | 93.8% |
| NO | 6 | 5 | 22.4% | 6.2% |
| **Gulf** | | | | |
| YES | 5 | 11 | 100.0% | 100.0% |
| **Hamilton** | | | | |
| YES | 7 | 13 | 29.2% | 36.8% |
| NO | 1 | 3 | 70.8% | 63.2% |
| **Hardee** | | | | |
| YES | 8 | 32 | 96.4% | 89.9% |
| NO | 2 | 10 | 3.6% | 10.1% |
| **Hendry** | | | | |
| YES | 12 | 36 | 91.2% | 81.2% |
| NO | 4 | 7 | 8.8% | 18.8% |
| **Hernando** | | | | |
| YES | 21 | 115 | 98.2% | 99.0% |
| NO | 4 | 10 | 1.8% | 1.0% |
| **Highlands** | | | | |
| YES | 49 | 65 | 70.5% | 77.8% |
| NO | 7 | 17 | 29.5% | 22.2% |
| **Hillsborough** | | | | |
| YES | 64 | 463 | 98.3% | 53.3% |
| NO | 42 | 217 | 1.7% | 46.7% |
| **Holmes** | | | | |
| YES | 2 | 12 | 6.2% | 26.3% |
| NO | 2 | 8 | 93.8% | 73.7% |
| **Indian River** | | | | |
| YES | 11 | 22 | 100.0% | 100.0% |
| **Jackson** | | | | |
| YES | 6 | 59 | 23.3% | 40.6% |
| NO | 3 | 11 | 76.7% | 59.4% |

| County | WW Facilities | DW Facilities | % of Total WW | % of Total DW |
|--------|---------------|---------------|---------------|---------------|
| **Jefferson** | | | | |
| YES | 3 | 7 | 26.1% | 28.1% |
| NO | 1 | 7 | 73.9% | 71.9% |
| **Lafayette** | | | | |
| YES | 2 | 10 | 100.0% | 99.1% |
| NO | | 1 | 0.0% | 0.9% |
| **Lake** | | | | |
| YES | 64 | 160 | 70.8% | 59.5% |
| NO | 46 | 121 | 29.2% | 40.5% |
| **Lee** | | | | |
| YES | 46 | 52 | 94.7% | 85.8% |
| NO | 18 | 18 | 5.3% | 14.2% |
| **Leon** | | | | |
| YES | 8 | 30 | 91.8% | 87.6% |
| NO | 5 | 12 | 8.2% | 12.4% |
| **Levy** | | | | |
| YES | 5 | 44 | 18.1% | 33.7% |
| NO | 8 | 21 | 81.9% | 66.3% |
| **Liberty** | | | | |
| YES | 1 | 7 | 52.8% | 30.4% |
| NO | 1 | 8 | 47.2% | 69.6% |
| **Madison** | | | | |
| YES | 3 | 9 | 85.3% | 78.0% |
| NO | 2 | 5 | 14.7% | 22.0% |
| **Manatee** | | | | |
| YES | 9 | 58 | 100.0% | 98.5% |
| NO | | 2 | 0.0% | 1.5% |
| **Marion** | | | | |
| YES | 84 | 367 | 91.8% | 73.2% |
| NO | 32 | 175 | 8.2% | 26.8% |
| **Martin** | | | | |
| YES | 20 | 45 | 97.1% | 76.2% |
| NO | 4 | 16 | 2.9% | 23.8% |
| **Miami Dade** | | | | |
| YES | 22 | 103 | 98.8% | 94.1% |
| NO | 2 | 20 | 1.2% | 5.9% |

| County | WW Facilities | DW Facilities | % of Total WW | % of Total DW |
|---|---|---|---|---|
| **Monroe** | | | | |
| YES | 79 | 1 | 39.9% | 100.0% |
| NO | 35 | | 60.1% | 0.0% |
| **Nassau** | | | | |
| YES | 8 | 39 | 89.9% | 63.1% |
| NO | 7 | 14 | 10.1% | 36.9% |
| **Okaloosa** | | | | |
| YES | 13 | 15 | 74.1% | 69.7% |
| NO | 3 | 8 | 25.9% | 30.3% |
| **Okeechobee** | | | | |
| YES | 10 | 37 | 88.4% | 20.6% |
| NO | 8 | 4 | 11.6% | 79.4% |
| **Orange** | | | | |
| YES | 31 | 106 | 60.6% | 98.4% |
| NO | 13 | 34 | 39.4% | 1.6% |
| **Osceola** | | | | |
| YES | 26 | 73 | 98.4% | 97.2% |
| NO | 8 | 10 | 1.6% | 2.8% |
| **Palm Beach** | | | | |
| YES | 42 | 60 | 99.8% | 71.7% |
| NO | 5 | 22 | 0.2% | 28.3% |
| **Pasco** | | | | |
| YES | 39 | 188 | 87.0% | 62.6% |
| NO | 29 | 56 | 13.0% | 37.4% |
| **Pinellas** | | | | |
| YES | 19 | 13 | 99.8% | 99.9% |
| NO | 3 | 1 | 0.2% | 0.1% |
| **Polk** | | | | |
| YES | 80 | 239 | 84.0% | 50.8% |
| NO | 65 | 193 | 16.0% | 49.2% |
| **Putnam** | | | | |
| YES | 18 | 78 | 19.3% | 29.4% |
| NO | 9 | 35 | 80.7% | 70.6% |
| **Santa Rosa** | | | | |
| YES | 9 | 19 | 98.8% | 73.5% |
| NO | 1 | 2 | 1.2% | 26.5% |

| County | WW Facilities | DW Facilities | % of Total WW | % of Total DW |
|--------|---------------|---------------|---------------|---------------|
| **Sarasota** | | | | |
| YES | 29 | 104 | 86.2% | 94.6% |
| NO | 8 | 17 | 13.8% | 5.4% |
| **Seminole** | | | | |
| YES | 14 | 44 | 93.3% | 61.1% |
| NO | 7 | 25 | 6.7% | 38.9% |
| **St. Johns** | | | | |
| YES | 26 | 60 | 100.0% | 99.9% |
| NO | | 3 | 0.0% | 0.1% |
| **St. Lucie** | | | | |
| YES | 21 | 36 | 92.1% | 93.8% |
| NO | 7 | 17 | 7.9% | 6.2% |
| **Sumter** | | | | |
| YES | 24 | 74 | 94.1% | 78.6% |
| NO | 6 | 11 | 5.9% | 21.4% |
| **Suwannee** | | | | |
| YES | 6 | 35 | 16.8% | 9.3% |
| NO | 2 | 13 | 83.2% | 90.7% |
| **Taylor** | | | | |
| YES | 3 | 14 | 27.8% | 36.8% |
| NO | 2 | 4 | 72.2% | 63.2% |
| **Union** | | | | |
| YES | | 7 | 0.0% | 40.8% |
| NO | 1 | 4 | 100.0% | 59.2% |
| **Volusia** | | | | |
| YES | 64 | 115 | 82.1% | 77.5% |
| NO | 32 | 36 | 17.9% | 22.5% |
| **Wakulla** | | | | |
| YES | 4 | 10 | 98.0% | 72.2% |
| NO | 1 | 1 | 2.0% | 27.8% |
| **Walton** | | | | |
| YES | 6 | 21 | 38.4% | 44.2% |
| NO | 5 | 8 | 61.6% | 55.8% |
| **Washington** | | | | |
| YES | 4 | 18 | 86.9% | 67.2% |
| NO | 2 | 6 | 13.1% | 32.8% |

# APPENDIX B – SUMMARIES BY COUNTY

This appendix shows, for each county, a summary of the final parcel counts for wastewater and drinking water, the percent of FDEP wastewater and drinking water where we received data, and a list of the large permitted facilities that did not submit data for incorporation into the project. Large wastewater facilities are defined as having a permitted capacity of greater than 1 million gallons per day. Large drinking water facilities are defined as have a permitted population of more than 500.

## Alachua County Summary



**WASTEWATER SUMMARY**

82,976 Parcels with Wastewater

- 2.3%
- 1.1%
- 25.9%
- 62.8%
- 7.5%
- 0.4%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater



**DRINKING WATER SUMMARY**

82,987 Parcels with Drinking Water

- 26.7%
- 0.1%
- 8.9%
- 0.5%
- 1.5%
- 62.2%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
- % Undermined Drinking Water
- % Unknown Drinking Water
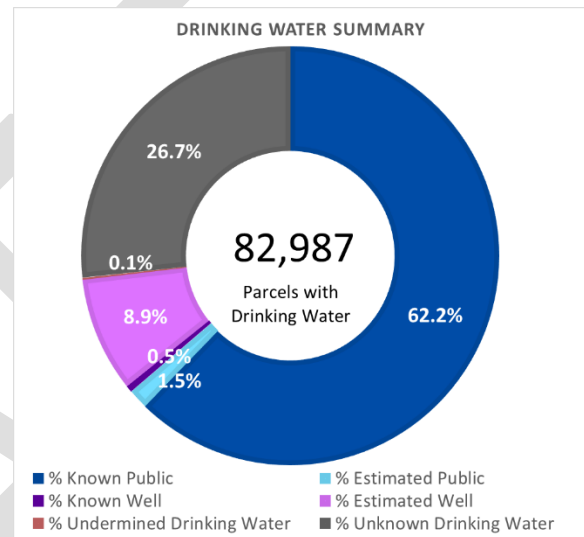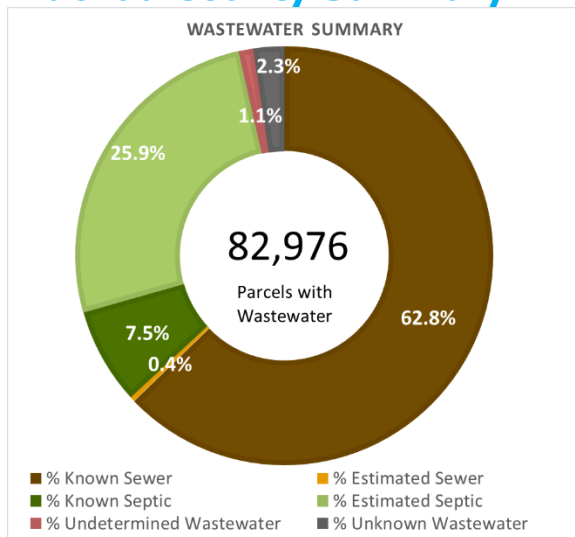
Received responses from 92.9% of all permitted wastewater in the county, with no large facilities missing.

Received responses from 91.5% of all permitted drinking water in the county, with the following large facilities missing:
- Archer Water System
- City of Alachua
- City of Hawthorne
- High Springs WTP
- Kincaid Hills Water System
- Micanopy Water System

# Baker County Summary

**WASTEWATER SUMMARY**



| | |
|---|---|
| 6.9% | |
| 0.0% | 17.6% |
| | 5.5% |
| 57.7% | 12.2% |

**8,726**
Parcels with Wastewater

- ■ % Known Sewer
- ■ % Estimated Sewer
- ■ % Known Septic
- ■ % Estimated Septic
- ■ % Undetermined Wastewater
- ■ % Unknown Wastewater

**DRINKING WATER SUMMARY**



| | |
|---|---|
| 1.7% | |
| 0.5% | 16.5% |
| 31.5% | |
| 0.3% | |
| | 49.5% |

**8,754**
Parcels with Drinking Water

- ■ % Known Public
- ■ % Estimated Public
- ■ % Known Well
- ■ % Estimated Well
- ■ % Undermined Drinking Water
- ■ % Unknown Drinking Water
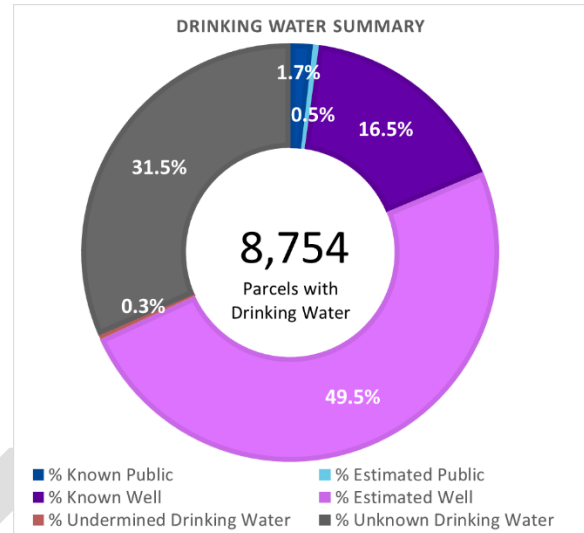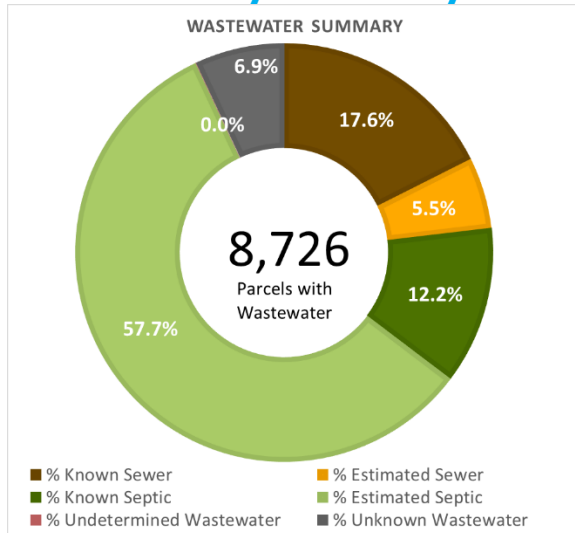
Using both data collected in 2009 and during 2014-2016, responses were received from 98.5% of all permitted wastewater in the county, with the following large facilities missing from the more recent data request:

- City of Macclenny (submitted in 2009)

Received responses from 39.4% of all permitted drinking water in the county, with the following large facilities missing:

- City of Macclenny

# Bay County Summary

**WASTEWATER SUMMARY**

90,587
Parcels with
Wastewater

7.8%
0.2%
31.6%
37.9%
15.3%
7.2%

■ % Known Sewer
■ % Known Septic
■ % Undetermined Wastewater

■ % Estimated Sewer
■ % Estimated Septic
■ % Unknown Wastewater

**DRINKING WATER SUMMARY**

91,054
Parcels with
Drinking Water

36.9%
54.0%
0.0%
4.5%
1.1%
3.6%

■ % Known Public
■ % Known Well
■ % Undermined Drinking Water

■ % Estimated Public
■ % Estimated Well
■ % Unknown Drinking Water

Using both data collected in 2009 and during 2014-2016, responses were received from 100.0% of all permitted wastewater in the county, with the following large facilities missing from the more recent data request:

- Panama City Beach WWTP#1 (submitted in 2009)

Received responses from 54.1% of all permitted drinking water in the county, with the following large facilities missing:

- City of Mexico Beach
- City of Panama City Beach
- City of Springfield
- Waller Elementary School

# Bradford County Summary



WASTEWATER SUMMARY

9,897
Parcels with Wastewater

6.7% · 13.9% · 7.6% · 11.2% · 60.3% · 0.4%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater



DRINKING WATER SUMMARY

9,901
Parcels with Drinking Water

3.9% · 0.9% · 10.7% · 34.1% · 0.2% · 50.2%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
- % Undermined Drinking Water
- % Unknown Drinking Water

Using both data collected in 2009 and during 2014-2016, responses were received from 100.0% of all permitted wastewater in the county, with the following large facilities missing from the more recent data request:

- Starke WWTF (submitted in 2009)


Received responses from 43.7% of all permitted drinking water in the county, with the following large facilities missing:

- Brooker Water Department
- City of Lawtey
- City of Starke

# Brevard County Summary



**WASTEWATER SUMMARY**

214,094 Parcels with Wastewater

- 2.1%
- 0.1%
- 26.2%
- 49.9%
- 16.7%
- 5.1%

■ % Known Sewer  ■ % Estimated Sewer
■ % Known Septic  ■ % Estimated Septic
■ % Undetermined Wastewater  ■ % Unknown Wastewater



**DRINKING WATER SUMMARY**

213,277 Parcels with Drinking Water

- 3.9%
- 0.9%
- 10.7%
- 34.1%
- 0.2%
- 50.2%

■ % Known Public  ■ % Estimated Public
■ % Known Well  ■ % Estimated Well
■ % Undermined Drinking Water  ■ % Unknown Drinking Water

Using both data collected in 2009 and during 2014-2016, responses were received from 73.6% of all permitted wastewater in the county, with the following large facilities missing from the more recent data request:

- City of Melbourne (submitted in 2009)
- City of Rockledge
- Cocoa Beach WRF (submitted in 2009)
- Cocoa Beach Reclamation Facility
- West Melbourne Water

Received responses from 71.4% of all permitted drinking water in the county, with the following large facilities missing:

- Aqua Utilities Florida Inc
- City of Melbourne
- South Brevard Water Co-Op
- South Shores Utility Association
- West Melbourne Water

# Broward County Summary

WASTEWATER SUMMARY

719,659

Parcels with Wastewater

26.0%
6.0%
0.1%
1.2%
6.9%
59.9%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater

DRINKING WATER SUMMARY

720,259

Parcels with Drinking Water

50.2%
46.1%
0.2%
0.0%
3.2%
0.2%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
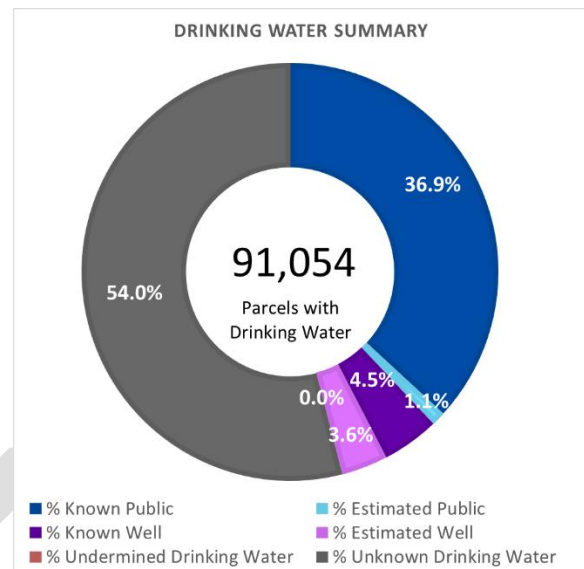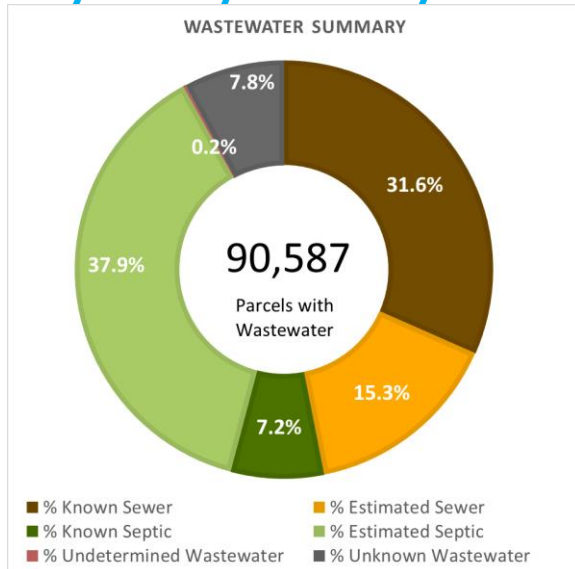- % Undermined Drinking Water
- % Unknown Drinking Water

Using both data collected in 2009 and during 2014-2016, responses were received from 100.0% of all permitted wastewater in the county, with the following large facilities missing from the more recent data request:

- City of Cooper City (submitted in 2009)
- Plantation Regional WWTP (submitted in 2009)

Received responses from 93.0% of all permitted drinking water in the county, with the following large facilities missing:

- City of Cooper City
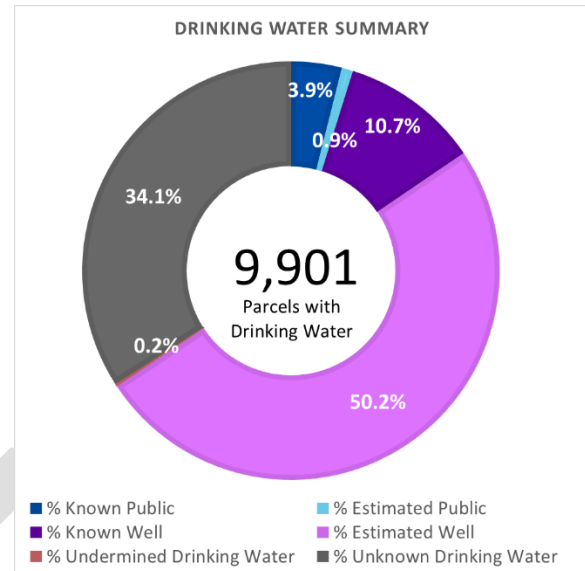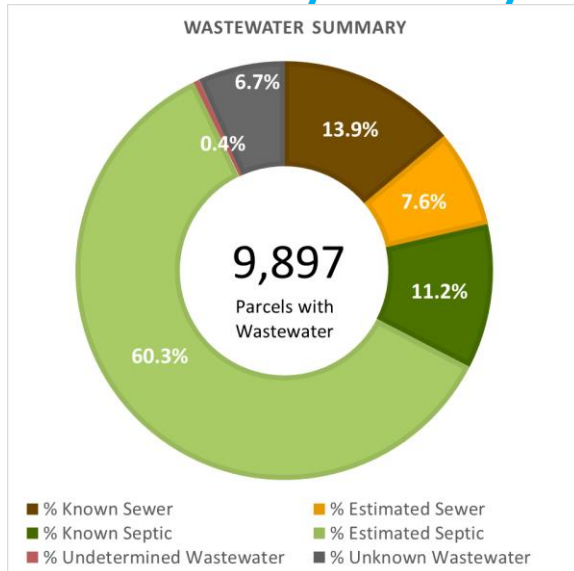- Ft Laud Assembly Hall-Jeh Witn
- Plantation East & Central
- Royal Utility Company

# Calhoun County Summary

**WASTEWATER SUMMARY**

5,201
Parcels with Wastewater

- 7.6%
- 18.1%
- 0.1%
- 16.2%
- 41.5%
- 16.5%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater

**DRINKING WATER SUMMARY**

5,166
Parcels with Drinking Water

- 22.0%
- 0.8%
- 12.0%
- 45.9%
- 0.3%
- 19.0%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
- % Undermined Drinking Water
- % Unknown Drinking Water

Received responses from 100.0% of all permitted wastewater in the county, with the following large facilities missing:

Received responses from 84.0% of all permitted drinking water in the county, with no large facilities missing.

- Town of Altha

# Charlotte County Summary

**WASTEWATER SUMMARY**



98,672
Parcels with Wastewater

6.0%
0.7%
30.7%
43.8%
10.8%
8.1%

■ % Known Sewer          ■ % Estimated Sewer
■ % Known Septic         ■ % Estimated Septic
■ % Undetermined Wastewater  ■ % Unknown Wastewater

**DRINKING WATER SUMMARY**



99,017
Parcels with Drinking Water

31.3%
1.2%
5.4%
0.2%
0.5%
61.5%

■ % Known Public        ■ % Estimated Public
■ % Known Well          ■ % Estimated Well
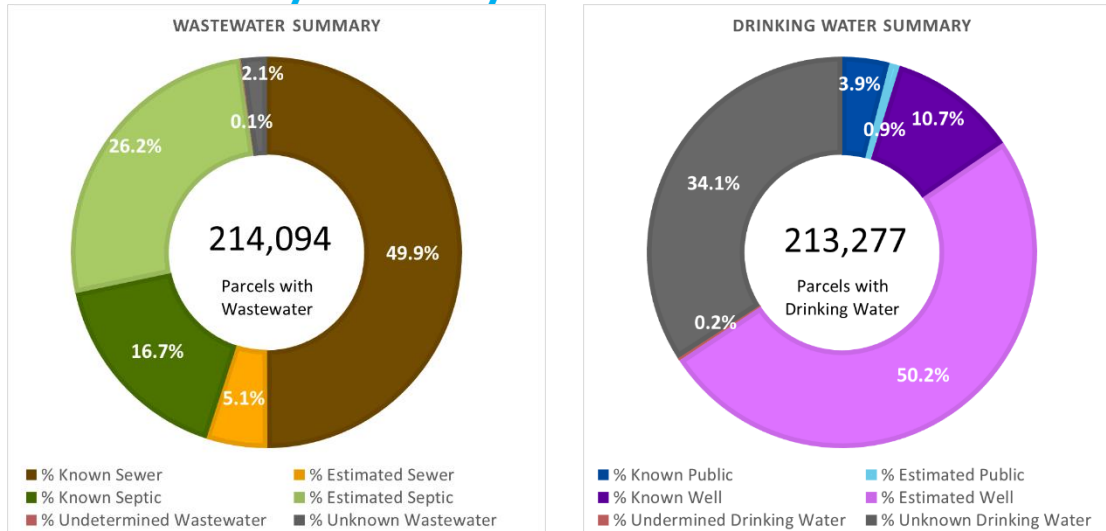■ % Undermined Drinking Water  ■ % Unknown Drinking Water

Using both data collected in 2009 and during 2014-2016, responses were received from 85.6% of all permitted wastewater in the county, with the following large facilities missing from the more recent data request:

- Charlotte County Utilities (submitted in 2009)

Received responses from 24.9% of all permitted drinking water in the county, with the following large facilities missing:

- Charlotte County Utilities
- El Jobean Water Association
- Knight Island Utilities Inc

# Citrus County Summary



WASTEWATER SUMMARY

75,243
Parcels with
Wastewater

1.0%
3.7%
31.6%
40.1%
0.0%
23.5%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater



DRINKING WATER SUMMARY

74,481
Parcels with
Drinking Water

0.0%
1.8%
20.2%
13.4%
0.2%
64.4%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
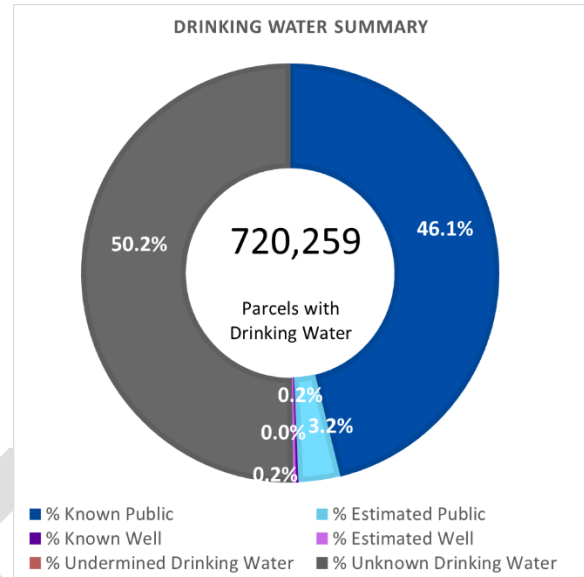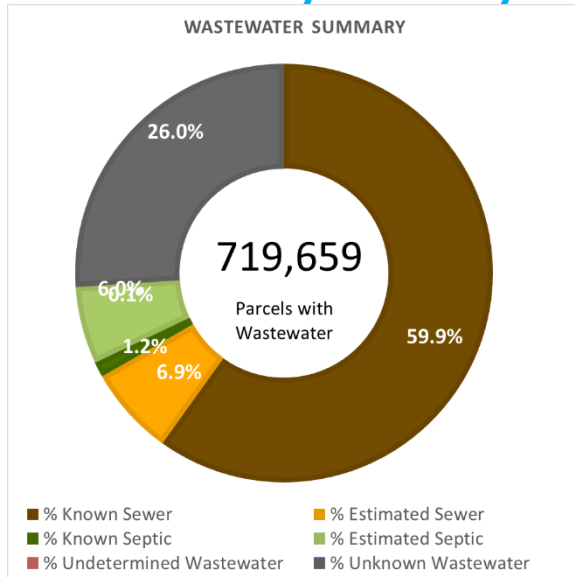- % Undermined Drinking Water
- % Unknown Drinking Water

Using both data collected in 2009 and during 2014-2016, responses were received from 37.4% of all permitted wastewater in the county, with the following large facilities missing from the more recent data request:

- City of Crystal River (submitted in 2009)

Received responses from 72.9% of all permitted drinking water in the county, with the following large facilities missing:

- American Land Lease
- Constate Utl/Hills of Avalon
- Falkner Groups
- Floral City Water Association
- Homosassa Special Water District
- Ozello Water Association

# Clay County Summary



WASTEWATER SUMMARY

73,703 Parcels with Wastewater

60.6% — 3.1% — 9.4% — 18.6% — 0.0% — 8.4%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater



DRINKING WATER SUMMARY

73,941 Parcels with Drinking Water

63.0% — 0.1% — 26.7% — 0.9% — 0.4% — 9.0%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
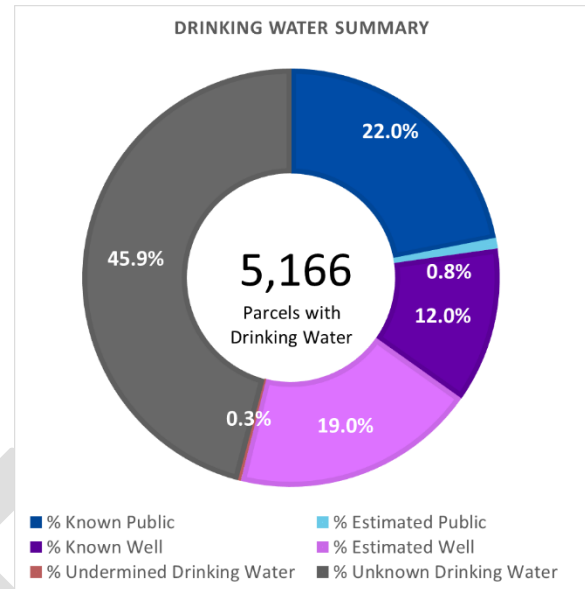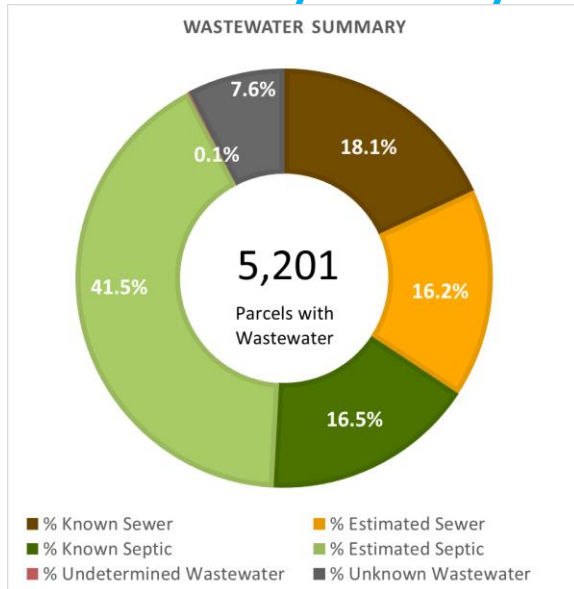- % Undermined Drinking Water
- % Unknown Drinking Water

Using both data collected in 2009 and during 2014-2016, responses were received from 36.0% of all permitted wastewater in the county, with the following large facilities missing from the more recent data request:
- Clay County Utility Authority (submitted in 2009)

Received responses from 13.0% of all permitted drinking water in the county, with the following large facilities missing:
- Clay County Utility Authority (submitted in 2009)

# Collier County Summary



WASTEWATER SUMMARY

199,688
Parcels with Wastewater

23.7%
0.0%
9.6%
4.2%
1.0%
61.5%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater



DRINKING WATER SUMMARY

200,478
Parcels with Drinking Water

17.1%
0.3%
14.5%
3.5%
0.3%
64.2%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
- % Undermined Drinking Water
- % Unknown Drinking Water
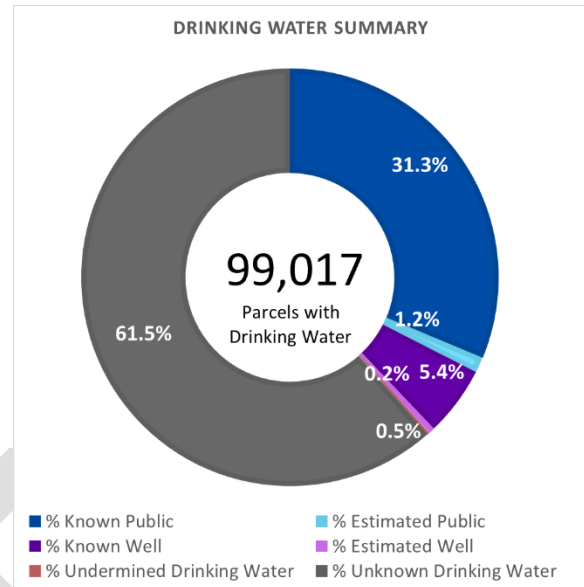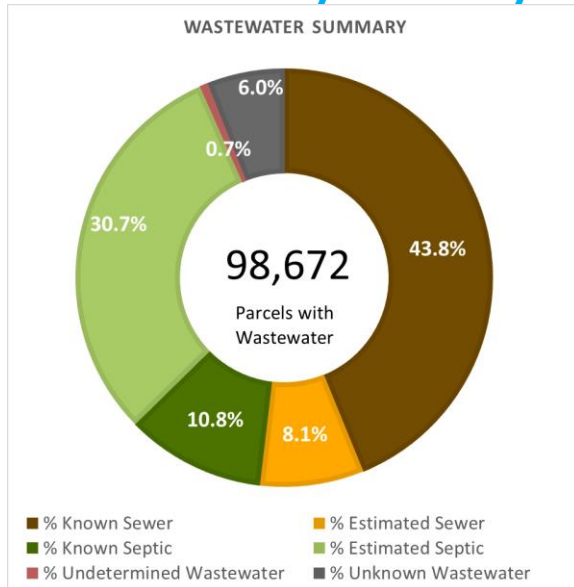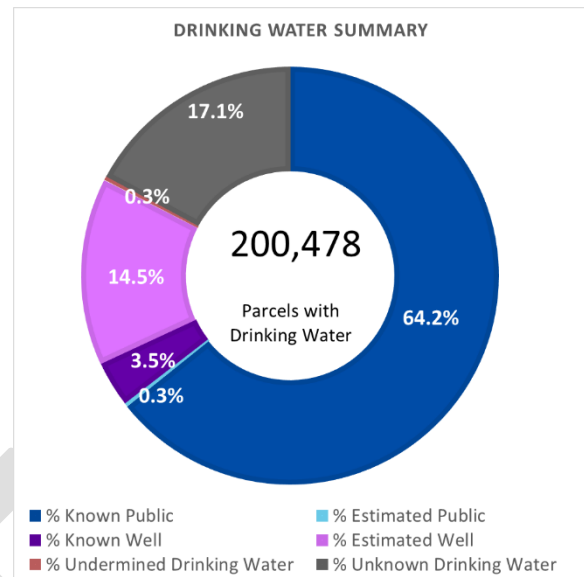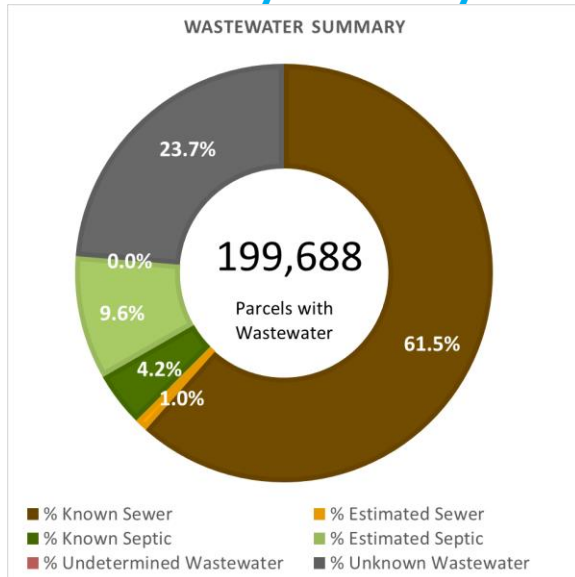
Received responses from 99.2% of all permitted wastewater in the county, with no large facilities missing.

Received responses from 96.6% of all permitted drinking water in the county, with the following large facilities missing:
- Center Point Community Church
- City of Everglades
- Collier County School Board
- E'S Country Store
- FDOT
- Hakan Services Inc
- Orange Tree Utility Co Inc
- Port of the Islands
- US Water Corp

# Columbia County Summary

WASTEWATER SUMMARY

4.6%
0.0%
19.3%
1.7%
24,331
Parcels with
Wastewater
14.9%
59.5%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater

DRINKING WATER SUMMARY

0.2%
6.7%
32.1%
24,445
Parcels with
Drinking Water
0.1%
48.7%
12.2%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
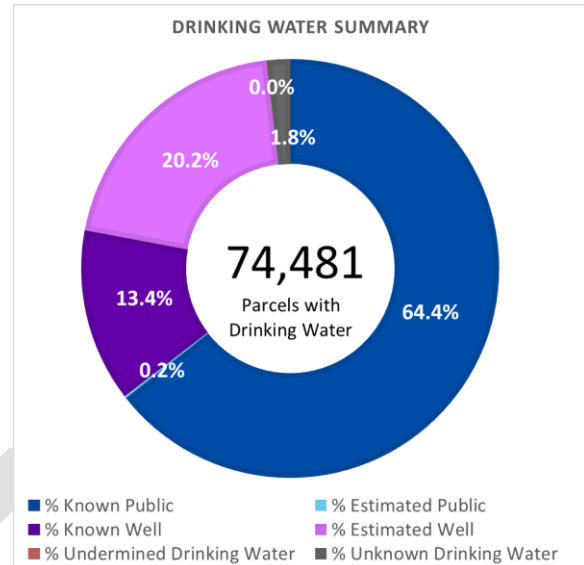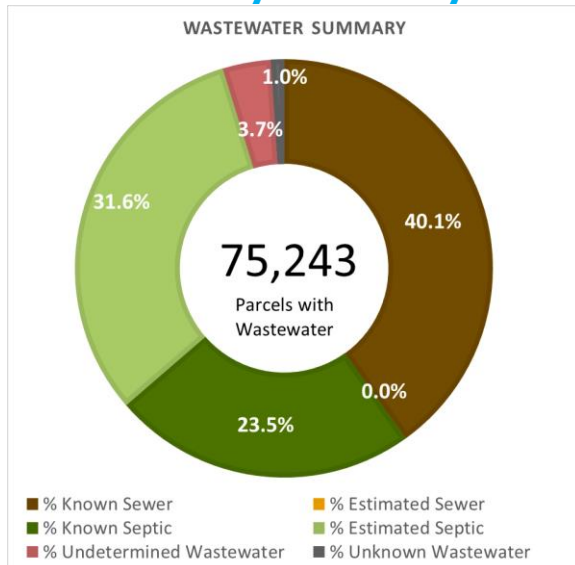- % Undermined Drinking Water
- % Unknown Drinking Water

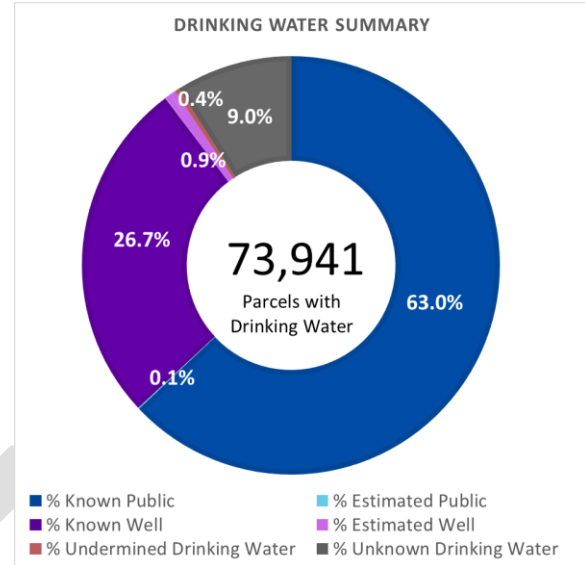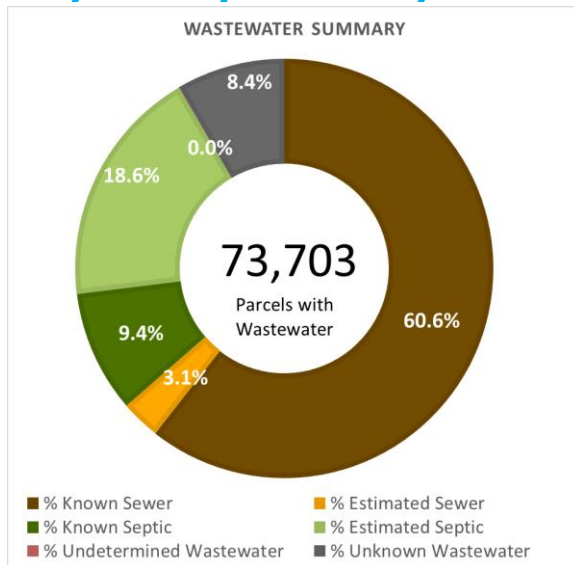Using both data collected in 2009 and during 2014-2016, responses were received from 53.9% of all permitted wastewater in the county, with the following large facilities missing from the more recent data request:

- City of Lake City (submitted in 2009)

Received responses from 15.0% of all permitted drinking water in the county, with the following large facilities missing:

- City of Lake City

# Desoto County Summary



**WASTEWATER SUMMARY**

4.2%
0.2%
15.6%
14.3%
65.7%
0.0%

10,939
Parcels with
Wastewater

■ % Known Sewer          ■ % Estimated Sewer
■ % Known Septic         ■ % Estimated Septic
■ % Undetermined Wastewater    ■ % Unknown Wastewater



**DRINKING WATER SUMMARY**

7.4%
0.6%
35.7%
14.6%
0.7%
40.9%

10,947
Parcels with
Drinking Water

■ % Known Public         ■ % Estimated Public
■ % Known Well           ■ % Estimated Well
■ % Undermined Drinking Water   ■ % Unknown Drinking Water

Received responses from 41.4% of all permitted wastewater in the county, with the following large facilities missing:

- City of Arcadia

Received responses from 63.1% of all permitted drinking water in the county, with the following large facilities missing:

- City of Arcadia
- Desoto County Utilities

# Dixie County Summary



WASTEWATER SUMMARY

8,260
Parcels with
Wastewater

12.0% 0.0%
0.1%
8.9%
0.0%
79.0%

- ■ % Known Sewer
- ■ % Known Septic
- ■ % Undetermined Wastewater
- ■ % Estimated Sewer
- ■ % Estimated Septic
- ■ % Unknown Wastewater



DRINKING WATER SUMMARY

8,262
Parcels with
Drinking Water

2.1%
0.3%
15.8%
29.8%
0.4%
51.6%

- ■ % Known Public
- ■ % Known Well
- ■ % Undermined Drinking Water
- ■ % Estimated Public
- ■ % Estimated Well
- ■ % Unknown Drinking Water

Received responses from 23.5% of all permitted wastewater in the county, with no large facilities missing.
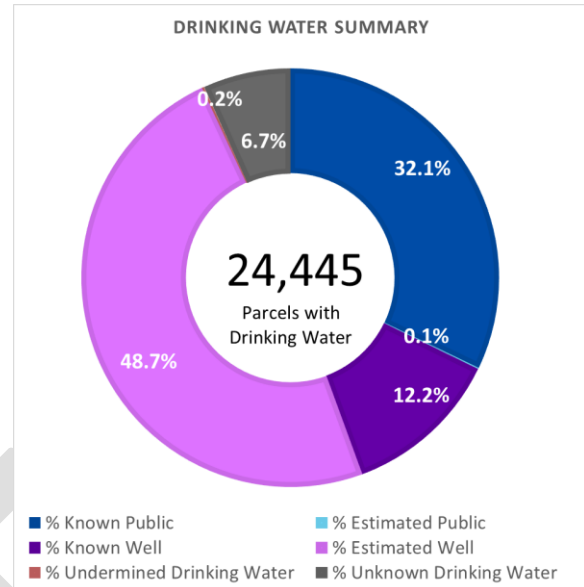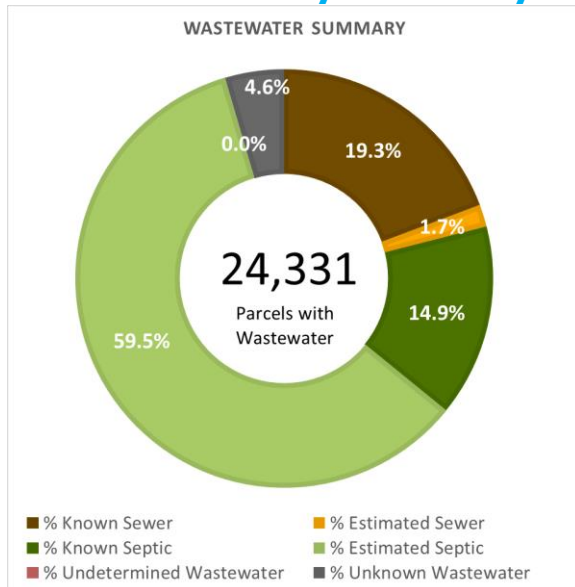
Received responses from 18.0% of all permitted drinking water in the county, with the following large facilities missing:

- City of Cross City
- Suwannee Water & Sewer District

# Duval County Summary



WASTEWATER SUMMARY

328,567
Parcels with Wastewater

1.3%
2.2%
22.2%
2.7%
6.1%
65.4%

- ■ % Known Sewer
- ■ % Known Septic
- ■ % Undetermined Wastewater
- □ % Estimated Sewer
- □ % Estimated Septic
- ■ % Unknown Wastewater



DRINKING WATER SUMMARY

330,184
Parcels with Drinking Water

22.2%
0.1%
1.2%
3.7%
1.3%
71.5%

- ■ % Known Public
- ■ % Known Well
- ■ % Undermined Drinking Water
- □ % Estimated Public
- □ % Estimated Well
- ■ % Unknown Drinking Water

Using both data collected in 2009 and during 2014-2016, responses were received from 99.3% of all permitted wastewater in the county, with the following large facilities missing from the more recent data request:

- City of Atlantic Beach
- City of Jacksonville Beach (submitted in 2009)
- Neptune Beach WWTF (submitted in 2009)
- Usn Mayport Naval Station WWTF (submitted in 2009)
- Usn Nas Jacksonville WWTF (submitted in 2009)
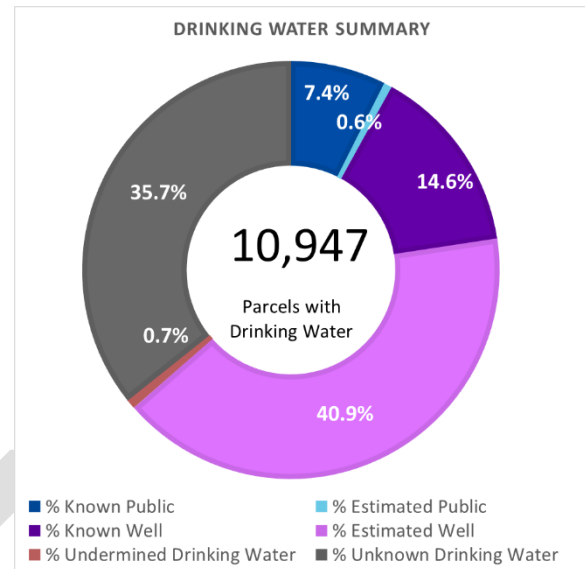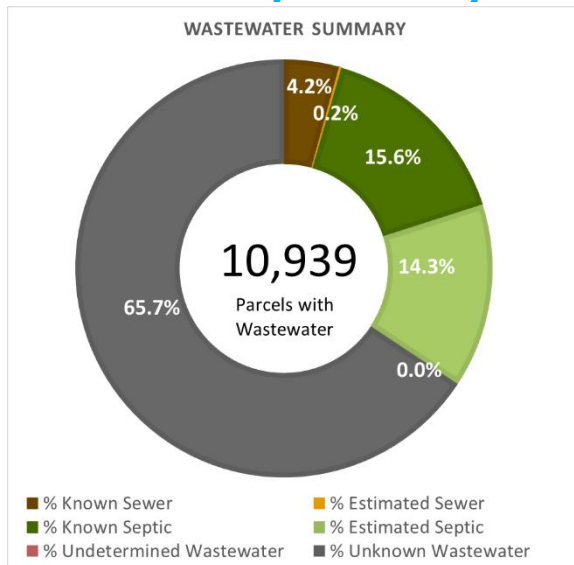
Received responses from 94.4% of all permitted drinking water in the county, with the following large facilities missing:

- Atlantic Beach Water System
- Baldwin Water System
- City of Jacksonville Beach
- Jacksonville University
- Montgomery Correctional Center
- Neighborhood Utility Inc
- Neptune Beach
- Normandy Village Utility Co

# Escambia County Summary
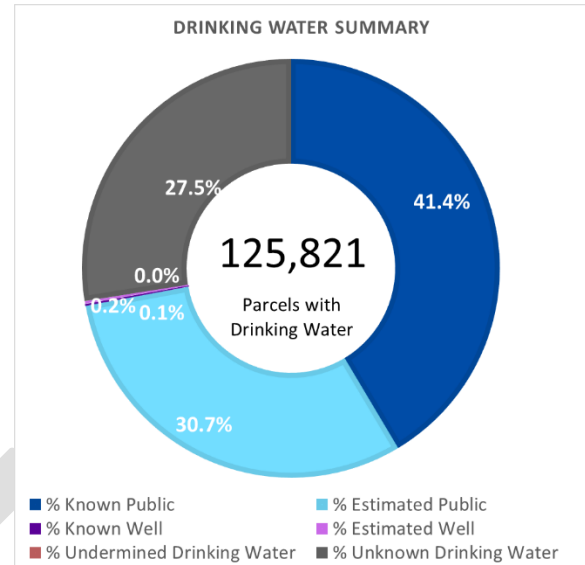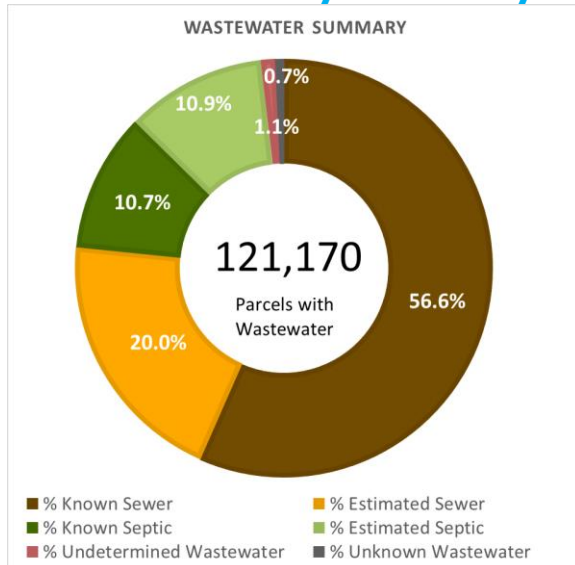
**WASTEWATER SUMMARY**



121,170
Parcels with Wastewater

0.7%
10.9%
1.1%
10.7%
56.6%
20.0%

- ■ % Known Sewer
- ■ % Known Septic
- ■ % Undetermined Wastewater
- ■ % Estimated Sewer
- ■ % Estimated Septic
- ■ % Unknown Wastewater

**DRINKING WATER SUMMARY**



125,821
Parcels with Drinking Water

27.5%
41.4%
0.0%
0.2% 0.1%
30.7%

- ■ % Known Public
- ■ % Known Well
- ■ % Undermined Drinking Water
- ■ % Estimated Public
- ■ % Estimated Well
- ■ % Unknown Drinking Water

Received responses from 98.0% of all permitted wastewater in the county, with no large facilities missing.

Received responses from 93.5% of all permitted drinking water in the county, with the following large facilities missing:

- Ascend Performance Materials (Solutia)
- Cottage Hill Water Works
- Farm Hill Utilities Inc
- Molino Utilities Inc
- Town of Century

# Flagler County Summary

**WASTEWATER SUMMARY**

4.7%  2.2%
3.1%
0.1%  0.0%

**49,256**
Parcels with
Wastewater

90.0%

■ % Known Sewer  ■ % Estimated Sewer
■ % Known Septic  ■ % Estimated Septic
■ % Undetermined Wastewater  ■ % Unknown Wastewater

**DRINKING WATER SUMMARY**

0.1%
0.1%
2.2%
0.0%  5.2%

**49,305**
Parcels with
Drinking Water

92.4%

■ % Known Public  ■ % Estimated Public
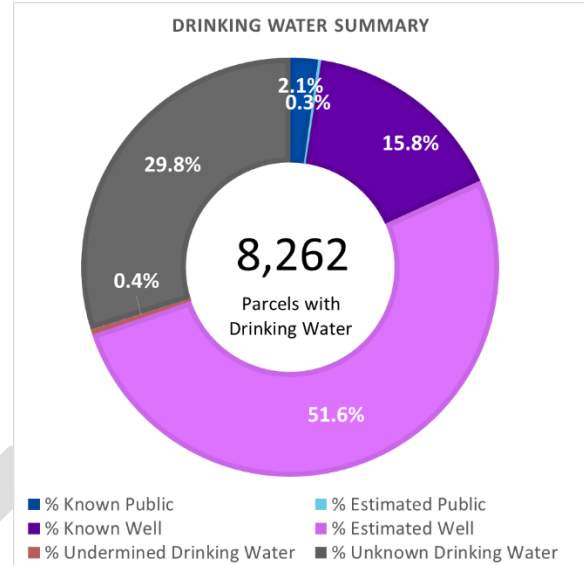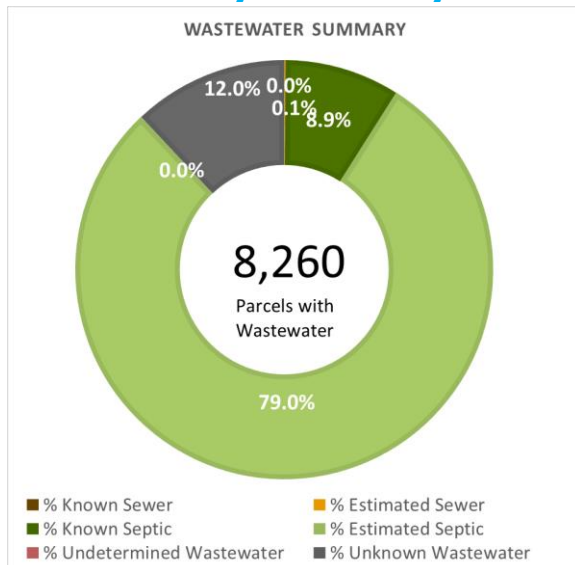■ % Known Well  ■ % Estimated Well
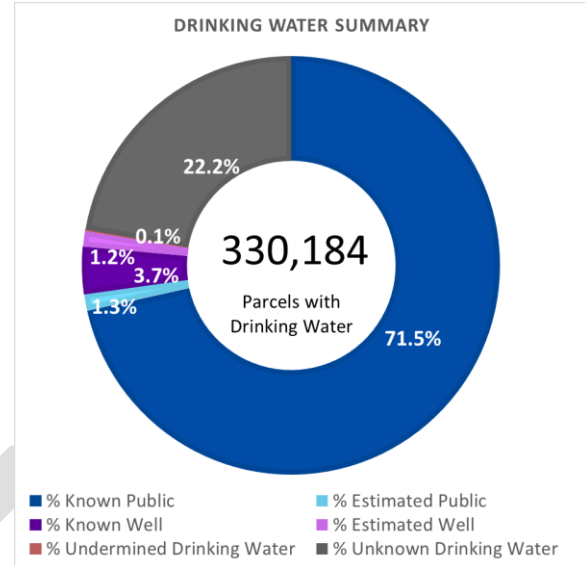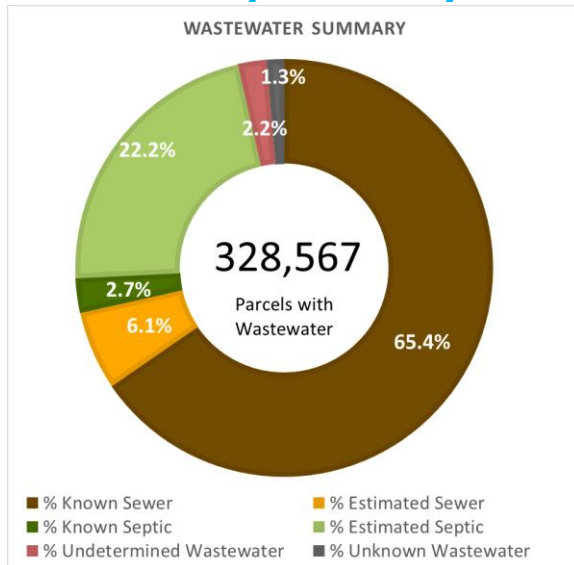■ % Undermined Drinking Water  ■ % Unknown Drinking Water

Received responses from 78.0% of all permitted wastewater in the county, with no large facilities missing.

Received responses from 100.0% of all permitted drinking water in the county, with no large facilities missing.

# Franklin County Summary

**WASTEWATER SUMMARY**



8,598
Parcels with
Wastewater

1.8%  8.5%  9.9%  47.0%  0.0%  32.9%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater

**DRINKING WATER SUMMARY**



8,598
Parcels with
Drinking Water

15.1%  1.1%  3.4%  0.0%  2....  78.0%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
- % Undermined Drinking Water
- % Unknown Drinking Water

Received responses from 14.3% of all permitted wastewater in the county, with the following large facilities missing:

- City of Carrabelle

Received responses from 2.0% of all permitted drinking water in the county, with the following large facilities missing:

- City of Apalachicola
- City of Carrabelle
- Eastpoint Water & Sewer District
- Water Management Services Inc

# Gadsden County Summary



WASTEWATER SUMMARY

17,039 Parcels with Wastewater

12.2%
1.8%
17.5%
49.4%
0.0%
19.0%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater



DRINKING WATER SUMMARY

17,057 Parcels with Drinking Water

25.2%
0.8%
6.3%
38.7%
1.4%
27.6%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
- % Undermined Drinking Water
- % Unknown Drinking Water

Received responses from 49.8% of all permitted wastewater in the county, with the following large facilities missing:

- Quincy WWTP

Received responses from 36.8% of all permitted drinking water in the county, with the following large facilities missing:

- 
- City of Gretna
- City of Quincy
- Talquin Electric Coop. Inc

# Gilchrist County Summary

**WASTEWATER SUMMARY**

5.3%
9.1%
0.1%
0.0%
28.7%
56.7%

**6,942**
Parcels with
Wastewater

- ■ % Known Sewer
- ■ % Estimated Sewer
- ■ % Known Septic
- ■ % Estimated Septic
- ■ % Undetermined Wastewater
- ■ % Unknown Wastewater

**DRINKING WATER SUMMARY**

0.3%
9.9%
13.8%
0.3%
27.3%
48.4%

**6,947**
Parcels with
Drinking Water

- ■ % Known Public
- ■ % Estimated Public
- ■ % Known Well
- ■ % Estimated Well
- ■ % Undermined Drinking Water
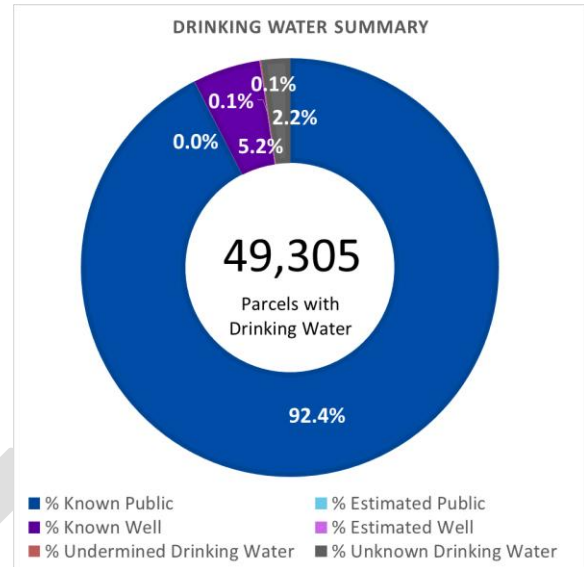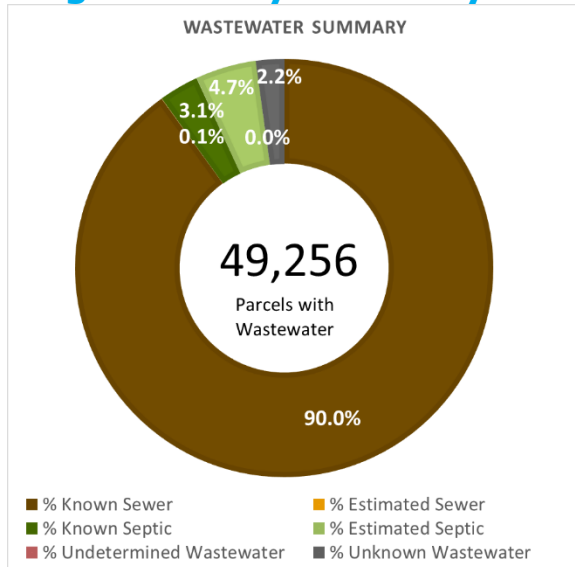- ■ % Unknown Drinking Water

Received responses from 77.4% of all permitted wastewater in the county, with no large facilities missing.

Received responses from 98.7% of all permitted drinking water in the county, with no large facilities missing.

# Glades County Summary

**WASTEWATER SUMMARY**

4.5% 0.0%
0.5%
0.0%
6.7%

**5,153**
Parcels with
Wastewater

88.2%

■ % Known Sewer          ■ % Estimated Sewer
■ % Known Septic         ■ % Estimated Septic
■ % Undetermined Wastewater  ■ % Unknown Wastewater

**DRINKING WATER SUMMARY**

13.8%
1.3%
3.2% 0.0%
0.9%

**5,183**
Parcels with
Drinking Water

80.8%

■ % Known Public         ■ % Estimated Public
■ % Known Well           ■ % Estimated Well
■ % Undermined Drinking Water  ■ % Unknown Drinking Water
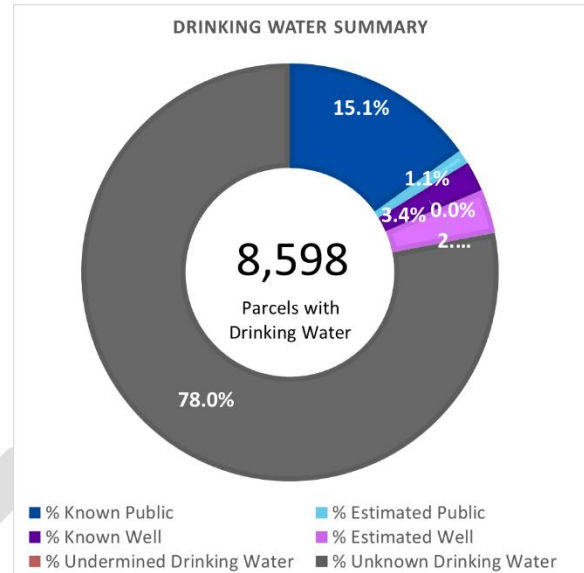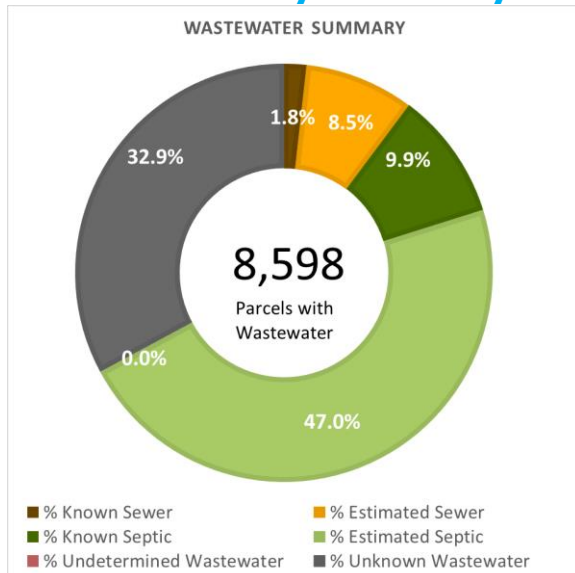
Received responses from 77.6% of all permitted wastewater in the county, with no large facilities missing.

Received responses from 93.8% of all permitted drinking water in the county, with no large facilities missing.

# Gulf County Summary

**WASTEWATER SUMMARY**



9,349
Parcels with
Wastewater

3.4%
0.6%
31.2%
48.8%
14.0%
2.1%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater

**DRINKING WATER SUMMARY**



9,350
Parcels with
Drinking Water

29.3%
0.0%
6.8%
4.9%
0.6%
58.4%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
- % Undermined Drinking Water
- % Unknown Drinking Water

Received responses from 100.0% of all permitted wastewater in the county, with no large facilities missing.

Received responses from 100.0% of all permitted drinking water in the county, with no large facilities missing.
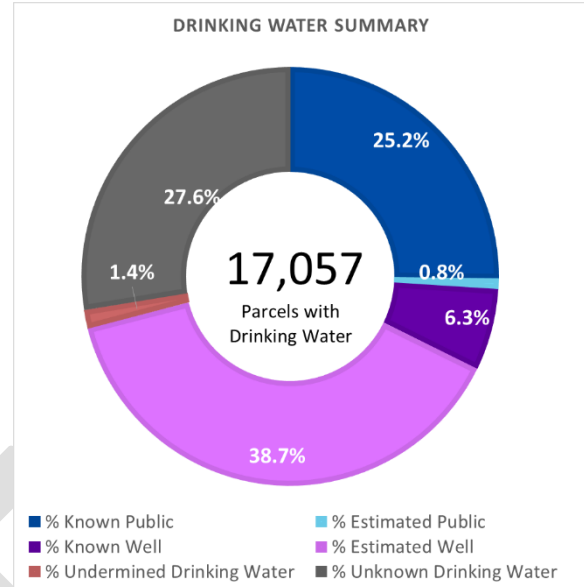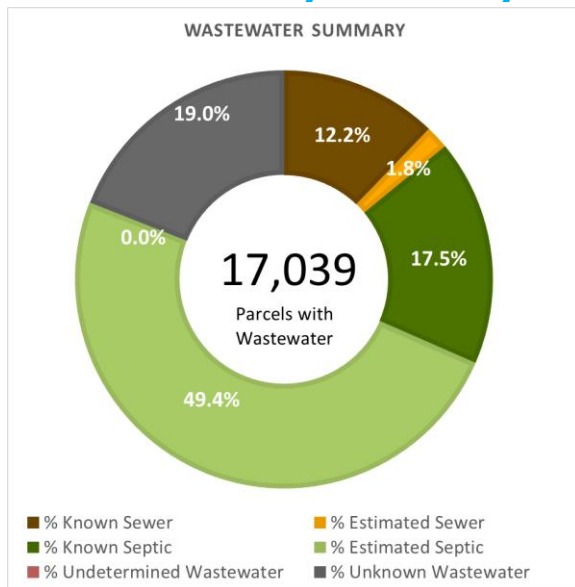
# Hamilton County Summary



**WASTEWATER SUMMARY**

4,663
Parcels with
Wastewater

6.2% | 11.9% | 25.8% | 10.0% | 46.1% | 0.0%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater



**DRINKING WATER SUMMARY**

4,661
Parcels with
Drinking Water

13.8% | 0.6% | 9.5% | 24.8% | 0.6% | 50.7%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
- % Undermined Drinking Water
- % Unknown Drinking Water

Received responses from 29.2% of all permitted wastewater in the county, with the following large facilities missing:
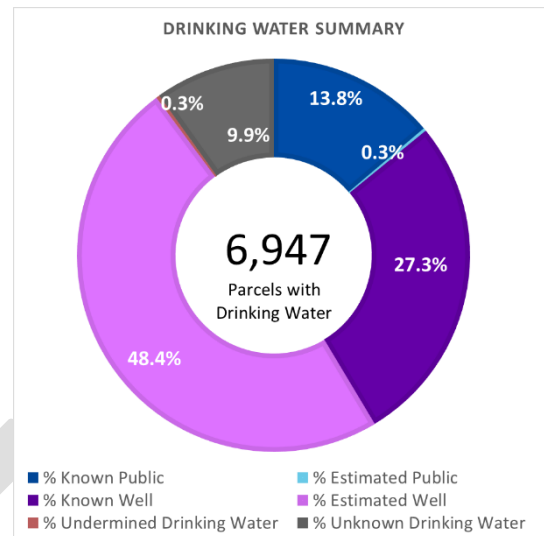
- Jasper Water Department
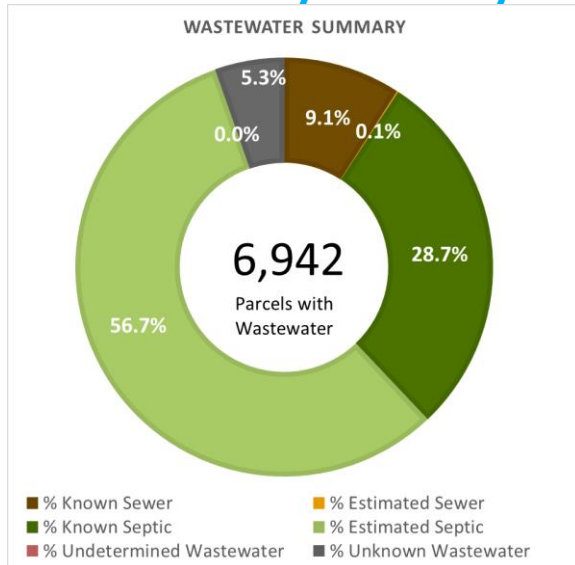
Received responses from 36.8% of all permitted drinking water in the county, with the following large facilities missing:

- Jasper Water Department

# Hardee County Summary

**WASTEWATER SUMMARY**



8,871
Parcels with
Wastewater

5.4%
0.0%
34.7%
47.6%
0.0%
12.3%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater

**DRINKING WATER SUMMARY**



8,876
Parcels with
Drinking Water

14.7%
0.3%
39.8%
32.2%
0.5%
12.6%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
- % Undermined Drinking Water
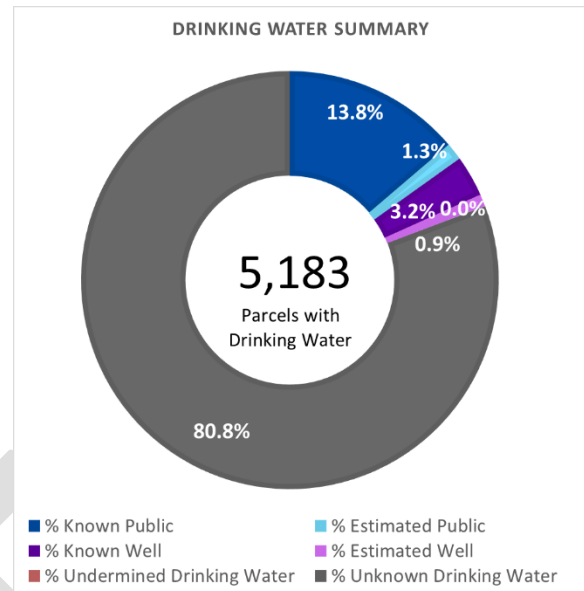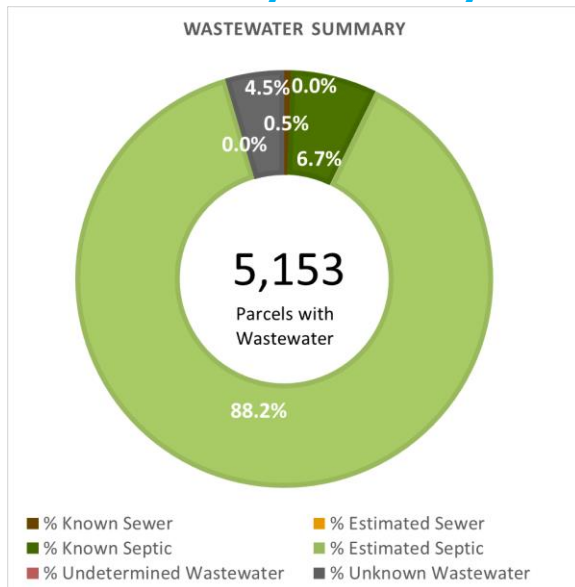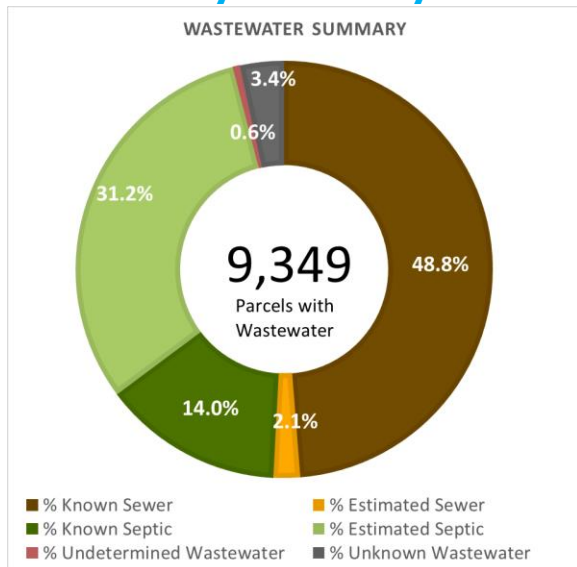- % Unknown Drinking Water

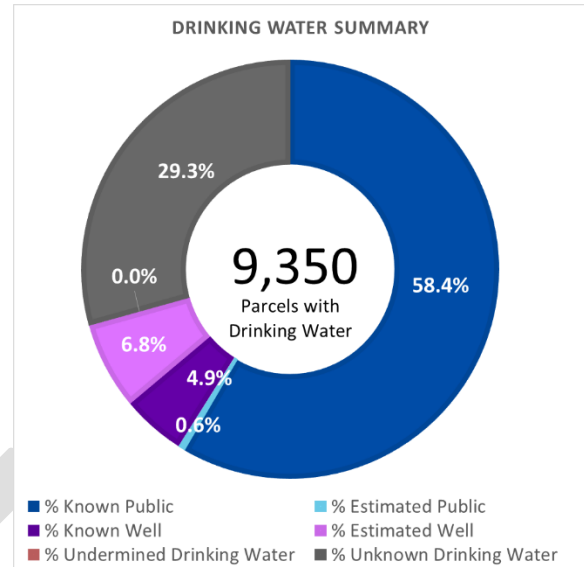Received responses from 96.4% of all permitted wastewater in the county, with no large facilities missing.

Received responses from 89.9% of all permitted drinking water in the county, with no large facilities missing.

# Hendry County Summary

**WASTEWATER SUMMARY**

**13,081**
Parcels with Wastewater

5.0%
0.0%
27.4%
0.1%
14.3%
53.2%

■ % Known Sewer  ■ % Estimated Sewer
■ % Known Septic  ■ % Estimated Septic
■ % Undetermined Wastewater  ■ % Unknown Wastewater

**DRINKING WATER SUMMARY**

**13,083**
Parcels with Drinking Water

37.2%
0.8%
9.9%
0.1%
2.8%
49.2%

■ % Known Public  ■ % Estimated Public
■ % Known Well  ■ % Estimated Well
■ % Undermined Drinking Water  ■ % Unknown Drinking Water

Received responses from 91.2% of all permitted wastewater in the county, with no following large facilities missing.

Received responses from 81.2% of all permitted drinking water in the county, with the following large facilities missing:
- Riverbend Motorcoach Resort
- South Shore Water Association Inc

# Hernando County Summary

**WASTEWATER SUMMARY**



82,722
Parcels with
Wastewater

2.6%
0.0%
33.6%
41.1%
20.1%
2.6%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater

**DRINKING WATER SUMMARY**



82,769
Parcels with
Drinking Water

0.2%
3.6%
10.8%
7.9%
50.2%
27.3%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
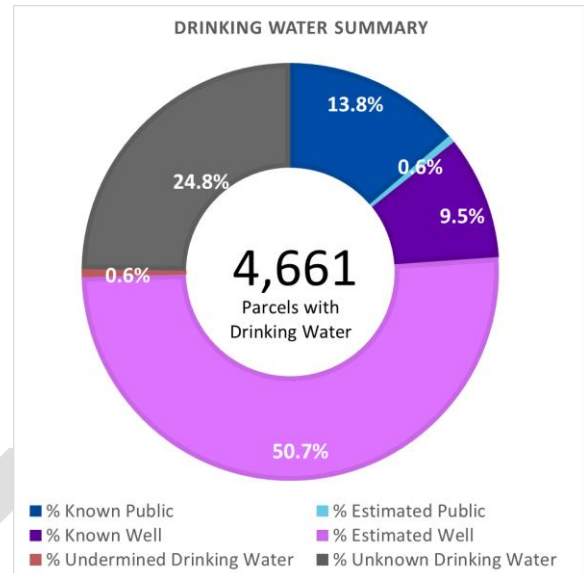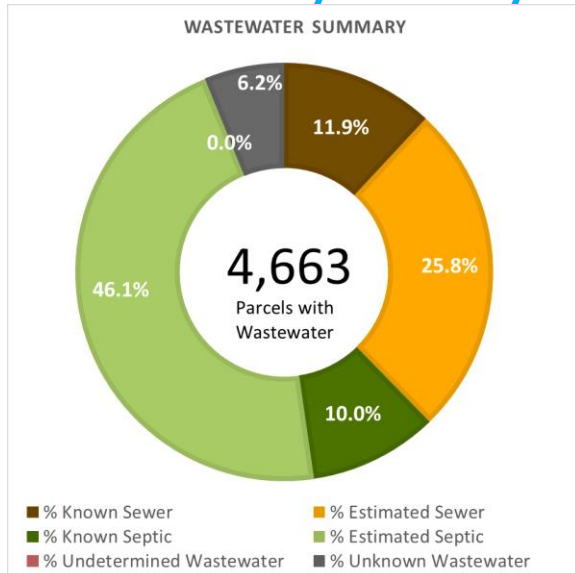- % Undermined Drinking Water
- % Unknown Drinking Water
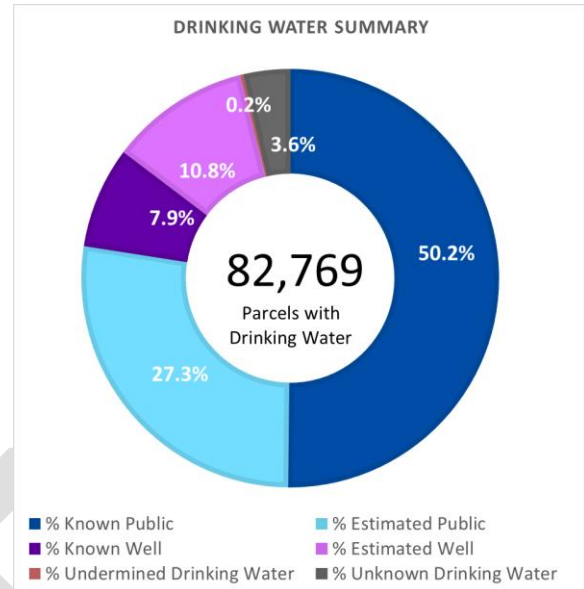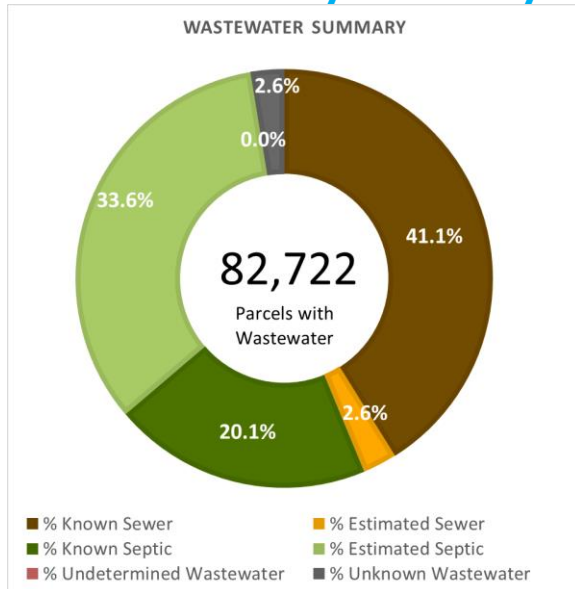
Received responses from 98.2% of all permitted wastewater in the county, with no large facilities missing.

Received responses from 99.0% of all permitted drinking water in the county, with the following large facilities missing:
- BP Gas Station
- Division of Forestry

# Highlands County Summary



WASTEWATER SUMMARY

47,576 Parcels with Wastewater

10.2%
21.6%
0.0%
0.8%
13.8%
53.6%

■ % Known Sewer          ■ % Estimated Sewer
■ % Known Septic         ■ % Estimated Septic
■ % Undetermined Wastewater   ■ % Unknown Wastewater

DRINKING WATER SUMMARY

50,661 Parcels with Drinking Water

19.5%
0.2%
48.5%
16.1%
8.4%
7.2%

■ % Known Public         ■ % Estimated Public
■ % Known Well           ■ % Estimated Well
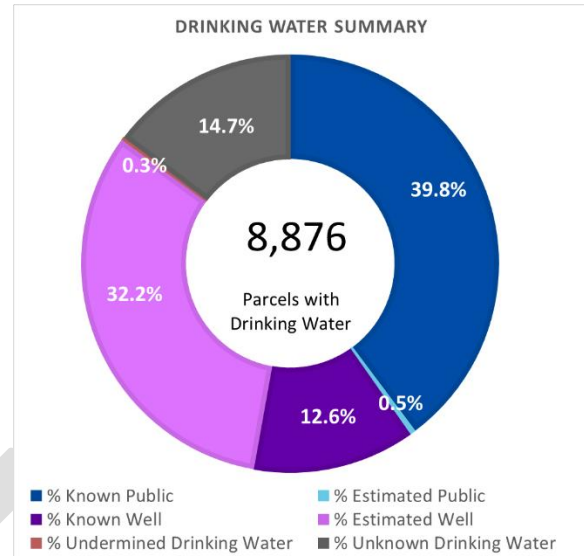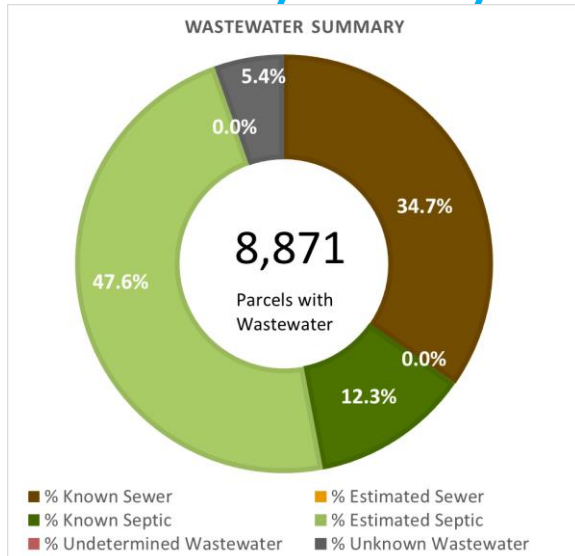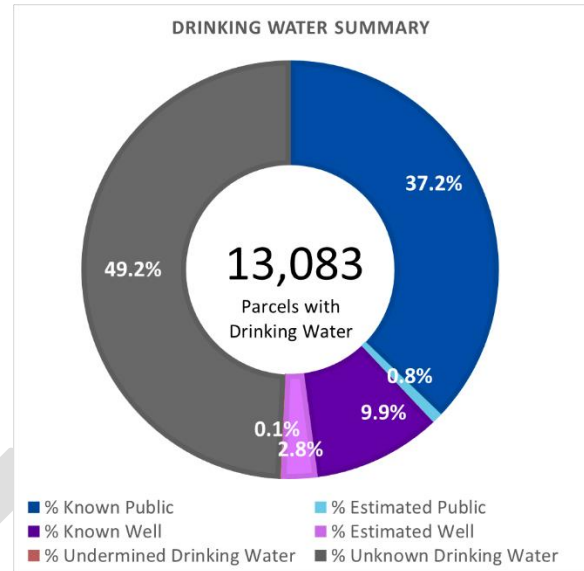■ % Undermined Drinking Water   ■ % Unknown Drinking Water
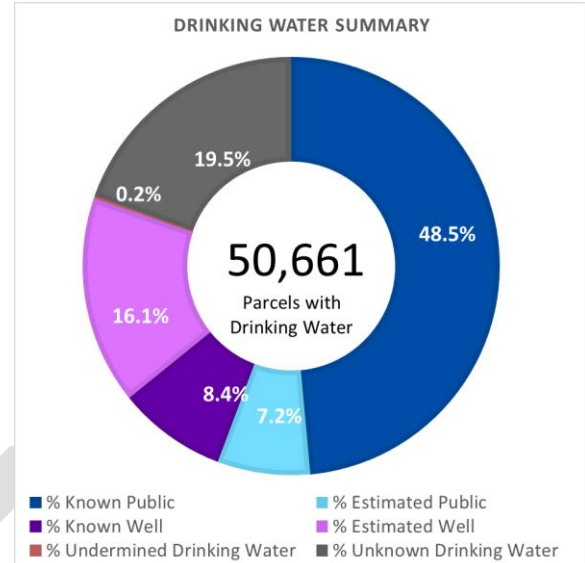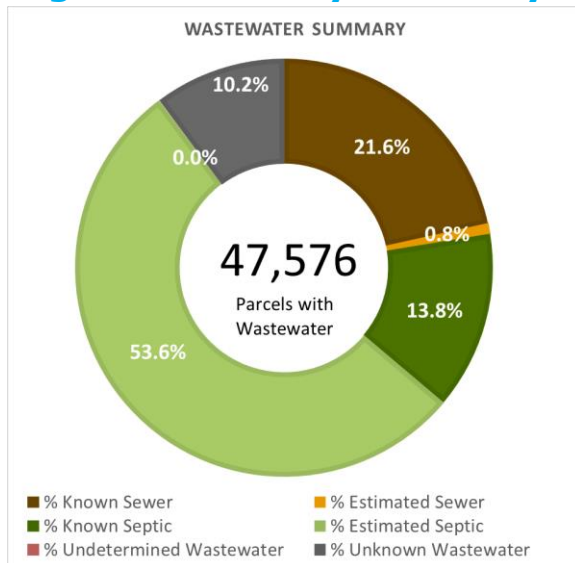
Received responses from 70.5% of all permitted wastewater in the county, with the following large facilities missing:

- City of Avon Park

Received responses from 77.8% of all permitted drinking water in the county, with the following large facilities missing:
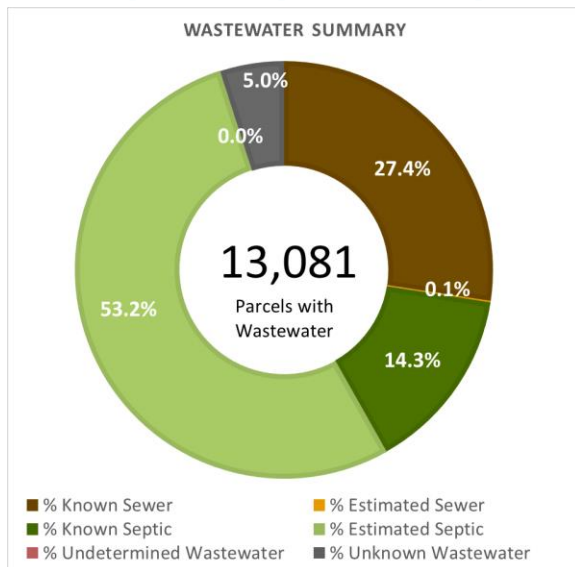
- City of Avon Park
- Country Club Utilities
- Lake Bonnet Village
- Lake Placid Congregation of Jehovah's Witnesses
- US Water Corp

## Hillsborough County Summary

**WASTEWATER SUMMARY**



82,722 Parcels with Wastewater

2.6%
0.0%
33.6%
41.1%
20.1%
2.6%

- ■ % Known Sewer
- ■ % Estimated Sewer
- ■ % Known Septic
- ■ % Estimated Septic
- ■ % Undetermined Wastewater
- ■ % Unknown Wastewater

**DRINKING WATER SUMMARY**



82,769 Parcels with Drinking Water

0.2%
3.6%
10.8%
7.9%
50.2%
27.3%

- ■ % Known Public
- ■ % Estimated Public
- ■ % Known Well
- ■ % Estimated Well
- ■ % Undermined Drinking Water
- ■ % Unknown Drinking Water

Using both data collected in 2009 and during 2014-2016, responses were received from 98.3% of all permitted wastewater in the county, with the following large facilities missing from the more recent data request:

- City of Plant City (submitted in 2009)
- Hillsborough County Public Utilities (submitted in 2009)
- Macdill Afb WWTP

Received responses from 53.3.% of all permitted drinking water in the county, with the following large facilities missing:

- Cax Lakeshore Villas
- City of Plant City
- Davpam MHP
- Fishhawk Ridge Association Inc
- Hide-A-Way Campground
- Hillsborough County Public Utilities
- Independence Academy
- Jay Mar Villas
- Little Manatee Springs MHP
- Oaks of Thonotosassa MHP
- Paradise Village
- Plurisusa
- Riverside Golf Course Community
- Spanish Main Travel Resort
- Temple Terrace Utility

# Holmes County Summary

**WASTEWATER SUMMARY**



6,908
Parcels with
Wastewater

10.4%  2.4%
1.0%
0.0%  14.1%
72.0%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater

**DRINKING WATER SUMMARY**



6,921
Parcels with
Drinking Water

5.0%
0.9%
13.1%
15.5%
0.1%
65.3%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
- % Undermined Drinking Water
- % Unknown Drinking Water
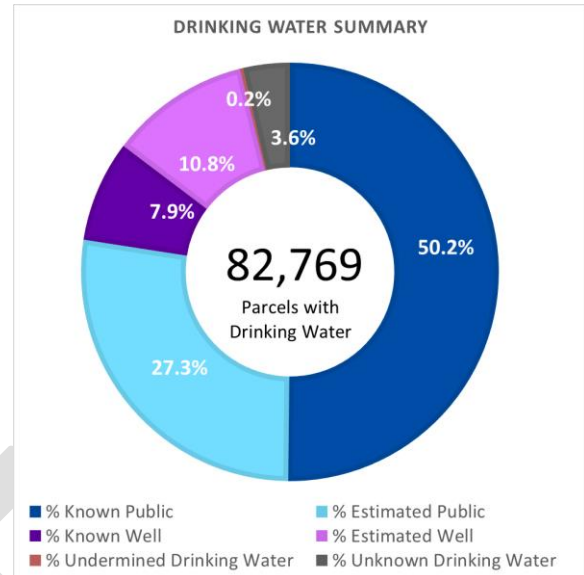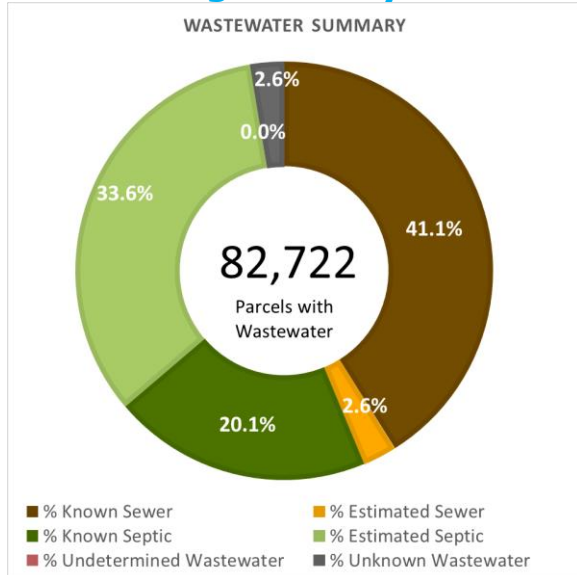
Received responses from 6.2% of all permitted wastewater in the county, with the following large facilities missing:

- Bonifay Public Works

Received responses from 26.3% of all permitted drinking water in the county, with the following large facilities missing:

- Bonifay Public Works
- Town of Ponce De Leon

# Indian River County Summary

**WASTEWATER SUMMARY**

1.6%
0.2%
0.0%
45.1%
53.0%
0.1%

**57,476**
Parcels with
Wastewater

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater

**DRINKING WATER SUMMARY**

0.2%
8.5%
0.7%
0.1%
84.2%

**57,616**
Parcels with
Drinking Water

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
- % Undermined Drinking Water
- % Unknown Drinking Water

Received responses from 100.0% of all permitted wastewater in the county, with no large facilities missing.

Received responses from 100.0% of all permitted drinking water in the county, with no large facilities missing.

# Jackson County Summary



WASTEWATER SUMMARY

17,709
Parcels with
Wastewater

12.9%  3.8%  1.6%  14.4%  0.0%  67.3%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater



DRINKING WATER SUMMARY

17,744
Parcels with
Drinking Water

7.0%  1.3%  17.7%  19.1%  1.1%  53.9%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
- % Undermined Drinking Water
- % Unknown Drinking Water

Using both data collected in 2009 and during 2014-2016, responses were received from 23.3% of all permitted wastewater in the county, with the following large facilities missing from the more recent data request:
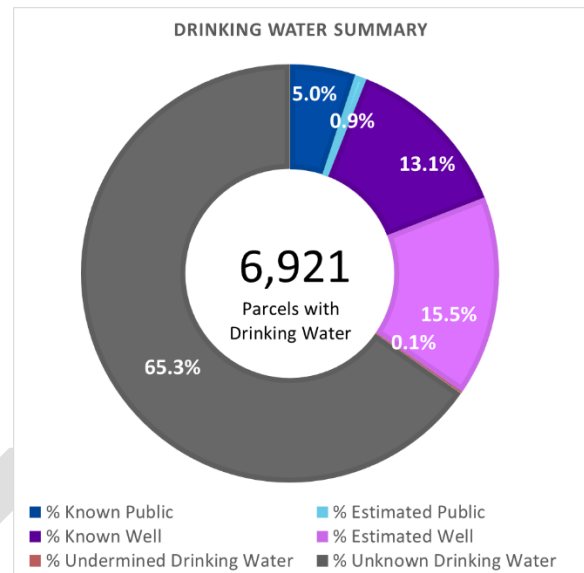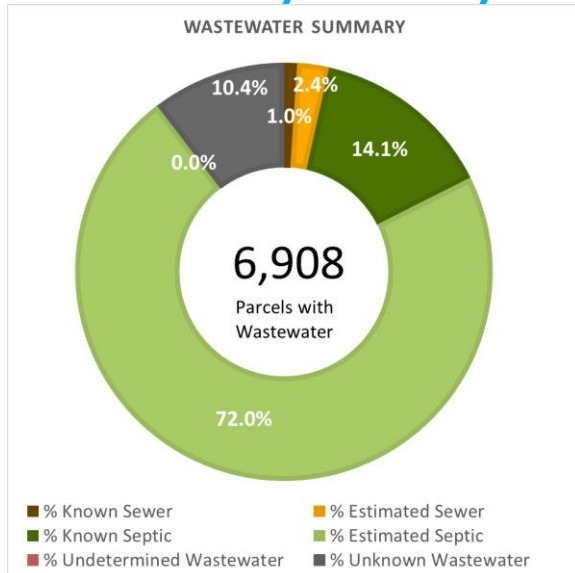
- City of Graceville
- City of Marianna
- Town of Sneads (submitted in 2009)

Received responses from 40.6% of all permitted drinking water in the county, with the following large facilities missing:

- City of Graceville
- City of Marianna
- Cottondale Water System
- Town of Sneads

# Jefferson County Summary

WASTEWATER SUMMARY

7.2% 0.4%
0.0%
0.1% 12.1%

**5,965**
Parcels with
Wastewater

80.2%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater

DRINKING WATER SUMMARY

3.0%
0.8%
11.2%
27.6%

**5,974**
Parcels with
Drinking Water

0.3%

57.1%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
- % Undermined Drinking Water
- % Unknown Drinking Water

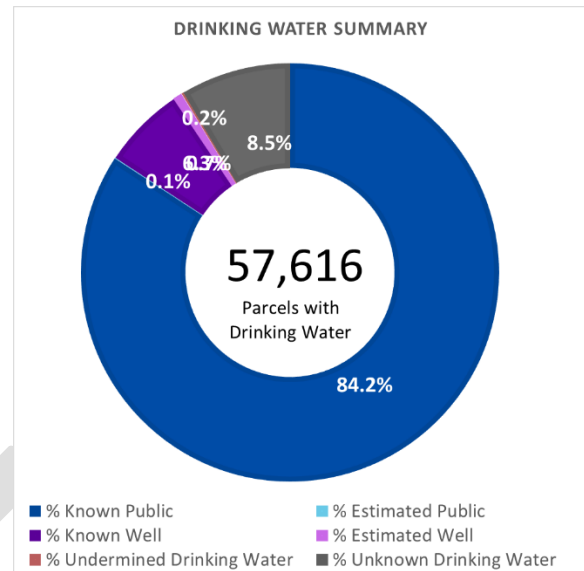Received responses from 26.1% of all permitted wastewater in the county, with no large facilities missing.
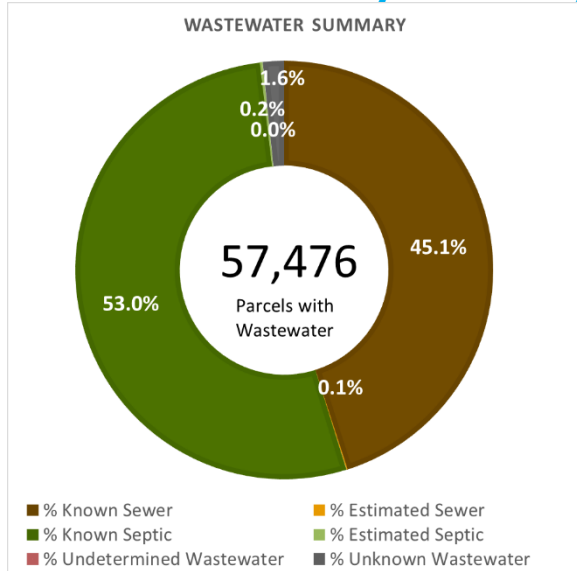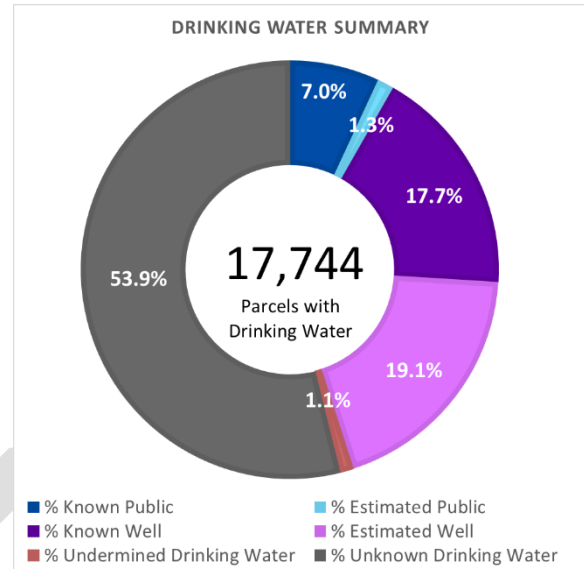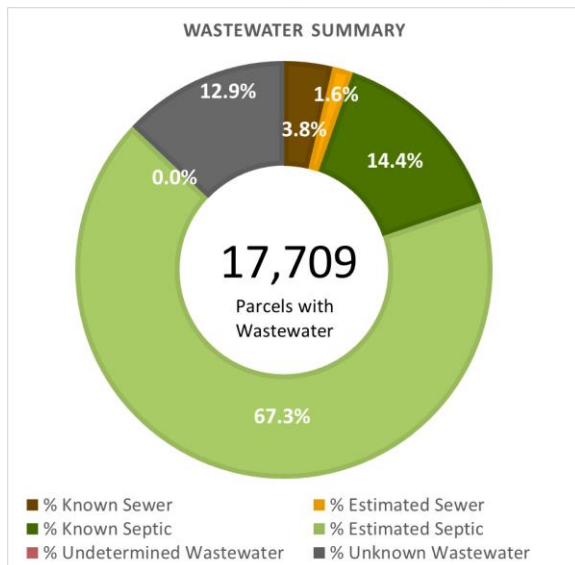
Received responses from 28.1% of all permitted drinking water in the county, with the following large facilities missing:
- City of Monticello
- Jefferson and Lamont Water System

# Lake County Summary

**WASTEWATER SUMMARY**



133,737
Parcels with
Wastewater

5.2%
0.2%
34.2%
23.5%
19.7%
17.1%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater

**DRINKING WATER SUMMARY**



133,426
Parcels with
Drinking Water

30.1%
43.0%
15.8%
0.2%
1.9%
9.0%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
- % Undermined Drinking Water
- % Unknown Drinking Water
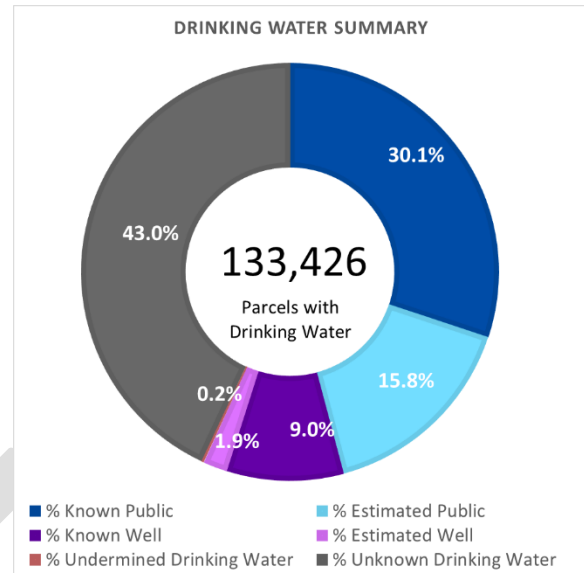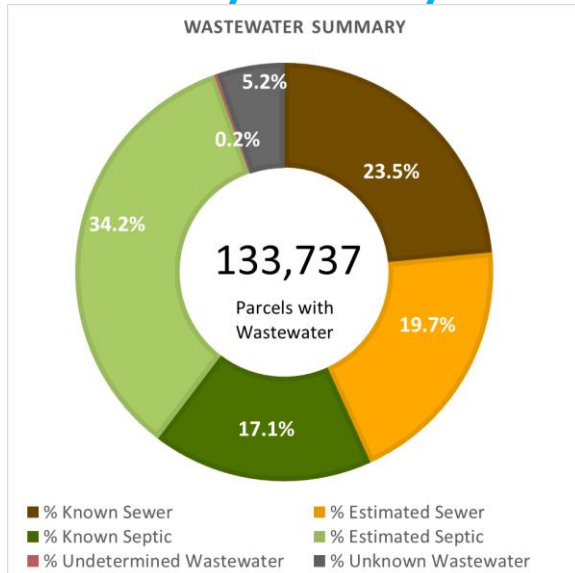
Received responses from 70.8% of all permitted wastewater in the county, with the following large facilities missing:

- Mount Dora WWTF
- Tavares/Woodlea Road WWTF

Received responses from 59.5% of all permitted drinking water in the county, with the following large facilities missing:

- City of Mount Dora
- City of Zephyrhills
- Holiday Travel Resort
- Howey In The Hills
- LCA
- Mascotte Water Department
- Minneola Water Department
- Oak Springs LLC MHP
- St. Johns River Utility Inc
- Sunlake Estates
- Tavares Water Department
- UI Water
- US Water Corp
- Water Oak Country Club Estates
- Wedgewood Subdivision

# Lee County Summary



WASTEWATER SUMMARY

271,176 Parcels with Wastewater

3.4%
0.2%
23.4%
12.5%
1.8%
58.6%

■ % Known Sewer        ■ % Estimated Sewer
■ % Known Septic       ■ % Estimated Septic
■ % Undetermined Wastewater   ■ % Unknown Wastewater



DRINKING WATER SUMMARY

270,199 Parcels with Drinking Water

39.4%
48.7%
0.0%
0.8%
10.7%
0.4%

■ % Known Public       ■ % Estimated Public
■ % Known Well         ■ % Estimated Well
■ % Undermined Drinking Water   ■ % Unknown Drinking Water
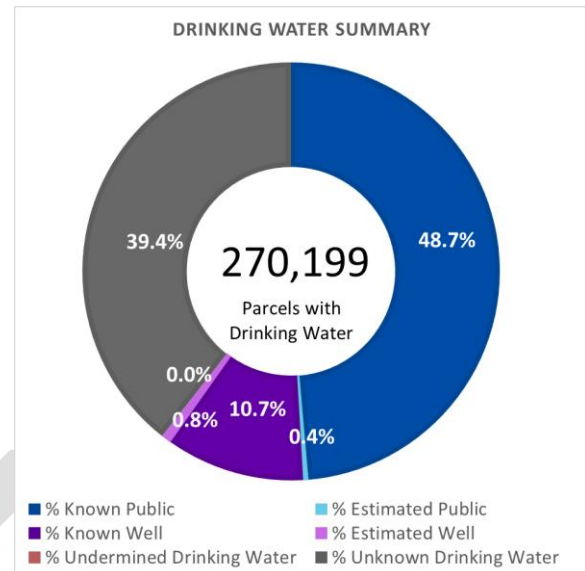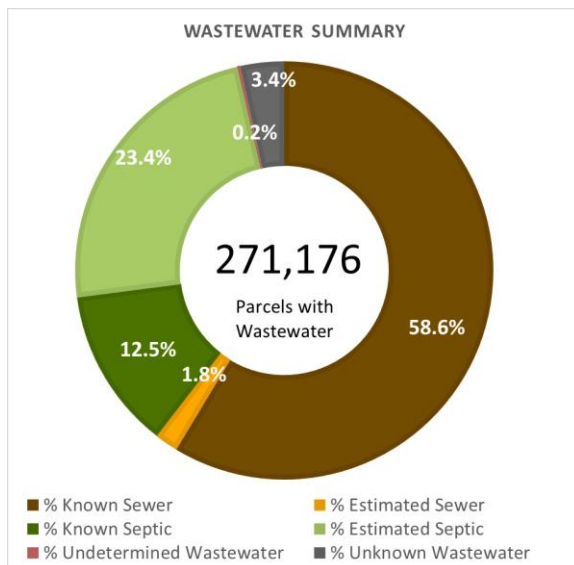
Using both data collected in 2009 and during 2014-2016, responses were received from 94.7% of all permitted wastewater in the county, with the following large facilities missing from the more recent data request:
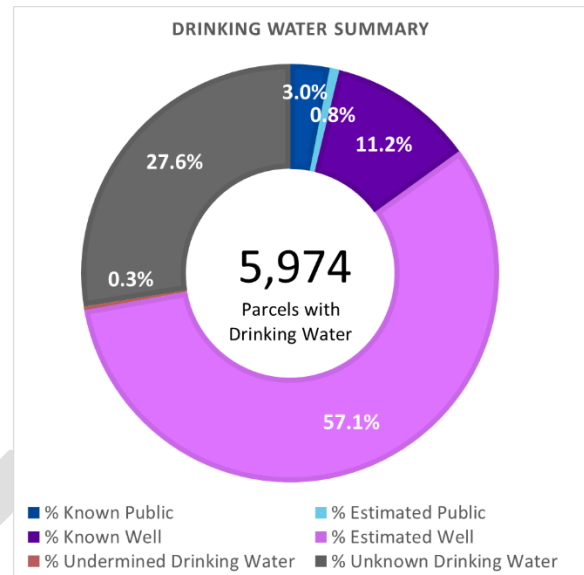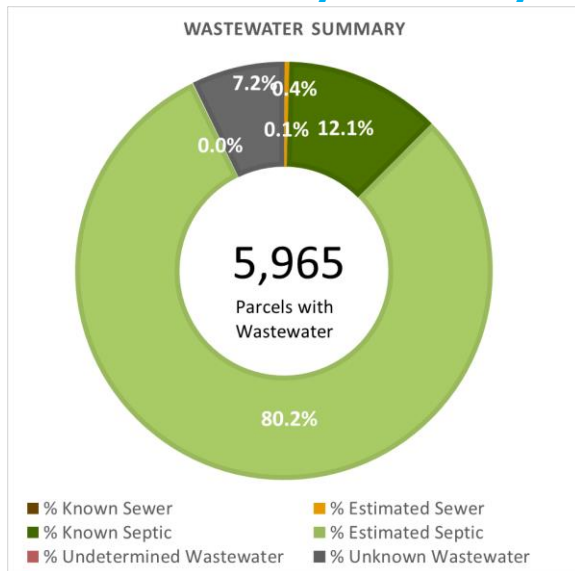
- Donax Water Reclamation Facility (submitted in 2009)
- US Water Corp

Received responses from 85.8% of all permitted drinking water in the county, with the following large facilities missing:

- Citrus Park RV Resort
- Gateway Services District
- Greater Pine Island Water Association
- Island Water Association
- Old Bridge Village Mobile Home Park
- Raintree RV Resort
- Syngenta Flowers Inc
- Town of Fort Myers Beach
- US Water Corp

# Leon County Summary
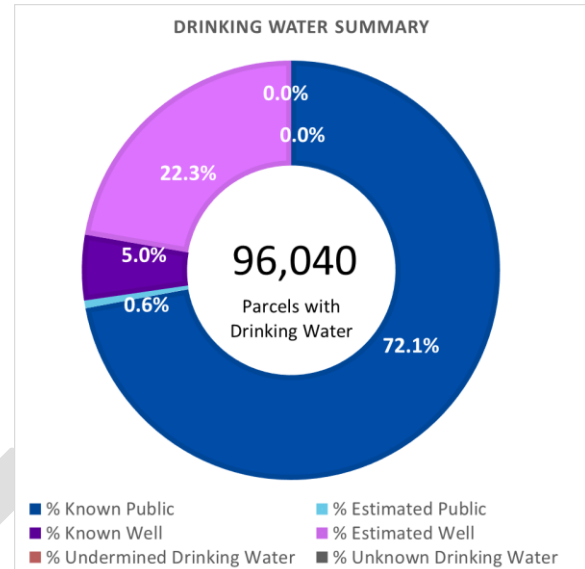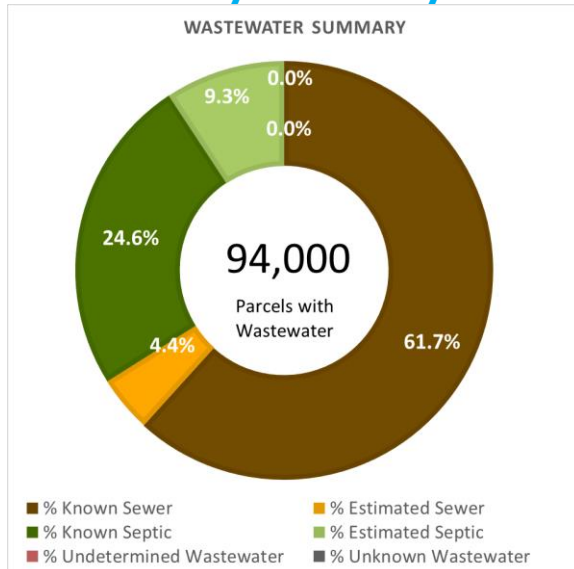
**WASTEWATER SUMMARY**



94,000
Parcels with
Wastewater

0.0%
0.0%
9.3%
24.6%
4.4%
61.7%

■ % Known Sewer    ■ % Estimated Sewer
■ % Known Septic    ■ % Estimated Septic
■ % Undetermined Wastewater    ■ % Unknown Wastewater

**DRINKING WATER SUMMARY**



96,040
Parcels with
Drinking Water

0.0%
0.0%
22.3%
5.0%
0.6%
72.1%

■ % Known Public    ■ % Estimated Public
■ % Known Well    ■ % Estimated Well
■ % Undermined Drinking Water    ■ % Unknown Drinking Water

Received responses from 91.8% of all permitted wastewater in the county, with no large facilities missing.

Received responses from 87.6% of all permitted drinking water in the county, with the following large facilities missing:

- Leon County Schools
- Talquin Electric Coop. Inc

# Levy County Summary





Received responses from 18.1% of all permitted wastewater in the county, with no large facilities missing.

Received responses from 33.7% of all permitted drinking water in the county, with the following large facilities missing:

- Bronson WTP
- Fanning Springs Ws
- Inglis Water Department
- Town of Chiefland
- Williston City of
- Yankeetown Water Department

# Liberty County Summary



WASTEWATER SUMMARY

2,657
Parcels with
Wastewater

13.5%  0.0%
8.0%
0.1%
0.0%
78.4%

■ % Known Sewer          ■ % Estimated Sewer
■ % Known Septic         ■ % Estimated Septic
■ % Undetermined Wastewater  ■ % Unknown Wastewater



DRINKING WATER SUMMARY

2,666
Parcels with
Drinking Water

5.7%
0.6%
4.5%
21.4%
0.5%
67.4%

■ % Known Public         ■ % Estimated Public
■ % Known Well           ■ % Estimated Well
■ % Undermined Drinking Water  ■ % Unknown Drinking Water

Received responses from 52.8% of all permitted wastewater in the county, with no large facilities missing.

Received responses from 30.4% of all permitted drinking water in the county, with the following large facilities missing:
- City of Bristol
- Liberty County Water

# Madison County Summary



WASTEWATER SUMMARY

7,206
Parcels with
Wastewater

7.9% | 0.0% | 14.2% | 0.1% | 10.0% | 67.8%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater



DRINKING WATER SUMMARY

7,237
Parcels with
Drinking Water

23.7% | 0.3% | 8.7% | 46.6% | 0.4% | 20.2%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
- % Undermined Drinking Water
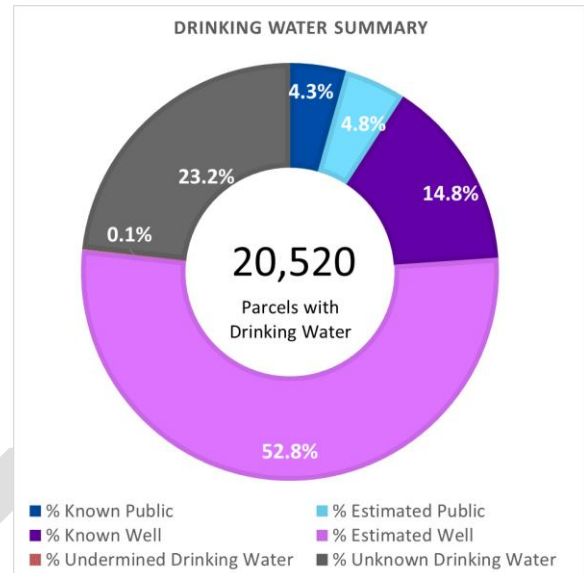- % Unknown Drinking Water

Received responses from 85.3% of all permitted wastewater in the county, with no large facilities missing.

Received responses from 78.0% of all permitted drinking water in the county, with the following large facilities missing:

- Cherry Lake Utilities
- Greenville WTP

# Manatee County Summary
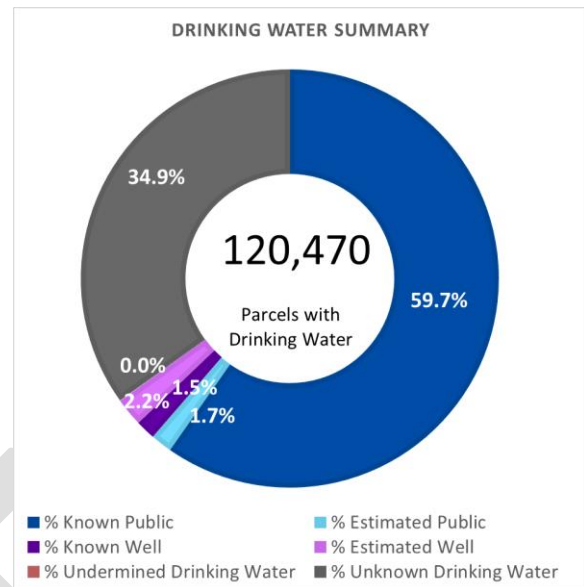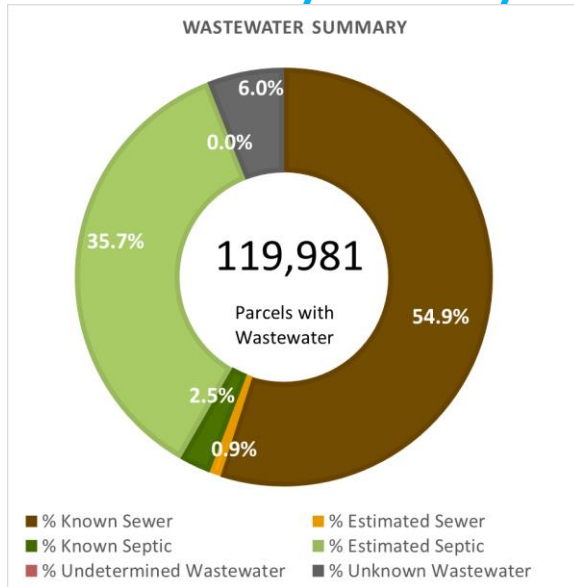


WASTEWATER SUMMARY

119,981 Parcels with Wastewater

6.0% · 0.0% · 35.7% · 54.9% · 2.5% · 0.9%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater



DRINKING WATER SUMMARY

120,470 Parcels with Drinking Water

34.9% · 59.7% · 0.0% · 2.2% · 1.5% · 1.7%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
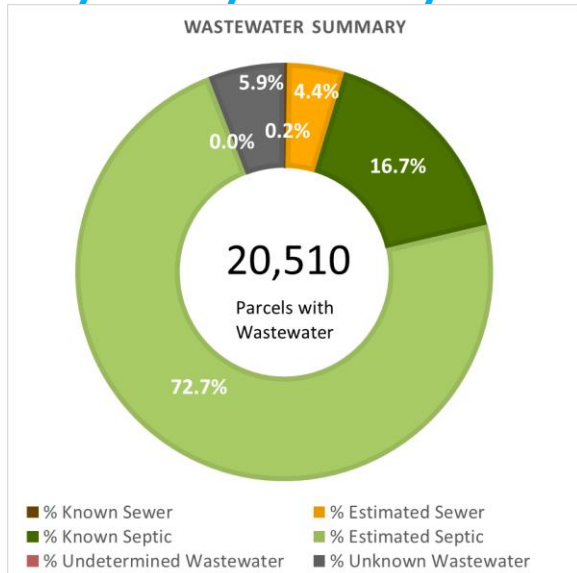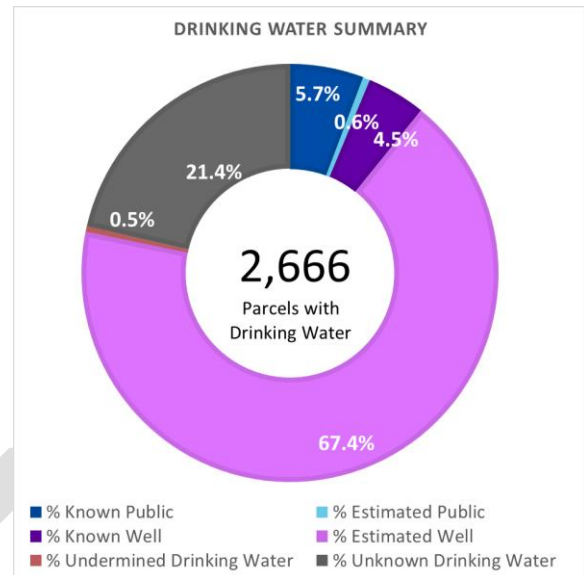- % Undermined Drinking Water
- % Unknown Drinking Water

Received responses from 100.0% of all permitted wastewater in the county, with no large facilities missing.

Received responses from 98.5% of all permitted drinking water in the county, with the following large facilities missing:
- Palmetto Pines Golf Course
- Town of Longboat Key

# Marion County Summary
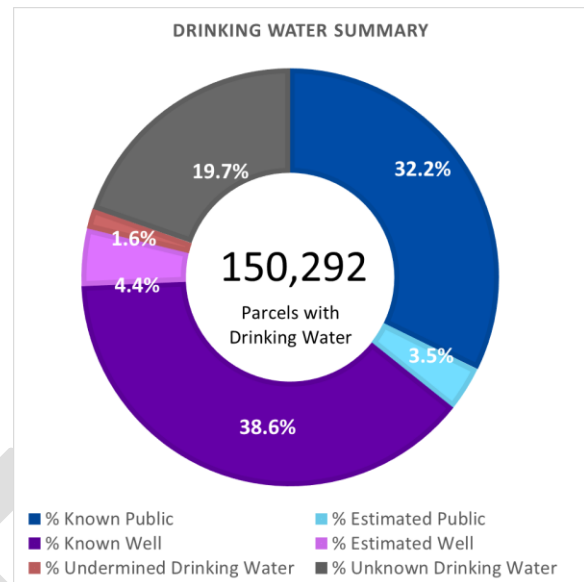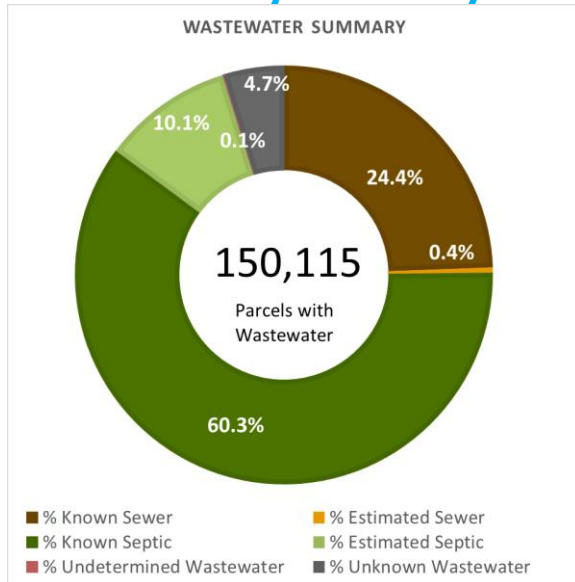
WASTEWATER SUMMARY



150,115
Parcels with
Wastewater

4.7%
10.1%
0.1%
24.4%
0.4%
60.3%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater

DRINKING WATER SUMMARY



150,292
Parcels with
Drinking Water

19.7%
1.6%
4.4%
32.2%
3.5%
38.6%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
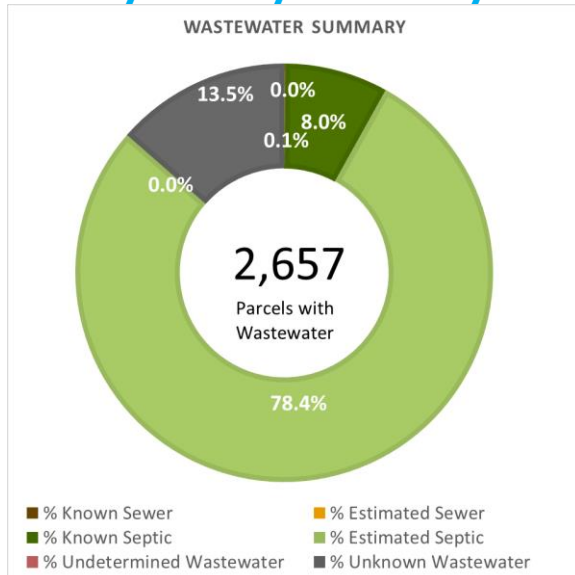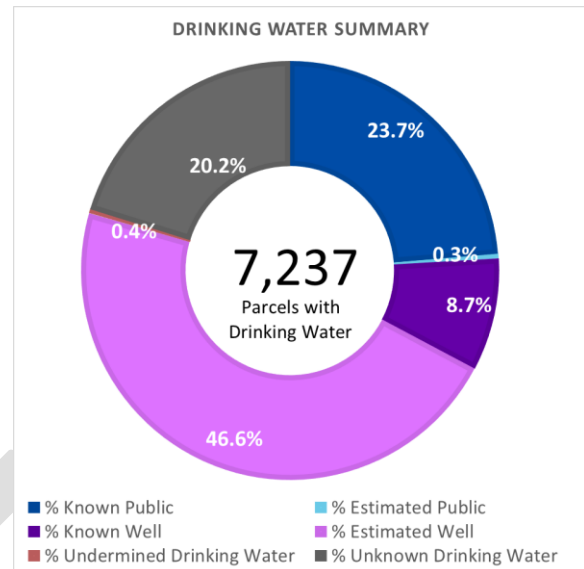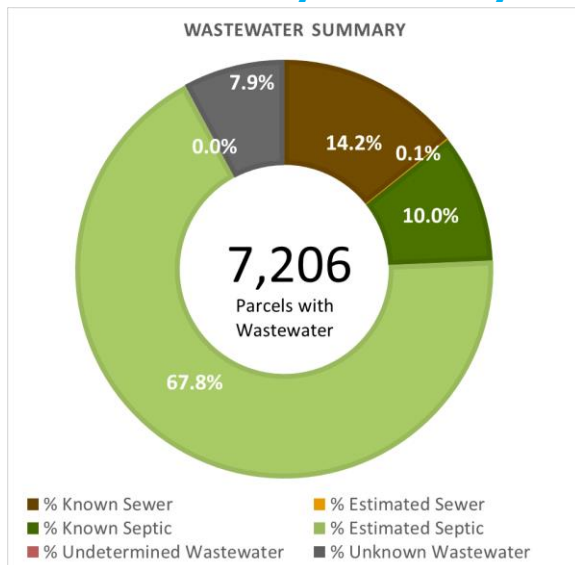- % Undermined Drinking Water
- % Unknown Drinking Water

Received responses from 91.8% of all permitted wastewater in the county, with no large facilities missing.

Received responses from 73.2% of all permitted drinking water in the county, with the following large facilities missing:

- City of Dunnellon
- Marion Landing
- Marion Utilities
- Ocala RV Camp Resort
- On Top of the World
- Rainbow Springs Cc Estates
- Saddle Oak Club MHP
- Spruce Creek Utility Co
- Sunshine Utilities of Central FL Inc
- US Water Corp
- Wilderness RV Park Estates

# Martin County Summary

**WASTEWATER SUMMARY**

58,859
Parcels with
Wastewater

1.1%
0.3%
23.2%
40.6%
27.5%
7.3%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater

**DRINKING WATER SUMMARY**

57,046
Parcels with
Drinking Water

31.7%
54.0%
0.4%
0.4%
11.5%
2.1%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
- % Undermined Drinking Water
- % Unknown Drinking Water
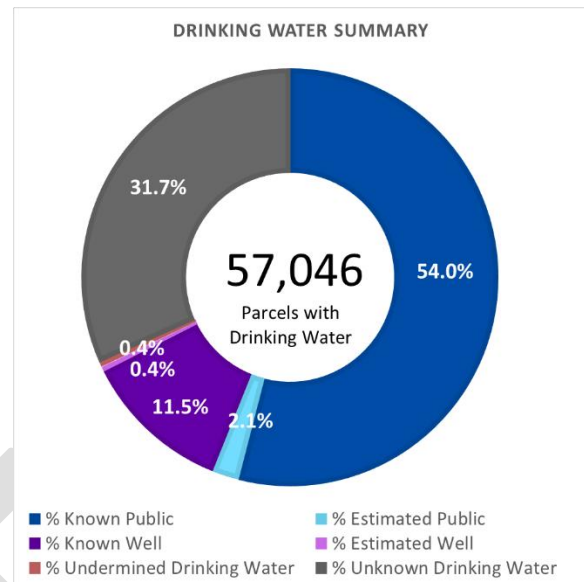
Using both data collected in 2009 and during 2014-2016, responses were received from 97.1% of all permitted wastewater in the county, with the following large facilities missing from the more recent data request:

- South Martin Regional Utilities (submitted in 2009)

Received responses from 76.2% of all permitted drinking water in the county, with the following large facilities missing:

- Indiantown Company Inc
- Sailfish Point
- South Martin Regional Utilities
- St. Lucie Mobile Village

# Miami Dade County Summary

**WASTEWATER SUMMARY**

**515,594**
Parcels with Wastewater

2.5%
0.0%
18.1%
3.0%
18.7%
57.7%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater

**DRINKING WATER SUMMARY**

**516,933**
Parcels with Drinking Water

21.6%
0.0%  0.3%
0.5%
0.1%
77.5%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
- % Undermined Drinking Water
- % Unknown Drinking Water

Received responses from 98.8% of all permitted wastewater in the county, with the following large facilities missing:

- Homestead City of

Received responses from 94.1% of all permitted drinking water in the county, with the following large facilities missing:

- American Village
- City of Miami Beach
- Homestead City of
- North Bay Village City of
- Opa Locka City of
- Surfside Town of
- Virginia Gardens Village of

# Monroe County Summary

WASTEWATER SUMMARY

1.3%
0.1%
31.0%

**53,727**
Parcels with
Wastewater

0.3%
0.7%
66.7%

■ % Known Sewer  ■ % Estimated Sewer
■ % Known Septic  ■ % Estimated Septic
■ % Undetermined Wastewater  ■ % Unknown Wastewater

DRINKING WATER SUMMARY

0.1%
0.0% 0.2%
0.0%
31.4%

**51,972**
Parcels with
Drinking Water

68.3%

■ % Known Public  ■ % Estimated Public
■ % Known Well  ■ % Estimated Well
■ % Undermined Drinking Water  ■ % Unknown Drinking Water

Received responses from 39.9% of all permitted wastewater in the county, with the following large facilities missing.

- Richard A Heyman WWTP-Key West

Received responses from 100.0% of all permitted drinking water in the county, with no large facilities missing.

# Nassau County Summary



WASTEWATER SUMMARY

31,874
Parcels with
Wastewater

2.1%
0.3%
1.7%
47.0%
48.8%
0.1%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater



DRINKING WATER SUMMARY

31,908
Parcels with
Drinking Water

0.4% 2.6%
16.8%
49.6%
30.6%
0.0%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
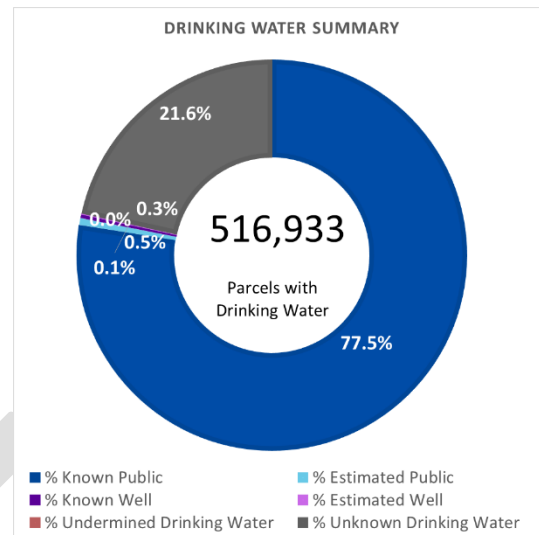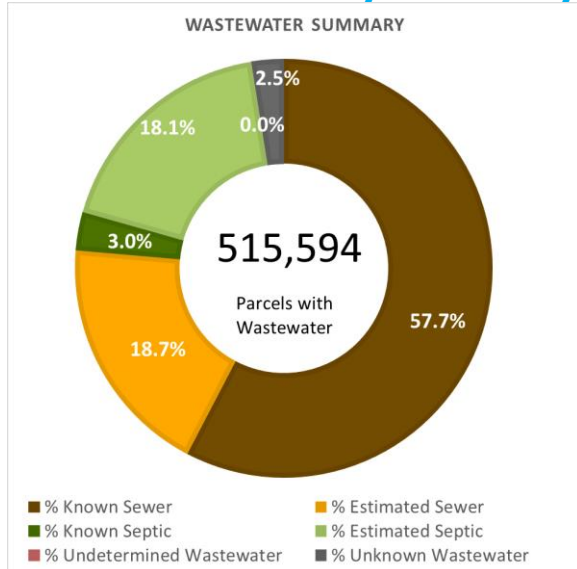- % Undermined Drinking Water
- % Unknown Drinking Water
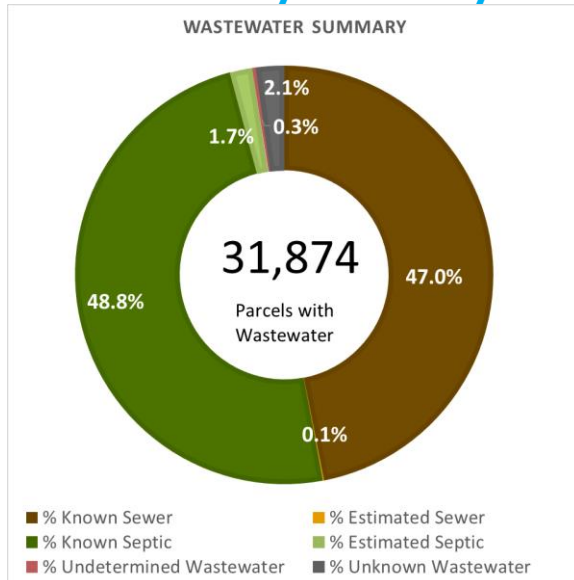
Using both data collected in 2009 and during 2014-2016, responses were received from 89.9% of all permitted wastewater in the county, with the following large facilities missing from the more recent data request:

- JEA (submitted in 2009)

Received responses from 63.1% of all permitted drinking water in the county, with the following large facilities missing.

- JEA
- Town of Callahan
- Town of Hilliard

# Okaloosa County Summary



WASTEWATER SUMMARY

88,704 Parcels with Wastewater

25.2% / 29.2% / 0.3% / 12.3% / 8.6% / 24.5%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater

DRINKING WATER SUMMARY

89,206 Parcels with Drinking Water

32.1% / 0.0% / 0.5% / 0.8% / 3.0% / 63.6%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
- % Undermined Drinking Water
- % Unknown Drinking Water

Received responses from 74.1% of all permitted wastewater in the county, with the following large facilities missing:
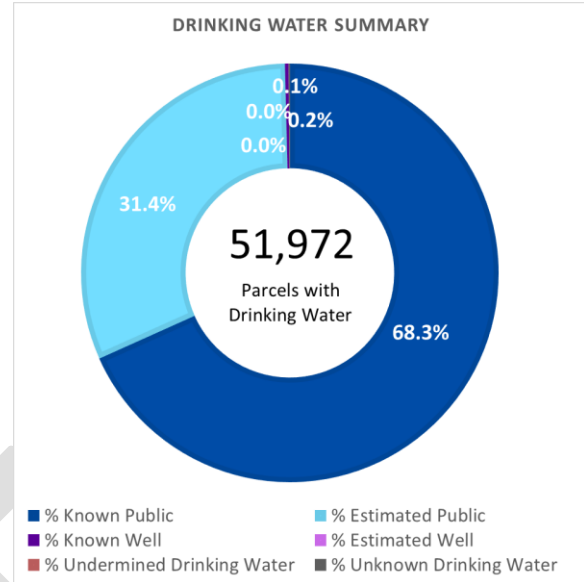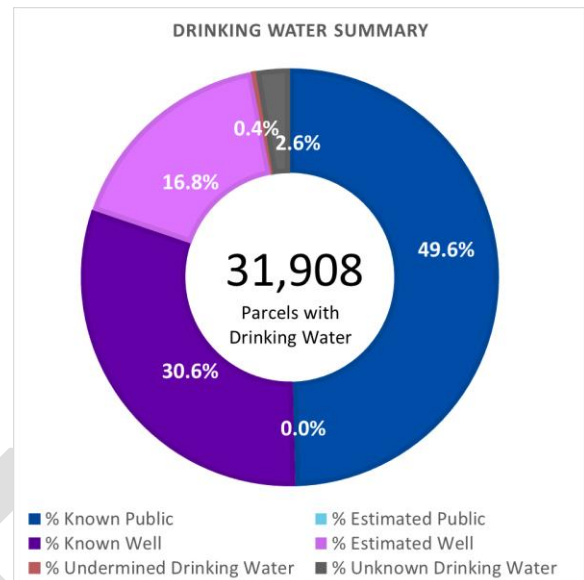
- City of Crestview
- Nv Regional WWTP

Received responses from 69.7% of all permitted drinking water in the county, with the following large facilities missing:

- Auburn Water System
- Blackman Community
- City of Crestview
- City of Laurel Hill
- City of Niceville
- FDOT
- Holt Water Works Inc
- Public Water30

# Okeechobee County Summary



**WASTEWATER SUMMARY**

15,721
Parcels with
Wastewater

1.7%
8.1%
9.5%
33.9%
46.5%
0.5%

■ % Known Sewer  ■ % Estimated Sewer
■ % Known Septic  ■ % Estimated Septic
■ % Undetermined Wastewater  ■ % Unknown Wastewater



**DRINKING WATER SUMMARY**

15,687
Parcels with
Drinking Water

11.1%
3.9%
19.7%
0.0%
8.2%
57.1%

■ % Known Public  ■ % Estimated Public
■ % Known Well  ■ % Estimated Well
■ % Undermined Drinking Water  ■ % Unknown Drinking Water

Received responses from 88.4% of all permitted wastewater in the county, with the following large facilities missing:
- Okeechobee Utility Authority
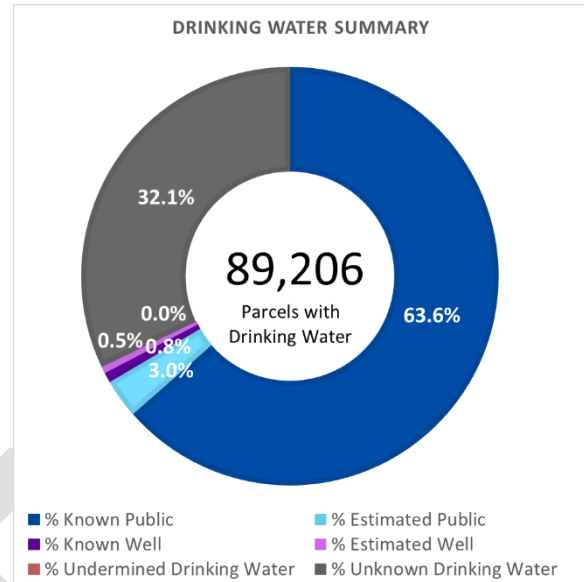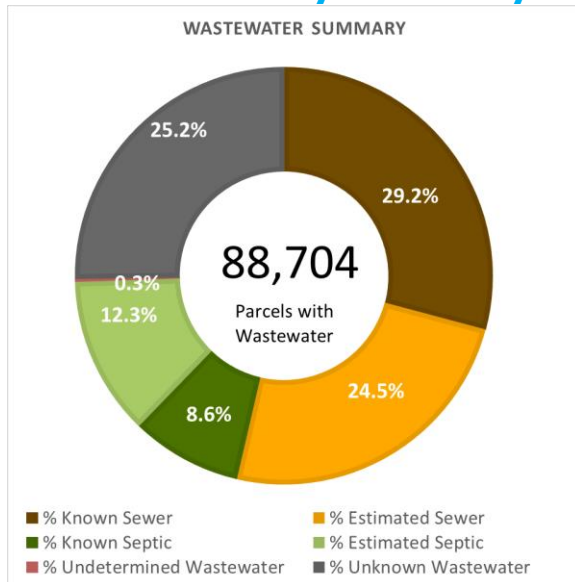
Received responses from 20.6% of all permitted drinking water in the county, with the following large facilities missing:
- Ancient Oaks RV Resort
- Okeechobee Utility Authority

# Orange County Summary



**WASTEWATER SUMMARY**

393,487 Parcels with Wastewater

4.4%
0.2%
17.4%
6.5%
4.1%
67.5%

■ % Known Sewer
■ % Estimated Sewer
■ % Known Septic
■ % Estimated Septic
■ % Undetermined Wastewater
■ % Unknown Wastewater



**DRINKING WATER SUMMARY**

394,462 Parcels with Drinking Water

11.2%
0.1%
1.2%
6.1%
0.6%
80.9%

■ % Known Public
■ % Estimated Public
■ % Known Well
■ % Estimated Well
■ % Undermined Drinking Water
■ % Unknown Drinking Water
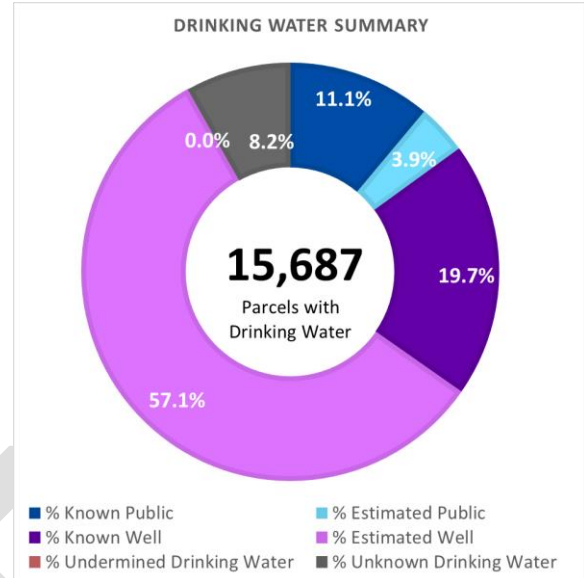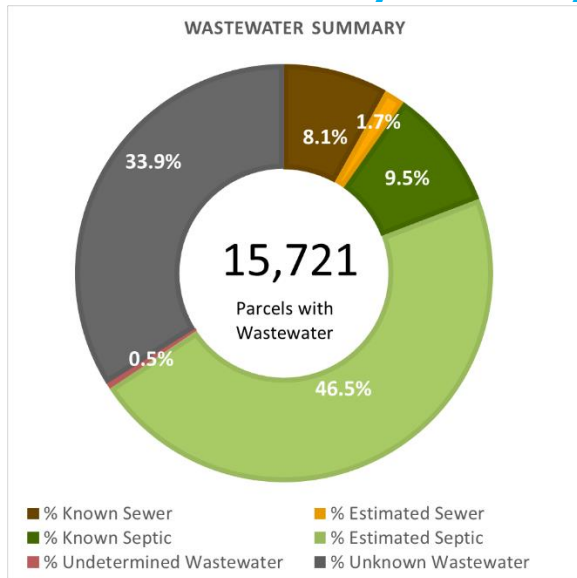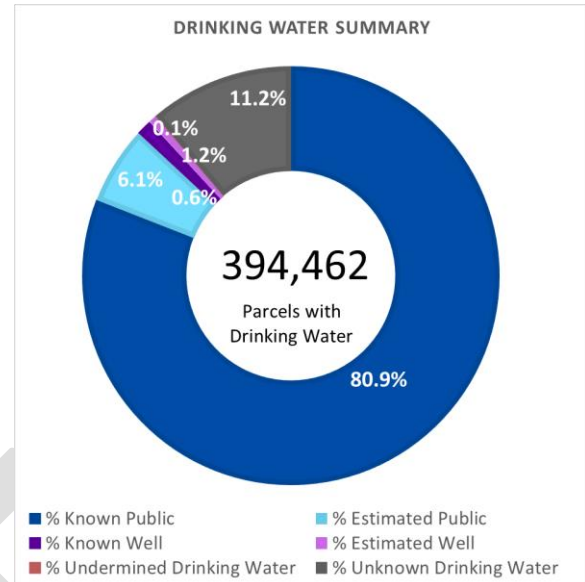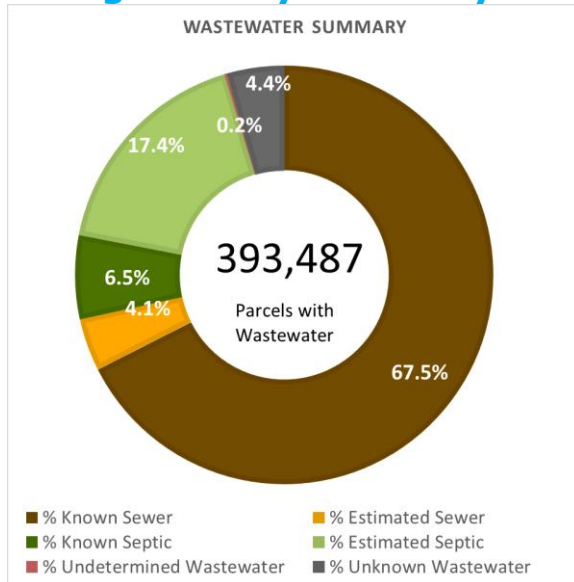
Received responses from 60.6% of all permitted wastewater in the county, with the following large facilities missing:

- Conserve II Distribution Center

Received responses from 98.4% of all permitted drinking water in the county, with the following large facilities missing:

- Biometric Utility Consultants Inc
- Central Florida Research Park
- Rock Springs MPH
- Silver Star Village
- Town of Eatonville
- UI Water
- US Water Corps

# Osceola County Summary

**WASTEWATER SUMMARY**



119,801
Parcels with
Wastewater

1.1%
0.0%
12.0%
4.9%
7.9%
74.1%

- ■ % Known Sewer
- ■ % Estimated Sewer
- ■ % Known Septic
- ■ % Estimated Septic
- ■ % Undetermined Wastewater
- ■ % Unknown Wastewater

**DRINKING WATER SUMMARY**



120,096
Parcels with
Drinking Water

12.8%
0.3%
3.2%
0.7% 2.3%
80.6%

- ■ % Known Public
- ■ % Estimated Public
- ■ % Known Well
- ■ % Estimated Well
- ■ % Undermined Drinking Water
- ■ % Unknown Drinking Water

Received responses from 98.4% of all permitted wastewater in the county, with no large facilities missing.

Received responses from 97.2% of all permitted drinking water in the county, with the following large facilities missing:

- Enterprise Cdd (Consecutive)

# Palm Beach County Summary



WASTEWATER SUMMARY

400,521
Parcels with Wastewater

0.9%
0.9%
6.8%
3.7%
9.1%
78.6%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater



DRINKING WATER SUMMARY

397,920
Parcels with Drinking Water

32.5%
0.0%
1.9%
0.5%
0.2%
64.9%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
- % Undermined Drinking Water
- % Unknown Drinking Water
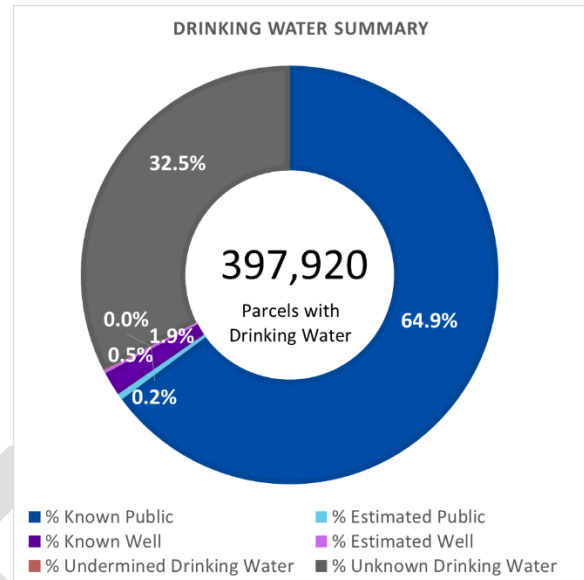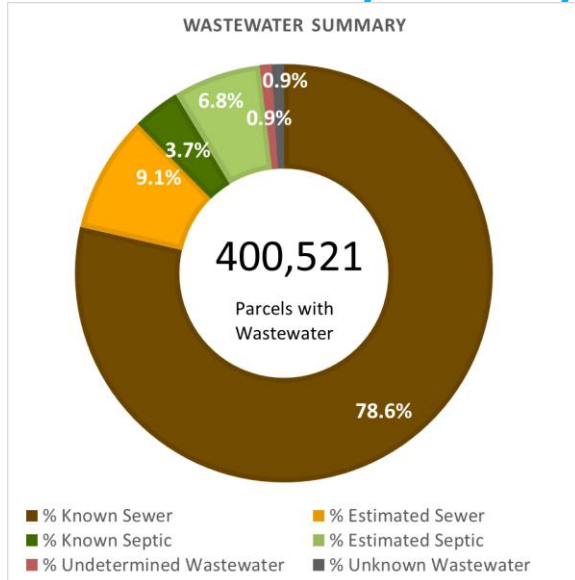
Using both data collected in 2009 and during 2014-2016, responses were received from 99.8% of all permitted wastewater in the county, with the following large facilities missing from the more recent data request:
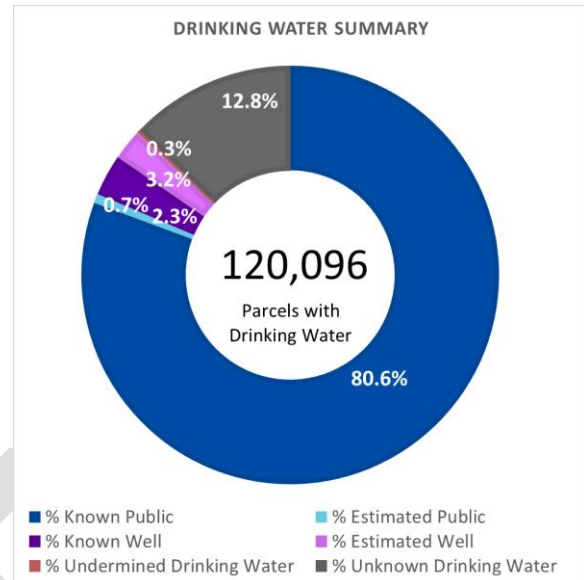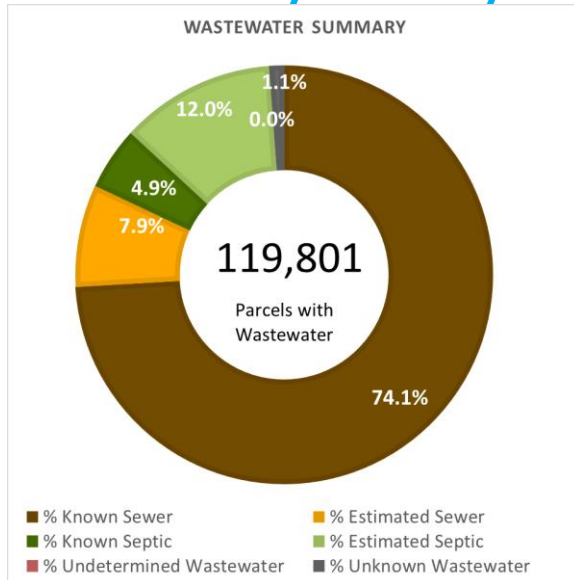
- City of Boca Raton (submitted in 2009)
- South Central Regional WWTP (submitted in 2009)

Received responses from 71.7% of all permitted drinking water in the county, with the following large facilities missing:

- Boynton Beach WTP
- City of Atlantis
- City of Boca Raton
- Delray Beach Water Department
- Golf Village of
- Gulfstream Town of
- Highland Beach Water Plant
- Lake Worth Utilities
- Manalapan WTP (Leroy C. Paslay)
- Mangonia Park Town of
- Palm Lake Estates
- Palm Springs Village of
- Tropical Breeze Estates
- US Water Corp

# Pasco County Summary

**WASTEWATER SUMMARY**



209,663
Parcels with
Wastewater

3.1% / 0.1% / 4.7% / 40.2% / 7.7% / 44.2%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater

**DRINKING WATER SUMMARY**



209,052
Parcels with
Drinking Water

9.0% / 30.1% / 1.3% / 7.3% / 4.7% / 47.6%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
- % Undermined Drinking Water
- % Unknown Drinking Water
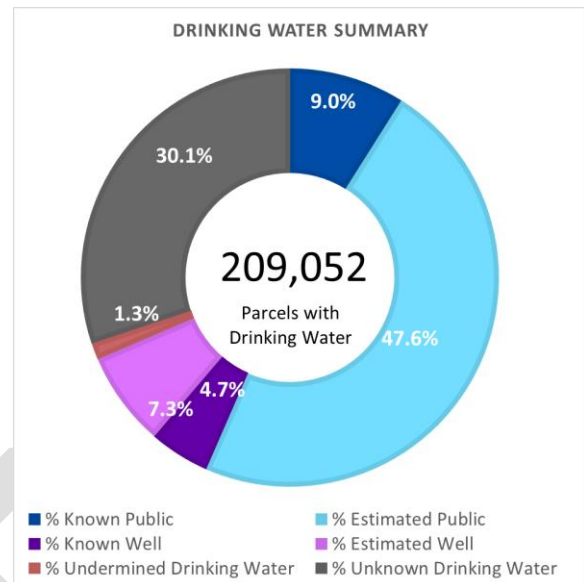
Received responses from 87.0 % of all permitted wastewater in the county, with the following large facilities missing:

- City of Zephyrhills
- US Water Corp
- Wesley Center Subregional WWTF

Received responses from 62.6% of all permitted drinking water in the county, with the following large facilities missing:

- Aqua Utilites
- Baker Acres RV Ranch
- City of San Antonio
- City of Zephryrhills
- Country Aire Village
- Dade City Water Dept
- Gardens Utilities
- Lakewood Villas Inc
- New Port Richey Water Dept
- Settlers Rest RV Park
- UI Water
- US Water Corp

# Pinellas County Summary

**WASTEWATER SUMMARY**

3.1%
3.0%
0.6%
0.0%
11.2%

**417,669**

Parcels with
Wastewater

82.2%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater

**DRINKING WATER SUMMARY**

16.1%
0.0%
0.0%
0.2%

**414,778**

Parcels with
Drinking Water

57.7%

25.8%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
- % Undermined Drinking Water
- % Unknown Drinking Water
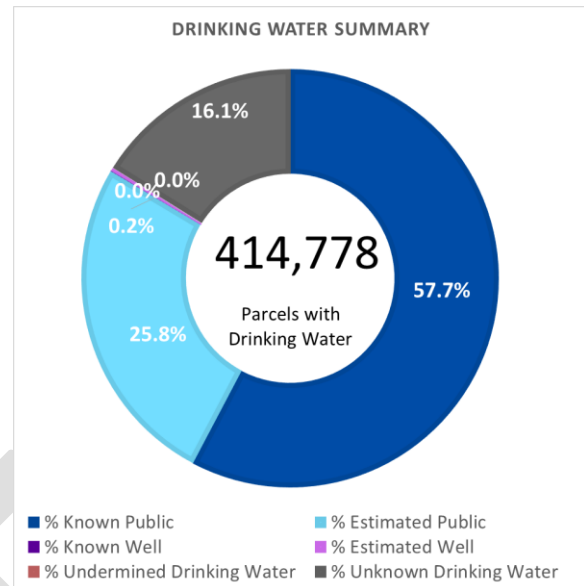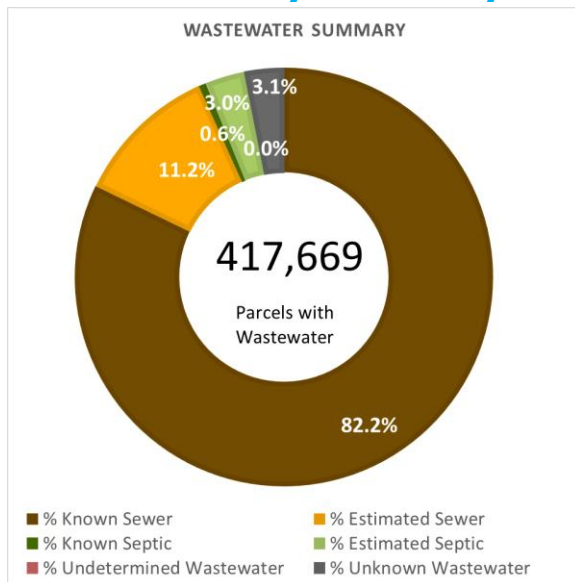
Received responses from 99.8% of all permitted wastewater in the county, with no large facilities missing.

Received responses from 99.9% of all permitted drinking water in the county, with the following large facilities missing:

- UI Water

# Polk County Summary



WASTEWATER SUMMARY

232,219 Parcels with Wastewater

6.2% — 0.0% — 29.4% — 4.6% — 11.8% — 48.0%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater



DRINKING WATER SUMMARY

231,679 Parcels with Drinking Water

48.4% — 40.3% — 0.8% — 4.3% — 6.0% — 0.1%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
- % Undermined Drinking Water
- % Unknown Drinking Water

Using both data collected in 2009 and during 2014-2016, responses were received from 84.0% of all permitted wastewater in the county, with the following large facilities missing from the more recent data request:

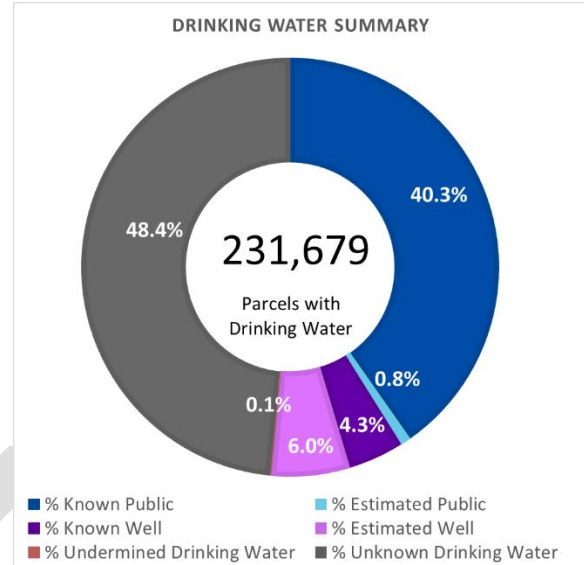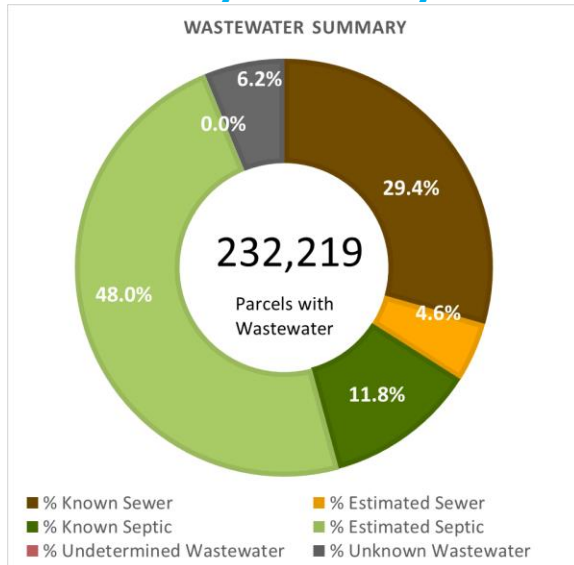- City of Auburndale (submitted in 2009)
- City of Haines City
- City of Lake Wales
- Polk County Utilities (submitted in 2009)
- Southwest Regional WWTP (submitted in 2009)

Received responses from 50.8% of all permitted drinking water in the county, with the following large facilities missing:

- Camp Inn Resorts
- Carefree RV Subdivision
- City of Auburndale
- City of Davenport
- City of Eagle Lake
- City of Frostproof
- City of Haines City
- City of Lake Wales
- City of Mulberry
- Deer Creek RV Golf & Country Club
- Florida Camp Inn
- Florida's Natural Growers
- Four Lakes Golf Club
- Gcp Plantation Landing
- Gold Coast Utility
- Lake Region Mobile Home Village
- Mosaic Fertilizer
- Mouse Mountain RV & Mobile Home Resort
- Outdoor Resorts
- Park Water Company
- Polk County Utilities
- Rainbow RV Resort
- Saddlebag Lake Resort
- Sunrise Utilities
- Town of Dundee
- Town of Lake Hamilton
- UI Water
- US Water Corp
- Utility Message
- Wg Resorts
- Woodard Curran

# Putnam County Summary

WASTEWATER SUMMARY

4.2%
2.0%
0.0%
1.4%
16.9%

35,423
Parcels with
Wastewater

75.4%

- ■ % Known Sewer
- ■ % Estimated Sewer
- ■ % Known Septic
- ■ % Estimated Septic
- ■ % Undetermined Wastewater
- ■ % Unknown Wastewater

DRINKING WATER SUMMARY

3.1%
23.5%
0.4%
17.9%
0.3%

35,469
Parcels with
Drinking Water

54.7%

- ■ % Known Public
- ■ % Estimated Public
- ■ % Known Well
- ■ % Estimated Well
- ■ % Undermined Drinking Water
- ■ % Unknown Drinking Water

Received responses from 19.3% of all permitted wastewater in the county, with the following large facilities missing:

- City of Palatka

Received responses from 29.4% of all permitted drinking water in the county, with the following large facilities missing:
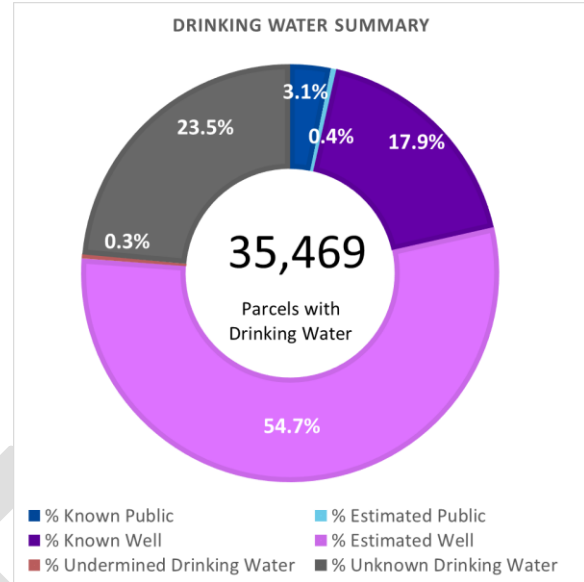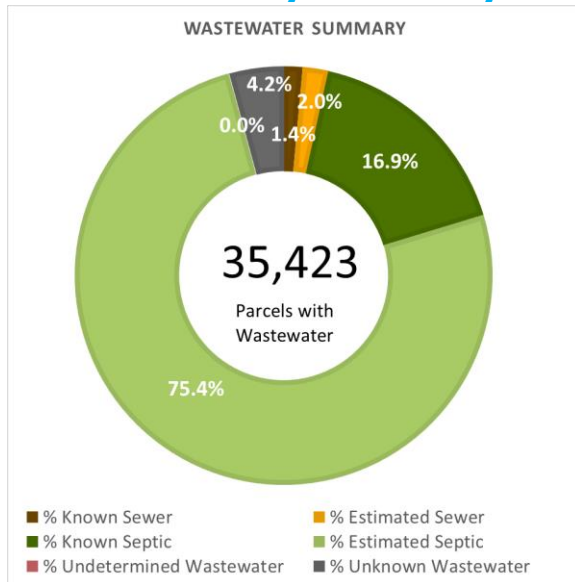
- City of Crescent City
- City of Palataka
- Interlachen WTP
- Port Buena Vista
- Town of Welaka
- US Water Corp

# Santa Rosa County Summary

**WASTEWATER SUMMARY**



5.3%
0.1%
31.1%
43.2%
15.2%
5.2%

**68,827**
Parcels with
Wastewater

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater

**DRINKING WATER SUMMARY**



32.6%
0.0%
1.1% 0.1%
0.1%
66.2%

**69,344**
Parcels with
Drinking Water

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
- % Undermined Drinking Water
- % Unknown Drinking Water
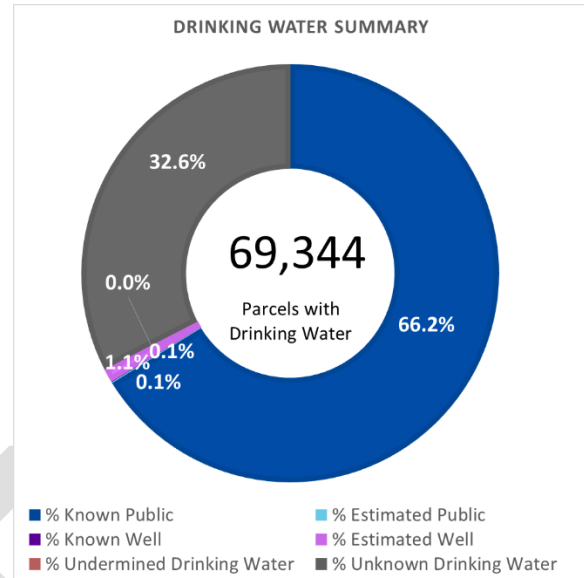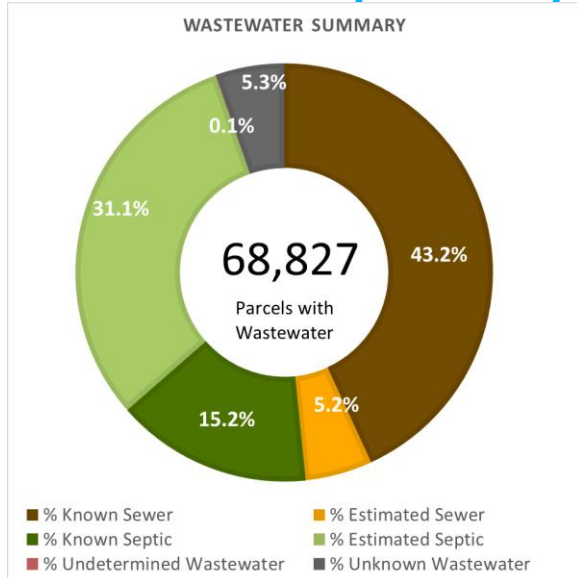
Using both data collected in 2009 and during 2014-2016, responses were received from 98.8% of all permitted wastewater in the county, with the following large facilities missing from the more recent data request:

- Holley-Navarre (submitted in 2009)

Received responses from 73.5% of all permitted drinking water in the county, with the following large facilities missing:

- Holley-Navarre

# Sarasota County Summary

**WASTEWATER SUMMARY**



217,107
Parcels with Wastewater

7.3% | 0.1% | 16.0% | 2.1% | 12.6% | 62.0%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater

**DRINKING WATER SUMMARY**



218,239
Parcels with Drinking Water

5.9% | 0.2% | 10.6% | 1.4% | 11.8% | 70.0%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
- % Undermined Drinking Water
- % Unknown Drinking Water

Using both data collected in 2009 and during 2014-2016, responses were received from 86.2% of all permitted wastewater in the county, with the following large facilities missing from the more recent data request:

- Fruitville Wastewater Treatment Facility
- Siesta Key Utilities Authority (submitted in 2009)

Received responses from 94.6% of all permitted drinking water in the county, with the following large facilities missing:

- Kings Gate Club
- Plurisusa

# Seminole County Summary

**WASTEWATER SUMMARY**



152,704
Parcels with
Wastewater

2.5%
0.4%
11.5%
6.6%
23.0%
56.0%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater

**DRINKING WATER SUMMARY**



152,594
Parcels with
Drinking Water

41.6%
51.1%
0.1%
4.4%
2.2%
0.6%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
- % Undermined Drinking Water
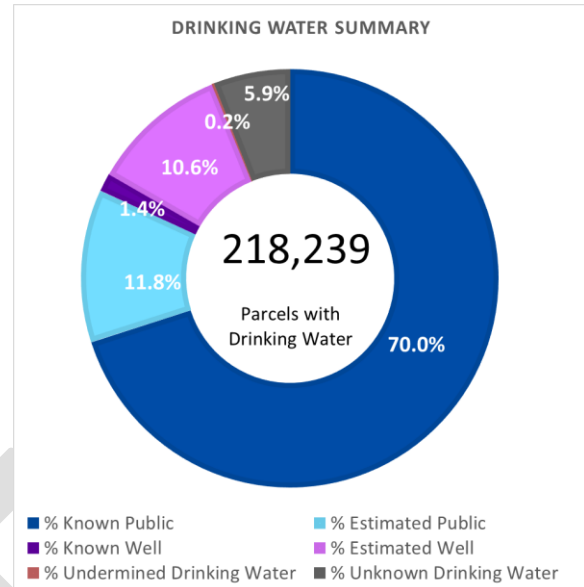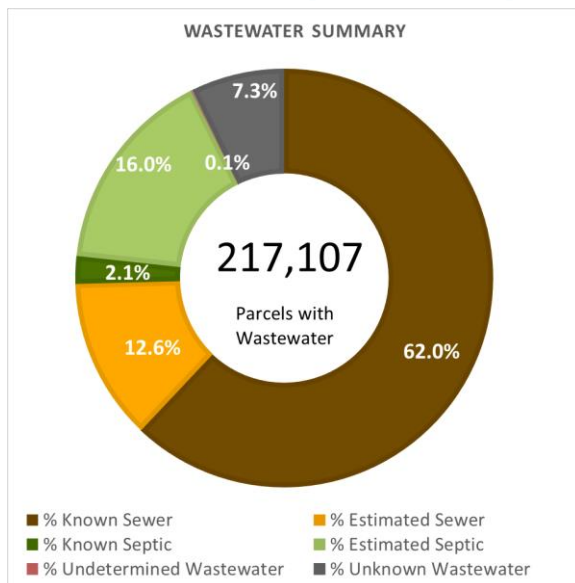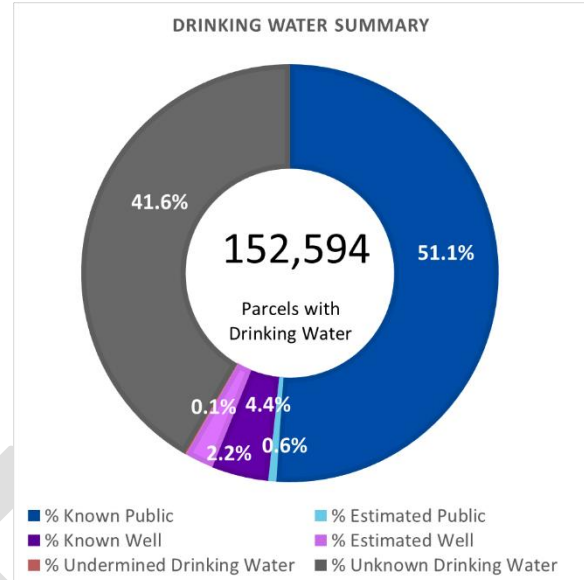- % Unknown Drinking Water
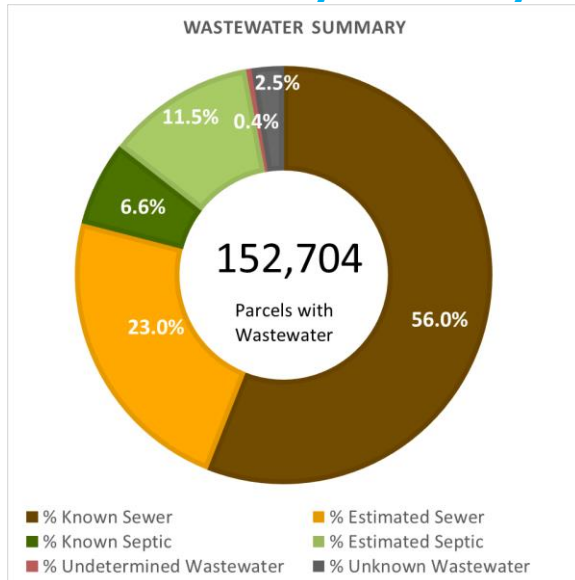
Using both data collected in 2009 and during 2014-2016, responses were received from 93.3% of all permitted wastewater in the county, with the following large facilities missing from the more recent data request:

- City of Castleberry (submitted in 2009)
- UI Water (submitted in 2009)
- Winter Springs

Received responses from 61.1% of all permitted drinking water in the county, with the following large facilities missing:

- City of Castleberry
- City of Lake Mary
- City of Longwood
- City of Winter Springs
- Lake Harney Water Association
- Mullet Lake Water Association
- Midway Canaan Water Association
- Palm Valley MHP
- Seminole County School Board
- Seminole Woods
- UI Water
- US Water Corp

# St. Johns County Summary
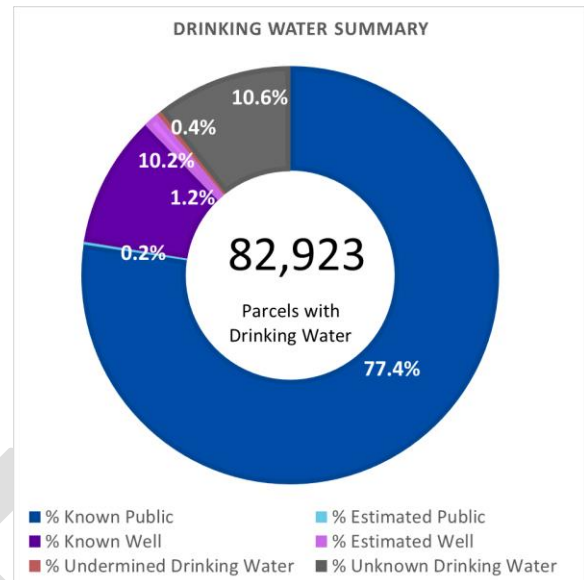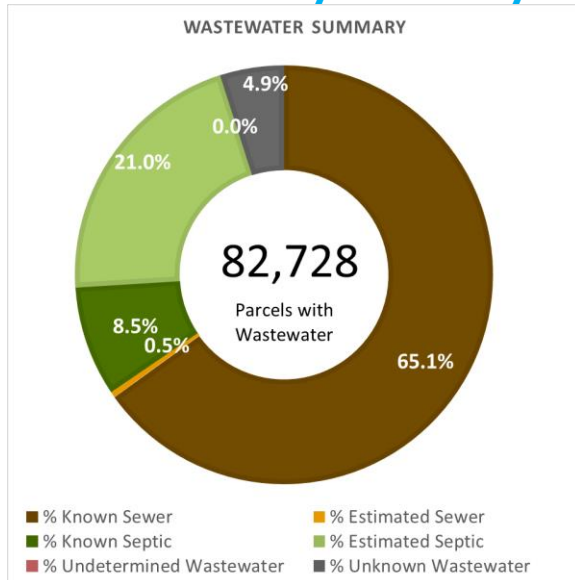
**WASTEWATER SUMMARY**

4.9%
0.0%
21.0%
82,728
Parcels with
Wastewater
8.5%
0.5%
65.1%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater

**DRINKING WATER SUMMARY**

10.6%
0.4%
10.2%
1.2%
0.2%
82,923
Parcels with
Drinking Water
77.4%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
- % Undermined Drinking Water
- % Unknown Drinking Water

Received responses from 100.0% of all permitted wastewater in the county, with no large facilities missing.

Received responses from 99.9% of all permitted drinking water in the county, with no large facilities missing.

# St. Lucie County Summary



WASTEWATER SUMMARY

107,587
Parcels with
Wastewater

1.5%
6.8%
0.9%
25.1%
5.2%
60.5%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater



DRINKING WATER SUMMARY

107,926
Parcels with
Drinking Water

24.4%
5.9%
5.5%
0.2%
1.0%
63.0%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
- % Undermined Drinking Water
- % Unknown Drinking Water
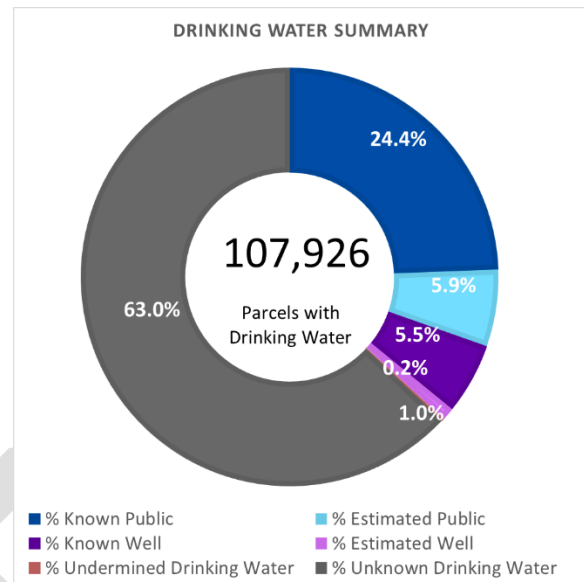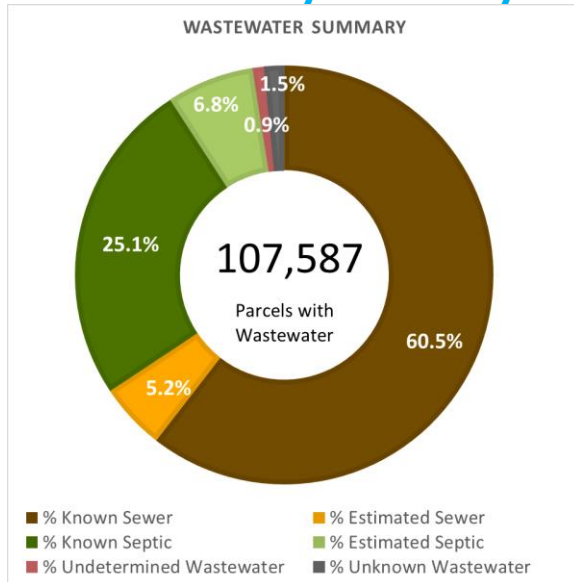
Received responses from 92.1% of all permitted wastewater in the county, with the following large facilities missing:

- SLCU

Received responses from 93.8% of all permitted drinking water in the county, with the following large facilities missing:

- Meadowood Community Association
- Pat Walsh Walsh Environmental
- Reserve Utilities
- SLCU

# Sumter County Summary



**WASTEWATER SUMMARY**

64,401 Parcels with Wastewater

5.0% · 0.0% · 14.3% · 4.8% · 21.8% · 54.0%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater



**DRINKING WATER SUMMARY**

64,453 Parcels with Drinking Water

14.7% · 0.1% · 6.8% · 3.1% · 20.9% · 54.4%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
- % Undermined Drinking Water
- % Unknown Drinking Water

Using both data collected in 2009 and during 2014-2016, responses were received from 94.1% of all permitted wastewater in the county, with the following large facilities missing from the more recent data request:

- City of Wildwood (submitted in 2009)

Received responses from 78.6% of all permitted drinking water in the county, with the following large facilities missing:

- City of Bushnell
- City of Center Hill
- City of Webster City
- City of Wildwood
- General Utilities
- Lake Panasoffkee Water Association

# Suwannee County Summary



**WASTEWATER SUMMARY**

16.7%  1.7%
0.3%
16.4%
0.0%

**15,899**
Parcels with
Wastewater

65.0%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater



**DRINKING WATER SUMMARY**

1.3%
25.9%  1.7%
15.4%

**15,913**
Parcels with
Drinking Water

1.5%

54.3%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
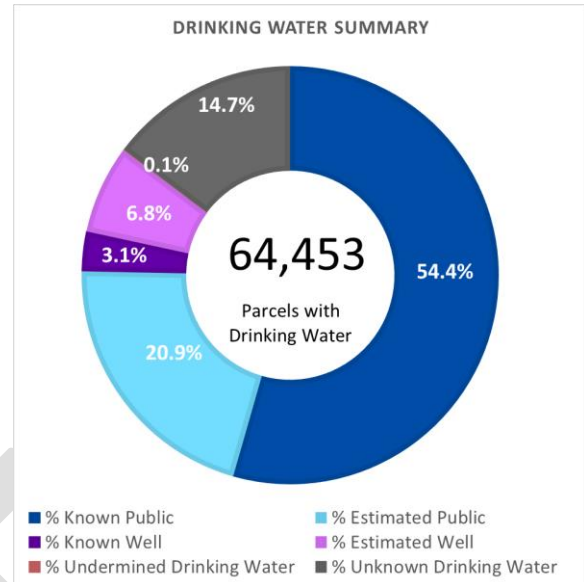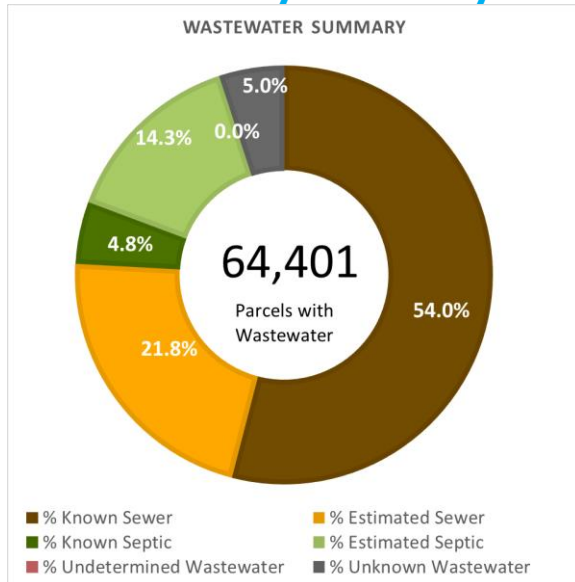- % Undermined Drinking Water
- % Unknown Drinking Water
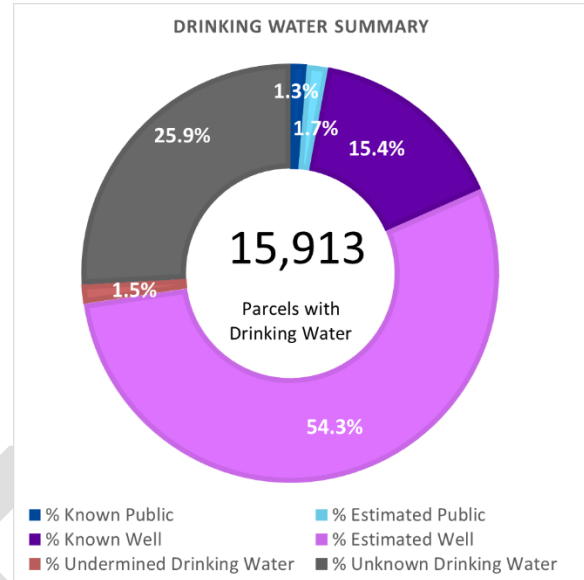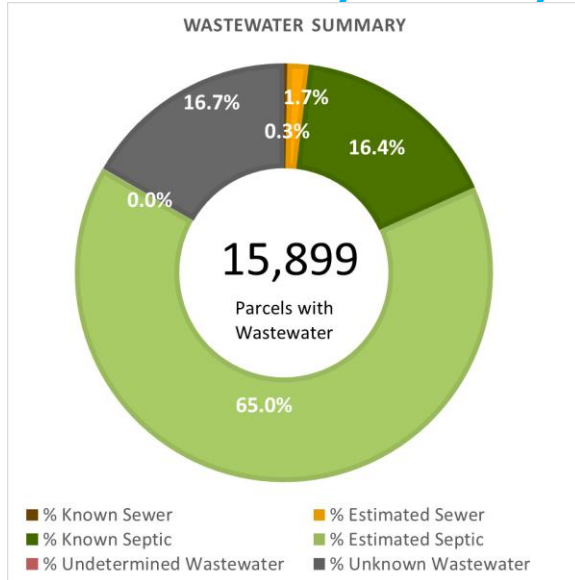
Received responses from 16.8% of all permitted wastewater in the county, with the following large facilities missing:

- City of Live Oak

Received responses from 9.3% of all permitted drinking water in the county, with the following large facilities missing:

- City of Live Oak
- Daryl Ball
- Pilgrims Pride WTP
- Town of Branford

# Taylor County Summary



**WASTEWATER SUMMARY**

10,100
Parcels with
Wastewater

4.5%
0.0%
7.9%
0.1%
7.5%
80.0%

- ■ % Known Sewer
- ■ % Known Septic
- ■ % Undetermined Wastewater
- ■ % Estimated Sewer
- ■ % Estimated Septic
- ■ % Unknown Wastewater



**DRINKING WATER SUMMARY**

10,117
Parcels with
Drinking Water

17.7%
0.6%
5.7%
41.7%
0.2%
34.0%

- ■ % Known Public
- ■ % Known Well
- ■ % Undermined Drinking Water
- ■ % Estimated Public
- ■ % Estimated Well
- ■ % Unknown Drinking Water

Received responses from 27.8% of all permitted wastewater in the county, with the following large facilities missing:

- City of Perry

Received responses from 36.8% of all permitted drinking water in the county, with the following large facilities missing:

- Perry Water System

# Union County Summary



WASTEWATER SUMMARY

3,760
Parcels with
Wastewater

14.4%  0.5%
0.0%  8.4%
0.0%
76.6%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater



DRINKING WATER SUMMARY

3,758
Parcels with
Drinking Water

1.7%
0.6%
10.0%
39.6%
48.1%
0.1%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
- % Undermined Drinking Water
- % Unknown Drinking Water

Received responses from 0.0% of all permitted wastewater in the county, with no large facilities missing.
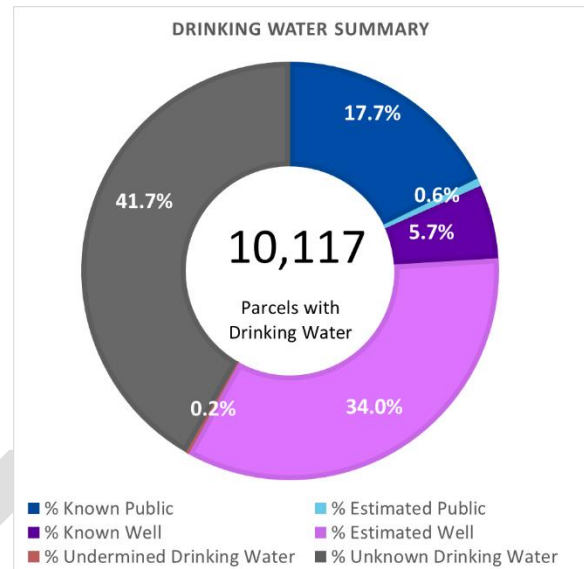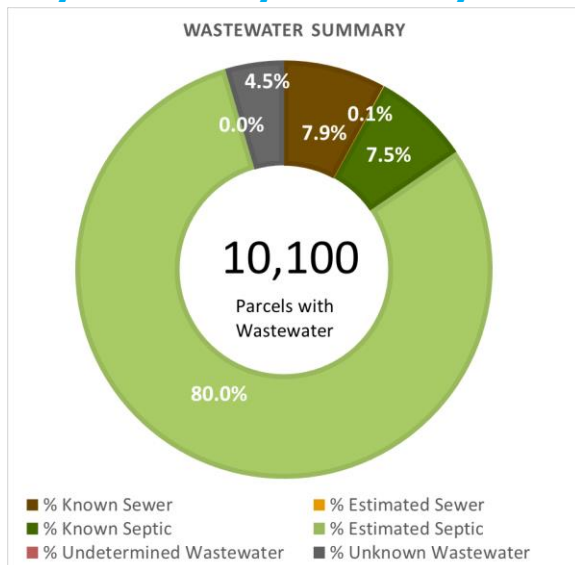
Received responses from 40.8% of all permitted drinking water in the county, with the following large facilities missing:

- Reception and Medical Center

# Volusia County Summary

**WASTEWATER SUMMARY**

221,844 Parcels with Wastewater

- 7.1%
- 0.4%
- 34.0%
- 32.4%
- 12.2%
- 13.9%

- ■ % Known Sewer
- ■ % Estimated Sewer
- ■ % Known Septic
- ■ % Estimated Septic
- ■ % Undetermined Wastewater
- ■ % Unknown Wastewater

**DRINKING WATER SUMMARY**

222,515 Parcels with Drinking Water

- 23.9%
- 0.5%
- 0.4%
- 10.9%
- 6.1%
- 58.2%

- ■ % Known Public
- ■ % Estimated Public
- ■ % Known Well
- ■ % Estimated Well
- ■ % Undermined Drinking Water
- ■ % Unknown Drinking Water

Received responses from 82.1% of all permitted wastewater in the county, with the following large facilities missing:

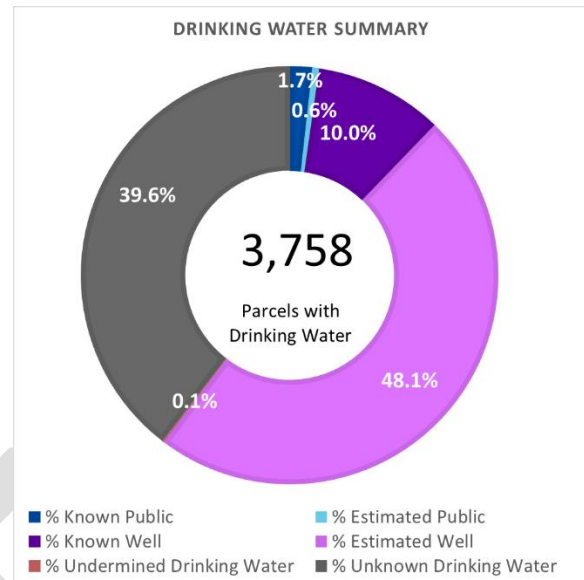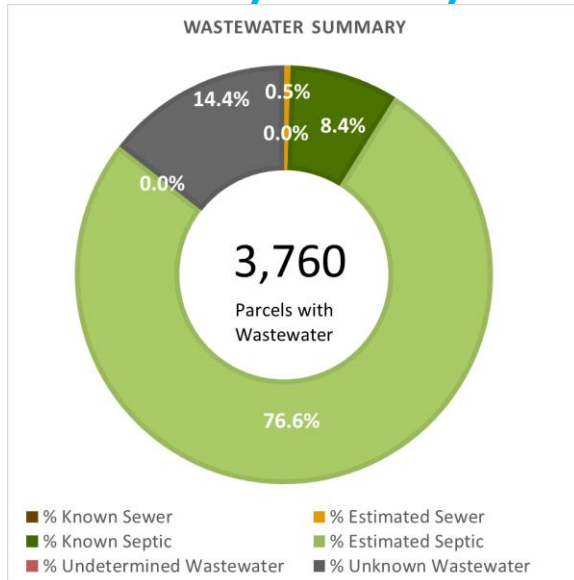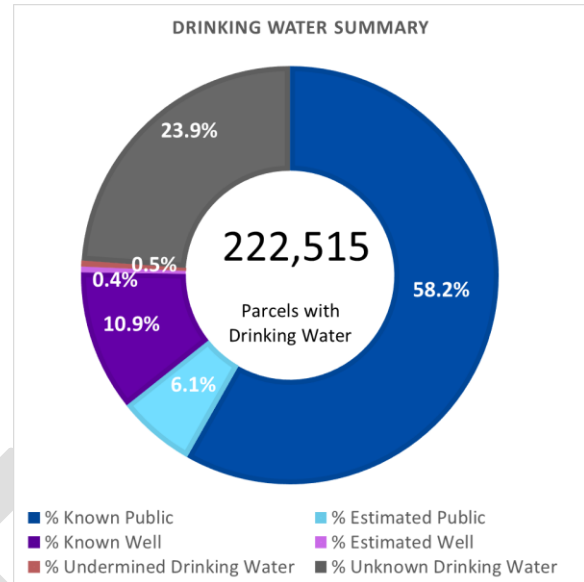- City of Holly Hill
- Deland/ Wiley M. Nash Water Reclamation Facility
- Deltona Lakes

Received responses from 77.5% of all permitted drinking water in the county, with the following large facilities missing:

- City of Deltona
- City of Holly Hill
- City of Lake Helen
- Hestor Park/ Malloy School
- Kove Estates
- Lake Beresford
- Orange City Utilities
- Town of Pierson

# Wakulla County Summary



WASTEWATER SUMMARY

12,760 Parcels with Wastewater

2.9%
0.5%
18.6%
0.3%
51.4%
26.2%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater



DRINKING WATER SUMMARY

12,977 Parcels with Drinking Water

5.5%
0.9%
44.7%
40.2%
8.4%
0.2%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
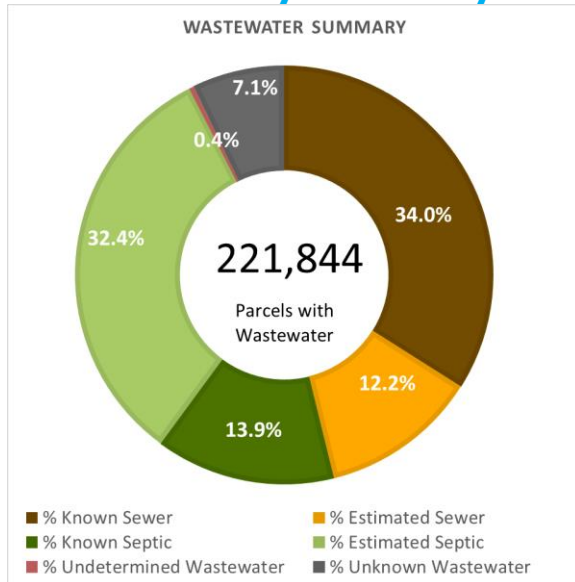- % Undermined Drinking Water
- % Unknown Drinking Water

Received responses from 98.0% of all permitted wastewater in the county, with no large facilities missing.

Received responses from 72.2% of all permitted drinking water in the county, with the following large facilities missing:
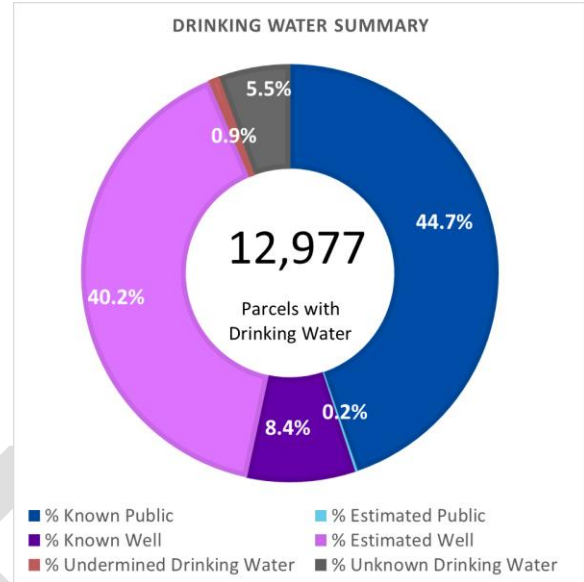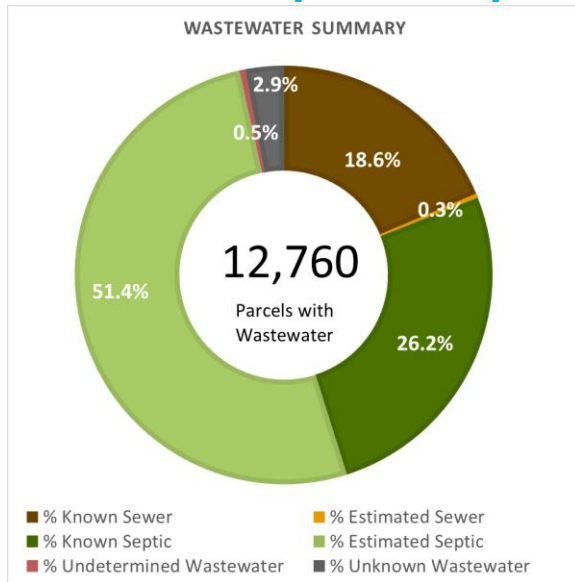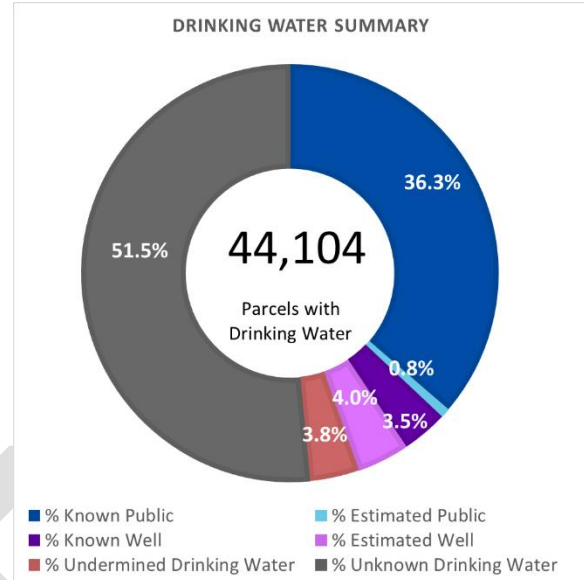
- Talquin Electric Group

# Walton County Summary



WASTEWATER SUMMARY

44,076 Parcels with Wastewater

15.2% | 30.9% | 3.8% | 0.3% | 7.1% | 42.8%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater



DRINKING WATER SUMMARY

44,104 Parcels with Drinking Water

36.3% | 51.5% | 0.8% | 4.0% | 3.5% | 3.8%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
- % Undermined Drinking Water
- % Unknown Drinking Water

Using both data collected in 2009 and during 2014-2016, responses were received from 38.4% of all permitted wastewater in the county, with the following large facilities missing from the more recent data request:

- City of Defuniak Springs (submitted in 2009)
- Dewey Wilson
- Regional Utilities Water System

Received responses from 44.2% of all permitted drinking water in the county, with the following large facilities missing:

- City of Freeport
- Regional Utilities Water System
- Robert Barley
- Town of Mossy Head

# Washington County Summary



WASTEWATER SUMMARY

44,076
Parcels with Wastewater

15.2%
3.8%
30.9%
0.3%
7.1%
42.8%

- % Known Sewer
- % Estimated Sewer
- % Known Septic
- % Estimated Septic
- % Undetermined Wastewater
- % Unknown Wastewater



DRINKING WATER SUMMARY

44,104
Parcels with Drinking Water

36.3%
51.5%
0.8%
4.0%
3.5%
3.8%

- % Known Public
- % Estimated Public
- % Known Well
- % Estimated Well
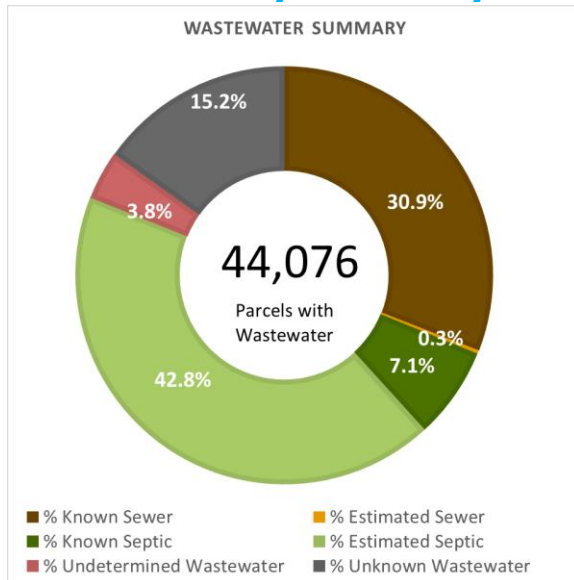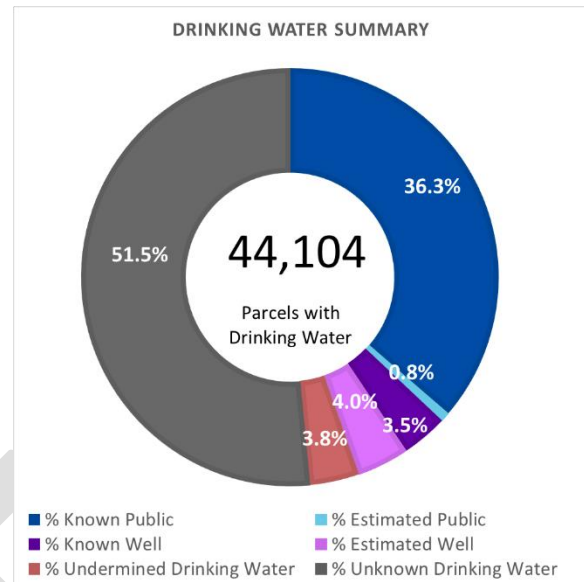- % Undermined Drinking Water
- % Unknown Drinking Water
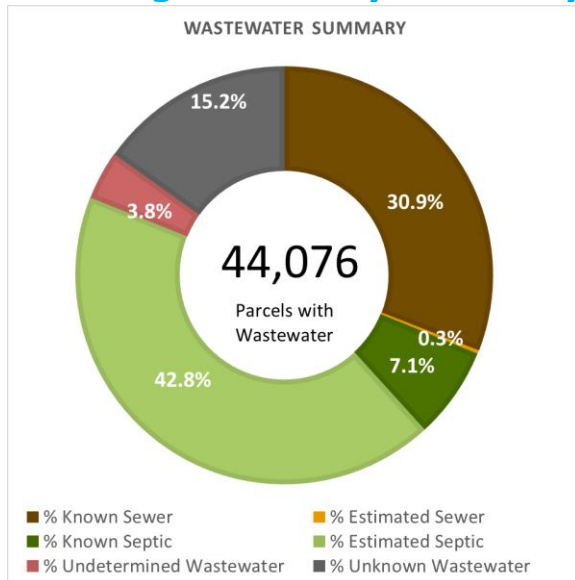
Received responses from 86.9% of all permitted wastewater in the county, with no large facilities missing.

Received responses from 67.2% of all permitted drinking water in the county, with the following large facilities missing:

- City of Vernon
- Town of Wausau
- US Water Corp
- Washington County Kennel Club

# APPENDIX C – WASTEWATER RESULTS BY COUNTY

| County | Cumulative Total Onsite Wastewater From Census Data | Total Parcels | Total Parcels with Wastewater Determination | Wastewater Not Applicable | # Known Sewer | # Estimated Sewer | # Known Onsite Wastewater | # Estimated Onsite Wastewater | Wastewater Conflicting Data | Wastewater No Data | Total Parcels Wastewater Not Estimated |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Alachua | 41,434 | 101,050 | 82,976 | 18,074 | 52,092 | 307 | 6,195 | 21,492 | 945 | 1,945 | 2,890 |
| Baker | 7,844 | 12,145 | 8,726 | 3,419 | 1,538 | 480 | 1,064 | 5,035 | 4 | 605 | 609 |
| Bay | 36,482 | 114,279 | 90,587 | 23,692 | 28,608 | 13,881 | 6,539 | 34,302 | 169 | 7,088 | 7,257 |
| Bradford | 10,500 | 15,038 | 9,897 | 5,141 | 1,371 | 750 | 1,106 | 5,965 | 44 | 661 | 705 |
| Brevard | 91,641 | 287,810 | 214,094 | 73,716 | 106,919 | 10,878 | 35,687 | 55,993 | 181 | 4,436 | 4,617 |
| Broward | 107,384 | 750,826 | 719,659 | 31,167 | 431,038 | 49,666 | 8,528 | 42,951 | 390 | 187,086 | 187,476 |
| Calhoun | 5,609 | 10,735 | 5,201 | 5,534 | 943 | 841 | 860 | 2,159 | 5 | 393 | 398 |
| Charlotte | 43,243 | 213,318 | 98,672 | 114,646 | 43,239 | 7,946 | 10,639 | 30,308 | 652 | 5,888 | 6,540 |
| Citrus | 60,151 | 146,274 | 75,243 | 71,031 | 30,177 | 13 | 17,697 | 23,775 | 2,811 | 770 | 3,581 |
| Clay | 31,923 | 88,847 | 73,703 | 15,144 | 44,652 | 2,250 | 6,932 | 13,676 | 28 | 6,165 | 6,193 |
| Collier | 44,832 | 265,746 | 199,688 | 66,058 | 122,858 | 1,973 | 8,391 | 19,168 | 3 | 47,295 | 47,298 |
| Columbia | 25,125 | 36,307 | 24,331 | 11,976 | 4,695 | 414 | 3,618 | 14,487 | 4 | 1,113 | 1,117 |
| Dade | 215,793 | 561,672 | 515,594 | 46,078 | 297,346 | 96,424 | 15,440 | 93,411 | 76 | 12,897 | 12,973 |
| DeSoto | 10,594 | 19,437 | 10,939 | 8,498 | 463 | 26 | 1,706 | 1,559 | - | 7,185 | 7,185 |
| Dixie | 7,764 | 16,203 | 8,260 | 7,943 | 3 | 7 | 734 | 6,522 | 2 | 992 | 994 |
| Duval | 92,394 | 358,135 | 328,567 | 29,568 | 215,039 | 20,093 | 8,792 | 73,051 | 7,261 | 4,331 | 11,592 |
| Escambia | 70,012 | 150,972 | 121,170 | 29,802 | 68,559 | 24,268 | 13,001 | 13,175 | 1,349 | 818 | 2,167 |
| Flagler | 6,105 | 77,605 | 49,256 | 28,349 | 44,342 | 26 | 1,503 | 2,315 | 2 | 1,068 | 1,070 |
| Franklin | 5,431 | 17,701 | 8,598 | 9,103 | 151 | 729 | 853 | 4,039 | - | 2,826 | 2,826 |
| Gadsden | 17,297 | 27,179 | 17,039 | 10,140 | 2,081 | 311 | 2,985 | 8,420 | 2 | 3,240 | 3,242 |
| Gilchrist | 8,021 | 13,481 | 6,942 | 6,539 | 634 | 7 | 1,992 | 3,938 | 1 | 370 | 371 |
| Glades | 5,211 | 11,229 | 5,153 | 6,076 | 28 | 1 | 343 | 4,547 | - | 234 | 234 |
| Gulf | 6,919 | 33,880 | 9,349 | 7,591 | 4,559 | 193 | 1,307 | 2,919 | 53 | 318 | 371 |
| Hamilton | 4,188 | 12,870 | 4,663 | 8,207 | 554 | 1,205 | 466 | 2,148 | 1 | 289 | 290 |
| Hardee | 8,915 | 14,357 | 8,871 | 5,486 | 3,076 | 2 | 1,092 | 4,220 | - | 481 | 481 |
| Hendry | 10,553 | 35,418 | 13,081 | 22,337 | 3,578 | 19 | 1,876 | 6,959 | - | 649 | 649 |
| Hernando | 55,378 | 115,518 | 82,722 | 32,796 | 33,987 | 2,176 | 16,590 | 27,818 | 14 | 2,137 | 2,151 |
| Highlands | 36,731 | 226,496 | 47,576 | 65,672 | 10,271 | 391 | 6,547 | 25,499 | 16 | 4,852 | 4,868 |
| Hillsborough | 109,029 | 115,518 | 82,722 | 32,796 | 33,987 | 2,176 | 16,590 | 27,818 | 14 | 2,137 | 2,151 |

| County | Cumulative Total Onsite Wastewater From Census Data | Total Parcels | Total Parcels with Wastewater Determination | Wastewater Not Applicable | # Known Sewer | # Estimated Sewer | # Known Onsite Wastewater | # Estimated Onsite Wastewater | Wastewater Conflicting Data | Wastewater No Data | Total Parcels Wastewater Not Estimated |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Holmes** | 9,359 | 13,034 | 6,908 | 6,126 | 72 | 169 | 973 | 4,977 | - | 717 | 717 |
| **Indian River** | 37,152 | 76,371 | 57,476 | 18,895 | 25,923 | 45 | 30,457 | 117 | 2 | 932 | 934 |
| **Jackson** | 17,978 | 38,333 | 17,709 | 20,624 | 667 | 285 | 2,551 | 11,911 | 3 | 2,292 | 2,295 |
| **Jefferson** | 5,482 | 11,883 | 5,965 | 5,918 | 4 | 21 | 723 | 4,786 | 2 | 429 | 431 |
| **Lafayette** | 3,377 | 6,820 | 2,915 | 3,905 | 391 | 6 | 328 | 1,840 | 1 | 349 | 350 |
| **Lake** | 77,701 | 173,576 | 133,737 | 39,839 | 31,422 | 26,376 | 22,902 | 45,785 | 249 | 7,003 | 7,252 |
| **Lee** | 131,941 | 442,667 | 271,176 | 171,491 | 158,996 | 4,972 | 33,857 | 63,575 | 596 | 9,180 | 9,776 |
| **Leon** | 39,608 | 108,249 | 94,000 | 14,249 | 58,008 | 4,107 | 23,159 | 8,726 | - | - | - |
| **Levy** | 23,041 | 47,265 | 20,510 | 26,755 | 50 | 910 | 3,418 | 14,914 | 4 | 1,214 | 1,218 |
| **Liberty** | 3,112 | 5,621 | 2,657 | 2,964 | 2 | 1 | 212 | 2,082 | - | 360 | 360 |
| **Madison** | 7,708 | 15,757 | 7,206 | 8,551 | 1,026 | 8 | 718 | 4,885 | 2 | 567 | 569 |
| **Manatee** | 36,673 | 133,421 | 119,981 | 13,440 | 65,888 | 1,104 | 2,948 | 42,883 | 3 | 7,155 | 7,158 |
| **Marion** | 121,950 | 266,408 | 150,115 | 116,293 | 36,695 | 575 | 90,525 | 15,160 | 162 | 6,998 | 7,160 |
| **Martin** | 28,687 | 78,434 | 58,859 | 19,575 | 23,895 | 4,306 | 16,172 | 13,674 | 148 | 664 | 812 |
| **Monroe** | 25,804 | 89,553 | 53,727 | 35,826 | 35,815 | 394 | 160 | 16,647 | 29 | 682 | 711 |
| **Nassau** | 21,611 | 43,717 | 31,874 | 11,843 | 14,968 | 30 | 15,548 | 552 | 97 | 679 | 776 |
| **Okaloosa** | 33,861 | 105,803 | 88,704 | 17,099 | 25,861 | 21,701 | 7,642 | 10,908 | 225 | 22,367 | 22,592 |
| **Okeechobee** | 12,640 | 64,564 | 15,721 | 16,595 | 1,847 | 380 | 2,163 | 10,634 | 104 | 7,742 | 697 |
| **Orange** | 107,568 | 439,436 | 393,487 | 45,949 | 265,691 | 16,028 | 25,383 | 68,376 | 744 | 17,265 | 18,009 |
| **Osceola** | 25,057 | 149,906 | 119,801 | 30,105 | 88,743 | 9,477 | 5,846 | 14,396 | 5 | 1,334 | 1,339 |
| **Palm Beach** | 81,285 | 429,408 | 400,521 | 28,887 | 314,677 | 36,515 | 14,688 | 27,247 | 3,664 | 3,730 | 7,394 |
| **Pasco** | 71,247 | 258,008 | 209,663 | 48,345 | 9,924 | 84,241 | 16,122 | 92,705 | 105 | 6,566 | 6,671 |
| **Pinellas** | 23,949 | 434,439 | 417,669 | 16,770 | 343,193 | 46,696 | 2,328 | 12,631 | 17 | 12,804 | 12,821 |
| **Polk** | 119,919 | 356,996 | 232,219 | 124,777 | 68,216 | 10,790 | 27,307 | 111,446 | 54 | 14,406 | 14,460 |
| **Putnam** | 40,635 | 98,900 | 35,423 | 63,477 | 506 | 716 | 5,974 | 26,724 | 7 | 1,496 | 1,503 |
| **Santa Rosa** | 45,726 | 95,282 | 68,827 | 26,455 | 29,699 | 3,603 | 10,445 | 21,398 | 43 | 3,639 | 3,682 |
| **Sarasota** | 81,165 | 274,115 | 217,107 | 57,008 | 134,679 | 27,259 | 4,613 | 34,644 | 159 | 15,753 | 15,912 |
| **Seminole** | 40,410 | 171,933 | 152,704 | 19,229 | 85,477 | 35,148 | 10,009 | 17,618 | 683 | 3,769 | 4,452 |
| **St. Johns** | 29,991 | 103,192 | 82,728 | 20,464 | 53,815 | 390 | 7,030 | 17,405 | 21 | 4,067 | 4,088 |
| **St. Lucie** | 44,259 | 150,529 | 107,587 | 42,942 | 65,089 | 5,560 | 27,052 | 7,312 | 948 | 1,626 | 2,574 |
| **Sumter** | 20,002 | 74,510 | 64,401 | 10,109 | 34,795 | 14,058 | 3,111 | 9,201 | 7 | 3,229 | 3,236 |

| County | Cumulative Total Onsite Wastewater From Census Data | Total Parcels | Total Parcels with Wastewater Determination | Wastewater Not Applicable | # Known Sewer | # Estimated Sewer | # Known Onsite Wastewater | # Estimated Onsite Wastewater | Wastewater Conflicting Data | Wastewater No Data | Total Parcels Wastewater Not Estimated |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Suwannee | 18,241 | 30,565 | 15,899 | 14,666 | 44 | 264 | 2,602 | 10,331 | 5 | 2,653 | 2,658 |
| Taylor | 8,968 | 18,322 | 10,100 | 8,222 | 800 | 8 | 755 | 8,078 | 1 | 458 | 459 |
| Union | 4,781 | 6,383 | 3,760 | 2,623 | 1 | 18 | 316 | 2,882 | - | 543 | 543 |
| Volusia | 99,710 | 284,266 | 221,844 | 62,422 | 75,332 | 27,081 | 30,888 | 71,943 | 818 | 15,782 | 16,600 |
| Wakulla | 11,206 | 24,692 | 12,760 | 11,932 | 2,379 | 43 | 3,337 | 6,564 | 61 | 376 | 437 |
| Walton | 22,655 | 79,276 | 44,076 | 35,200 | 13,601 | 130 | 3,123 | 18,873 | 1,669 | 6,680 | 8,349 |
| Washington | 10,665 | 43,033 | 9,811 | 33,222 | 1,457 | 11 | 2,450 | 5,395 | - | 498 | 498 |

# APPENDIX D –DRINKING WATER RESULTS BY COUNTY

| County | Total Parcels | Total Parcels with Drinking Water Determination | Drinking Water Not Applicable | # Known Public | # Estimated Public | # Known Private Well | # Estimated Private Well | Drinking Water Conflicting Data | Drinking Water No Data | # Drinking Water Not Estimated |
|---|---|---|---|---|---|---|---|---|---|---|
| Alachua | 101,050 | 82,987 | 18,063 | 51,650 | 1,267 | 424 | 7,393 | 120 | 22,133 | 22,253 |
| Baker | 12,145 | 8,754 | 3,391 | 153 | 42 | 1,443 | 4,330 | 27 | 2,759 | 2,786 |
| Bay | 114,279 | 91,054 | 23,225 | 33,559 | 963 | 4,053 | 3,271 | 35 | 49,173 | 49,208 |
| Bradford | 15,038 | 9,901 | 5,137 | 389 | 88 | 1,058 | 4,969 | 22 | 3,375 | 3,397 |
| Brevard | 287,810 | 213,277 | 74,533 | 106,065 | 15,571 | 21,664 | 5,482 | 2,328 | 62,167 | 64,495 |
| Broward | 750,826 | 720,259 | 30,567 | 332,343 | 23,207 | 1,293 | 1,758 | 31 | 361,627 | 361,658 |
| Calhoun | 10,735 | 5,166 | 5,569 | 1,134 | 42 | 622 | 984 | 14 | 2,370 | 2,384 |
| Charlotte | 213,318 | 99,017 | 114,301 | 30,967 | 1,213 | 5,351 | 455 | 179 | 60,852 | 61,031 |
| Citrus | 146,274 | 74,481 | 71,793 | 47,959 | 135 | 9,956 | 15,081 | 12 | 1,338 | 1,350 |
| Clay | 88,847 | 73,941 | 14,906 | 46,571 | 55 | 19,707 | 662 | 314 | 6,632 | 6,946 |
| Collier | 265,746 | 200,478 | 65,268 | 128,750 | 635 | 7,090 | 29,012 | 646 | 34,345 | 34,991 |
| Columbia | 36,307 | 24,445 | 11,862 | 7,843 | 28 | 2,986 | 11,895 | 43 | 1,650 | 1,693 |
| Dade | 561,672 | 516,933 | 44,739 | 400,527 | 2,773 | 1,556 | 517 | 136 | 111,424 | 111,560 |
| DeSoto | 19,437 | 10,947 | 8,490 | 809 | 71 | 1,594 | 4,482 | 82 | 3,909 | 3,991 |
| Dixie | 16,203 | 8,262 | 7,941 | 177 | 22 | 1,307 | 4,260 | 31 | 2,465 | 2,496 |
| Duval | 358,135 | 330,184 | 27,951 | 236,145 | 4,146 | 12,087 | 3,938 | 469 | 73,399 | 73,868 |
| Escambia | 150,972 | 125,821 | 25,151 | 52,131 | 38,657 | 180 | 218 | 22 | 34,613 | 34,635 |
| Flagler | 77,605 | 49,305 | 28,300 | 45,572 | 11 | 2,570 | 30 | 46 | 1,076 | 1,122 |
| Franklin | 17,701 | 8,598 | 9,103 | 1,299 | 95 | 202 | 291 | 1 | 6,710 | 6,711 |
| Gadsden | 27,179 | 17,057 | 10,122 | 4,292 | 142 | 1,071 | 6,607 | 241 | 4,704 | 4,945 |
| Gilchrist | 13,481 | 6,947 | 6,534 | 962 | 18 | 1,898 | 3,362 | 21 | 686 | 707 |
| Glades | 11,229 | 5,183 | 6,046 | 714 | 69 | 166 | 48 | - | 4,186 | 4,186 |
| Gulf | 33,880 | 9,350 | 7,590 | 5,461 | 54 | 460 | 632 | 3 | 2,740 | 2,743 |
| Hamilton | 12,870 | 4,661 | 8,209 | 641 | 27 | 445 | 2,365 | 29 | 1,154 | 1,183 |
| Hardee | 14,357 | 8,876 | 5,481 | 3,531 | 40 | 1,117 | 2,861 | 24 | 1,303 | 1,327 |
| Hendry | 35,418 | 13,083 | 22,335 | 4,862 | 109 | 1,298 | 362 | 16 | 6,436 | 6,452 |
| Hernando | 115,518 | 82,769 | 32,749 | 41,523 | 22,590 | 6,498 | 8,973 | 198 | 2,987 | 3,185 |
| Highlands | 226,496 | 50,661 | 62,587 | 24,594 | 3,636 | 4,280 | 8,148 | 113 | 9,890 | 10,003 |
| Hillsborough | 115,518 | 82,769 | 32,749 | 41,523 | 22,590 | 6,498 | 8,973 | 198 | 2,987 | 3,185 |

| County | Total Parcels | Total Parcels with Drinking Water Determination | Drinking Water Not Applicable | # Known Public | # Estimated Public | # Known Private Well | # Estimated Private Well | Drinking Water Conflicting Data | Drinking Water No Data | # Drinking Water Not Estimated |
|---|---|---|---|---|---|---|---|---|---|---|
| Holmes | 13,034 | 6,921 | 6,113 | 349 | 65 | 907 | 1,073 | 9 | 4,518 | 4,527 |
| Indian River | 76,371 | 57,616 | 18,755 | 48,501 | 44 | 3,658 | 408 | 92 | 4,913 | 5,005 |
| Jackson | 38,333 | 17,744 | 20,589 | 1,234 | 229 | 3,147 | 3,384 | 192 | 9,558 | 9,750 |
| Jefferson | 11,883 | 5,974 | 5,909 | 182 | 46 | 672 | 3,412 | 16 | 1,646 | 1,662 |
| Lafayette | 6,820 | 2,913 | 3,907 | 427 | 3 | 345 | 1,876 | 7 | 255 | 262 |
| Lake | 173,576 | 133,426 | 40,150 | 40,141 | 21,054 | 12,058 | 2,476 | 302 | 57,395 | 57,697 |
| Lee | 442,667 | 270,199 | 172,468 | 131,559 | 1,055 | 29,017 | 2,051 | 62 | 106,455 | 106,517 |
| Leon | 108,249 | 96,040 | 12,209 | 69,241 | 570 | 4,849 | 21,380 | - | - | - |
| Levy | 47,265 | 20,520 | 26,745 | 891 | 987 | 3,029 | 10,827 | 24 | 4,762 | 4,786 |
| Liberty | 5,621 | 2,666 | 2,955 | 152 | 15 | 121 | 1,796 | 12 | 570 | 582 |
| Madison | 15,757 | 7,237 | 8,520 | 1,718 | 25 | 628 | 3,376 | 26 | 1,464 | 1,490 |
| Manatee | 133,421 | 120,470 | 12,951 | 71,952 | 2,003 | 1,828 | 2,605 | 39 | 42,043 | 42,082 |
| Marion | 266,408 | 150,292 | 116,116 | 48,461 | 5,246 | 57,998 | 6,670 | 2,349 | 29,568 | 31,917 |
| Martin | 78,434 | 57,046 | 21,388 | 30,789 | 1,199 | 6,562 | 215 | 219 | 18,062 | 18,281 |
| Monroe | 89,553 | 51,972 | 37,581 | 35,497 | 16,294 | 128 | 5 | - | 48 | 48 |
| Nassau | 43,717 | 31,908 | 11,809 | 15,812 | 5 | 9,779 | 5,358 | 121 | 833 | 954 |
| Okaloosa | 105,803 | 89,206 | 16,597 | 56,691 | 2,690 | 695 | 461 | 14 | 28,655 | 28,669 |
| Okeechobee | 64,564 | 15,687 | 16,561 | 950 | 331 | 1,683 | 4,877 | 1 | 696 | 7,846 |
| Orange | 439,436 | 394,462 | 44,974 | 319,186 | 23,905 | 4,718 | 2,292 | 269 | 44,092 | 44,361 |
| Osceola | 149,906 | 120,096 | 29,810 | 96,831 | 885 | 3,837 | 2,811 | 331 | 15,401 | 15,732 |
| Palm Beach | 429,408 | 397,920 | 31,488 | 258,290 | 1,901 | 7,430 | 932 | 159 | 129,208 | 129,367 |
| Pasco | 258,008 | 209,052 | 48,956 | 18,745 | 99,538 | 9,816 | 15,324 | 2,699 | 62,930 | 65,629 |
| Pinellas | 434,439 | 414,778 | 19,661 | 239,430 | 107,064 | 204 | 1,017 | 138 | 66,925 | 67,063 |
| Polk | 356,996 | 231,679 | 125,317 | 93,262 | 1,907 | 9,979 | 13,973 | 334 | 112,224 | 112,558 |
| Putnam | 98,900 | 35,469 | 63,431 | 1,117 | 154 | 6,343 | 19,384 | 119 | 8,352 | 8,471 |
| Santa Rosa | 95,282 | 69,344 | 25,938 | 45,922 | 59 | 38 | 747 | 2 | 22,576 | 22,578 |
| Sarasota | 274,115 | 218,239 | 55,876 | 152,868 | 25,750 | 3,136 | 23,155 | 455 | 12,875 | 13,330 |
| Seminole | 171,933 | 152,594 | 19,339 | 77,913 | 957 | 6,680 | 3,392 | 219 | 63,433 | 63,652 |
| St. Johns | 103,192 | 82,923 | 20,269 | 64,158 | 187 | 8,453 | 992 | 325 | 8,808 | 9,133 |
| St. Lucie | 150,529 | 107,926 | 42,603 | 26,351 | 6,415 | 5,932 | 1,048 | 191 | 67,989 | 68,180 |
| Sumter | 74,510 | 64,453 | 10,057 | 35,091 | 13,447 | 1,982 | 4,409 | 37 | 9,487 | 9,524 |

| County | Total Parcels | Total Parcels with Drinking Water Determination | Drinking Water Not Applicable | # Known Public | # Estimated Public | # Known Private Well | # Estimated Private Well | Drinking Water Conflicting Data | Drinking Water No Data | # Drinking Water Not Estimated |
|---|---|---|---|---|---|---|---|---|---|---|
| Suwannee | 30,565 | 15,913 | 14,652 | 203 | 265 | 2,456 | 8,639 | 233 | 4,117 | 4,350 |
| Taylor | 18,322 | 10,117 | 8,205 | 1,794 | 61 | 578 | 3,442 | 24 | 4,218 | 4,242 |
| Union | 6,383 | 3,758 | 2,625 | 64 | 21 | 374 | 1,808 | 4 | 1,487 | 1,491 |
| Volusia | 284,266 | 222,515 | 61,751 | 129,524 | 13,554 | 24,302 | 982 | 1,057 | 53,096 | 54,153 |
| Wakulla | 24,692 | 12,977 | 11,715 | 5,806 | 26 | 1,090 | 5,223 | 118 | 714 | 832 |
| Walton | 79,276 | 44,104 | 35,172 | 16,005 | 337 | 1,562 | 1,784 | 1,694 | 22,722 | 24,416 |
| Washington | 43,033 | 9,855 | 33,178 | 2,226 | 78 | 2,148 | 1,468 | 17 | 3,918 | 3,935 |

# APPENDIX E – ESTIMATION METHODOLOGY

For purposes of the Florida Water Management Inventory, some data gathered for parcels, wastewater treatment methods, or drinking water sources will not be sufficient to make an exact designation.  In those cases, estimation methods will be utilized as outlined in this Appendix.

## PARCELS

The methods documented within will be utilized to perform the first iteration of the Statewide Inventory.  It is acknowledged, and planned, as part of the project lifecycle, to refine these methods after the first iteration of parcel analysis.

### Built Status Values Definitions

- **BUILT** – for inventory purposes, a built parcel is defined as a parcel that should have drinking water and domestic wastewater, and
- **NOT-BUILT** – for inventory purposes, a parcel that is not-built is defined as a parcel that has no requirement for drinking water and domestic wastewater
- **UNKNOWN** – for inventory purposes, parcels where drinking water and domestic wastewater requirements cannot be determined, most often due to conflicting data or the absence of data

### Built Status Values Queries

| BLT_CODE,  BLT_MTHD, and Query used to select records | Notes |
|---|---|
| **BLT.  2013 new construction**<br>"ACT_YR_BLT" >= 2012 OR ("ACT_YR_BLT" IS NULL AND "EFF_YR_BLT" >= 2012) | All new construction for this assessment year.  This query assumes that any 2012 or later build date is valid; regardless of number of buildings, number of residential units, and the DOR land use code.  Certain buildings may be constructed that do not have drinking water or wastewater (i.e. barn) – no attempt has been made to separate these buildings out from the selected set. |

| BLT_CODE, BLT_MTHD, and Query used to select records | Notes |
|---|---|
| **BLT. 2008-2012 construction**<br>(("ACT_YR_BLT" >= 2008 AND "ACT_YR_BLT" < 2012) OR ("ACT_YR_BLT" IS NULL AND ("EFF_YR_BLT" >= 2008 AND "EFF_YR_BLT" < 2012))) AND (("NO_RES_UNTS" > 0) OR ("NO_BULDNG" > 0)) AND (("VI_CD1" <> 'V' OR "VI_CD1" IS NULL) AND ("VI_CD2" <> 'V' OR "VI_CD2" IS NULL )) | Construction that occurred between the last inventory (2008 assessment year) and the 2014 report (2013 assessment year) with at least one building, or at least one residential unit. If any of these parcels are identified as sold in the most recent inventory, they are not coded as 'vacant'. These are parcels that could be expected to have been not-improved in the last inventory. |
| **BLT. building is present**<br>("ACT_YR_BLT" < 2008 OR ("ACT_YR_BLT" IS NULL AND "EFF_YR_BLT" < 2008)) AND (("NO_RES_UNTS" > 0) OR ("NO_BULDNG" > 0)) AND (("VI_CD1" <> 'V' OR "VI_CD1" IS NULL) AND ("VI_CD2" <> 'V' OR "VI_CD2" IS NULL )) | Building is present on the parcel, and if the parcel is identified as sold in the most recent assessment, it is not coded as 'vacant'. These parcels should have been identified as improved in the last inventory. |
| **NBLT. no building present**<br>"NO_BULDNG" IS NULL AND "NO_RES_UNTS" IS NULL AND "EFF_YR_BLT" IS NULL AND "ACT_YR_BLT" IS NULL AND (("VI_CD1" = 'V' OR "VI_CD1" IS NULL) AND ("VI_CD2" IS NULL OR "VI_CD2" = 'V')) | Parcel has no building, no residential units, no effective and no actual build date. If the parcel is identified as sold in the most recent assessment, it is coded as 'V'. This classification includes parcels with no building that could potentially have some improvements, such as water and sewer laterals. |
| **UNK. Unknown** | Improvement status is unknown, or cannot be determined. This category will also be assigned to any GIS features that do not have a corresponding record in the tax roll table. |

## WASTEWATER

The methods documented within will be utilized to perform the first iteration of the Statewide Inventory.  It is acknowledged, and planned, as part of the project lifecycle, to refine these methods after the first iteration of parcel analysis.

Where there is insufficient data to determine an exact method (Known Central Sewer or Known Onsite Septic), an <u>estimated</u> designation will be assigned.

1. **Known Septic:**
   a) OSTDS Final inspection done at least once AND if no conflicting sewer information exists
   b) OSTDS Operating permit active, not expired AND if no conflicting sewer information exists
   c) 2009 inventory indicated the property was known septic AND if no conflicting sewer information exists
   d) CHD Inventory, Carmody, etc. AND if no conflicting sewer information exists

2. **Likely Onsite Septic:**
   a) 2009 inventory indicated the property was estimated septic (with a probability of > .8)
   b) OSTDS construction Permit is not an abandonment, temporary, or holding tank, sewer not available (checked "no" or left blank on application form), construction permit issued
   c) Operating permit active, expired
   d) Utility does not provide proof of sewer connection and it is in the utility's service area (where service area data is provided)
   e) Drinking water source is "Known Onsite Well"
   f) Drinking water source is a DEP regulated PWS with 1 connection and no WWTF exists for the address
   g) DBPR, DOACS, or other State Agency indicate address is on a septic system
   h) Other EHD program info (e.g. MHP, group care) indicates it is septic
   i) Other data source (e.g. local government) indicates it is septic

3. **Somewhat Likely Septic:**
   a) OSTDS Construction permit application exists, no permit issued, and sewer not available (checked "no" or left blank on application form)
   b) OSTDS Operating permit record exists, but marked as "inactive" or "closed"
   c) Lot size is greater than 1 acre and Land Use Code is Residential and Built Status Value equals "Built"
   d) 75% of surrounding properties are known septic
   e) Not within Municipal boundaries

**4. Undetermined:**
   a) Parcel does not fit any of the requirements in any of the other categories (not enough data exists to make a determination or estimation)

**5. Somewhat Likely Sewer:**
   a) 75% of surrounding properties are known sewer
   b) 2009 inventory indicated the property was estimated sewer (with a probability of > .3 < .5)

**6. Likely Sewer:**
   a) 2009 inventory indicated the property was estimated sewer(with a probability of < .3)
   b) 100% of surrounding properties are known sewer and Service Area is unknown
   c) Sewer line located in front of property and no other data source is available
   d) DBPR, DOACS, or other State Agency indicate address is on sewer
   e) Other EHD program info (e.g. MHP, group care) indicates it is sewer
   f) Other data source (e.g. local government) indicates it is sewer
   g) Specific subdivision is identified by Utility, and Shapefile provided, as having sewer service, but we do not have complete address or parcel information

**7. Known Sewer:**
   a) Utility indicates property is on sewer
   b) Abandonment permit in EHD, AND sewer available
   c) 2009 inventory indicated the property was known sewer
   d) DBPR or DOACS indicate address is on sewer
   e) Other EHD program info (e.g. MHP, group care) indicates it is sewer
   f) Other data source (e.g. local government) indicates it is sewer

## DRINKING WATER

The methods documented within will be utilized to perform the first iteration of the Statewide Inventory. It is acknowledged, and planned, as part of the project lifecycle, to refine these methods after the first iteration of parcel analysis.

Where there is insufficient data to determine an exact method (Known Central Water or Known Onsite Well), an <u>estimated</u> designation will be assigned.

1. **Known Onsite Well:**
   a) Non-Limited Use Well permitting info (e.g. Indian River uses "miscellaneous" category for private well records) in EHD
   b) Domestic well permitting records from WMD or the delegated county AND not coded as "denied" or "withdrawn" AND we have sufficient information to geocode the location
   c) Final inspection done at least once AND if no conflicting public water information exists
   d) If OSTDS Application indicates "Well" AND OSTDS Site Evaluation Form indicates 1,500 Gallons Per Day AND if no conflicting public water information exists

2. **Likely Onsite Well:**
   a) Utility does not provide proof of central water connection and it is in the utility's service area (where service area data is provided)
   b) Utility provides water and sewer, the parcels are identified as a sewered address, but not a watered address, and no other water provider indicated
   c) DBPR, DOACS, or other State Agency indicate address is an onsite well
   d) Other EHD program info (e.g. MHP, group care) indicates it is onsite well
   e) Other data source (e.g. local government) indicates it is onsite well
   f) If OSTDS Application indicates "Well" OR OSTDS Site Evaluation Form does not indicate 2,500 Gallons Per Day (or blank) AND if no conflicting public water information exists

3. **Somewhat Likely Onsite Well:**
   a) 75% of surrounding properties are known onsite well
   b) Lot size is greater than 1 acre and Land Use Code is Residential and Built Status Value equals "Built"

4. **Undetermined:**
   a) Parcel does not fit any of the requirements in any of the other categories (not enough data exists to make a determination or estimation)

5. **Somewhat Likely Central Water:**
   a) 75% of surrounding properties are known central water

6. **Likely Central Water:**
   a) Well abandonment permits AND central water is available
   b) All surrounding properties are known central water and Service Area is unknown
   c) A Limited Use Well that has been closed in EHD
   d) Sewer or drinking water line located in front of property and no other data source is available
   e) Sewage treatment source is "Known Sewer"
   f) DBPR, DOACS, or other State Agency indicate address is on central water
   g) Other EHD program info (e.g. MHP, group care) indicates it is on central water
   h) Other data source (e.g. local government) indicates it is on central water
   i) If OSTDS Application indicates "Public Water" OR OSTDS Site Evaluation Form does not indicate 2,500 Gallons Per Day (or blank)

7. **Known Central Water:**
   a) Utility indicates property is on central water
   b) If OSTDS Application indicates "Public Water" AND OSTDS Site Evaluation Form does not indicate 2,500 Gallons Per Day (or blank)
   c) Active Limited Use Well in EHD

# APPENDIX F – PROJECT SUMMARY REPORT

## Florida Water Management Inventory
### September 2016 Update

### Project Need

Information about drinking water sources and wastewater treatment methods are vital for disaster preparedness and response activities, local planning evaluations, and environmental risk assessments. These activities relate to environmental health and the protection of public health by detecting and preventing disease caused by natural and manmade factors in the environment.

Multiple state and local agencies across the state of Florida gather information about drinking water sources and wastewater treatment methods; however, historic data gathering methods have been fragmented. This results in the lack of readily accessible information to evaluate impacts to Florida's water quality and quantity.

The Florida Department of Health (Department) has developed a centralized comprehensive mapping tool to provide Geographic Information System (GIS) data.

### Project Goal

The goal of the Florida Water Management Inventory project is to link each built property in the state to information about the drinking water source type (public water or private well) and the wastewater treatment method (central sewer or onsite sewage).

### Partnerships

Collaboration with stakeholders is an essential part of this inventory project. Aside from the Department of Health state and county offices, participating stakeholders include public and private utilities; Florida Departments of Environmental Protection, Business and Professional Regulation, Emergency Management, and Agriculture and Consumer Services; Water Management Districts; Public Service Commission; various county and municipal governments; and many others.

### Benefits to Florida

### Current Status

The project began in April 2014. As of September 2016, mapping and summary reporting is complete for all Florida counties and posted on the project website http://floridahealth.gov/flwmi. This project collected data for 91% of the volume of DEP permitted wastewater, and 81% of the population served by DEP permitted drinking water in the state. The study results show that there are approximately 2.1-million onsite wastewater systems in Florida and 680,000 private drinking water wells in Florida. These numbers will be refined as this project continues to acquire and verify new data.



**Project Status**
Completed - 67 Counties (100%)

4Oct2016

A comprehensive drinking water and wastewater inventory of the approximate 6.9-million developed parcels in the state of Florida will provide many benefits including:

- Enhanced customer service, permitting, development review, and planning activities for state agencies, local government, utilities, citizens, and other interested parties through data sharing. It will also identify redundancies and information gaps for future work.
- Improved disaster preparedness and response activities resulting in accurate estimates of impacts on public health and infrastructure during disasters.

- Enhanced resource for homeowners, home-buyers, realtors and other entities interested in potable water and wastewater services.
- Centralized web portal of maps and data as well as consolidated project results which will all be accessible to the public.

**Division of Disease Control and Health Protection
Bureau of Environmental Health
http://floridahealth.gov/flwmi**