HC CPA 20-08
Background Data and Analysis*

*This document serves to provide background data and analysis for the Environmental and Sustainability Section. It is intended to meet the requirements of Chapter 163.3177(1)(f) and is non-adopted material.

This document only includes items not already included as part of the Environmental and Sustainability Section. For example, maps proposed to be adopted are not repeated here, but they were still utilized as part of the data and analysis.

HC CPA 20-08

Environmental and Sustainability Section
(Conservation Element)

Background Data and Analysis

Energy Conservation and Alternative Energy Use

The County has eliminated 120,000 tons of carbon dioxide emissions since 2003 and saves more than $3.5 million annually by reducing its energy use and costs. The County has worked to implement an array of energy conservation and alternative energy use initiatives. These include the operation of a chiller plant that makes ice to help cool buildings, adding solar to county facilities and using LED lighting in buildings, parking lots, sports fields and all traffic signals. Neighborhood and corridor street lighting is also transitioning to LED. Additionally, the County is transitioning its fleet to electric and alternative fuel. A county-sponsored Solar Energy Loan Fund, which offers low-cost loan and project assistance to residents for energy efficiency upgrades and other sustainable home improvements is also being implemented and has provided over $1.6 million in loans. As an Energy Star partner, the County strives to meet high standards in energy efficiency and regularly tracks those efforts according to benchmarks designated by the U.S. Environmental Protection Agency. In 2014, six Hillsborough County government buildings earned the annual U.S. Environmental Protection Agency's prestigious ENERGY STAR certification. In 2019, Hillsborough County became the first county government in the state and third in the U.S to achieve the Platinum LEED (Leadership in Energy and Environmental Design) for Cities and Communities certification from the U.S. Green Building Council.

The Tampa Electric Company (TECO) has supplied electricity to the Tampa Bay area since 1899. TECO's service area covers approximately 2,000 square miles in West Central Florida, including 84% of Hillsborough County. A small portion of TECO's service area includes Polk (11.1%), Pasco (3.2%), and Pinellas (1.4%) counties. TECO has two electric generating plants within Hillsborough County, with generating capabilities totaling 3776 MW, as well as 233 MW of solar generation.

Electric consumption is reported in giga watt hours, then converted to kilowatt hours. The kilowatt hours were then converted to standard tons of CO2e and metric tons CO2e by using the standard EPA conversion factor, calculated by the different fuel types used to generate the electricity. The conversion factor is 1.5 pounds per kWh for standard and 0.729 kg per kWh metric.

The table 1 includes the Scope 2 metric tons of CO2e from electricity consumption based TECO's systemwide emission rate from 2013 – 2018.

Year	TEC CO_2 Emission Rate (lb/KWh)
2013	1.62
2014	1.73
2015	1.61
2016	1.54
2017	1.34
2018	1.2

Table 1: Metric Tons of CO2e

Air Quality

Clean air is a vital natural resource that is necessary for life and should be safeguarded for public safety and wellbeing. The components of air directly affect the health and welfare of the County's residents. Hillsborough County is home to Port Tampa Bay, Florida's largest seaport and one of the nation's fastest growing cruise homeports. Not surprisingly, almost twenty percent of Florida's industries are located in Hillsborough County. Coal-fired power plants, phosphate

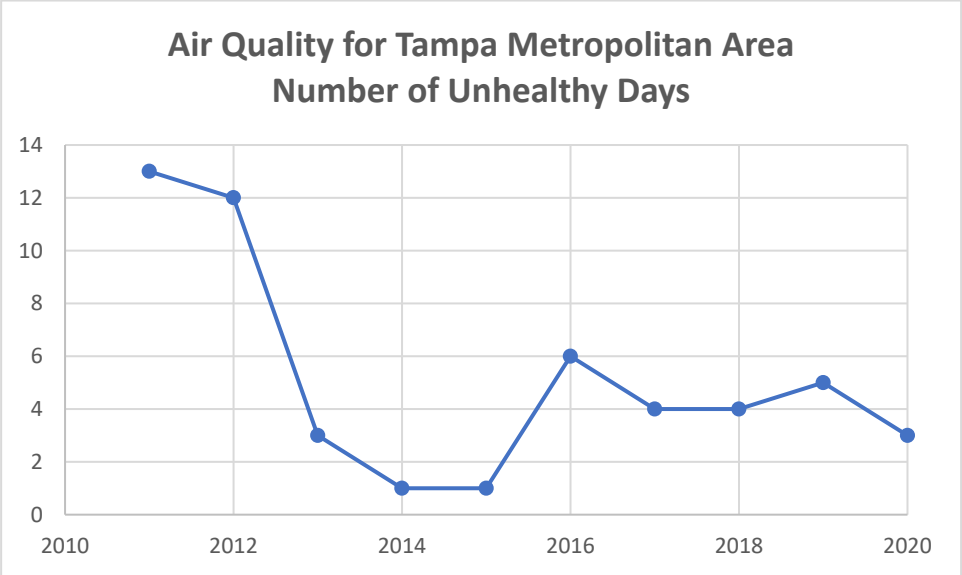
fertilizer complexes, municipal waste-to-energy incinerators, gasoline and other bulk commodity terminals are just a few of the industrial facilities located within Hillsborough County.

Air quality in Hillsborough County is regulated at the federal level by the U. S. Environmental Protection Agency (EPA), at the state level by Florida Department of Environmental Protection (FDEP), and at the local level by the Environmental Protection Commission of Hillsborough County (EPC). In February 1993, the EPC became the first local program in Florida to receive full air permitting delegation from the State. FDEP retained primary permitting jurisdiction for some major facilities; however, EPC maintains significant involvement in the permitting of these facilities through field inspections and drafting permit conditions.

EPC operates 30 air monitors for National and State air quality standard assessments, and 12 special purpose monitors which collect specific air quality data on pollution problems unique to Hillsborough County. These air monitors measure levels of several criteria pollutants such as

- Carbon monoxide
- Lead
- Nitrogen oxides
- Ozone
- Particulate matter
- Sulfur dioxide

These air pollutants are the most common and have the greatest overall health effects, especially for children, people with lung disorders and the elderly.



Source: 2020 Annual Report, EPC, 2020.

Background Data and Analysis

Pollution Sources

Stationary sources include major facilities, which operate under the Title V program of the Clean Air Act and have the potential to release criteria air pollutants above 100 tons per year, or 10 tons of an individual hazardous air pollutant, or 25 tons for a group of hazardous air pollutants. Criteria pollutants commonly found at industrial facilities include:

- Particulate matter (PM),
- Sulfur dioxide (SO2),
- Oxides of nitrogen (NOx),
- Carbon monoxide (CO),
- Volatile organic compounds (VOCs).

The EPA has identified 187 compounds which are considered hazardous air pollutants.

Currently, Hillsborough County has 27 active Title V facilities. There are also more than 271 synthetic minor and minor sources of air pollution. Inspections at these facilities ensure the source is operating according to the conditions of the permit.

Another major source of area pollution are non-point sources, which include highways, construction sites, and forest fires. Non-permitted facilities or individual citizen's activities which emit excessive dust, odor, noise or smoke are also regulated by the Rules of the Environmental Protection Commission.

Asbestos regulation is an additional program administered by EPC. Asbestos, one of the first Hazardous Air Pollutants (HAP) to be regulated, is a naturally occurring mineral that is found in many products throughout the world. Once asbestos is disturbed, the mineral crystals separate into long thin fibers. Disturbance of asbestos-containing materials may lead to inhalation exposure to asbestos fibers, which can potentially cause severe health problems. Proper asbestos handling and disposal is required for all demolition and renovation projects on commercial as well as industrial facilities in the county.

Industrial Hazardous Waste

Hazardous waste is generated within Hillsborough County through many different sources. Some manufacturers create large quantities of hazardous waste; these businesses are very carefully monitored by the U.S. Environmental Protection Agency (EPA) and the Florida Department of Environmental Protection (FDEP) to ensure their waste is properly handled and disposed. Many other businesses that are vital to our everyday lives also create small amounts of hazardous waste. These businesses include dry cleaners, photo labs, automobile service stations and body shops, hospitals, clinics, funeral homes, dental offices and many other businesses. All counties in the State of Florida are required by the Legislature to establish and implement a small quantity generator (SQG) notification and verification program in accordance with Section 403.7234, Florida Statutes (FS). In Hillsborough County, this duty falls to EPC's SQG Program. The goal of the SQG Program is to protect the environment by helping businesses understand and comply with the regulations of the Resource Conservation and Recovery Act

(RCRA). The State of Florida adopted the RCRA regulations in Chapter 62-730, Florida Administrative Code, and has been delegated by the US Environmental Protection Agency to administer the RCRA program in Florida.

According to the Environmental Protection Commission of Hillsborough County, as of 2018, the Small Quantity Generator (SQG) Program has identified 15,242 businesses that potentially generate hazardous waste. The SQG Program is required to verify at least 20% of identified businesses by performing unannounced on-site surveys to evaluate waste management practices. The on-site survey includes an evaluation of the facility's waste streams and offers compliance assistance on the applicable management and disposal requirements, if needed. Applicable hazardous waste and used oil rules will be explained and suggestions for minimizing waste may also be offered. If there are alleged violations noted during the inspection, in most cases, the business is afforded the opportunity to correct them without penalties. The SQG Program has several initiatives listed below to address hazardous waste produced by Small Quantity Generators.

- The Green Yard Program designed specifically for auto salvage yards. Hillsborough County has more than 100 salvage yards, and most generate automotive and other wastes. In addition to RCRA and other regulatory requirements, operators are informed of appropriate best management practices (BMPs) for typical salvage yard wastes.
- The Green Star Program is designed to recognize auto repair facilities that go "above and beyond" basic regulatory requirements. Providing additional management controls, such as containment for unregulated product containers, and implementing green strategies to minimize waste generation are some of the activities that our local certified Green Star businesses undertake.
- School Inspection Program provides significant compliance assistance to the School District of Hillsborough County through the School Inspection Program. Schools have numerous operations that may result in the generation of hazardous waste. The most obvious waste is chemical waste from laboratories but could also include wastes from wood or metal working classes, wastes from vocational or technical programs, as well as wastes associated with facility management, like spent lamps. The objective of this program is to ensure that our public schools are managing and disposing of waste in an appropriate manner. The School Inspection Program will be expanding soon to include private schools.
- The SQG Program also partners with EPC's Air Management Division to perform multimedia inspections at dry cleaners throughout Hillsborough County. Dry cleaners that use perchloroethylene to launder clothes are subject to regulation under both the Clean Air Act and RCRA, and there are additional requirements in the Florida Statutes, as well. The SQG inspector provides compliance assistance for both program areas and reviews the statutory requirements with the operator in a single visit, saving time and resources for both the County and the business owner.

Sinkholes

Environmental and Sustainability Section
(Conservation Element)

Background Data and Analysis

Sinkholes form in areas underlain by limestone formations. They occur because limestone can be highly soluble in water, especially along fault and layering lines. Rainfall becomes slightly acidic as it percolates through the organic topsoil and dissolves the limestone layers as it leaches through. Over geologic time, the cavities can enlarge, and may collapse, especially if the water table recedes, leaving the weakened rock to support overhead loads. This forms what is known as "karst" topography. Sinkholes are often associated with springs and round lakes.

Sinkhole formation is not uncommon throughout much of northern and eastern Hillsborough County. Surveys have indicated the presence of 2,303 ancient and 179 modern or active sinkholes in the County (Upchurch and Littlefield, 1987). According to The Favorability of Florida's Geology to Sinkhole Formation report (2017), prepared for the Florida Division of Emergency Management, Mitigation Section, at least 140 sinkholes were reported in the month of January 2010. Geologists have a good idea where sinkholes are likely to form geographically, but it's much more difficult to accurately predict specifically where sinkholes will occur. Special ground penetrating radar equipment can be used to create a map of the underground area, but this information provides only a clue where the cavities are in the subsurface. There has also been research to indicate that many sinkholes are hydraulically connected to the surficial and Floridan Aquifers as indicated in the report. Some sinkholes act as both sinks and springs, depending upon seasonal water level variations in the aquifer. The permitted utilization of sinkholes should entail the provision of adequate site-specific information, to ensure that the proposed use will not lead to degradation of ground or surface water quality, or cause water level impacts to nearby wells.

Central to the Southwest Florida Water Management District's (SWFWMD) mission is the protection and management of water resources. Due to the hydrogeologic connection of many sinkholes to the aquifer, sinkholes can act as conduits for contamination. SWFWMD records and monitors sinkhole activity that can affect water resources. In addition, the SWFWMD has adopted procedures for the reporting and remediation of sinkholes in an effort to protect water resources.

Soils

The soils map for Hillsborough County depicts four broad divisions as follows:

- Group A: High infiltration rate when thoroughly wet;
- Group B: Moderate infiltration rate when thoroughly wet;
- Group C: Slow infiltration rate when thoroughly wet;
- Group D: Very slow infiltration rate when thoroughly wet; and
- Urban land / Dumps / Pits/ Swamps

Each area outlined on the soils map consists of more than one kind of soil; therefore, this figure is intended for general planning purposes (refer to the USDA Soil Conservation Service publication "Soil Survey of Hillsborough County, Florida" for a detailed description of soil types in the County).

Soil Limitations

Background Data and Analysis

Due to the flat topography and relative uniformity of soil distribution in Hillsborough County, soil limitations generally do not preclude structural development, except in extreme cases (e.g., wetland soils). Instead, these limitations require that engineering modifications be made to the site prior to construction. Soils with minor limitations can generally be made suitable for development, while moderate limitations may require more extensive alterations. Severe limitations may require the removal of the natural material and replacement with a more suitable soil type.

The use of septic systems for the treatment and disposal of sewage may, however, be significantly limited by site specific soil conditions. The location of septic systems in improper soils may result in several undesirable effects. If the soils have high wetness and poor permeability then the discharge will not percolate properly and may runoff into, and contaminate, adjacent surface waters. In excessively well-drained deep sand, septic discharges can migrate too rapidly for purification processes to occur and carry contaminants into the groundwater supply. Extreme prudence should be used when permitting septic tanks in very well-drained soils. If a large number of tanks sited on highly permeable soil generate discharges that reaches the potable water supply without sufficient filtering, severe water quality problems can arise. The surficial aquifer, the intermediate aquifer, and even the primary artesian aquifer (Floridan) are all subject to contamination from septic wastes. Areas of high aquifer recharge and contamination potential are discussed and mapped in the One Water Chapter.

Soil Erosion

According to the Hillsborough County Soil and Water Conservation District (USDA), there are no chronic soil erosion problems in the County. Temporary soil erosion problems often occur during land clearing for agriculture and development; however, these perturbations can be controlled through the implementation of Best Management Practices (BMPs). The County and the Environmental Protection Commission each review development applications for development approval in conjunction with soils survey information, exercising jurisdiction over wetlands soils.

Commercially Valuable Minerals

The most significant mineral resource in Hillsborough County is phosphate, which has been mined in the area since the late 19th century. Prior to 1989, there were several mining companies operating within Hillsborough County. Mosaic Phosphate is currently the only remaining company. Economically, the phosphate industry continues to provide hundreds of jobs in the Tampa Bay region in the fields of processing, marketing, and shipping, as well as the mining of the resource. This results in a net capital inflow to Hillsborough County. Port facilities are also necessary for export of phosphatic fertilizers and phosphate rock and continues to be a major export from Port Tampa Bay (Port Tampa Bay, Master Plan Update, 2016).

From a land use perspective, phosphate mining has by far the greatest impact of any mineral resource in the County. Phosphate mining complicates land use considerations in southeast and central Hillsborough County because large tracts of known deposits are reserved for future mining thereby precluding other land uses in these areas. Additionally, land allocations are necessary for beneficiation

plant's tailings and clay settling ponds. Clay settling, or slime ponds, are particularly space intensive and create large areas of unstable land surface unsuitable for development. A single mining plant may require a square mile or more of settling ponds.

Mining itself involves complete disruption of the on-site natural vegetation, drainage, and soil characteristics. Soil and sand atop the ore (overburden) is stripped away and the clay/sand/phosphate matrix is mined with draglines. The large machines remove up to 50 cubic yards of material with each bucket load. Mining proceeds in parallel cuts of up to 100 yards wide, a mile in length, and 70 feet deep. The overburden is left adjacent to the cut or deposited in nearby cuts. As successive cuts are made, the matrix is either transported dry or piled in a slurry to the beneficiation plant, which is usually not on the mining site. A typical mining operation disrupts up to 400 acres a year.

During active mining and beneficiation, environmental and aesthetic disturbances are common. Development of lands adjacent to mining operations often results in land use incompatibilities. Residential use is especially susceptible to problems associated with mining and beneficiation, including noise, air and water quality problems. Groundwater supplies are subject to drawdown where active mining occurs.

Reclamation and restoration of mined lands is extremely important for long-term land use planning in Hillsborough County. The vast acreages of mined trenches and slime ponds are virtually useless for long time periods unless effective reclamation measures are implemented. This is accomplished through surface contouring, use of original topsoil and vegetation types, and restoration of the original drainage patterns.

The mines operated by Mosaic are regulated through the Development of Regional Impact process. The DRI process requires the filing of annual or biennial report which are submitted to applicable review and permitting agencies.

Saltwater Resources

An in-depth discussion of Tampa Bay, the County's most significant surface water resource, can be found in the Coastal Management Element. The protection and conservation of the resources of Tampa Bay is one of the County's most critical conservation issues and is dealt with both in this Section and the Coastal Management Element.

Freshwater Resources

Hillsborough County's surface water features include lakes, bays, creeks, sloughs, ponds, springs and wetlands. The Alafia, Little Manatee, Palm and Hillsborough Rivers also flow through the County. Further discussion on Freshwater resources such as groundwater and aquifer recharge can be found in the One Water Chapter.

Water Quantity

Background Data and Analysis

Surface water flows are not only a product of runoff, but also include a groundwater baseflow component. In fact, many surface water systems in west-central Florida are closely interconnected with the underlying groundwater system through springs and sinkholes. In accordance with hydrologic conditions, these natural interconnections may augment flow, reduce flow, or perform both functions intermittently. Because the Tampa Bay region manifests annual wet and dry seasons with significant variations in precipitation frequency and intensity, the contribution of surface runoff and groundwater baseflow to streams varies. This cyclic pattern of changing baseflow conditions results in variable surface water quantity and quality.

Extreme stream flow fluctuations occur due to intense and erratic seasonal precipitation. Generally, as the percentage of the groundwater flow contribution to a surface water flow increases, the fluctuation in the surface source decreases. Stream flows are generally lowest during April and May.

Water Quality

Water quality is essential for an environment that protects human health and supports a diverse community of flora and fauna. The Environmental Protection Commission maintains a network of over 250 surface water stations throughout the County and Tampa Bay, many of which date back to the 1970's.

Most water bodies in Hillsborough County fall under the Class III designation and are subcategorized as marine or freshwater (Figure 3). The Hillsborough River from the City of Tampa's (COT) reservoir dam at Rowlett Park up stream to Flint Creek and Cow House Creek from the Hillsborough River to its source are classified as Class I waters. Class II waters in Hillsborough County include Old Tampa Bay north of the Howard Frankland Bridge up to and including Mobbly Bay, a portion of Middle Tampa Bay south of Gadsden Point, along the eastern shoreline of Middle Tampa Bay south of Apollo Beach to the Hillsborough-Manatee county line, and the Hillsborough County waters west of the Sunshine Skyway bridge excluding the shipping channel. There are currently no waterbodies within Hillsborough County that fall under the Class IV or Class V designations.

The Florida Department of Environmental Protection designates certain waterbodies as Outstanding Florida Waters (OFWs). These may include waters within state or national parks, designated aquatic preserves, or lands donated for conservation. Under the OFW designation, the FDEP grants the highest level of protection for water quality. Within Hillsborough County, OFW sites include the Bower Tract on the northeast side of Old Tampa Bay, Egmont Key, the Hillsborough River State Park and the Hillsborough River upstream of Fletcher Avenue to the Withlacoochee River drainage in Pasco County and including Cypress Creek, Thirteen Mile Run and Big Cypress Swamp, Trout Creek up stream to Bruce B. Downs Blvd., Black Water Creek to the Polk County line, and Crystal Springs; the Little Manatee River State Recreation Area and the Little Manatee River from the mouth upstream to S.R. 674; and the Cockroach Bay Aquatic Preserve.

As Beck et. al., (2019) describe, Tampa Bay is the largest open-water estuary in Florida and the second largest estuarine embayment in the Gulf of Mexico. Current water quality in Tampa Bay is dramatically

improved from the degraded historical condition. In 1972 a long-term monitoring program was institutionalized through State legislation by the creation of the Environmental Protection Commission of Hillsborough County which has collected water quality data consistently since 1974. Results show Chlorophyll-a in Tampa Bay has decreased over the 40-year record and total nitrogen concentrations have similar trends. The improvement in water quality can be attributed to habitat restoration activities and water infrastructure improvements related to point and non-point source controls. (Beck, Marcus W., Edward T. Sherwood, Jessica R. Henkel, Kirsten Dorans, Kathryn Ireland, and Patricia Varela. "Assessment of the Cumulative Effects of Restoration Activities on Water Quality in Tampa Bay, Florida." Estuaries and Coasts, no. 42 (August 5, 2019): 1774-91 https://doi.org/10.1007/s12237-019-00619.

Alafia River

The Alafia River flows westward from Polk County and eastern Hillsborough County into the Hillsborough Bay near Gibsonton; the drainage basin consists of approximately 420 square miles. The Alafia River is comprised of the North and South prongs, which join nearly 20 miles from the mouth at Hillsborough Bay. The Alafia River has numerous tributaries throughout its course, the most notable being Turkey Creek, Fishhawk Creek, Bell Creek and Rice Creek. Also found along the Alafia are natural springs, the most well-known being Lithia Springs and Buckhorn Springs.

Hillsborough River

The Hillsborough River originates in the Green Swam and flows southwesterly into Hillsborough Bay. The river's drainage basin encompasses approximately 690 square miles with approximately 120 square miles located in Hillsborough County. The Hillsborough has five main tributaries which flow into it at various points. Together, these tributaries account for approximately 65% of the total drainage basin area. The upper Hillsborough River is classified as a Class I-A (potable) water, while the remainder of the river is classified as Class III waters (suitable for propagation of fish and wildlife). The portion of the river passing through Hillsborough River State Park is further designated as Outstanding Florida Waters (OFW). The upper Hillsborough is largely publicly owned and as such is not presently available for major land development.

Little Manatee River

The Little Manatee River originates in southeast Hillsborough County and flows almost 40 miles westerly into the Tampa Bay. It has a drainage basin of 222 square miles and is designated an Outstanding Florida Water due to its relatively unimpacted floodplains, swamp and tributaries, is more pristine than the other rivers of Hillsborough County. The Little Manatee is, however, threatened by phosphate mining in its upper reaches. Rich deposits of phosphate matrix lie near the surface along the river's bed, and the easy extraction makes these areas extremely attractive for future mining. Part of the Little Manatee Reiver is within the Cockroach Bay Aquatic Preserve.

Palm River / Tampa Bypass Canal

Environmental and Sustainability Section
(Conservation Element)

Background Data and Analysis

The Palm River was dredged and channelized to form the Tampa Bay Bypass Canal. It is a 14-mile-long flood bypass located in east central Hillsborough County, flows into McKay Bay and is adjacent to the most northeasterly tip of Tampa Bay. Prior to its' channelization in the 1960's Palm River was a relatively shallow, slow moving, meandering river subject to tidal flow. The river was channelized, straightened, widened and deepened with steep riverbanks to divert flows from the Lower Hillsborough Flood Detention Area away from the cities of Tampa and Temple Terrace, into McKay Bay by the U.S. Army Corps of Engineers. The system has three canal segments with a total length of approximately 37 miles. The canal segments are the Tampa Bypass Canal, the Harney Canal and the Thonotosassa Canal.

An in-depth discussion of surface waters utilized as a potable water supply can be found in the One Water Chapter. The protection and conservation of surface waters is discussed in this Element and the One Water Chapter.

Floodplains

Hillsborough County has developed along the Rivers, numerous streams and creek, and the Tampa Bay. As such, over one third of the County's land area is physically located in the historical 100-year floodplain. Because of this, significant steps were taken throughout the County's history to protect the residents and structures from flood damage. Most notable is the construction of the Tampa Bypass Canal and Lower Hillsborough Flood Detention Area system, built by the U. S. Army Corps of Engineers and managed by the Southwest Florida Water Management District in accordance with Corps guidelines. In the event of a major storm in the upper watershed, a series of locks can be closed to back water up into the Flood Detention Area, which is a 17,000+ acre tract upstream of the urban area managed as a Wilderness Park system by the Hillsborough County Parks and Recreation Department in agreement with the District. The Bypass Canal system is designed to then release water slowly from the Detention area around the Cities of Temple Terrace and Tampa into the Tampa Bay as the potential for flood damage wanes. This considerable investment of federal, state and local effort provides multiple public benefits, not least of which is protecting the lives and properties of residents.

The County, often in conjunction with the District, has also built canals and other flood management structures to address both coastal and inland flooding. The Bypass Canal System is the most notable of a number of flood control projects built pursuant to the U.S. Army Corps of Engineers' Four River Basins study, undertaken in the late 1960's to address regional flood problems that became most apparent after significant tropical storms caused serious flood damage in the summers of 1960-61.

Lakes

Many small lakes can be found in Hillsborough County. Some lakes appear to be surface expressions of water tables perched on impermeable materials; others are interconnected to the Floridan Aquifer system through sinkholes and reflect the potentiometric surface of the aquifer. In an area north of Tampa, surface water is mainly internally drained through sinkholes and percolation through lake bottoms into the upper Floridan Aquifer.

Lake Thonotosassa is the largest body of freshwater in the County and one of the few lakes offering public access; with a surface area exceeding 800 acres with the entire 55 square mile watershed

completely contained within Hillsborough County. The lake discharges into the Hillsborough River system via Flint Creek. The lake faces four main challenges:

1. Nutrient loading from the watershed have caused extreme nutrient-enrichment resulting in algal blooms
2. Decline in habitat quality and species diversity
3. Increased abundance of non-native plan species
4. Decline in the abundance of desirable sport fish

The Southwest Florida Water Management District identified Lake Thonotosassa as a priority surface water for clean-up under the Surface Water Improvement and Management (SWIM) program. Specific management guidelines have been established through the Surface Water Improvement and Management (SWIM) Plan for Lake Thonotosassa SWFWMD is in the process of implementing several restoration efforts identified in the plan.

Wetlands

Wetlands continue to be protected in accordance with the Rules of the Environmental Protection Commission of Hillsborough County, which are consistent with and generally more stringent than the rules of the Southwest Florida Water Management District, the Florida Department of Environmental Protection, and the U. S. Army Corps of Engineers, all of which exercise wetlands protection jurisdiction throughout Hillsborough County. In 2004, the Florida Legislature required all state and local wetlands regulatory programs to use a Uniform Mitigation Assessment Method, which determines the amount of mitigation needed to offset adverse impacts to wetlands and other surface waters and to award and deduct mitigation bank credits.

UMAM provides a standardized procedure for assessing the ecological functions provided by wetlands and other surface waters, the amount that those functions are reduced by a proposed impact, and the amount of mitigation necessary to offset that loss. This standardized methodology is also used to determine the degree of improvement in ecological value of proposed mitigation bank activities. The UMAM evaluates functions through consideration of an ecological community's current condition, hydrologic connection, uniqueness, location, fish and wildlife utilization, time lag and mitigation risk.

Wetlands are protected at the time of platting as Conservation or Preservation Areas. The County applies, through its Land Development Code, setback and buffer requirements intended to protect water quality and aesthetics and provide open space. Many wetlands are also protected through Development of Regional Impact development orders, their location along the River, in parks and preserves, and through processes such as the ELAP and Save-our Rivers Programs.

Groundwater Resources

Environmental and Sustainability Section
(Conservation Element)

Background Data and Analysis

The groundwater system is the principal source of water for domestic, agricultural, and industrial use in Hillsborough County. The groundwater system in Hillsborough County is divided into three distinct aquifer systems: the surficial, intermediate, and Floridan. The Floridan Aquifer system is the principal source of groundwater production. Further discussion on groundwater resources and aquifer recharge can be found in the One Water Chapter.

Pollution Sources

The major pollution sources to the waters of Hillsborough County include stormwater, industrial operations and domestic wastewater treatment plants. The Hillsborough County Environmental Protection Commission (EPC), in cooperation with the Florida Department of Environmental Protection (DEP), uses a "Permit Process" as the primary tool for controlling water pollution from industrial and domestic sources. The stormwater management permitting process is delegated to the Southwest Florida Water Management District (SWFWMD) by DEP. Great strides have occurred to minimize pollution, as Greening et al (2014), discuss the shift from a turbid phytoplankton-based system to a clear water seagrass-based system in the 1980s has not only resulted in improved ecological conditions in Tampa Bay, but is also contributing to increased economic value of the region through enhanced ecosystem services. Annual nitrogen removal from increased seagrass extent is conservatively estimated to have increased by US $7.4 M between 1982 and 2010.

Industrial Sources. There are over 20 different types of major industries requiring regulatory permits from DEP for wastewater management, treatment or discharge. Each industrial type poses a different potential threat to the environment. The regulatory permitting process seeks to control this potential harm by setting strict standards or limitations on the discharge.

Further discussion on water pollution sources can be found in the One Water Chapter.

Water Conservation

Water conservation continues to be an important goal for the County's efforts to plan for future water supplies, wastewater disposal, and environmental protection.

Further discussion on water conservation can be found in the One Water Chapter.

Flora and Fauna

The State's variable climate and geography, combined with soil composition, rainfall patterns and coastal influences, provide a mosaic of habitats, each with a unique association of flora and fauna.

Due to the County's size, extensive estuarine shoreline, and location in a transitional climate zone (temperate to sub-tropical), contains representative examples of over half of the major plant communities in the State. Fourteen plant communities occur in Hillsborough County. They include pine flatwoods, dry prairies, sand pine scrub, sandhills, xeric hammocks, mesic hammocks, hardwood swamps, cypress swamps, freshwater marshes, wet prairies, coastal marshes, mangrove swamps, coastal strand, and marine grass beds.

Background Data and Analysis

Regulation, specifically through the upland habitat protection program and EPC's Wetlands Rule, is designed to protect the most sensitive portions of private parcels that have been identified as a Significant or Essential Wildlife Habitat. According to the US Fish and Wildlife Service, 13 Federally listed species exist in Hillsborough County, additionally 22 endangered and threatened plants are reported to exist in the County by the Florida Department of Agriculture and Consumer Services. Wetlands and other environmentally sensitive areas are also protected in accordance with plan provisions through Code requirements including buffers and other techniques. Wetlands county-wide are protected in accordance with the Rules of the Environmental Protection Commission of Hillsborough County (EPC), which was created through a special state act (Chapter 1-11, Laws of Florida, the Environmental Protection Act of Hillsborough County). EPC has received delegation for wetlands protection from the Florida Department of Environmental Protection (FDEP); all wetland disturbances must be first approved by the EPC.

The state's Environmental Resource Permit (ERP) process, administered primarily by the Southwest Florida Water Management District locally, is also intended to improve the protection of both upland and wetlands ecosystems, partially through improved coordination with the Florida Fish and Wildlife Conservation Commission.

The Natural Systems and Land Use Land Cover map delineates significant wildlife habitat within County boundaries. Areas of essential wildlife habitat (those areas critical for the survival of endangered and threatened species, and species of special concern) are mapped where known. The Biodiversity Hot Spots and Strategic Habitat Conservation Areas maps assist in identifying these locations.

Commercially and Recreationally Important Fish and Shellfish

Once a highly productive ecosystem, Tampa Bay has sustained considerable damage due to urban development. There are only two shellfish harvesting areas in Tampa Bay. They are both classified by the state as "conditionally approved," meaning that they are subject to ongoing water quality analysis due to conditions which frequently alter the water quality including flooding and urban runoff. One area is in Boca Ciega Bay and the other is in Lower Tampa Bay. Oysters and clams are no longer commercially harvested due to the inability of the few approved shellfish harvesting areas to produce harvests large enough to support a commercial industry. In addition, recreational harvesting of clams and oysters is extremely limited due to these conditions. Scallop harvesting is strictly prohibited as efforts are underway to reestablish the species. Other shellfish populations, which do support significant harvests, include blue crabs, stone crabs, lobster and shrimp.

Many fish are commercially harvested in Tampa Bay, the most significant of these include grouper, jack, mullet, shark and snapper. Although a wide variety of fish are taken recreationally, the most significant are spotted seatrout, red drum and snook. The Bay supports a diversity of recreational fishing opportunities including boat, pier, bridge and shore fishing.

Further discussion of natural coastal resources can be found in the Coastal Management Element)

Natural Preserves

Environmental and Sustainability Section
(Conservation Element)

Background Data and Analysis

Natural preserve lands are those lands which are maintained and managed in essentially their natural state with the primary objective of conserving and protecting their environmentally unique, irreplaceable and valued ecological resources. Natural preserve lands also provide recreation and aesthetic benefits and are open to public use and enjoyment to the extent that such uses are compatible with the conservation and protection of these lands.

In 1987, Hillsborough County voters passed a referendum to create the Environmental Lands Acquisition and Protection program (ELAPP) with the purpose of acquiring, preserving and protecting endangered and environmentally sensitive lands, beaches, parks and recreational lands in Hillsborough County. In 1990, the voters approved another ELAPP referendum authorizing the County to issue bonds up to $100 million that would be retired by the levy of ad valorem taxes not to exceed 0.25 mil in any one year, to designate a portion of such funding for site restoration and management, and to permit the conveyance of such lands to other public agencies for the purpose of preservation, provided the proceeds be used to acquire additional land or retire bonds. On November 4, 2008, the voters approved a third referendum (79%) for the issuance of up to $200 million in bonds. ELAPP is a voluntary preservation program, and the County will not use eminent domain to acquire lands for preservation through ELAPP. As of October 2019, the program has acquired, contracted, or participated in the preservation of about 61,980 acres at a cost of approximately $264.4 million. Since its inception, the ELAPP Teams have completed approximately 410 reviews and identified 134 sites as meeting the ELAPP criteria for protection or acquisition. Fifty-six sites are now considered as acquired and are depicted on the Conservation Land Use and ELAPP Areas map.

In addition to the ELAPP program, the Conservation and Recreation Lands (CARL), and Save Our Rivers (SOR) programs, administered by the Florida Department of Environmental Protection (FDEP) and the Southwest Florida Water Management District (SWFWMD), respectively, offer additional alternatives to local acquisition. SWFWMD has coordinated with the County's ELAPP program to acquire several projects.

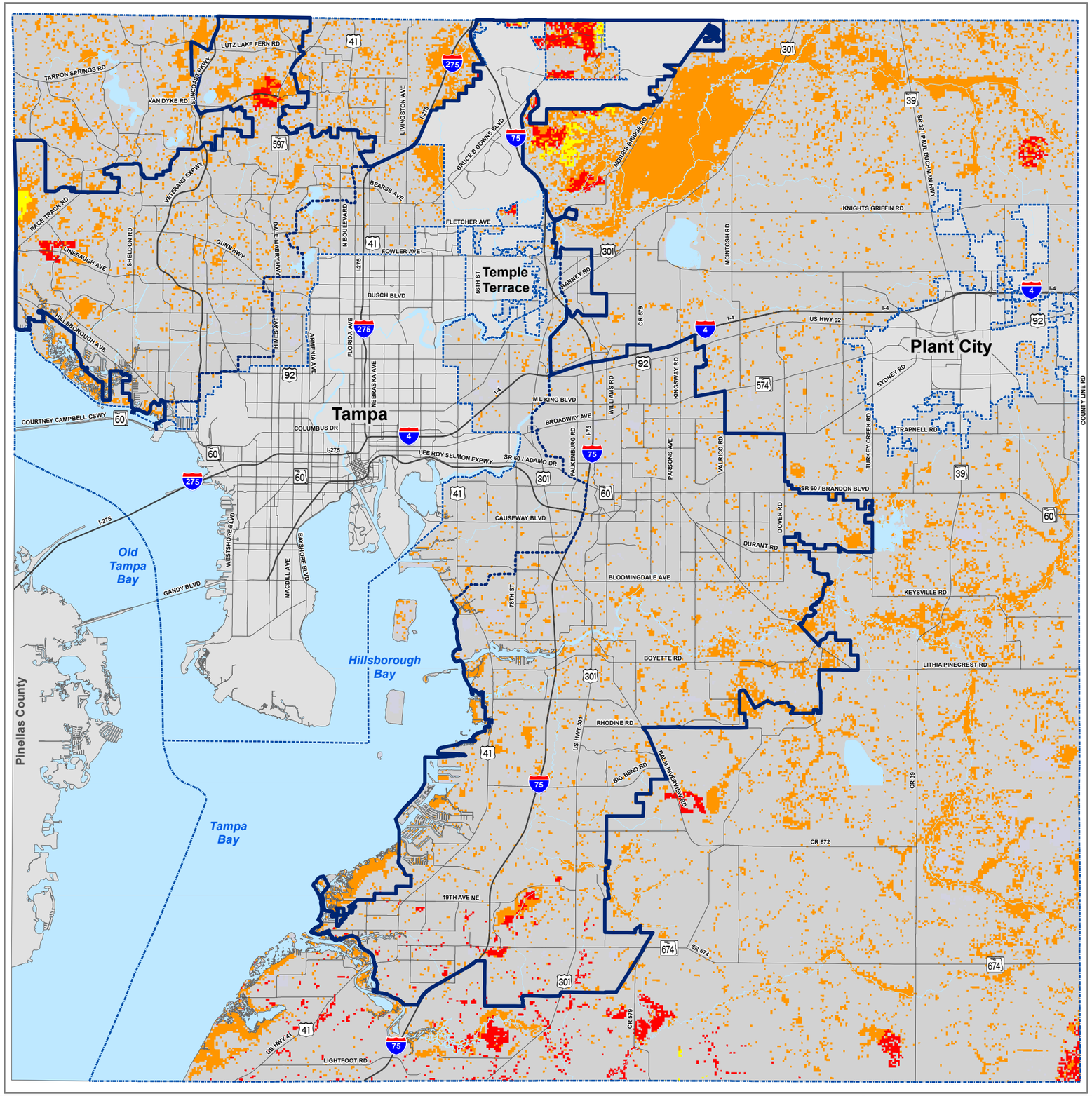
HC CPA 20-08
Background Data and Analysis Maps*

*This appendix contains only those maps used to explore/convey background data and not already included as part of the amendment package. The HC CPA 20-08 amendment maps were also used in the data and analysis and can be found as part of the amendment package materials.

Unincorporated Hillsborough County

BIODIVERSITY HOTSPOTS

NON-ADOPTED BACKGROUND DATA



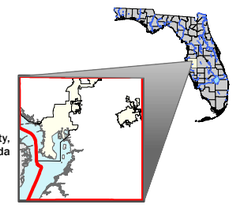
Legend

- 3-4 Focal Species Overlap
- 5-6 Focal Species Overlap
- 7+ Focal Species Overlap

Roads and Boundary Lines

- County Boundary
- Jurisdiction Boundary
- Tampa Service Area
- Urban Service Area
- Existing Major Road Network
- Limited Access Roads

Location Diagram and Reference Information



Hillsborough County, Florida

0 5,000 10,000 20,000 30,000 40,000 Feet

DATA SOURCES AND LIMITATIONS:

BIODIVERSITY HOTSPOTS: Planning Commission, derived from Florida Fish and Wildlife Conservation Commission Data.

MAJOR ROADS: See Adopted MPO Long Range Transportation Plan for specific improvements.

ACCURACY: It is intended that the accuracy of the base map comply with U.S. national map accuracy standards. However, such accuracy is not guaranteed by the Hillsborough County City-County Planning Commission. This map is for illustrative purposes only for the cities of Tampa, Temple Terrace and Plant City.

Author: cataniac

Date: 5/14/2020

Path: G:\gisroot\Projects\Cathy\Arcmap\NEW_MXD\CompPlaUnpdate_2020\Care_2020\uhc_biodiversity_hotspots_2020.mxd

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CONSERVATION LAND USE AND ELAPP AREAS

NON-ADOPTED BACKGROUND DATA

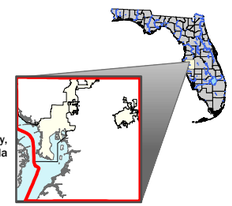
Legend

- Aquired
- Other Preservation
- Other Public Land
- Conservation Future Land Use Categories (Hillsborough County Natural Preservation & Tampa Environmentally Sensitive Areas)

Roads and Boundary Lines

- County Boundary
- Jurisdiction Boundary
- Tampa Service Area
- Urban Service Area
- Existing Major Road Network
- Limited Access Roads

Location Diagram and Reference Information



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DATA SOURCES AND LIMITATIONS:

ELAPP: Data from Hillsborough Geomatics.

FUTURE LAND USE: Data from The Planning Commission.

MAJOR ROADS: See Adopted MPO Long Range Transportation Plan for specific improvements.

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Author: CWelsh

Date: 5/14/2020

Path: G:\gisroot\Projects\Cathy\Arcmap\NEW_MXD\CompPlaUnpdate_2020\Care_2020\uhc_conservation_land_use_elapp_2020.mxd

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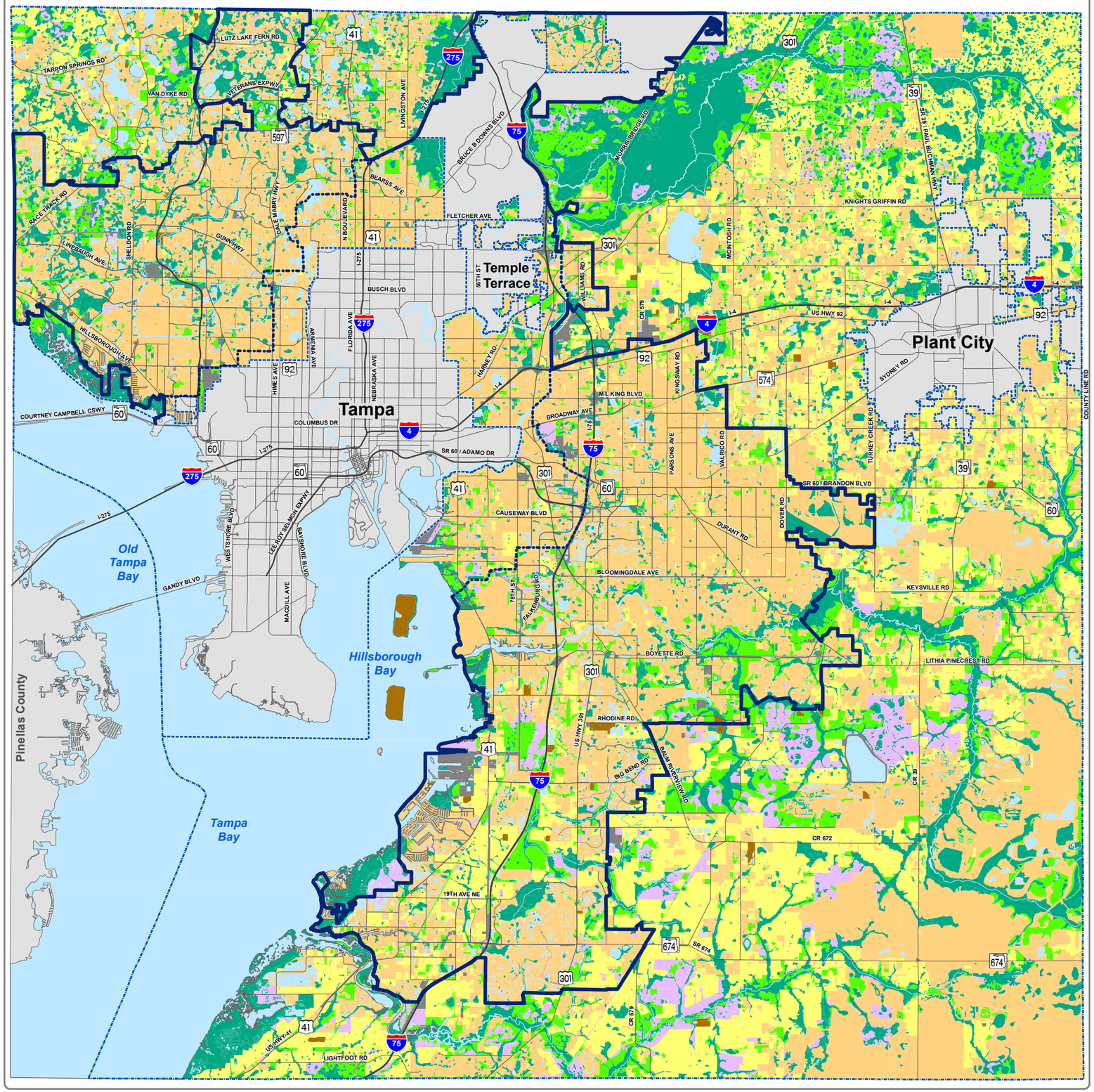
Unincorporated Hillsborough County

NATURAL SYSTEMS
LAND USE LAND COVER
NON-ADOPTED BACKGROUND DATA



Legend

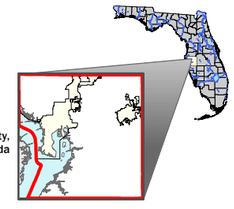
Land Use / Land Cover

- Urban / Extractive / Open
- Agriculture
- Rangeland
- Upland Forest
- Water
- Wetlands
- Barren Land
- Transportation, Communication, and Utilities

Roads and Boundary Lines

- County Boundary
- Jurisdiction Boundary
- Tampa Service Area
- Urban Service Area
- Existing Major Road Network
- Limited Access Roads

Location Diagram and Reference Information



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DATA SOURCES AND LIMITATIONS:

LAND USE LAND COVER: Southwest Florida Water Management District.

MAJOR ROADS: See Adopted MPO Long Range Transportation Plan for specific improvements.

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Author: CWelsh

Date: 5/14/2020

Path: G:\gisroot\Projects\Cathy\Arcmap\NEW_MXD\CompPlaUnpdate_2020\Care_2020\uhc_natural_systems_2020.mxd

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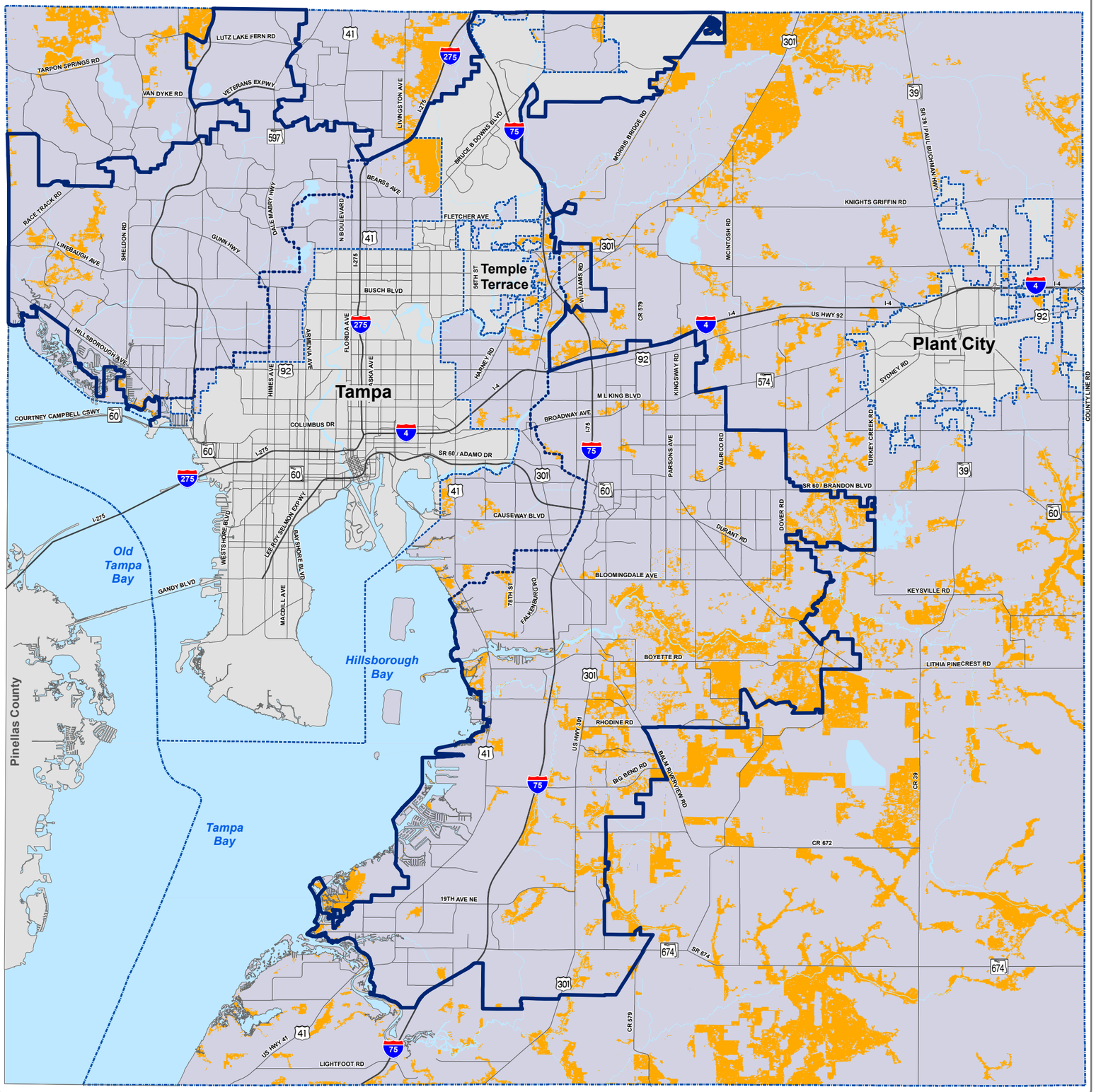
STRATEGIC HABITAT CONSERVATION AREAS

NON-ADOPTED BACKGROUND DATA



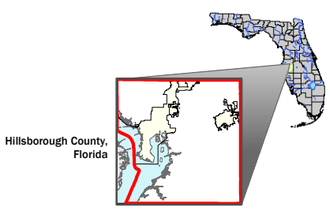
Legend

- STRATEGIC HABITAT CONSERVATION AREAS
- WATER

Roads and Boundary Lines

- County Boundary
- Jurisdiction Boundary
- Tampa Service Area
- Urban Service Area
- Existing Major Road Network
- Limited Access Roads

Location Diagram and Reference Information



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STRATEGIC HABITAT: Florida Fish and Wildlife Conservation

MAJOR ROADS: See Adopted MPO Long Range Transportation Plan for specific improvements.

ACCURACY: It is intended that the accuracy of the base map comply with U.S. national map accuracy standards. However, such accuracy is not guaranteed by the Hillsborough County City-County Planning Commission. This map is for illustrative purposes only for the cities of Tampa, Temple Terrace and Plant City.

Author:

Date: 5/14/2020

Path: G:\gisroot\Projects\Cathy\Arcmap\NEW_MXD\CompPlaUnpdate_2020\Care_2020\uhc_strategic_habitat_2020.mxd

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