

# Conservation, Sustainability, & Resiliency Data and Analysis



## INTRODUCTION

The Conservation, Sustainability, and Resiliency Element of Wellington's Comprehensive Plan promotes the conservation, use, and protection of natural resources and environmentally sensitive areas in Wellington, by implementing policies for their long-term protection. Section 163.3177(6)(d), Florida Statutes, mandates the Conservation Element provide for the conservation, use, and protection of natural resources, including but not limited to air, water, water recharge areas, wetlands, estuarine marshes, soils, flood plains, lakes, harbors, forests, fisheries and wildlife, minerals, and other natural and environmental resources, including factors that affect energy conservation.

The Conservation, Sustainability and Resiliency Element goes beyond the state requirement to include sustainability and resiliency, and is intended to incorporate other principles of the Comprehensive Plan to ensure a comprehensive approach to mitigate and manage the natural and built environment. The main agencies that enforce environmental regulations in Wellington are the Florida Department of Environmental Protection (DEP), the South Florida Water Management District (SFWMD), Palm Beach County Environmental Resources Management (ERM), and Wellington's Planning, Zoning and Building, Engineering, Utilities, and Public Works Departments.

## DATA AND ANALYSIS OF RESOURCES

The purpose of this supporting document to the Conservation, Sustainability and Resiliency Element is to identify and analyze natural systems located in Wellington. Wellington is approximately 45 square miles located within Palm Beach County (PBC). PBC totals approximately 2,386 square miles (1,970 square miles of land and 413 square miles of water), making it the second largest county in Florida by land area and third largest by total area. Wellington makes up approximately 1.8% of Palm Beach County's total area and is the fifth largest municipality in the county.

As envisioned, Wellington has significantly grown over the past 20 years, including residential and commercial development occurring along the State Road 7 corridor. Development has also occurred in areas of the older communities/neighborhoods, and the areas south of Lake Worth Road with equestrian farms. With the historic and future development anticipated, it is important for Wellington to understand the potential impacts on the natural environment and proactively mitigate or minimize any impacts.



Wellington is an affluent and thriving community that is willing to stake its future on being different. Wellington is recognized as the winter equestrian capital of the world. The community offers tremendous diversity from apartments to lavish homes where residents have private airplane hangars. Most importantly, however, Wellington is a Great Hometown that is committed to reducing its impact on climate change at a local level as well as preparing for changes. Wellington will need to provide a balance of development and commerce while protecting the essence of why people want to live here. This element is critical to development and environmental sustainability of Wellington. Analysis of the conservation, use, and impacts on natural resources will be imperative to continue maintaining and protecting these resources for the current and future residents.

## **AIR RESOURCES**

In 2017, the Florida Department of Environmental Protection (DEP) developed an Air Monitoring Network Plan that covers over 90 percent of Florida population. This annual plan has monitors at 95 sites in areas of higher population density, along the coast, and interstate highways.

Palm Beach County (PBC) currently has four sites per DEP Office of Air Monitoring (2020):

- Belle Glade (AQS # 099-0008 / Latitude: 26° 43' 29" Longitude: -80° 39' 59"),
- Delray Beach (AQS # 099-2005/ Latitude: 26° 27' 25" Longitude: -80° 5' 34"),
- Lantana Preserve (AQS # 099-0021/ Latitude: 26° 35' 38" Longitude: -80° 3' 31"),  
and
- Lamstein Lane (AQS # 099-0022/ Latitude: 26° 41' 15" Longitude: -80° 13' 11").

These sites monitor Particle Pollution (PM<sub>2.5</sub>), Particulate Matter (PM<sub>10</sub>), and Ozone (O<sub>3</sub>), which indicates PBC/Wellington area air quality is characterized as "good" per the United States Environmental Protection Agency (EPA) Air Quality Index (AQI). The EPA AQI is divided into four (4) categories from "good" to "very unhealthy," which indicates as AQI increases the population is likely to experience adverse health effects.

Local air quality is monitored and assessed by the PBC Department of Health, which is responsible for permitting and licensing of air pollution sources, conducting inspections, and enforcing air pollution regulations for compliance with national and state ambient air quality standards. Clean air is one of the most important natural resource that Wellington should continue protecting by participating with regional and state efforts and standards on air quality. Air pollution is produced from many sources, primarily from combustion of fossil fuel for transportation and power generation. There are no single point sources of significant pollution within Wellington. The challenge facing air quality will most likely continue with development and other environmental impacts. Quality of our air has an affects how we live and breathe, especially for children, older adults and individuals with a heart condition or lung disease. Residents may track and receive daily alerts on air



quality from EnviroFlash ([www.enviroflash.info](http://www.enviroflash.info)), which is a service sponsored by the EPA with support from the PBC Health Department Air Pollution Control Program. Wellington on average has an Air Quality Index (AQI) value from 0-50 which represents good air quality. A higher AQI value indicates a greater level of air pollution and there may more risk for health concerns.

<b>AIR QUALITY INDEX (AQI)</b>			
AQI Basics for Ozone and Particle Pollution			
Daily AQI Color	Levels of Concern	Values of Index	Description of Air Quality
Green	Good	0 to 50	Air quality is satisfactory, and air pollution poses little or no risk.
Yellow	Moderate	51 to 100	Air quality is acceptable. However, there may be a risk for some people, particularly those who are unusually sensitive to air pollution.
Orange	Unhealthy for Sensitive Groups	101 to 150	Members of sensitive groups may experience health effects. The general public is less likely to be affected.
Red	Unhealthy	151 to 200	Some members of the general public may experience health effects; members of sensitive groups may experience more serious health effects.
Purple	Very Unhealthy	201 to 300	Health alert: The risk of health effects is increased for everyone.
Maroon	Hazardous	301 and higher	Health warning of emergency conditions: everyone is more likely to be affected.

(Source: EnviroFlash Website)

While Wellington may have good air quality, it is important that future air quality be considered in the development of growth management strategies. Such strategies should focus on development patterns and/or regulations which reduce consumption of fossil fuels, increase energy conservation, and reduce the impacts on climate change.

## NATURAL LAND AREAS

Wellington understands the significant importance of protecting, maintaining, and preserving our wetlands, natural reservation and sensitive lands to ensure protection of endangered or threatened wildlife, endangered or threatened species, native vegetation for the benefit and enjoyment of existing and future residents and visitors. Although there are limited wetland and preserve areas remaining within Wellington’s boundaries, it is still important to maintain policies that ensures ecological systems, wetland, environmentally sensitive land, wildlife, habitat, and especially endangered and rare species, are identified, managed, and protected.

### Wetlands, Preserves, and Environmentally Sensitive Land

Wetlands offer a variety of ecological benefits to the natural environment and consequently are viewed as a valuable natural resource. They serve as transitions



between surface and ground waters, which allow for natural surface water treatment areas or filters in the hydrologic cycle. Wetland areas are habitats for significant populations of animal and plant species, some of which are dependent upon the wetland habitats for survival. Wetlands may also act as natural flood control and storm water management areas, which are increasingly important as our natural areas continue to be converted to a built environment. The economic, aesthetic and recreational values of wetlands are important considerations as a further benefit to the community. Certainly the values and benefits of wetlands are of concern to the future of our natural and built environments.

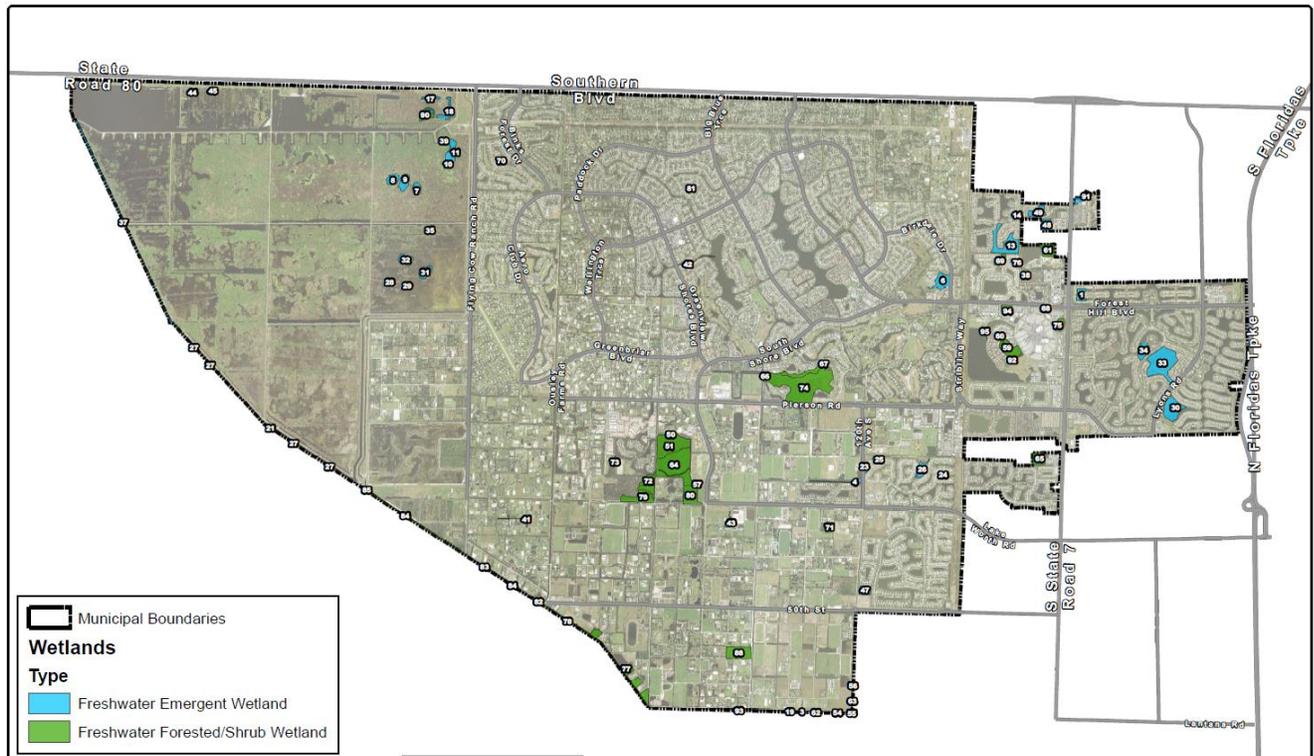
Wetlands present in Wellington are in three classifications (type) as defined by the United States Fish and Wildlife Service:

<b>WETLAND DESCRIPTIONS</b>	
<b>Wetland</b>	<b>Description</b>
Emergent	Characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. Vegetation is present for most of the growing season in most years. These wetlands are usually dominated by perennial plants. All water regimes are included except subtidal and irregularly exposed. In areas with relatively stable climatic conditions, Emergent Wetlands maintain the same appearance year after year.
Forested	Characterized by woody vegetation that is 6 meters tall or taller. All water regimes are included except subtidal. Forested Wetlands are most common in the eastern United States and in those sections of the West where moisture is relatively abundant, particularly along rivers and in the mountains. They occur only in the Palustrine and Estuarine Systems and normally possess an over story of trees, an understory of young trees or shrubs, and an herbaceous layer. Forested Wetlands in the Estuarine System, which include the mangrove forests of Florida, Puerto Rico, and the Virgin Islands, are known by such names as swamps, hammocks, heads, and bottoms. These names often occur in combination with species names or plant associations such as cedar swamp or bottomland hardwoods.
Scrub-Shrub	Areas dominated by woody vegetation less than 20 feet tall. The species include true shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions. All water regimes except subtidal are included. Scrub-Shrub Wetlands may represent a successional stage leading to Forested Wetland, or they may be relatively stable communities.

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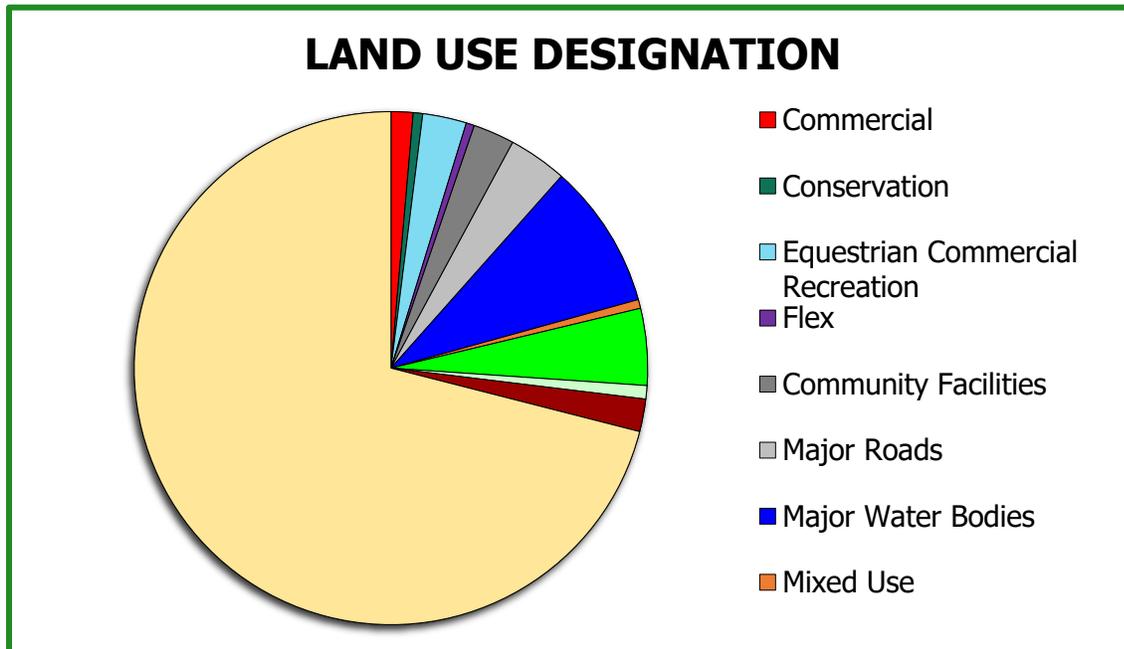


There is over 1,800 acres of wetland in Wellington per the National Wetland Inventory, with most being small, scattered and isolated as illustrated below:



(Source: United States Fish and Wildlife Service National Wetland Inventory 2020)

With development over the years, extensive drainage and agricultural interests, the viability of these wetland areas has been significantly compromised. The significance of the wetlands designations is raised in the development review process so that more in-depth analysis of the site is conducted prior to development permit approvals. It is important to note that while some of the wetlands may be considered degraded, that does not necessarily mean that the wetland designation should be eliminated. The designations do not preclude development on these sites. In fact, mitigation or restoration of wetlands has been successful in a number of instances. They do however serve to discourage development impacts and require mitigation or restoration where necessary. Wellington should continue to encourage the designation of wetlands, preserve areas and environmentally sensitive land as Conservation on our land use map through the development approval process. Conservation is less than 0.6% of the land use in Wellington as designated on the Future Land Use Map.



(Source: Village of Wellington GIS Database)

### Significant Wetlands and Preserve Areas

Most of the wetlands in Wellington are less than one-third of an acre in size and are on residential property. The more significant wetlands have been incorporated into projects as preservation areas. The following description is of some significant areas (20 acres or more) in Wellington.

SIGNIFICANT WETLANDS/PRESERVE AREAS	
Wetland	Description
Big Blue Forest	Located in the southern portion of Section 20 is an 80-acre Cypress Stand located within the Palm Beach Polo and Country Club. Designated as Conservation on the land use map.
Black Diamond	Located in the northern portion of Section 12 is a 22-acre wetland preserve and Oak Hammock areas within the Black Diamond PUD.
Peacock Pond	Located in the western half of Section 21 is a 79-acre degraded and disturbed wetland within the Wellington Country Place PUD. This area is primarily for water quality treatment purposes and secondarily for improvement and maintenance of wetland functions.
Olympia	Located in Section 18 is approximately 60 acres of wetland and preserve areas located within the Olympia PUD.



Wellington Green	Located in Section 13 are wetlands preserve areas totaling approximately 24 acres within the overall Wellington Green project.
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**Environmentally Sensitive Land**

In addition to the above section on privately owned wetland/preserve areas, conservation areas, and environmentally sensitive lands, Wellington currently owns and maintains over 400 acres of preserve areas. The preserve areas are protected land which contains diverse nature and wildlife, and is maintained with a focus on environmental preservation. There are three significant preserve areas that are environmentally sensitive lands for Wellington, which must be protected and conserved. The preserve areas provide opportunity for bird watching and nature photography. These and other publicly/private owned environmentally sensitive areas should be designated as Conservation on the land use map.

Peaceful Waters Sanctuary is a 30-acre wetland/preserve park area located in the Village Park Athletic Complex. The area features 1,500 feet of elevated nature boardwalks, one mile of walking trails, and a variety of animals and plant species native to South Florida.



Pine Valley Preserve is a 10-acre preserve area located off Birdale Drive adjacent to Elbridge Gale Elementary School. The passive nature preserve area features an elevated nature boardwalks and gazebo.



Peaceful Waters Sanctuary and Pine Valley Preserve  
(Source: Village of Wellington Public Records)

Wellington Environmental Preserve (Section 24) is a 365-acre rainwater storage area located at the Marjory Stoneman Douglas Everglades Habitat along the west side of Flying Cow Ranch Road. Its interior uplands and native landscaping provide an exhibition of natural Florida from the paved pedestrian path and boardwalk to seven designated Learning Areas. There is a large decorative Trellis and six-story Observation Tower located at two of these Learning Areas. Also, Section 24 includes a 3.6 mile perimeter Equestrian Trail that is an extension of the approximately 65-mile Wellington bridle trail system. The Preserve was named the 2010 "Project of the Year" by the Palm Beach County Chapter of the American Society of Civil Engineers.



Wellington Environmental Preserve – Observation tower and aerial view of the trails.  
(Source: Village of Wellington Public Records)

## **NATIVE VEGETATION AND WILDLIFE COMMUNITIES**

In addition to the wetland/preserve areas, many of the developed and undeveloped lots in our community support a significant stands of native Slash Pine and Cypress vegetation that, when looked at collectively, signify a natural resource that has come to represent the importance this community places on high aesthetic qualities. The large pine canopy in Wellington is still symbolized by the Village logo, which depicts a Slash Pine stand with a sunset background. Wellington native vegetation and tree canopy is often the most impressionable aesthetic quality made to visitors.

Wellington continues to preserve its valuable tree canopy with planting of canopy trees on public lands, the Tree Board and enforcement of the tree preservation ordinance. Wellington has been designated Tree City USA for over 20 years and received the Tree City USA Growth Award for over 10 years. The Tree City USA Program recognizes communities that have taken steps to develop tree management programs. The Growth

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Award recognizes communities that demonstrate a higher level of tree care and community engagement. Efforts must be made to continue protecting this resource through preservation requirements.

Wellington contains significant plant and wildlife communities due to its proximity to the Everglades and Water Conservation Areas, some of which have been identified as endangered, threatened, or species of special concern by the U.S. Fish and Wildlife Service, and other federal and state agencies. The following table of listed species are potential species that may inhabit the area, but not necessarily due to historic land alterations and environmental conditions.

<b>LISTED SPECIES</b>	
Species Name (Common Name - <i>Scientific Name</i> )	Status
<b>Birds</b>	
American Kestrel - <i>Falco sparverius paulus</i>	Special Concern
Audubon's Crested Caracara - <i>Polyborus plancus audubonii</i>	Threatened
Bald eagle - <i>Haliaeetus leucocephalus</i>	Special Concern
Black Skimmer <i>Rynchops niger</i>	Special Concern
Dunlin <i>Calidris alpina arctica</i>	Special Concern
Everglade Snail Kite - <i>Rostrhamus sociabilis plumbeus</i>	Endangered
Florida Scrub-jay - <i>Aphelocoma coerulescens</i>	Threatened
Ivory-billed Woodpecker - <i>Campephilus principalis</i>	Endangered
Kirtland's Warbler - <i>Setophaga/Dendroica kirtlandii</i>	Endangered
Least Tern <i>Sterna antillarum</i>	Special Concern
Magnificent Frigatebird <i>Fregata magnificens</i>	Special Concern
Piping Plover - <i>Charadrius melodus</i>	Threatened
Red Knot - <i>Calidris canutus rufa</i>	Threatened
Red-cockaded Woodpecker - <i>Picoides borealis</i>	Endangered
Short-billed Dowitcher <i>Limnodromus griseus</i>	Special Concern
Swallow-tailed Kite <i>Elanoides forficatus</i>	Special Concern
Whooping Crane - <i>Grus Americana</i>	
Wood Stork - <i>Mycteria Americana</i>	Threatened
Yellow Warbler <i>Dendroica petechia gundlachi</i>	
<b>Plants</b>	
Beach Jacquemontia - <i>Jacquemontia reclinata</i>	Endangered
Florida Prairie-clover - <i>Dalea carthagenensis floridana</i>	
Four-petal Pawpaw - <i>Asimina tetramera</i>	Endangered
Hand Fern	Endangered
Johnson's Seagrass - <i>Halophila johnsonii</i>	Threatened



Okeechobee Gourd - <i>Cucurbita okeechobeensis</i>	Endangered
Tiny Polygala - <i>Polygala smallii</i>	Endangered
Tropical Curly-grass Fern	Endangered
Venus-hair Fern	Threatened
Wild Cotton	Endangered
<b>Mammals</b>	
Florida Bonneted Bat - <i>Eumops floridanus</i>	Endangered
Florida Panther	Endangered
Mountain Lion	Threatened
Southeastern Beach Mouse - <i>Peromyscus polionotus niveiventris</i>	Threatened
<b>Reptiles</b>	
American Alligator - <i>Alligator mississippiensis</i>	Threatened
Eastern Indigo Snake - <i>Drymarchon corais couperi</i>	Threatened
Gopher Tortoise	Threatened
Hawksbill Sea Turtle - <i>Eretmochelys imbricata</i>	Endangered
Leatherback Sea Turtle - <i>Dermochelys coriacea</i>	Endangered
Loggerhead Sea Turtle - <i>Caretta caretta</i>	Threatened

(Source: Village of Wellington Public Records and U.S. Fish and Wildlife Service Information for Planning and Consultation web database)

## **EARTH RESOURCES - MINERAL AND SOIL**

Compliance with applicable regulations pertaining to dredge and fill operations, site development work, clearing and grubbing, and other land development activities necessary for site preparation is monitored and inspected through the site development permit process. Wellington currently has no known active commercially valuable mining site for minerals. In some areas of Wellington the soils are not readily suitable to build on and generally must be removed and/or reconditioned and replaced with clean fill appropriate for building purposes. It is important to know the types of soil in an area to ensure suitability of the proposed land use.

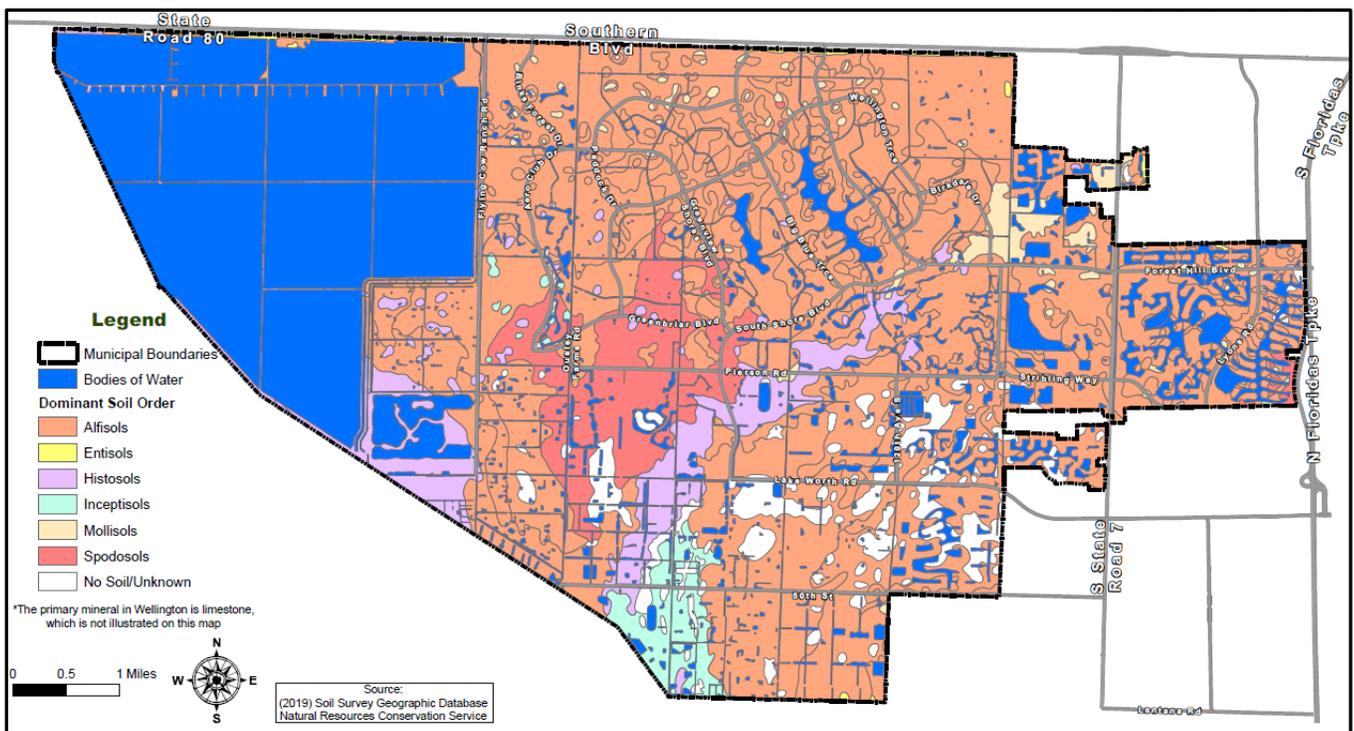
Adverse soil conditions should be removed from site prior to proposed use to ensure an improved water management system by providing a well-drained development area and in some cases the excavation areas created present opportunities for on-site drainage or retention areas. Similarly, not all soils in Wellington are suitable for septic tanks and soil surveys are required by the County Health Department prior to issuance of septic tank permits. Soil surveys provide important information in managing watershed or wildlife area and for development of the area.

Organic soils exist in scattered areas of Wellington and offer some of the most productive agricultural opportunities in the United States. These are peat soils of varying thickness, overlaying limestone or shell, which are slowly compacting and decomposing through



oxidation. Generally soil erosion is not a major concern in the Wellington area, except for water erosion occurs around canal and lake embankments. This erosion especially occurs where vegetative plantings are inadequately installed along the banks. The development review process ensures that plantings are installed along lake and canal banks, proper sloping requirements, and lake and canal bank inspections are conducted prior to issuance of certificates of occupancy in order to prevent such water erosion problems in the future.

Soil Survey Geographic Database Natural Resources Conservation Service identifies the predominant soil in Wellington to include Alfisols, Entisols, Histosols, Inceptisols, Mollisols, and Spodosols. The primary mineral in the Wellington area is limestone. The below Soils Map is an illustration of the general concentration within Wellington's boundaries.



## WATER RESOURCES - GROUNDWATER

### Hydrogeological and Geologic Setting

Most of the fresh water used in Wellington comes from underground aquifers that are multiple layers of porous rock, such as limestone or sandstone, which hold water. Aquifers supply more than eight billion gallons of water each day throughout Florida. The Village is underlain by two aquifer systems: the Surficial Aquifer System (SAS) and the Floridan Aquifer System (FAS). The SAS, which is composed of geologic sediments of varying permeability, extends from land surface to a depth of approximately 160 feet below land



surface throughout the Village. Descending from land surface, the lithostratigraphic units comprising the SAS typically include the Pamlico Sand and the Anastasia, Fort Thompson, and Tamiami formations (Reese and Wacker, 2007). The sandstone and limestone units of the Anastasia, Fort Thompson, and Tamiami formations are the most productive portions of the SAS in Palm Beach County (Reese and Wacker, 2007). In portions of the Village, the SAS has locally higher salinities, thought to result from relict seawater that was emplaced during previous high stands of sea level. The unconfined SAS, which is recharged by rainwater and surface water seepage from the Acme Improvement District (AID) canal system, is the only fresh groundwater source beneath the Village.

Separating the SAS from the underlying FAS is the Intermediate Confining Unit, which is composed of several hundred feet of hydraulically confining clay, marl, silt, and limestone. The top of the FAS is marked by a pronounced downhole lithologic change from gray and greenish gray clayey strata to light colored (yellowish gray) fossiliferous limestone. The FAS is comprised of the Upper Floridan Aquifer (UFA), middle confining unit, and Lower Floridan Aquifer. The top of the UFA is approximately 930 feet below land surface beneath the Village. The producing zones within the FAS can generally be referred to as "flow zones". A flow zone is typically a thin sequence of highly solution rock where water, flowing within the aquifer, is concentrated. Numerous thin flow zones may contribute water to the open interval of a well and often times a high percentage of the water produced by the well comes from one or two thin flow zones. The brackish UFA, along with the Avon Park Permeable Zone, which is a sub-aquifer within the middle confining unit, are a source of brackish water supply for reverse osmosis water treatment throughout south Florida.



Source: SFWMD Website- Aquifers South Florida's Underground Mountains

Currently the Village sources all of its water for public water supply treatment from the SAS. There are no plans to utilize the deeper, brackish FAS, as current and future projected (20-year) demands can be met by pumping from the SAS.

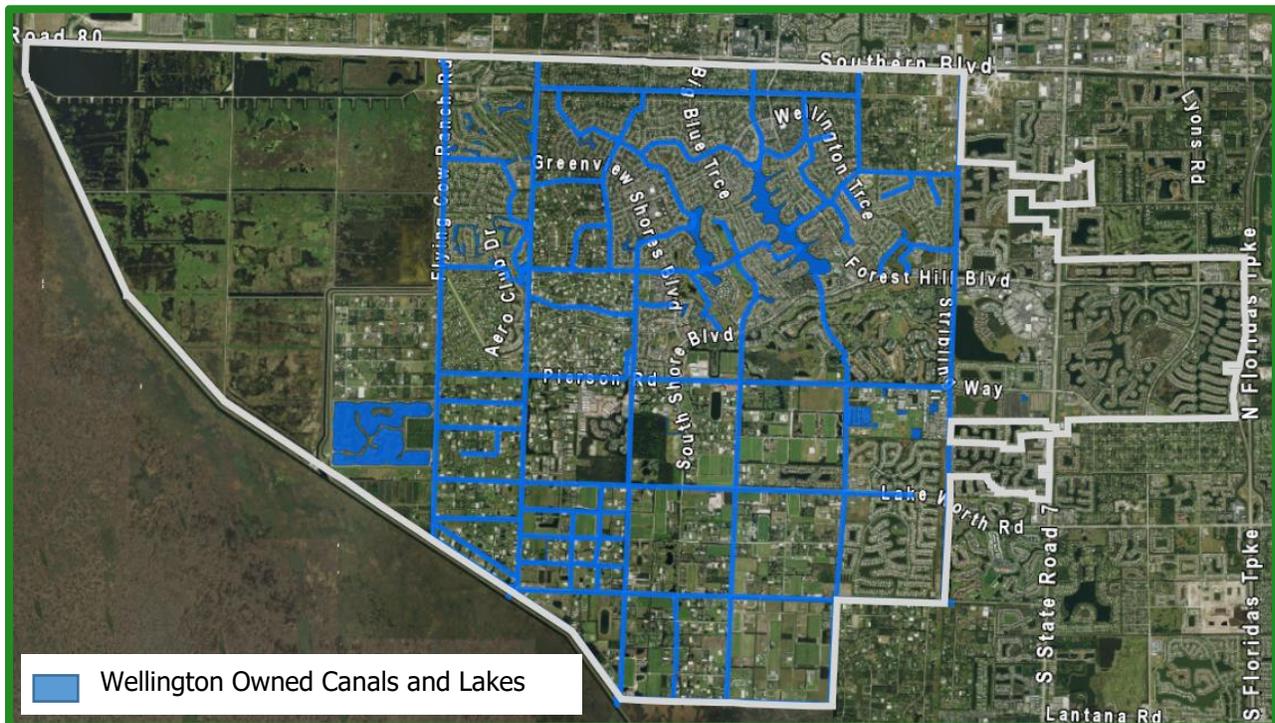
### **Canals and Lakes**

Waterways in Wellington consist of a system of man-made canals and lakes as well as natural wetland areas. Primary canals, includes the C-51 which forms Wellington's

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northern boundary along the south side of Southern Boulevard and the L-40 alongside the Loxahatchee National Wildlife Refuge. These primary canals are maintained by the South Florida Water Management District (SFWMD). There are secondary canals along the border of nearly every land section in Wellington, which are maintained by the AID, and serve as drainage features and water conveyance for adjacent land areas. Canals aid in drainage, flood control and irrigation. Wellington maintains around one mile of canal every year through the consistent resloping, resodding, and desilting. There are no rivers or bays within the municipal boundaries of Wellington.



(Source: Village of Wellington GIS Database)

There are a number of man-made lakes and ponds in Wellington, a majority that are associated with particular development orders which are required for on-site retention. The primary uses of Wellington's lakes are for drainage and stormwater management purposes, recreational activities, and to provide for fish and wildlife habitats. The following is a list of the largest lakes in Wellington along with the respective acreage (list does not reflect water bodies under 20 acres and/or not within subdivisions).



<b>LAKE BREAKDOWN</b>	
<b>Lakes</b>	<b>Acreage (Approximate)</b>
Black Diamond	96
Buena Vida	61
Castellina	26
Equestrian Club Estates/PBIEC	37
Grand Isles	71
Greenview Shores	50
Isles at Wellington	126
Lake Wellington	150
Landings	85
Lotis Wellington	25
Oakmont Estates	36
Olympia	296
Palm Beach Polo	136
Versailles	52
Villagewalk	219
Wellington's Edge	42
Wellington Green (Includes Lake Victoria 96 acres)	126
Winding Trails	29

(Source: Village of Wellington GIS Database)

Lake Wellington the largest publicly owned and maintained lake is an important element of the Wellington Town Center vision. Town Center is a place for the community to gather, share activates and an overall entertainment hub. Recent improvements to Town Center includes activation of Lake Wellington with lakefront boardwalk promenade and boathouse. Town Center Boardwalk is a pathway running along Lake Wellington that allows for an overall view of the lake in ways previously not





possible. Docks at Town Center provide public access slips and tie-off point, making it possible to utilize the lake with boat access. Boathouse users are able to louche their boats from the floating docks along Lake Wellington at Town Center.



View of Town Center Boardwalk along Lake Wellington (Source: Village of Wellington Public Records)

### Drainage

Drainage facilities and services are provided by the AID, a special district which was created prior to incorporation and is a dependent district of the Village. The AID is divided into two drainage basins. Basin A (8,990 acres lying north of Pierson Road) and Basin B (9,230 acres lying south of Pierson Road). The two basins function separately during moderate storm events, but during extreme events structures located under Pierson Road enable the two basins to equalize and act as one unit. In a major storm event, stormwater from Basin B flows into Basin A, eventually discharging into the SFWMD C-51 Canal, which flows west to east parallel to Southern Blvd.

Stormwater that does not evaporate or percolate into the ground enters water bodies and water courses, either by natural flow or by designed stormwater management systems. It is desirable that stormwater systems which discharge into surface water bodies and water courses not degrade the ambient quality of the receiving water. Typical sources of contamination that influence storm water run-off include petroleum products released from motor vehicles on roadways over which storm water flows, and fertilizers used for agriculture and landscaping. A typical measure of contamination is total phosphorus concentrations.

Local drainage and stormwater management regulations must be consistent with applicable standards promulgated by the SFWMD, the Treasure Coast Regional Planning Council, the Palm Beach County Department of Environmental Resource Management, the Florida Department of Environmental Protection, and/or other agencies with relevant jurisdiction. The Village can meet such standards in part by regulating development and in part by proper design of its own drainage system components. The Village's own



discharge is subject to National Pollution Discharge Elimination System (NPDES) and SFWMD standards, or other related standards. The Village has an agreement with the SFWMD to study water quality with the objective of developing more accurate data pertaining to water quality within the Village and Best Management Practices. Regular testing of surface water is done in approximately 30 locations throughout the Village, which are typically located in canals. The Village's agreement with SFWMD requires maintain an average rate of less than 50 parts per billion (ppb) in our surface water lake and canal system.

A recent addition to our stormwater system is the Wellington Environmental Preserve at the Marjory Stoneman Douglas Everglades Habitat (Section 24). Section 24 is a 365-acre rainwater storage area that was built through a partnership between SFWMD and Wellington. In compliance with the 1994 Everglades Forever Act, rainwater from Wellington must be cleansed of phosphorus before it enters the Florida Everglades. The southern half of Wellington (Basin B) has 9,230 acres of stormwater runoff that is now routed west to Section 24. It leaves Section 24 via the C-1 canal heading north to the C-51 canal that runs along SR 80 before finally entering the Everglades. In other words, we pump water into Section 24 if we are anticipating an upcoming drought. We can then pump the stored water back into our canals and lakes when the drought hits. Also, we pump water into the area if we are removing surface water from our canals and lakes. Section 24 provides Basin B with an additional 255 million gallons of off-line storage.



Aerial view of Wellington Environmental Preserve (Source: Village of Wellington Public Records)

In order to accomplish this storm water storage, seven Pump Stations (90,000 gpm) were built or renovated along with the widening of nearby canals. Approximately one inch of



rainwater from Basin B was also re-routed to reach Section 24. It is then naturally cleansed as it flows through over two miles of combined wetland/marsh area, littoral shelves and deep water sediment traps.

**Floodplains**

Floodplains are areas which can be expected to be submerged by floodwaters from a river, canal, lake or coastal waters during a 100-year storm. Floodplains however, do not include isolated low lying areas that periodically flood due to poor drainage. Flood control in Palm Beach County is dependent on a complex, integrated system of canals, waterways and flood control devices operated by the South Florida Water Management District, 20 drainage districts, and thousands of privately owned canals, retention/detention lakes and ponds. The county's drainage system is designed to handle excess surface water in three stages, which ultimately reach the Atlantic Ocean:

1. Neighborhood or tertiary drainage systems are made up of community lakes, ponds, street and yard drainage grates or culverts, ditches and canals.
2. Local or secondary drainage systems are made up of canals, structures, pumping stations and storage areas.
3. Primary flood control system consists of South Florida Water Management District canals, natural waterways, and rivers.

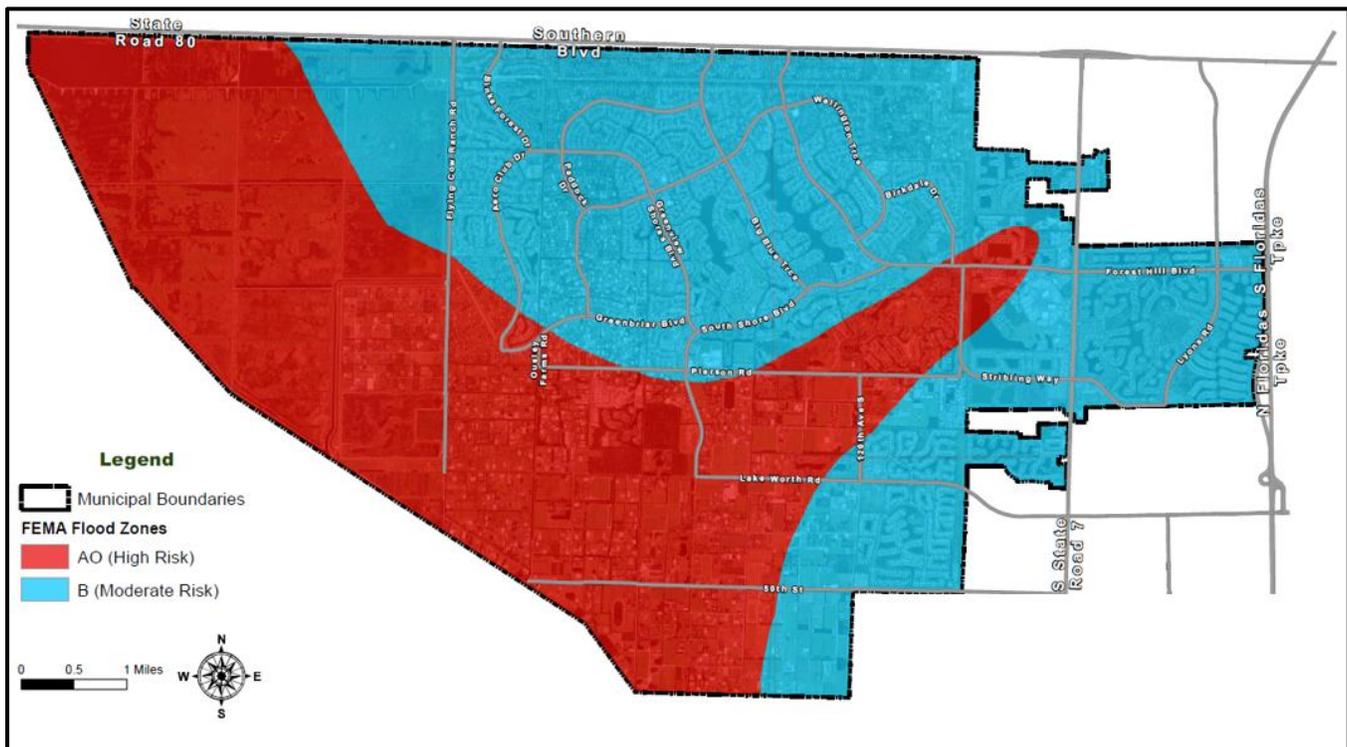
Still with manmade improvements, flooding occurs as a result of obstructions in floodplains, heavy rainfall, hurricanes and runoff from impervious surfaces within developed areas. The 100-year floodplain in Wellington is reflected on the current FEMA Flood Insurance Rate Maps (FIRM) which was completed in 2017 for all of Palm Beach County. As illustrated on the FIRM Wellington is within the AO and B flood zones. The following is FEMA descriptions of these flood zones:

<b>FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD ZONE DESCRIPTIONS</b>	
<b>Zone</b>	<b>Description</b>
AO	River or stream flood hazard areas, and areas with a 1% or greater chance of shallow flooding each year, usually in the form of sheet flow, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30 year mortgage. Average flood depths derived from detailed analyses are shown within these zones.
B	Area of moderate flood hazard, usually the area between the limits of the 100 year and 500 year floods. B Zones are also used to designate base floodplains of lesser hazards, such as areas protected by levees from 100 year flood, or shallow flooding areas with average depths of less than one foot or drainage areas less than 1 square mile.



Property losses due to flooding are generally not covered under standard insurance policies and is required to be insured with a National Flood Insurance Program (NFIP) Flood Insurance Policy.

Wellington participant in the NFIP Community Rating System (CRS) by going beyond the minimum floodplain management requirements to lower flood insurance premiums. Currently Wellington has a CRS rating of 5 out of 10 and is working diligently to maintain and/or reduce the rating. The CRS rating of 5 provides a 25% reduction in flood insurance premiums for residents while carrying out flood management measures designed to protect life and property from future flooding. This reduction applies to all properties located in Special Flood Hazard Areas (SFHA). Wellington continues to work towards a +goal of achieving even greater flood insurance premium discounts in the future, potentially 45% reduction with CRS rating of 1. The land area covered by the floodwaters of the base flood is the SFHA on NFIP maps. The SFHA is the area where floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies. The SFHA includes the AO zone which covers a significant area within Wellington as illustrated on the below map.



(Source: Village of Wellington GIS Database)

Wetland, natural areas and open spaces help reduce flood damage because floodwaters are permitted to spread over a large area and provides storage. These natural areas also filter nutrients and impurities from stormwater runoff and promote infiltration and aquifer recharge. Wellington has approximately 6,000 acres of open space in the SFHA.



Wellington uses the results of the FIRM and its accompanying Flood Insurance Study to guide compliance and site planning. NFIP requires participating counties and municipalities to issue permits for all development in the floodplain. Development is defined to include any man-made change to land, including dredging, extraction, filling, grading, storage, subdivision of land, etc. Proposed development/structures must not increase flooding or create a dangerous situation during flooding, especially on neighboring properties. Substantially improved structures are subject to the same elevation standards as new structures. Substantially improved structures are those where the cost of reconstruction, rehabilitation, addition or other improvements equals or exceeds 50% of the building's market value

All building permits that have been issued in the AO zone is in accordance with minimum finished floor elevations established under the Building Code which ensure that structures in this area have no greater risk of flooding than areas outside the floodplain designation. To verify that a building has been properly elevated, the completion of an Elevation Certificate by a professional engineer or surveyor is require prior to building final inspection of a new development/structures. The permitting review/inspection is a requirement for continued community participation in the NFIP.

Wellington's Floodplain Management Ordinance is intended to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific areas by:

- ❖ Controlling the alteration of natural floodplains, stream channels, and natural protective barriers that are involved in the accommodation of flood waters.
- ❖ Controlling filling, grading, dredging, and other development which may increase erosion or flood damage.
- ❖ Preventing or regulating the construction of flood barriers which may unnaturally divert flood waters or which may increase flood hazards to other lands.
- ❖ Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction.
- ❖ Restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities.

The primary causes of flooding in our community will continue causing property damage. Construction practices and regulations have made newer developments less prone to flooding, however many older existing structures remain susceptible. Property owners will need to retrofit existing structures to help reducing or eliminating exposure to flooding. Several effective techniques to help reducing or eliminating exposure to flooding includes increasing elevation of the structure above flood levels or relocation of a building to a site that is not subject to flooding; construction of flood walls or berms to keep water



away from the property; or retrofitting structures to make them flood proof. Retrofitting is a different approach as the property itself remains subject to flooding while the building on it is modified to prevent or minimize flooding of habitable space. Also, retrofitting may not be a cost effective solutions for all property within a flood zone.

### **Water Management Challenge**

Rainfall has been critical to South Florida’s history, feeding its natural wetlands and refreshing surface-water and groundwater reservoirs. Its water management issues differ from those of most other areas in the country. Where most areas are concerned with protecting water resources, South Florida’s challenge is managing an overabundance of surface water.

Water management will continue to be challenging due to:

- ❖ Annual rainfall averaging over 60 inches, and more than 50 percent occurring in 4 months (June to September).
- ❖ The rainy season necessitating the movement of water away from populated areas for flood control.
- ❖ The storage of excess water that is necessary to meet population needs and demands during dry periods.

To effectively drain and manage the excess water, hundreds of miles of canals, dikes, and levees have been built. The area high hydrologic variation, low physical relief, and limited storage and conveyance capacities, make water management challenges. A delicate balance must be struck, dealing with extreme flooding versus drought and open land versus crowded urban areas. Actions range from enforcing water restrictions during dry periods to precautionary or emergency flood management during wet periods and storm events. Choices must be made between further population growth, environmental protection, and adequate, safe water supply.