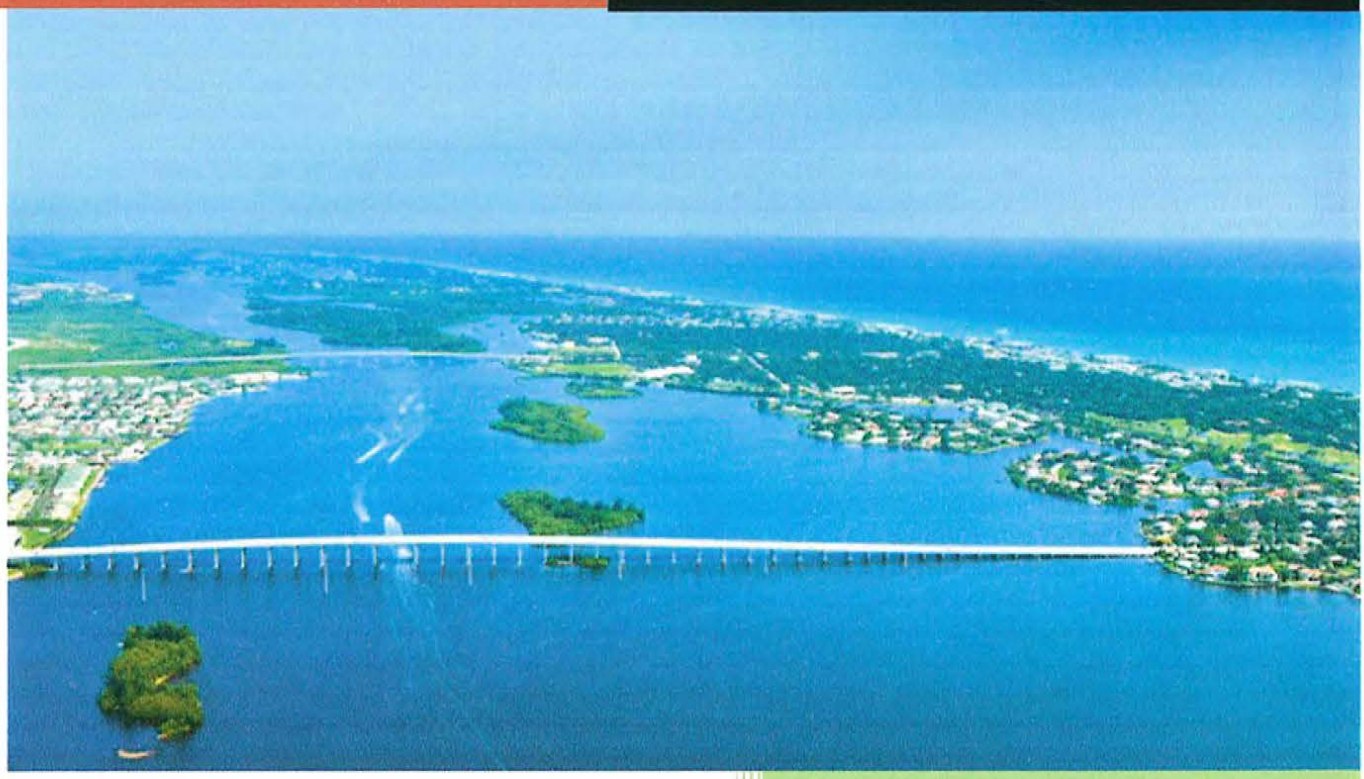
EXHIBIT B

# City of Vero Beach



# Comprehensive Plan

# Technical Document

# CITY OF VERO BEACH
# COMPREHENSIVE PLAN
# TECHNICAL DOCUMENT

Prepared by the City of Vero Beach
Planning and Development Department with
the Assistance of NZ Consultants, Inc.

April, 2018

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# CHAPTER 1
# INTRODUCTORY ELEMENT

## INTRODUCTION

This Technical Document and companion Map Series are two of three documents prepared in the comprehensive evaluation and appraisal update to the Vero Beach Comprehensive Plan. The other document is the Policy Document which provides the goals, objectives, and policies (GOPs) including the annual Capital Improvements Schedule for this Comprehensive Plan.

Each local government is required to prepare and adopt a comprehensive plan pursuant to Chapter 163, Florida Statutes (F.S.). As stated in Section 163.3177, F.S., the comprehensive plan is intended to "provide the principles, guidelines, standards, and strategies for the orderly and balanced future economic, social, physical, environmental, and fiscal development of the area that reflects community commitments to implement the plan and its elements." At least once every seven years, a local government is required to evaluate its comprehensive plan to determine if plan amendments are necessary to reflect changes in state requirements.

The Technical Document includes this chapter and nine chapters covering each of the required elements of the Comprehensive Plan. Each chapter presents the data and analysis for the nine plan elements that provide the policy framework for making recommended amendments to the GOPs in this major and comprehensive update of the existing Comprehensive Plan. The Map Series for the Comprehensive Plan that contains the maps referenced in both the Technical and Policy Documents is presented in a separate document.

This Introductory Element provides a historical background on the development of the City of Vero Beach, overview of the update of the existing Comprehensive Plan and the population and socio-economic information and data necessary for the development of the individual elements in the update of the City of Vero Beach Comprehensive Plan. A brief background of previous planning efforts and the general requirements of this planning initiative are also presented in this chapter including the public participation process in the preparation of this update to the Comprehensive Plan.

## CITY'S LOCATION SETTING

The City of Vero Beach is the county seat of Indian River County. Its 13 square miles are characterized by greenery, open space, beaches, and ocean vistas. It is the commercial, government, recreation, and cultural center of the County.

It is located on the east coast of Florida, part of the Treasure Coast Region, approximately 135 miles north of Miami, 140 miles east of Tampa, 100 miles southeast of Orlando and 200 miles south of Jacksonville.

## COMPREHENSIVE PLANNING PROCESS

This section provides a chronicle of comprehensive planning in Vero Beach, including the preparation of this 2035 Comprehensive Plan. As the Vision Plan adopted by the City Council was a major driving force for many of the amendments to the existing Comprehensive Plan, a discussion of the Vision Plan would be in order first.

### Visioning Process and Implementation

Beginning in 2003, the City decided to pursue a "visioning process" in an effort to address issues regarding growth, development, and overall City character. The visioning process broadly engaged the public and sought a community consensus for the future direction of the City, and resulted the in preparation and adoption of a "vision plan."

During the visioning process, City residents and "stakeholders" engaged in community town hall meetings, interviews, focus groups, and a community-wide survey were conducted to gather opinions regarding key problems, issues, opportunities, goals, and priorities. In addition, the City Council appointed a fifteen-member "Vision Team" to work with staff and consultants to develop a vision statement and report that was consistent with public input.

As a result of a two-year visioning process, the City Council adopted the Vero Beach Vision Plan, which includes the following vision statement: "Vero Beach…the crown jewel of the Treasure Coast." Building upon this vision statement, the Vision Plan set forth the following goal statements for the following:

- Downtown: *Reinforce downtown as a mixed-use office, employment, and governmental center, as well as a unique cultural, arts, entertainment, and residential enclave, with shopping and dining opportunities that support the district and its surrounding neighborhoods.*

- Royal Palm Pointe: *Complete the transformation of Royal Palm Pointe as a regional mixed-used residential, commercial, and entertainment district; focusing on restaurants, recreation, and boutique retail venues.*

- Miracle Mile/US 1 Commercial Districts: *Enhance the existing character, marketability, and long-term sustainability of Miracle Mile and US 1 commercial corridors, while allowing for their future evolution in accordance with changing commercial development trends.*

- Ocean Drive/Cardinal Drive: *Maintain the Ocean Drive/Cardinal Drive Commercial District as a destination and quality-oriented boutique retail center for both residents and visitors, while accommodating a demand for office development and the desire for quality residential environment.*

- Beachland Boulevard: *Reinforce Beachland Boulevard, from Mockingbird Drive to Ocean Drive, as a premier office corridor, particularly for professional services and banking and financial activities.*

- Neighborhoods: *Reinforce Vero Beach as a "community of neighborhoods" by developing strategies for both neighborhood preservation/conservation and neighborhood revitalization/stabilization.*

- Industry and Employment. *Create a diversity of good employment opportunities in Vero Beach for the benefit of works, to support younger residents in their desire to remain in Vero Beach, and to create a more stable and sustainable tax base.*

- Roadways and Wayfinding. *Create a roadway and supplemental transportation network that enhances the image of Vero Beach, while providing a framework for multi-modal transportation system. Create an infrastructure network that serves the people of Vero Beach and presents a positive image.*

- Planning and Development Regulations: *Align the City's plans and regulations to support the Vision Plan and follow through with appropriate training and public information programs.*

For each of these strategies, the Vision Plan proposes actions for their implementation. While full implementation of these strategies is beyond the resources of the City's limited staff and financial resources, the City has moved forward to partially or fully implement many of the strategies to improve the quality of life. In 2009, the City adopted more stringent tree protection provisions both in terms of protection and mitigation. A tree replacement fund has been established where mitigation funds are made available for planting of trees on public lands.

In 2007, after much debate, new height limitations were enacted. The maximum height of all new single family and duplex housing was set at 35 feet. With the comprehensive revisions to the City's development review and approval procedures, site plan approval was required for all single family development.

A Historic Preservation Ordinance was enacted in 2008 that established the Historic Preservation Commission and regulations and procedures for designating and protecting for historic sites. The first application for voluntary historic designation under the ordinance was approved by the City Council for a single family residence in the Original Town neighborhood in early 2010.

A detailed update on the implementation of strategies in the Vision Plan was provided in the staff memorandum to the Mayor and City Council, dated February 10, 2016. Many of the Vision Plan strategies and implementation actions were further evaluated in the 2010 Evaluation Appraisal Report and this update of the Comprehensive Plan.

**Chronology of Vero Beach Comprehensive Planning**

The City of Vero Beach adopted a comprehensive plan in 1981. The scope of the 1981 plan was expanded in order to fulfill local comprehensive planning requirements mandated by the 1985 Local Government Comprehensive Planning and Land Development Regulation Act (Florida Statutes, Chapter 163). The 1981 plan was replaced in 1992 with the current adopted Vero Beach Comprehensive Plan.

The State of Florida recognized the need for periodic review of comprehensive plans and enacted laws and established requirements for local governments to follow to ensure that planning programs are continuous and ongoing. The Local Government Comprehensive Planning and Land Development Regulation Act, Chapter 163, Part II of the Florida Statutes (F.S.) requires local governments to evaluate and assess the overall performance of their Comprehensive Plans at least every seven (7) years. Section 163.3191 required the preparation of an evaluation and assessment process required the preparation of an Evaluation and Appraisal Report (EAR).

The City's first EAR was adopted in March 1997. The City of Vero Beach adopted corresponding EAR-based amendments to the Comprehensive Plan in 2008 to bring the plan into compliance with Florida Statutes.

In August 2009, the Planning and Development Department began the process of evaluating the City's Comprehensive Plan in response to the requirements of Section 163.3191, Florida Statutes. A tentative list of six major local issues was prepared by the Planning and Development Department staff along with a memorandum describing the background, general approach, requirements for preparation of the EAR, and schedule for the EAR preparation. Included in the EAR was a further vetting of strategies proposed in the Vision Plan and recommendations on the incorporation of Vision Plan strategies in the update to the Comprehensive Plan.

This information was provided and received a preliminary review by the Planning and Zoning Board (the Local Planning Agency) at an advertised regularly scheduled meeting on August 20, 2009. A scoping meeting was advertised and a public hearing was held on September 17, 2009. The City Planning and Zoning Board, representatives from adjacent jurisdictions, and the various state and regional agencies involved in the comprehensive planning process were invited to attend and participate and/or provide written comments.

At that scoping public hearing, the Planning and Zoning Board approved a list of major issues for recommendation to the City Council. The list of issues along with a proposed Letter of Understanding between the City and the Florida Department of Community Affairs (DCA) was approved by the City Council at a public hearing on October 6, 2009. Subsequently, the City received a signed Letter of Understanding from DCA agreeing to the list of local major issues to be addressed in the EAR.

On June 17, 2010, an advertised public participation workshop was held to address the first three of six proposed local issues to be covered in the EAR. Following that workshop, and after further review, the staff decided to incorporate housing concerns under the umbrella of the "Neighborhood Preservation and Stabilization" issue, rather than focus on housing as a separate issue. A public participation workshop was held on August 5, 2010, to discuss the completed draft section of the EAR containing the revised draft of the five remaining major local planning issues.

In its role as Local Planning Agency, the Planning and Zoning Board conducted a public hearing on September 2, 2010, and unanimously recommended approval of the draft EAR prepared by staff for transmittal to the City Council for adoption. At a public hearing on September 21, 2010, the City Council adopted Resolution No. 2010-25 adopting the EAR, stating the intent of the City Council to amend the Comprehensive Plan based upon recommendations contained in the EAR, and approving transmittal of the EAR to DCA for sufficiency review. Subsequently, the DCA found that the EAR sufficient.

**Updating the Existing 1992 Comprehensive Plan**

Subsequent to the adoption of the EAR, the Florida Legislature significantly amended Chapter 163, and more specifically Section 163.3191 removing the requirement for the preparation of the EAR. Instead, the revised Section 161.3191 required that at least every seven years each local government shall evaluate its comprehensive plan to determine if plan amendments are necessary to reflect changes in state requirements since the last update of the Comprehensive Plan. After notifying the Department of Economic Opportunity (DEO), the successor agency to DCA, that amendments were needed, the local government would then be required to send its proposed amendments to DOE along with supporting data and analysis within a year.

The DOE established 2015 as the year for the City of Vero Beach to notice DOE of its intention to update its Comprehensive Plan pursuant to Section 163.3191 (1), Florida Statutes (FS). The staff and Planning and Zoning Board recognized that the 1992 Comprehensive Plan was seriously out-of-date and had little functional value in addressing short-and long-term development goals and needs of the City. However, in the period after 2010, the Planning and Development had a sizable decrease in staff which hampered any efforts to initiate preparation of any update to the existing Comprehensive Plan.

The City of Vero Beach officially notified the Department of Economic Development (DEO) on January 8, 2015, of its intent to amend its Comprehensive Plan pursuant to Section 163.31.91 (1), Florida Statutes. The deadline for submittal of the proposed amendments to DEO was February 2, 2016.

The City initiated work on updating the Comprehensive Plan in the summer of 2015. As part of this effort, the City hired the planning consultant firm of NZ Consultants, Inc., to assist the staff in preparation of amendments.

Unfortunately, the amount of work necessary to update a 25-year old plan and to incorporate the strategies and actions recommended in both the 2010 EAR and the 2005 Vision Plan were beyond the limited resources available. Therefore, the City was unable to meet the February 2, 2016 deadline established by DEO.

**Comprehensive Plan Amendments and Public Participation**

With the concurrence of the City's Planning and Zoning Board, which serves as the official Local Planning Agency pursuant to Section 163.3174, F.S., it was decided that the comprehensive update would focus primarily on the Land Use Element. This emphasis recognized the importance of the Vision Plan and its significance to guiding growth and development in Vero Beach.

The 2035 Comprehensive Plan is presented in two documents: a Technical Document and a Policy Document. The adopted 2010 Evaluation and Appraisal Report (EAR), 2005 Vision Plan, 2030 Indian River County Comprehensive Plan and updated census, planning and policy provisions provided the basis for preparing amendments to the existing Comprehensive Plan and much of the background data and analysis in this technical document.

The draft goal, objectives, and policies pertaining to each comprehensive plan element was presented to the Planning and Zoning Board for review and input at one or more public workshops. Based on input at the public workshop, each draft element was revised as needed and a final draft of the complete Technical and Policy Documents prepared.

A public hearing on the final draft of the components of the evaluation and appraisal documents for the update of the Comprehensive Plan to be transmitted to the Florida Department of Economic Opportunity (DEO) was held on April 20, 2016. Subsequently the Planning and Zoning Board recommended approval of the transmittal amendment package by the City Council to the DOE subject to several amendments to policies contained in the 2035 Comprehensive Plan Policy Document.

The City Council requested revisions to the draft document. These revisions were made and the draft Comprehensive Plan Policy Document and supporting documents were approved for transmittal to the DEO and reviewing agencies on November 11, 2017

On January 19, 2018, the DEO provided its Objections, Recommendations, and Comments (ORC) report to the City. The ORC report had one objection and several recommendations and comments, including those from the Florida Department of Transportation and St. Johns River Water Management District. The staff prepared revisions to the draft based on the ORC report. These proposed revisions were sent to DEO review, which gave its approval of the revisions.

In March, the staff met with Councilwoman Moss to further review the draft. Additional revisions were made to the draft plan.

On April 3rd, the City Council held a public hearing to adopt the Comprehensive Plan. By a vote of 4 to 1, the Comprehensive Plan was adopted with the revisions approved by the DEO and those additional revisions prepared in March.

## SOCIO-ECONOMIC ANALYSIS

### Population

Historic Population Trend. Table 1-1 presents historic population trends for the City of Vero Beach. During the seventies and into the beginning of the eighties, the City's population increased by more than 30 percent. By 1985, the population growth rate decreased to approximately 5.6 percent. For much of the 1990's the City experienced a steady population increase. This upward trend shifted after 2000, and by 2010 the population had declined by 16.3 percent, reflecting the "Great Recession" that impacted the City and nation.

Table 1-1. Historic Population Trends

| Year | Population | Change | Percent Change |
|---|---|---|---|
| **1960** | 8,849 | — | — |
| **1970** | 11,908 | 3,059 | 34.6 |
| **1980** | 16,176 | 4,268 | 35.8 |
| **1985** | 17,075 | 899 | 5.6 |
| **1990** | 17,350 | 275 | 1.6 |
| **1995** | 17,681 | 331 | 1.9 |
| **2000** | 17,705 | 24 | .14 |
| **2010** | 15,220 | -2,485 | -16.3 |
| **2015** | 15,608 | 388 | 2.05 |

Source: U.S. Census Bureau, 1960-2010; University of Florida's Bureau of Economic and Business Research, 2015.

2010 U.S. Census. Per the U.S. 2010 Census, there were 15,220 people, 10,258 housing units, and 3,946 families residing in 7,505 households in the city of Vero Beach. The racial makeup of the City was 87.5% White, 4.8% African American, 0.30% Native American, 1.8%Asian, 0.00% Pacific Islander, 3.7% from other races, and 1.8% from two or more races. Hispanics or Latinos of any race composed 10.7% of the population.

Of the 7,505 households, 16.5% included children under the age of 18, 39.2% were married couples living together, 9.3% were female householders with no husband present, and 47.4% were non-families. 19.6% of the households had a person living alone who was 65 years of age or older, 4.8% being 85 years and older. The average household size was 2.01 and the average family size was 2.65.

In the city, the population included 14.1% under the age of 16, 84.1% over 18, 4.3% from 15 to 19, 4.9% from 20 to 24, 5.5% from 20 to 25, and 29.4% who were 65 years of age or older. The median age was 50.9 years. The population consisted of 51.3% females and 48.7% males; for every 100 females there were 92.8 males.

## Characteristics of the Population

This section examines the socioeconomic characteristics of the population. The following analysis is based on the American Community Survey (ACS) conducted by the U.S. Census Bureau that includes estimates based on a sample of households over a 5-year period. The data provided by the ACS allows an in depth analysis of socioeconomic variables and trends. The following tables are organized in columns, each representing a 5-year period: the first provides data from 2006-2010, and the second from 2009-2013.

Household. Table 1-2 presents the number of households and persons per household according to the ACS. A household is defined as the person or persons occupying a dwelling unit. As the average household size decreases, the number of households or required dwelling units increases relative to the population. Due to several factors, average household size is decreasing throughout the United States. These factors include families having fewer children and delaying the birth of children; young adults no longer living with parents but moving out on their own, and older persons living longer independently and not returning to their children in their later years. Combined, these factors have led to a decrease in the average household size. As shown in Table 1-2, the average household size in 2010 was 2.14 persons and 2.09 persons in 2013. These numbers are slightly lower than the 2013 State of Florida average household size of 2.61 persons.

Table 1-2. Households by Type

| | **2010 (2006-2010)** | | **2013 (2009-2013)** | |
|---|---|---|---|---|
| | Estimate | Percent | Estimate | Percent |
| Total Households | 7,201 | 100% | 7,312 | 100% |
| Families | 3,982 | 55.3% | 3,596 | 49.2% |
| With own children under 18 years | 1,327 | 18.4% | 1,178 | 16.1% |
| Married-couple family | 2,983 | 41.4% | 2,492 | 34.1% |
| With own children under 18 years | 734 | 10.2% | 539 | 7.4% |
| Male householder, no wife present, family | 251 | 3.5% | 292 | 4.0% |
| With own children under 18 years | 131 | 1.8% | 161 | 2.2% |
| Female householder, no husband present | 748 | 10.4% | 812 | 11.1% |
| With own children under 18 years | 462 | 6.4% | 478 | 6.5% |
| Nonfamily households | 3,219 | 44.7% | 3,716 | 50.8% |
| Householder living alone | 2,748 | 38.2% | 3,155 | 43.1% |
| Households with one or more people under 18 years | 1,505 | 20.9% | 1,371 | 18.8% |
| Households with one or more people 65 years and over | 2,757 | 38.3% | 2,983 | 40.8% |
| Average household size | 2.14 | (X) | 2.09 | (X) |

Source: U.S. Census Bureau; *2006-2010 American Community Survey & 2009-2013 5-Year American Community Survey.*

Population Age. Table 1-3 shows the numerical and percentage breakdown of the City's population by age in 2010 and 2013 according to the ACS. The 45-54 year-old age group is the largest in both years (17.2% and 16.5%). The 65-74 year-old age group increased from 10.2% in 2010 to 12.4% in 2013. By contrast, the 35-44 year-old group decreased by 3.2%.

Likewise, the largest percentage (14.3%) of the population of the State of Florida in 2013 was between the ages of 45 to 54 years; 9.5% was between the ages of 65 to 74 years; and 12.7% was between 35 to 44 years of age.

Table 1-3. Population by Age

| | **2010 (2006-2010)** | | **2013 (2009-2013)** | |
|---|---|---|---|---|
| | Estimate | Percent | Estimate | Percent |
| Total population | 15,866 | 100% | 15,475 | 100% |
| Male | 7,155 | 45.1% | 7,392 | 47.8% |
| Female | 8,711 | 54.9% | 8,083 | 52.2% |
| | | | | |
| Under 5 years | 489 | 3.1% | 471 | 3.0% |
| 5 to 9 years | 743 | 4.7% | 815 | 5.3% |
| 10 to 14 years | 847 | 5.3% | 728 | 4.7% |
| 15 to 19 years | 959 | 6.0% | 717 | 4.6% |
| 20 to 24 years | 679 | 4.3% | 681 | 4.4% |
| 25 to 34 years | 1,159 | 7.3% | 1,435 | 9.3% |
| 35 to 44 years | 1,917 | 12.1% | 1,483 | 9.6% |
| 45 to 54 years | 2,736 | 17.2% | 2,558 | 16.5% |
| 55 to 59 years | 1,153 | 7.3% | 1,327 | 8.6% |
| 60 to 64 years | 1,120 | 7.1% | 1,070 | 6.9% |
| 65 to 74 years | 1,615 | 10.2% | 1,915 | 12.4% |
| 75 to 84 years | 1,693 | 10.7% | 1,475 | 9.5% |
| 85 years and over | 756 | 4.8% | 800 | 5.2% |
| | | | | |
| Median age (years) | 48.8 | (X) | 50.6 | (X) |

Source: U.S. Census Bureau; *2006-2010 American Community Survey & 2009-2013 5-Year American Community Survey.*

Population Race. Tables 1-4 and 1-5 present the racial characteristics of the City's population according to the ACS. At more than 90%, the largest portion of the population is white. Hispanic or Latino of any race composed 10.9% in 2010 and 8.5% in 2013 of the total population. This racial breakdown is similar to that of Indian River County. At the county level, 89.8% percent of the population was white (including persons of Hispanic origin) in 2007. Statewide in 2013, 76.3% of the population was white and 22.9% was Hispanic or Latino of any race.

1-4. Population by Race

| | 2010 (2006-2010) | | 2013 (2009-2013) | |
|---|---|---|---|---|
| | Estimate | Percent | Estimate | Percent |
| Total population | 15,866 | 100% | 15,475 | 100% |
| White | 15,188 | 95.7% | 14,755 | 95.3% |
| Black or African American | 542 | 3.4% | 593 | 3.8% |
| American Indian and Alaska Native | 141 | 0.9% | 286 | 1.8% |
| Asian | 38 | 0.2% | 89 | 0.6% |
| Native Hawaiian and Other Pacific Islander | 0 | 0.0% | 0 | 0.0% |
| Some other race | 328 | 2.1% | 97 | 0.6% |

Source: U.S. Census Bureau; *2006-2010 American Community Survey & 2009-2013 5-Year American Community Survey.*

Table 1-5. Race by Living Arrangement

| | 2010 (2006-2010) | | 2013 (2009-2013) | |
|---|---|---|---|---|
| | Estimate | Percent | Estimate | Percent |
| Total population | 15,866 | 15,866 | 15,475 | 15,475 |
| White alone | 13,384 | 84.4% | 13,184 | 85.2% |
| Black or African American alone | 279 | 1.8% | 455 | 2.9% |
| Hispanic or Latino (of any race) | 1,734 | 10.9% | 1,317 | 8.5% |
| American Indian and Alaska Native alone | 60 | 0.4% | 121 | 0.8% |
| Asian alone | 38 | 0.2% | 59 | 0.4% |
| Native Hawaiian and Other Pacific Islander alone | 0 | 0.0% | 0 | 0.0% |
| Some other race alone | 15 | 0.1% | 4 | 0.0% |
| Two or more races | 356 | 2.2% | 335 | 2.2% |

Source: U.S. Census Bureau; *2006-2010 American Community Survey & 2009-2013 5-Year American Community Survey.*

Education. Table 1-6 indicates the education attainment level of the City's population according to the ACS. Achievement levels are broken down into different categories. The college level groups are further broken down to show those that had some college (no degree), an associate's degree, a bachelor's degree, and a graduate or professional degree. Achievement levels recorded are the highest level (years completed) reached by an individual.

Table 1-6 shows that 88.5% of the population had a high school diploma or higher educational level in the 2006-2010 period. Vero Beach experienced a small decrease to 86.3 % in the period 2009-2013. That figure is just slightly higher than the Statewide 86.1% of the population who had a high school diploma or higher education level. The number of individuals with a graduate or professional degree increased from 11.8% in 2010 to 12.1 % in 2013 in Vero Beach, compared to 26.4% in 2013 for the State of Florida.

Table 1-6. Educational Attainment

| | 2010 (2006-2010) | | 2013 (2009-2013) | |
|---|---|---|---|---|
| | Estimate | Percent | Estimate | Percent |
| Population 25 years and over | 12,149 | 100% | 12,063 | 100% |
| Less than 9th grade | 447 | 3.7% | 511 | 4.2% |
| 9th to 12th grade, no diploma | 947 | 7.8% | 1,143 | 9.5% |
| High school graduate (includes equivalency) | 3,146 | 25.9% | 2,896 | 24.0% |
| Some college, no degree | 2,942 | 24.2% | 2,719 | 22.5% |
| Associate's degree | 870 | 7.2% | 935 | 7.8% |
| Bachelor's degree | 2,365 | 19.5% | 2,405 | 19.9% |
| Graduate or professional degree | 1,432 | 11.8% | 1,454 | 12.1% |
| | | | | |
| Percent high school graduate or higher | (X) | 88.5% | (X) | 86.3% |
| Percent bachelor's degree or higher | (X) | 31.3% | (X) | 32.0% |

Source: U.S. Census Bureau; *2006-2010 American Community Survey & 2009-2013 5-Year American Community Survey.*

Employment. Tables 1-7 and 1-8 provide employment and occupation data according to the ACS. More than 50% of the City's population was part of the labor force in both periods. Statewide, 60.1% of the population was part of the labor force in 2013, while 39.9% were not in the labor force. The labor force unemployment rate in 2010 was 6% which increased by 1.5% in 2013, compared to 7.0% in the State of Florida.

In 2010, 31.4% of the labor force was engaged in management, business, science, and arts occupations. The decline in the construction and maintenance sector can be attributed to the economic downturn in the housing market. Statewide in 2013, 33.7% of the labor force was engaged in management, business, science, and arts occupations; 20.5% in service occupations, and 9.0% in production, transportation, and material moving occupations.

Table 1-7. Employment Status

| | 2010 (2006-2010) | | 2013 (2009-2013) | |
|---|---|---|---|---|
| | Estimate | Percent | Estimate | Percent |
| Population 16 years and over | 13,693 | 100% | 13,295 | 100% |
| In labor force | 7,240 | 52.9% | 6,950 | 52.3% |
| Civilian labor force | 7,233 | 52.8% | 6,950 | 52.3% |
| Employed | 6,414 | 46.8% | 5,948 | 44.7% |
| Unemployed | 819 | 6.0% | 1,002 | 7.5% |
| Armed Forces | 7 | 0.1% | 0 | 0.0% |
| Not in labor force | 6,453 | 47.1% | 6,345 | 47.7% |

Source: U.S. Census Bureau; *2006-2010 American Community Survey & 2009-2013 5-Year American Community Survey.*

Table 1-8. Occupation

| | 2010 (2006-2010) | | 2013 (2009-2013) | |
|---|---|---|---|---|
| | Estimate | Percent | Estimate | Percent |
| Civilian employed population 16 years and over | 6,414 | 100% | 5,948 | 100% |
| Management, business, science, and arts occupations | 2,011 | 31.4% | 1,901 | 32.0% |
| Service occupations | 1,310 | 20.4% | 1,359 | 22.8% |
| Sales and office occupations | 1,859 | 29.0% | 1,816 | 30.5% |
| Natural resources, construction, and maintenance occupations | 809 | 12.6% | 645 | 10.8% |
| Production, transportation, and material moving occupations | 425 | 6.6% | 227 | 3.8% |

Source: U.S. Census Bureau; 2006-2010 *American Community Survey & 2009-2013 5-Year American Community Survey.*

The City of Vero Beach is home to general aviation manufacturer Piper Aircraft, which is the largest private employer in Indian River County. In 2014, Piper employed approximately 850 people. Aside from Piper, the bulk of commercial activity in Vero Beach centers around tourism, the citrus industry and service activities.

Table 1-9 presents top employers in Indian River County according to Vero Beach's 2014 Comprehensive Annual Financial Report.

Table 1-9. Indian River County Principal Employers

| Rank | Employer | Number of Employees |
|---|---|---|
| 1 | Indian River County School District | 2,113 |
| 2 | Indian River Medical Center | 1,753 |
| 3 | Indian River County | 1,328 |
| 4 | Publix Supermarkets | 1,250 |
| 5 | Piper Aircraft | 850 |
| 6 | Walmart | 693 |
| 7 | Sebastian River Medical Center | 569 |
| 8 | John's Island | 526 |

| | | |
|---|---|---|
| 9 | City of Vero Beach | 424 |
| 10 | VNA of the Treasure Coast | 399 |

Source: Vero Beach's *2014 Comprehensive Annual Financial Report.*

Income. Table 1-10 shows income data according to the ACS. In general, the income per household declined between 2009 and 2013 due to the economic downturn that characterized the great recession years. The median household income declined from $41,759 (2006-2010) to $37,051 (2009-2013) in Vero Beach. The mean household income in Florida was $66,368 in 2013 in comparison to $67,715 for Vero Beach.

Between 2009-2013, 13.3 % of the population of Vero Beach earned an income between $50,000 and $74,000, compared to 18.2% in the state of Florida. The percentage of the population earning a salary between $15,000 to $24,999 increased from 15.6% to 18.3% in Vero Beach.

Between 2006 and 2010, 7.4% of the population of the City of Vero Beach earned more than $200,000. This percentage is higher than the 3.7% earning more than $200,000 in the state of Florida during the same period.

Table 1-10. Income

| **Income** | **2010 (2006-2010)** | | **2013 (2009-2013)** | |
|---|---|---|---|---|
| | Estimate | Percent | Estimate | Percent |
| Total households | 7,201 | 100% | 7,312 | 100% |
| Less than $10,000 | 707 | 9.8% | 793 | 10.8% |
| $10,000 to $14,999 | 581 | 8.1% | 577 | 7.9% |
| $15,000 to $24,999 | 1,126 | 15.6% | 1,340 | 18.3% |
| $25,000 to $34,999 | 658 | 9.1% | 786 | 10.7% |
| $35,000 to $49,999 | 1,017 | 14.1% | 975 | 13.3% |
| $50,000 to $74,999 | 1,162 | 16.1% | 974 | 13.3% |
| $75,000 to $99,999 | 486 | 6.7% | 610 | 8.3% |
| $100,000 to $149,999 | 649 | 9.0% | 574 | 7.9% |
| $150,000 to $199,999 | 283 | 3.9% | 199 | 2.7% |
| $200,000 or more | 532 | 7.4% | 484 | 6.6% |
| Median household income (dollars) | 41,759 | (X) | 37,051 | (X) |
| Mean household income (dollars) | 77,500 | (X) | 67,715 | (X) |

Source: U.S. Census Bureau; *2006-2010 American Community Survey & 2009-2013 5-Year American Community Survey.*

Poverty Level. Table 1-11 presents the percentage of families and people whose income in the past calendar year was below the poverty level. Federal poverty levels are used to determine eligibility for certain programs and benefits. Poverty level is a measure of income level issued annually by the Department of Health and Human Services.

The number of families and people below the poverty level in Vero Beach increased from 2010 to 2013. All families below the poverty level increased from 10.8% to 12.2%; and all people from 15.4% to 20.4%. Statewide, 11.9% of all families, and 16.3% of all people were below the poverty level in 2013.

The economic downturn and high level of unemployment during the great recession impacted income and raised the number of families and people under poverty level in Vero Beach as elsewhere. Table 1.11 shows that more families with female householders (no husband present) were under poverty level in comparison with married couple families.

Table 1-11. Poverty Level

| | **2010 (2006-2010)** | **2013 (2009-2013)** |
|---|---|---|
| | | |
| All families | 10.8% | 12.2% |
| With related children under 18 years | 17.4% | 17.8% |
| With related children under 5 years only | 22.4% | 26.1% |
| Married couple families | 4.7% | 6.3% |
| With related children under 18 years | 4.7% | 12.8% |
| With related children under 5 years only | 0.0% | 24.7% |
| Families with female householder, no husband present | 32.2% | 29.8% |
| With related children under 18 years | 35.5% | 24.3% |
| With related children under 5 years only | 49.0% | 37.1% |
| | | |
| All people | 15.4% | 20.4% |
| Under 18 years | 18.1% | 20.2% |
| Related children under 18 years | 18.1% | 20.2% |
| Related children under 5 years | 10.8% | 23.4% |
| Related children 5 to 17 years | 17.4% | 19.4% |
| 18 years and over | 22.4% | 20.4% |
| 18 to 64 years | 4.7% | 25.2% |
| 65 years and over | 4.7% | 10.6% |
| People in families | 0.0% | 14.1% |
| Unrelated individuals 15 years and over | 32.2% | 33.8% |

Source: U.S. Census Bureau; *2006-2010 American Community Survey & 2009-2013 5-Year American Community Survey*

## Permanent Population Projections

The permanent City population is expected to remain stable or increase slightly over the next 20 years given the essentially built-out status of the City, unless the City were to undertake an aggressive major annexation program or attract considerable higher density redevelopment, both which are unlikely scenarios due to many factors. The University of Florida's Bureau of Economic and Business Research (BEBR) is projecting a 47,572 increase in the number of permanent

residents living in Indian River County between 2010 and 2035 (see Table 1-12). According to BEBR, the City will decrease its population by 1,660 during the same period.

Table 1-12. Projected Total Population, Indian River County, 2015-2035

| | 2010 | 2014 | 2015 | 2020 | 2025 | 2030 | 2035 |
|---|---|---|---|---|---|---|---|
| Indian River County | 138,028 | 140,955 | 143,200 | 154,499 | 165,296 | 175,704 | 185,600 |

Sources: University of Florida Bureau of Economic and Business Research, Population Projections; U.S. Census Bureau, 2010 Decennial Census.

However, the Planning and Development Department staff believes that the BEBR's projections, which show a 11% decrease in the City's population between 2015 and 2035, fail to adequately address the City's future population growth as the methodology used by that organization is applied statewide. It doesn't take into account for proposed development projects under review by staff and the high vacancy levels in housing which will eventually be reduced over time.

Therefore, for purposes of the Comprehensive Plan, the Planning and Development Department projects a small increase from the 2015 15,608 population estimate of the BEBR to 17,160 in 2035. as presented in Table 1-13. This projection is based on a 2.04 percent increase in population every five years between 2015 and 2035. [Note: See the discussion in Chapter 2 related to future development potential.]

Table 1-13. Projected Total Population, Vero Beach, 2015-2035

| | 1990 | 2000 | 2010 | 2015 | 2020 | 2025 | 2030 | 2035 |
|---|---|---|---|---|---|---|---|---|
| Vero Beach | 17,350 | 17,705 | 15,220 | 15,608 | 15,980 | 16,360 | 16,760 | 17,160 |

Source: U.S. Census Bureau, 1990-2010; University of Florida Bureau of Economic Business Research, *Florida Estimates of Population, 2015*, and City of Vero Beach, Planning and Development Department, 2020-2035.

**Seasonal and Functional Population Projections**

Utilizing essentially the same methodology to project seasonal population in the City of Vero Beach as was used by Indian River County in its 2030 Comprehensive Plan, seasonal population equals the number of people in hotel/motel rooms, the number of people lodged at recreational vehicle sites, those lodging with family, friends and relatives, migrant laborers and part-year residents (i.e. "snowbirds"). Together with the permanent resident population, this provides the total functional population, which is the adjusted to reflect the "peak" population on an annual basis.

According to City statistics, Vero Beach currently (2015) has 944 hotel rooms. Utilizing the same 90 percent peak season occupancy rate and average 1.8 persons per occupied room cited by the County (based on a 1987 study), it is estimated that the City's peak seasonal population in lodging establishments is 1,529. The County also estimates an addition of 75 rooms countywide for each 5-year period. Assuming the County's projection of 2,306 hotel rooms countywide in 2015, Vero Beach's 944 would constitute 40.9 percent of the total, which is held constant for the remaining years of the City's seasonal projection, resulting in 1,065 hotel/motel rooms in 2035, with a peak seasonal population in lodging establishments of 1,725.

Continuing with the same methodology used by the County, and citing a 2001 Indian River County Chamber of Commerce study, it is assumed that the number of people in the peak season lodging with family, friends and relatives is 42.7 percent of those in hotel/motel rooms, resulting in an estimate of 653 in 2015 and a projection of 736 by 2035.

Finally, part-year residents (those who maintain a residence in the City that is occupied for less than six months per year) are assumed to be 10 percent of the resident population (the County's 2030 Future Land Use Element cites "past studies"). As the City's 2015 estimated population is 15,608, it is estimated that there were 1,561 "snowbirds" in the City in 2015. Based on the 10 percent factor and the permanent 2035 population projection of 17,160, the number of "snowbirds," is projected to be approximately 1,716 in 2035.

The City contains neither recreational vehicle sites nor migrant labor facilities, nor is it expected to have any such facilities by 2035.

Therefore, by adding projected peak season hotel/motel occupants, those staying with family, friends and relatives and part-year residents, the following seasonal population estimates and projections result:

- 2015: 3,743
- 2035: 4,177

Adding these seasonal estimates and projections to the City's estimated and projected permanent population of 15,608 and 17,160 in 2015 and 2035, respectively, results in a total functional population of 19,351 in 2015 and 21,337 in 2035.

# CHAPTER 2
# LAND USE ELEMENT

## INTRODUCTION

This chapter presents the inventory and analysis of background data for preparation of the Land Use Element and Future Land Use Map pursuant to Section 163.3177(6), Florida Statutes. The data and analysis provides the framework for evaluation of key land use issue and preparation of the Future Land Use Map and goals, objectives, and policies presented in the Policy Document. All the referenced figures may be found at the end of the chapter.

The purpose of the Land Use Element of the Comprehensive Plan is to influence existing and future land use patterns by designating appropriate locations for future land uses and establishing a policy framework for managing future growth and development to accommodate anticipated employment and population. These policies focus not only on the location of land uses and the density and intensity of these uses, but also on the form and character of the physical development.

Long range sustainable community planning recognizes the interrelationship between land use, housing and transportation. The Land Use Element provides the policy mechanism to coordinate these three factors to provide a mix of housing and land uses that will satisfy demand, and support a balanced, inclusive community.

The Land Use Element is the critical policy mechanism for integrating the policies and strategies of the other elements of the Comprehensive Plan into a coherent and consistent set of land use goals, objectives, and policies. As such, the element must be consistent with all other elements of the Comprehensive Plan and incorporate the concepts and principles of these elements in its land use policies in a manner that minimizes impacts on natural and historic resources, provides and maintains public services and facilities at adequate levels of service, enhances community character and the quality of life of the city's residents, businesses, and visitors.

The Future Land Use Map and policies of this element provide the policy framework and rationale basis for City's land development regulations and programs to implement the Comprehensive Plan. Pursuant to Chapter 163, Florida Statutes, all land development regulations and development permitting actions are required to be consistent with the Future Land Use Element and other elements of the Comprehensive Plan.

## EXISTING CONDITIONS

To effectively guide and direct future land uses within the City of Vero Beach, it is necessary to have a basic understanding of existing land use patterns, trends, and natural and manmade factors influencing future development.

### Generalized Land Use

The pattern and mix of land uses within the City of Vero Beach reflect its historical development patterns and role as the county seat and major government, employment, and commercial center of Indian River County. The total acreage for existing land uses, including vacant lands and rights-of-way is 7,256 acres. Not included in this total is the 1,219 acres within the city limits that is occupied by the Indian River Lagoon and open water. Therefore, including the Indian River Lagoon, the City limits covers approximately 13 square miles.

Figure 1 provides a detailed map of existing land uses in 2015. The distribution of existing land uses by acreage is tabulated in Table 2-1 below:

Table 2-1. Existing Land Use 2015

| Land Use | Number of Acres | % of Total |
|---|---|---|
| Residential | 1,954 | 27.0 |
| Single Family | 1,585 | |
| Multi-Family | 325 | |
| Mobile Homes | 44 | |
| Commercial | 400 | 5.5 |
| Transportation/Communications/Utilities | 1,048 | 14.4 |
| Industrial and Wholesale Trade | 157 | 2.2 |
| Education, Government, Health Care, & Institutional | 360 | 5.0 |
| Parks and Recreation | 429 | 5.9 |
| Conservation | 959 | 13.2 |
| Vacant | 753 | 10.3 |
| Rights-of-Way | 1,196 | 16.5 |
| Total | 7,256 | 100.0 |

Sources: Vero Beach Planning and Development Department Field Survey and Public Works Geographic Information System Parcel File Data, 2015.

Residential. Residential land use constitutes 27 percent of the land acreage within the corporate limits and is the major land use within the city. The residential land use category contains single-family, duplex, and multi-family units and mobile homes (manufactured

housing). This category does not include motels, hotels, or mixed residential-commercial projects.

Of the total land in residential use, over 80 percent is in single family use. The average net density (including right-of-way) for single family uses ranges from 2.3 to 4.5 units per acre. Such uses may be principally found south of the Main Relief Canal on the mainland west and northeast of the downtown, along the eastern edge of the Indian River Lagoon, and throughout the barrier island.

Multi-family uses, which include duplex and multiple dwellings on a single parcel/lot, account for 17 percent of total residential acreage. The average net density for multi-family uses ranges from 6 to 12 units per acre. Not included in this category are residential units mixed with commercial uses, but included are condominium projects that include dwelling units occupied for seasonal and transient residential uses. Multi-family uses are scattered throughout the City and may be found along urban arterials and collector roads and within historic neighborhoods near the downtown.

Mobile homes are concentrated in several mobile home parks. These parks are a City-owned mobile home park south of the Vero Beach Regional Airport; two parks located north of 24th Street between 12th and 13th Avenues; and a large park along the Indian River Lagoon south of the City's wastewater treatment facility.

Commercial. Commercial uses account for 5.5 percent of total existing land use acreage. Commercial uses are located in linear strips along SR 60 corridors east of downtown, along US Highway 1 and are concentrated clusters in five discrete major commercial districts:

- Downtown generally situated between 20th Avenue on the west to the Florida East Coast Railroad on east, 21st Street to the north and 18th Street to the south;
- Miracle Mile (21st Street between US. Highway 1 and Indian River Boulevard);
- Royal Palm Pointe along the Indian River Lagoon;
- Ocean Drive and Cardinal Drive on the barrier island; and
- Beachland Boulevard on the barrier island.

Commercial uses include retail/personal sales and services; finance, insurance, real estate, professional, legal administrative, scientific technical services; commercial marinas; and motels, hotels, and other transient residential uses. Except for several motels and hotels scattered located along US. Highway 1 and the Hampton Inn and Suites on SR 60 in the Miracle Mile area, the primary concentration of tourist commercial development is on the barrier island.

Transportation/Communications/Utilities. Transportation, communications, and utilities account for 14.4 percent of total existing land uses. Theses uses include all manner of transportation facilities, vehicle motor pool, storage, and repair yards, dedicated public parking facilities, telecommunications, and utilities. The vast majority of the acreage is occupied by runways, taxiways, and hanger areas at the Vero Beach Regional Airport and the City's wastewater treatment, water treatment and electric power plants.

Industrial and Wholesale Trade. The City's industrial and wholesale uses account for only 2.2 percent of total land use acreage. Industrial and wholesale trade uses include assembly, manufacturing and warehouse and storage services, outdoor storage of heavy equipment or construction/landscaping materials, and construction and other building contractor services. These uses are principally located at the Vero Beach Regional Airport, the 79-acre Piper Aircraft property, and along the Florida East Coast (FEC) railroad tracks located south of the SR 60 and north of 27th Street on the west side of the FEC railroad.

Education, Government, Health Care, and Institutional. Education, government, health, and institutional uses include public/private schools and educational, government administrative, legislative, and legal facilities, fire and rescue services, places of worship, non-governmental organization, hospital and medical clinics, nursing, assisted/independent living facilities, congregate housing, rehabilitation/transitional community residences, and death care services (funeral homes, crematories, and cemeteries). These uses are found throughout the city and account for 5.0 percent of total existing land uses.

Parks and Recreation. Parks and recreation uses, which account for 5.9 percent of total land use in the city, include public/private parks and recreational facilities, country clubs with recreational facilities, not-for-profit museums and art galleries, public marinas and yachting club facilities, and commercial amusement, sports, or recreational establishments. Public parks, Historic Dodgertown, and private golf courses account for the vast majority of this acreage.

Conservation. Conservation lands account for 13.2 percent of total existing land use. A significant portion of these lands are located at the Vero Beach Regional Airport, dredge spoil islands located in the Indian River Lagoon and lands abutting the lagoon that are under public ownership.

Vacant. Those lands that are not currently undeveloped are classified as a vacant land use. Undeveloped land held by a public or quasi-public entity for conservation purposes are classified as a conservation use.

Vacant lands account for 10.3 percent of the total existing land use acreage. A more detailed discussion of developable vacant lands is discussed later in this chapter. however, most of these vacant lands are dispersed throughout the City with the most predominate vacant land available for development is a 333-acre tract of land south of the Vero Beach Regional Airport and west of 43rd Avenue.

Rights-of-Way. This category of land use includes State, County, City and private roads rights-of-way and Indian River Farms Water Control District and Florida East Coast rights-of-way. Rights-of-way account for 16.5 percent of total existing land uses.

**Adjacent Land Uses to the City of Vero Beach**

The areas of unincorporated Indian River County that are adjacent to the corporate limits are almost entirely developed. The existing development that surrounds the City limits opportunities for any significant expansion of the corporate limits through voluntary annexation.

Bordering the City's western and southern boundaries west of US Highway 1 are mostly single family subdivisions. Mixed residential, commercial and institutional uses are found along the City's northern corporate limits east of US Highway 1, including the planned residential development of Grand Harbor and the large medical complex including the Indian River Memorial Hospital centered on 37th Street. On the southern City limits, commercial uses stretch south along the US Highway 1 corridor. Towards the Indian River Lagoon may be found single family uses and large multiple-family developments along Indian River Boulevard.

On the barrier island, the City of Vero Beach is bounded on the north by the Town of Indian River Shores. Most development in this high value residential community consists of single family and multiple family uses in planned residential developments. To the south of the City on the barrier island are mostly high value single family uses in gated planned residential developments.

**Historic and Archaeological Resources**

Twelve sites within the City of Vero Beach are listed on the National Register of Historic Places. Five of these sites and two single family houses are listed on the Vero Beach Register of Historic Places and are protected under the City's Historic Preservation Ordinance. In 2015, the City was approved as a Certified Local Government by the U.S. Department of the Interior and Florida Department of State.

In 2012, the City designated the 8.6-acre "Old Vero Man Site" as a "Historic Site/Archaeological Zone" on the Vero Beach Register of Historic Places. The site is located on the Vero Beach Regional Airport property adjacent to the Main Drainage Canal and right-of-way owned by Indian River Farms Water Control District (IRFWCD). Many of the artifacts and fossils found in the zone and nearby on IRFWCD property are from the Pleistocene age over 13,000 years ago. Under the leadership of the not-for-profit Old Vero Ice Age Sites Committee, scientific excavation of the site was initiated in 2013.

The Osceola Park Residential Historic District was designated on the National Register of Historic Places by the U.S. Department of the Interior in 2014. The historic neighborhood covers approximately 40 acres and contains 89 contributing buildings and 25 noncontributing buildings.

Figure 2 shows the location of the aforementioned designated historic sites, historic site/archaeological zone, and historic neighborhood district. Others sites of historic and archaeological value not shown in Figure 2 may be found on the Florida Master Site File. These sites include shipwrecks and artifacts; Indian middens; and many private buildings eligible for historic designation. The City is currently pursuing a historic preservation grant to update its inventory of historic resources. The last such survey was conducted in 1992.

## Natural Resources

Natural features and resources affect development patterns. They may restrict or support various types of land uses in terms of providing constraints to development, such as wetlands or providing access to the amenities needed to attract residential and tourist uses such as the water bodies, beaches, and climate. However, except for water bodies, wetlands, and flood vulnerable areas, the City of Vero Beach has few natural constraints to development due to its relatively flat topography.

This section provides a brief summary of the City's natural features and resources. A more detailed description of the features and resources pertinent to growth and development is provided in the Conservation and Coastal Management Elements.

Climate. Vero Beach is generally characterized as having a humid, subtropical climate. The City's southern latitude, the moderating influence of the Atlantic Ocean and Gulf Stream, and its location on the Florida peninsula, make summers that are long and humid with mild winters.

The City receives on average an annual rainfall of 55 inches. Over half of this rainfall amount occurs during the May through September period. The average year-round temperature is 73.4 degrees F. In an average year, the City has 80 days with temperatures of 90 degrees F or higher and only 4 days with temperatures below 32 degrees F.

Topography. The physiographic features of the Vero Beach area consist of a coastal ridge and sandy flat lands. The Atlantic Coastal Ridge is located on the mainland and is parallel to and just west of US Highway 1 and reaches elevations of 30 feet within the City's limits. It is a remnant of an ancient offshore sand bar.

The relatively flat terrain of the city poses few constraints to development, except the low topography exposes portions of the city to risk from tropical storms and rising sea level. It is a significant feature in the natural drainage system which is discussed in detail in the Infrastructure Element.

Soils. Soils are important in that they may impact construction costs where soils have poor load bearing capacity or have high-shrink swell characteristics. Soils may also severely limit the use of on-site wastewater systems, such as septic systems, or landfills, if they are highly permeable and are wet with high water tables.

The United States Soil Conservation Service has identified 40 different soil types in the City of Vero Beach, which are depicted in Figure 3. These soil types are further classified into 13 generalized soil types distributed under the four following physiographic areas: sand ridges; coastal islands and tidal marshes; flatwoods, low knolls and ridges; and sloughs and poorly defined drainage ways and hammocks. A description of these general soil types may be found in Figure 2.18 of the Future Land Use Element of the 2030 Indian River County Comprehensive Plan.

Except for the aquifer recharge area for the shallow aquifer as discussed in the next section, the wet soils and highly permeable sandy soils, soils provide few constraints for development in Vero Beach. The impacts of these types of soils on surface and groundwater resources and septic systems are discussed in more detail in the Infrastructure and Conservation Elements.

Geology/Hydrology. The underground geologic formations contribute to the movement, availability, quantity, and quality of surface and groundwater. These formations contain two basic aquifers. The shallow (surficial) aquifer, which extends from the surface to depths of 150 feet, is confined to the Anastasia and Fort Thompson Formations. The deeper Floridan aquifer underlies the entire city and ranges in depths of 250 to 500 or more feet below the surface. Both aquifers are separated by confining beds consisting of clay and other materials of Hawthorne and Tamiami Formations.

The surficial aquifer is recharged primarily by direct infiltration of rainfall. The principal area for recharge is along the Atlantic Coastal Ridge. This area is characterized by coarse permeable sands exposed at the surface. Figure 3 depicts the location of soils that overlay the recharge area. Other than water withdrawn from the aquifer for municipal and private irrigation purposes, natural discharge occurs as subsurface flow to the Indian River Lagoon within the City.

Recharge to the deeper Floridan aquifer is outside the City of Vero Beach in northwest Indian River County, except for discharge of treated effluent from the City's wastewater treatment plant through its deep injection well. The water entering the aquifer moves eastward and discharges to the Atlantic Ocean.

Both the surficial and Floridan aquifers serve as potable water sources for the City of Vero Beach. Figure 4 depicts the City's existing production wells.

Water from the Floridan aquifer contains high chloride concentrations, which is treated using reverse osmosis method to make it potable. Except for lateral saltwater intrusion to groundwater under the barrier island and lands adjacent to the Indian River Lagoon, water from the shallow aquifer is acceptable for potable uses with limited treatment.

Both aquifers are under stress due to increased withdrawals and development of natural recharge areas, which will only be further exacerbated with continued growth and development in Indian River and surrounding counties. The intrusion of saltwater in the Floridan aquifer is considered a problem. Continued reliance on the shallow aquifer is also a concern due to threats from contaminants and susceptibility of the resource to droughts. A discussion of these issues and their impact on future water supply may be found in the Conservation and Infrastructure Elements.

Minerals. No recoverable, commercially valuable minerals exist in the City of Vero Beach.

Wetlands. The primary un-impounded wetlands in the city are estuarine wetlands bordering on the mainland side of the Indian River Lagoon and various spoil islands within that water body. Excluding man-made wet stormwater rentention facilities, a few isolated freshwater wetlands in the form of freshwater ponds and freshwater forested/shrub wetlands exist on the mainland.

The general location of these wetlands is depicted in Figure 5. Excluding estaurine and marine deepwater wetlands, approximately 494 acres of wetlands are contained within Vero Beach. Table 2-2 provides a breakdown of wetlands by type:

Table 2-2. Wetlands Acreage by Type

| Wetlands Type | Number of Acres | % of Total |
|---|---|---|
| Estuarine and Marine Deepwater | 1,312 | 72.6 |
| Estuarine and Marine Wetland | 343 | 19.0 |
| Freshwater Pond, Riverine, Emergent | 55 | 3.1 |
| Freshwater Forested/Shrub Wetland | 96 | 5.3 |
| Total | 1,806 | 100.0 |

Source: St. Johns River Water Management District; 2015

The estuarine wetlands contain salt marshes and mangroves. The mangroves tend to be heavily forested with red, black, and white mangroves. They function as nursery areas for marine life and provide food for fish species and rookeries for coastal birds. Mangroves play an important role in protecting shorelines from erosion, particularly during storm events.

Additionally, the impounded wetlands created for mosquito control are also present along the Indian River Lagoon. As these wetlands are not connected with the Indian River, they are generally not considered productive nurseries for marine life; however, they do provide habitat and shelter for animals and birds.

The protection and preservation of wetlands is critical due to its significant role in the ecosystem of the Indian River Lagoon. A discussion of the relevant issues related to wetlands is covered under the Conservation Element.

Beaches, Shorelines, and Estuarine Systems. Vero Beach's barrier island has over 3 miles of beach frontage. The Indian River, which is an estuarine lagoon, separates the barrier island from the mainland. Within the Indian River in Vero Beach, are submerged and estuarine wetlands that create certain development constraints and unique recreational, economic, and environmental opportunities.

Within the Indian River estuarine system are seagrass beds. These beds are critical to the stabilization of the lagoon's bottom, maintenance of water quality, and provide a feeding ground and protective cover for immature shellfish and fish. Figure 5 depicts seagrass beds in the Indian River Lagoon.

A discussion of the problems and opportunities related to these natural systems is presented in the Coastal Management and Conservation Elements.

Floodplains. Areas of Vero Beach on both sides of the Indian River are subject to flooding. Figure 6 depicts the special flood hazard zones in the City based on the Flood Insurance Rate Maps (FIRM) prepared by the Federal Emergency Management Agency. As a requirement of participation in the National Flood Insurance Program, the City has adopted a floodplain ordinance to regulate existing and new development in these flood hazard areas.

Except for flooding that occurs due to the inadequate storm drainage during intense rainfall events, the principal source of flooding in the City is from tropical storm events. Strong hurricanes may create storm surges and tides of up to 15 feet above sea level. The threat of rising sea levels increases the probability of such storm threats and is discussed in the Coastal Management Element.

**Facilities, Services and Infrastructure**

Man-made improvements and services shape and define development intensity, characteristics and patterns. These improvements may not only increase the development capacity of land, but may also be used to encourage or discourage development in specific areas. Such facilities, services, and associated infrastructure ensure that development is supported in a manner that provides housing, employment, recreational, cultural, and educational opportunities to ensure a high quality of life for the City's residents while protecting the unique environment resources of the area.

Pursuant to State law, the City has adopted a concurrency management system to ensure that sufficient capacity is available to accommodate the impacts of new development. Through the concurrency management system, potable water, sanitary sewer, solid waste, stormwater management, roads, parks and open space, and schools are monitored. If capacity is not available to serve the proposed development, no development permit may be issued except under certain limited circumstances.[1]

The impacts of development on many of the other types of facilities and services are also reviewed during the development permitting process. However, as these services are not part of the concurrency management system, the lack of capacity of those services cannot be the basis for denial of a development permit. These services include electricity, telecommunications, telephone, police, fire protection, and emergency services

Transportation. Transportation is essential for the development of land by providing access between land uses for movement of people and goods. To provide for an efficient and effective transportation system requires coordination with land use development in a manner that reduces the length and number of vehicle trips and is energy efficient. A detailed discussion of transportation is presented in the Transportation Element.

*Road system*: The City is serviced by four major roadways: State Route 60 running east-west through the middle of the city connecting the barrier island, Indian River Boulevard and US

[1] The staff is proposing to eliminate parks and open space from concurrency management. This issue is fully discussed in the Recreation and Open Space Element.

Highway 1 with Interstate 95; US Highway 1 running north-south through the middle of the city; Indian River Boulevard running north-south through the city generally paralleling the Indian River Lagoon; and State Route A1A running north-south bisecting the barrier island.

Individual roadways within the City are maintained by the Florida Department of Transportation, Indian River County, City of Vero Beach, or private homeowners associations. All public roadways within the City currently meet level of service standards established in the Comprehensive Plan.

*Mass transit:* A fixed route transit service is provided in Indian River County and the City of Vero Beach by GoLine, established in 1994. GoLine is operated by the Indian River County Senior Resources Association, which also provides demand-response services for the transportation disadvantaged. Ten of GoLine's 16 transit routes directly serve the City of Vero Beach.

The funding sources for GoLine are federal and state grants, Indian River County general fund and gas taxes, various not-for-profit agencies, private donations and advertising. GoLine charges no fares. Ridership has been dramatically increasing over the last couple of years to over one million in fiscal year 2013/2014.

*Aviation:* The 1,700-acre Vero Beach Regional Airport is the largest airport in Indian River County. It provides general aviation services and is capable of accommodating high performance and large corporate and commercial jet aircraft with one runway of over 7,300 feet. In 2013, the airport had over 185,000 air operations, which included many "touch and goes," as it serves as a major flight training center. An update to the airports' master plan was recently completed in 2017.

In December, 2015, regularly scheduled commercial air service was initiated at the Vero Beach Regional Airport between Vero Beach and Newark, New Jersey. The City had lacked any scheduled commercial air service since 1996. Until this new service was initiated, the nearest airport with scheduled commercial air service was Melbourne International Airport in Brevard County. Since its initiation, the commercial air service has expanded in the number of flights and destinations.

*Rail:* The Florida East Coast (FEC) Railroad provides freight rail service through the City of Vero Beach with its nearest freight yard located in Fort Pierce. Approximately 1.9 miles of mainline tracks bisect the City generally paralleling U.S. Highway 1.

No passenger rail service is currently provided to the City. Over the last ten years, the City in conjunction with the State and other municipalities in the region have explored possible reinstated of passenger rail service in conjunction with passenger rail service between Jacksonville and Miami without any positive results.

A significant and polarizing issue is the proposed "high-speed" passenger rail service between Miami and Orlando that is planned to go through the City without making any local stops. It is anticipated that 32-passenger trains a day will go through Vero Beach at speeds

reaching 110 miles per hour. Additionally, improvements to the FEC rail system made in conjunction with the proposed passenger rail service will allow for more rail freight to pass through the City.

The City and other municipalities and counties in the region are very concerned about the adverse impacts of the proposed high-speed passenger rail service and increased rail freight traffic on public safety and health, road network, quality of life, historic and cultural resources, land uses, and property values. The high-speed rail service will require specific improvements to all existing rail road crossings.

*Ports:* Although the Indian River Lagoon provides water transportation as part of the Inter-coastal waterway, no deepwater port exists in the City or Indian River County. The nearest deepwater port facilities are located in the City of Fort Pierce.

Utilities Infrastructure. Utilities infrastructure consists of facilities and services for the provision of potable water, sanitary sewer, stormwater management, and solid waste management. These infrastructure elements are essential to support development in a manner that conserves and protects the natural resources of the area. The various infrastructure facilities are more thoroughly discussed under the Infrastructure Element. Environmental issues related to these systems are discussed in the Conservation and Coastal Management Elements.

*Potable Water*: The City of Vero Beach provides water service within its corporate limits and to customers in unincorporated Indian River County and the Town of Indian River Shores with an estimated service population of 38,000. Private wells withdrawing water from the shallow aquifer are also located within Vero Beach for lawn or landscaping irrigation.

The sources of the potable water are the shallow aquifer (26 wells) and Floridan aquifer (7 wells). Water withdrawn from the Floridan aquifer is treated through a reverse osmosis process that results in a brine by-product that requires treatment before discharge. Water drawn from the shallow aquifer is treated by a lime softening process.

The City's two water treatment facilities are located at the Vero Beach Regional Airport. These plants are a Lime Softening water treatment plant (WTP) of 12.99 million gallons per day (MGD) and a Reverse Osmosis WTP of 3.3 MGD. In 2015, the average daily flow of the two facilities was 5.573 MGD with a maximum daily peak flow of 8.09 MGD.

Except for a large vacant tract on its western borders, the City's water service area is predominately built-out. Increased water conservation measures and water reuse in combination with constraints on groundwater will have a dampening effect on future demand. The system has sufficient capacity to meet anticipated future demand.

Figure 4 shows the location of existing water production wells and water treatment facilities.

*Sanitary Sewer:* The City of Vero Beach provides wastewater treatment service to generally some of the same area served by its water service, which includes the Town of Indian

River Shores and portions of unincorporated Indian River County. Within Vero Beach's corporate limits, approximately 1,500 single family residences are on septic tanks with almost two-thirds of these on-site systems located on the barrier island. The estimated population served by central sewer is 30,850 of whom about 12,000 are City residents.

The City's wastewater treatment facility (WWTF), located along the Indian River Lagoon, is a tertiary treatment plant with a capacity of 4.5 MGD. The primary means of effluent disposal is through a reuse system and in rainy weather through a deep injection well at the City's airport. The deep injection well has a permitted capacity of 9.7 MGD with a total depth of 3,000 feet.

The average annual average daily flow from the City's WWTF was 3.54 MGD in 2014, which is approximately 79 percent of design capacity. The expansion of central sewer to single family residences on existing septic systems and development of the large tract of vacant land along the City's western corporate limits, may require further evaluation of the need to expand the treatment capacity of the plant.

The reuse system has a permitted capacity of 4.5 MGD, which is fully utilized for irrigation of residential areas, golf courses, recreation areas, and roadway medians. The reuse system has three reuse water ground storage tanks. In addition to treated sewage, the water is drawn from the Main Relief Canal and treated at the WWTF before transmission to the reuse system.

Figure 4 depicts the location of the wastewater treatment plant and public/private lift stations within the service area.

*Stormwater Management:* Stormwater management is the process of controlling runoff from rainwater to minimize water quantity and quality impacts. The lack of natural drainage systems and the increase in impervious surface from the development has resulted in managing stormwater through a system of detention/retention ponds, drainage ditches, canals, and ex-filtration trenches.

Other than private on-site systems, the responsibilities for man-made drainage improvements for specific drainage basins within Vero Beach are held by the Indian River Farms Water Control District (M-Series Basin) and the City of Vero Beach (R-Series and Beach Series Beaches). See Figure 7 for a depiction of these drainage basins. Permitting for stormwater management is the responsibility of the Indian River Farms Water Control District, St. Johns Water Management District, and City of Vero Beach.

The City's municipal stormwater system is currently operating under a stormwater discharge permit from the Florida Department of Environmental Protection. This permit is a Phase II Municipal Separate Storm Sewer System (MS4) Permit required by the federal Clean Water Act, National Pollution Discharge Elimination Program (NPDES).

The existing drainage facilities are capable of accommodating existing development and future anticipated development based on current level of service standards. Although the

permitting requirements require on-site detention of 1.5 inches for 25 year/24 hour storm event, these standards generally apply only to new development or substantial improvements to existing development or a significant increase in the amount of impervious surface.

With requirements for water quality improvements in the discharge of stormwater to the Indian River Lagoon, the City is currently retrofitting its outfalls as part of its NPDES Phase II MS4 permit. The City is exploring the creation of a stormwater management district to help fund and accelerate the retrofitting of its outfalls and other needed drainage improvements.

*Solid Waste Management:* Solid waste management involves the removal, storage, and disposal of trash, garbage, yard waste, and other debris. Door-to-door garbage service is provided by the City to residences on a twice-a-week basis and commercial garbage collection is provided two to six days a week depending upon customer's needs. Residential yard waste is collected by the City at least once a week or more if a special pickup is required.

Curbside pickup of recycling is provided for single family homes by a Indian River County franchised hauler. Recycling services for businesses and multiple family development is through commercial haulers.

Collected solid waste is disposed at the 595-acre Indian River landfill located south of the City of Vero Beach. Collected yard waste and recycling materials are also processed at this site. This landfill has sufficient capacity with improvements has the capacity to handle projected waste demand for the County and the City of Vero Beach through 2035.

The City's solid waste program is financed through service fees. A non-ad valorem assessment finances landfill operations managed by the Indian River County Solid Waste Disposal District.

Parks and Recreation. The adequate availability and access to parks, recreation facilities and programs, and open space are important factors in the quality of life of City residents. For a City of its size, Vero Beach has a significant array of recreation facilities and park open space, which attract many residents of Indian River County outside the City limits.

The City of Vero Beach has 23 City-owned and designated parks and recreation facilities totaling approximately 180 acres. These parks range in size from the 69-acre Riverside Park with its various recreational and cultural facilities to smaller sized neighborhood parks of less than 5 acres in size.

The City's park system includes four beach parks along the Atlantic Ocean totaling 31.9 acres with over 3,340 linear feet of beach frontage, including South Beach Park owned jointly by the City and Indian River County. In addition beach access is provided through 10 public access corridors.

The City Marina, located on the east side of the Indian River Lagoon north of the Barber Bridge provides 108 wet slips, 57 mooring buoys, and 75 dry slips. Boat ramps are provided in

three locations on the barrier island providing access to the Indian River Lagoon and Inter-Coastal Waterway.

In addition to the City-owned facilities, the County owns a 12-acre ball field complex north of 16th Street, which the County placed on the market in 2016 for sale. Within the City is the former 72-acre Dodgertown sports complex, now called the "Historic Dodgertown" is owned by Indian River County and leased to Minor League Baseball. This facility hosts numerous sporting events and provides training and conference facilities for hosting various sports teams.

The existing park and open space facilities within the City of Vero Beach are more than sufficient to serve the existing and future anticipated population of the City. Parks, recreation, and open space are discussed in detail in the Recreation and Open Space Element.

Public Safety. Police protection is provided by the City's Police Department with headquarters located on the southwest corner of 10th Avenue and 19th Place across from the Vero Beach City Hall. Correction facilities are operated by Indian River County Sheriff's Department on a 40-acre site located outside of Vero Beach north of the Vero Beach Municipal Airport.

Fire/Rescue protection services are provided by the County's Department of Emergency Management and funded through a municipal service taxing district. Fire/rescue staff are dual certified as fire fighters and paramedics. Every developed portion of the City is within 3 miles of one of the three County Fire/Rescue stations located within the city limits. This service distance provides a high rating based upon criteria by the Insurance Service Office (ISO). The ISO establishes specific ratings that are used in the determination of property insurance premiums.

Hospital Care and Public Health. The general hospital that services Vero Beach is the 335-bed Indian River Medical Center located on 36th Street just north of the city. It is the center of a large complex of medical offices and clinics contained within special medical zoning district established by Indian River County. Public health services are provided by the County Health Department located at the County's new administrative complex located on 27th Street in Vero Beach.

Education and Libraries. The Indian River County School District provides public education throughout Indian River County. The Indian River County School District has sufficient capacity to accommodate any future student growth that may be anticipated in the City over the next 20-years.

The City is served by the Beachland, Vero Beach, and Dodgertown Elementary Schools (K-5); Gifford Middle School (6-8); Freshman Learning Center (9th grade); Vero Beach High School; and the Rosewood Elementary Magnet school. Five charter schools and several private and parochial schools operate in Indian River County. Just outside the City of Vero Beach within the State Route 60 corridor near the Indian River Mall, is Mueller Center Branch of the Indian River State College. Indian River State College offer two-year and four-year degrees. Its main campus is in Ft. Pierce.

Library Facilities. Indian River County provides public library services. The only County library in Vero Beach is the Main Library located within the downtown.

## ANALYSIS

This section first examines the key factors necessary for rational and efficient land use planning. These factors include:

- the amount of land need to accommodate residential, commercial and industrial growth over the 20-year planning period;
- the availability and suitability of vacant land to accommodate growth;
- the restraints on future development; and
- the need for infill and redevelopment.

The section concludes with an in-depth analysis of significant opportunities and development policy issues to be addressed in this element and the update of the Comprehensive Plan. The emphasis of the plan update is to build upon the direction provided in the 2005 Vero Beach Vision Plan and as further updated and expanded upon in the 2010 Evaluation and Appraisal Report as well as meet the requirements of Chapter 163, Florida Statutes.

The Vision Plan called for keeping Vero Beach's small town character intact, while being proactive in maintaining the City's unique character and attributes as conditions change. To maintain and enhance the City, requires focusing on promoting walkable, connected residential and commercial neighborhoods, mixed use projects, and a vibrant downtown and commercial districts, while at the same time protecting the City's natural and historic resources and small-town character.

### Land Needed to Accommodate 2035 Population and Uses

An analysis of the amount of needed acreage designated by the Future Land Use Map for residential, commercial, industrial, and public land uses to accommodate the projected 2035 population of the City of Vero Beach is required. To perform this analysis requires baseline information on the distribution of future land uses from the City's existing Future Land Use Map and specific parameters on the density, intensity, uses, and location factors relevant to each future land use category. This information is applied in evaluating and determining future land use needs and the capacity of the existing Future Land Use Map to meet these needs.

Distribution of Uses of Future Land Use Map. The existing Future Land Use Map is shown in Figure 8. Future land use designation by acreage is presented in Table 2-3 below:

Table 2-3: Future Land Use Acreage by Designation

| Future Land Use Designation | Number of Acres | % of Total |
|---|---|---|
| Residential | 2,688 | 44.6 |
| Low | 2,076 | |
| Medium | 408 | |

| Future Land Use Designations | Number of Acres | % of Total |
|---|---|---|
| Highq | 147 | |
| Mixed Residential | 12 | |
| Mobile Home Park | 45 | |
| Commercial | 365 | 6.1 |
| Mixed Use | 203 | 3.3 |
| Industrial | 1,209 | 20.0 |
| Government/Institutional/Public Use | 216 | 3.6 |
| Parks | 166 | 2.8 |
| Environmentally Significant | 415 | 6.9 |
| Conservation | 764 | 12.7 |
| Total | 6,026 | 100.0 |

Source: Public Works Geographic Information System Parcel File Data, 2015

Residential Land Uses. Residential land uses account for over 44 percent of the total land use acreage designated by the Future Land Use Map. The five categories of designations are discussed in detail below.

*Residential Low (RL):* The RL designation accounts for over 77 percent of the land allocated for residential uses which reflects the historical growth and development of the City of Vero Beach. This category includes single-family detached dwelling units on a single lot or parcel and along with supportive recreation and community services and facilities. Additionally this category allows for master plan development (projects of 200 or more acres) that may include non-residential development principally serving the project.

This designation is applied to those areas that are suitable for low-density single-family development based on existing development patterns, infrastructure capacity, natural conditions, and constraints. These uses are located away from adverse impacts of major highways and intensive commercial and industrial activities.

The maximum gross density is up to 6 units per acre; however, the average net density that includes right-of-way ranges from around 2 to 4 units per acre except it is less than 2 units per acre in some of the more upscale barrier island neighborhoods. The floor area ratio (FAR) of this designation is a maximum of 0.38.[2]

*Residential Medium (RM):* The RM designation accounts for about 15 percent of the land allocated for residential uses. This category includes single-family detached and detached dwellings, duplexes, and multiple dwellings on a single lot along with supportive recreation and community services and facilities, adult congregate living facilities, and other institutional uses. This designation also allows for professional offices and other limited non-residential uses.

The RM designation is for those areas with good highway and street access. It is intended to serve as a transition between single-family detached and more intensive and higher density uses.

[2] FAR is calculated by dividing the area of a lot or parcel by the floor area of the building(s) on the lot or parcel.

The maximum gross density is up to 10 units per acre. Approximately one-quarter of land designated as RM is restricted by zoning (Professional Office & Institutional) that only allows professional office type uses, except for single-family detached housing. The FAR for this designation is a maximum of 0.5; however, projects being developed under this classification may be limited to a maximum of 0.4 FAR due to underlying zoning.

*Residential High (RH):* The RH designation accounts for 5.4 percent of the land allocated for residential uses. This category includes uses similar to Residential Medium, except where higher density housing is permitted. As with the RM, this designation allows for professional offices and other limited non-residential uses.

The RH designation is for those areas with access to arterials and collector streets that provide a transition between lower density residential areas and more intensive and higher density uses. It may also provide a break between commercial uses located in commercial corridors.

The maximum gross density is up to 15 to 18 units per acre. The FAR for this designation is a maximum of 0.5 unless restricted by the underlying zoning.

*Mixed Residential (MR):* The MR designation occupies only 12 acres in one small area of the city. This designation is intended for areas with a mixture of housing types, including manufactured housing, that are deteriorating or which have a substantial amount of substandard housing. The maximum density is up to 12 units per acre with a maximum FAR of 0.5. Underlying zoning restricts uses to residential and ancillary community and institutional uses and FAR to a maximum of 0.40. Many of the existing residential structures have been demolished due to code enforcement action and actions by individual owners.

*Mobile Home Park (MHP):* The MHP designation occupies 45 acres. This designation is for existing mobile home parks and intended for locations near commercial uses and adjacent to other types of residential uses. The maximum density is 8 mobile homes per acre with a maximum FAR of 0.3.

Commercial (C). The C designation accounts for 5.9 percent of the total land use acreage depicted on the Future Land Use Map. This designation is intended for highway and tourist commercial uses on lands located near existing urban centers, areas in transition from residential uses to offices, and high access points such as the intersection of arterial streets, and lands located adjacent to arterial and collector streets. This designation allows for a mixture of permanent and transient residential, commercial, and office uses and a wide range of other public, cultural, and institutional uses.[3]

The maximum FAR is 1.0; however, most existing developed properties have a FAR of less than 0.5 due to underlying zoning. off-street parking, and storm drainage requirements. The

[3] As applied in this Comprehensive Plan and the City's Land Development Regulations, transient residential use in commercial zoning districts applies to any temporary occupancy of a dwelling, room, or unit of less than 180 days. However, in residential zoning districts, temporary occupancy is limited to less than 30 days or one calendar month.

maximum density is 15 dwelling units per acre for permanent residential and 30 rooms or units per acre for transient residential, which includes hotels, motels, time-share, and vacation rentals.

Mixed Use (MX). The MX designation accounts for 3.4 percent of the land use acreage depicted on the Future Land Use Map. This designation is intended for mixture of residential, office, commercial, industrial, public, community service, educational, and institutional uses in areas suitable for urban scale development and intensities that are located near arterial and collector streets with access to multi-modal transportation alternatives. These locations include the central core of the City and its downtown.

The maximum FAR is 2.0; however, underlying zoning limits FAR outside the downtown zoning district to a maximum of 0.5 FAR. Where zoning allows residential and transient residential uses, the maximum density is 17 dwelling units or 30 rooms/units per acre.

Industrial (I). The I designation accounts for over 20 percent of the land use acreage depicted on the Future Land Use Map. A significant portion of lands designated I is found at the Vero Beach Regional Airport. This designation is intended for those areas suitable for urban scale development intensities that contain or are located adjacent to major transportation facilities such as airports, arterial streets or railroads, which are buffered from residential neighborhoods or located with consideration to environmental impacts and other performance standards. The designation contains a wide mixture of light industrial, aviation related, warehouse, highway-oriented commercial, professional offices, permanent and transient residential uses, including a wide variety of public, cultural, community, park and recreation uses.

The maximum FAR is 1.00 unless restricted by underlying zoning. The maximum density is 15 to 18 dwelling units per acre or 30 rooms/units per acre.

Government/Institutional/Public Use (GU). The GU designation accounts for only 3.6 percent of the land use acreage depicted on the Future Land Use Map. This designation was intended for areas where public services and facilities are necessary, which may have a potentially adverse impact on adjacent residential neighborhoods. However, in practice it has extended to other types of uses that have little or no impact on adjacent residential neighborhoods. This designation currently includes government facilities, public utilities, hospitals, educational facilities, hospitals, transportation terminals, and small-scale recreational activities compatible with and subordinate to an existing governmental utility. The maximum FAR is 0.50. No dwelling units or transient rooms/units are allowed.

The staff questions the need or appropriateness for the GU future land use classification. Therefore, the staff is recommending GU designation that a policy be incorporated in the update to the Comprehensive Plan to evaluate the appropriateness and need for the GU designation.

Parks (P). The P designation accounts for 2.8 percent of the land uses depicted on the Future Land Use Map. This designation is intended for active and passive parks and public recreation facilities including cultural activities. Depending upon the facilities and functions of these uses, the areas to be so designation are intended for locations central to neighborhoods,

near access corridors and transportation, or access to appropriate water or land resources. The maximum FAR is 0.40. No dwelling units or transient rooms/units are allowed.

Environmentally Significant (ES). The ES designation accounts for 6.9 percent of land use acreage depicted on the Future Land Use Map. This designation is intended for those areas that contain or are adjacent to lands that are predominately environmentally sensitive. This designation allows for very low-density single-family detached development, parks and open space, conservation and limited community service facilities and utilities. The maximum density is 0.2 dwelling units per acre on the barrier island and Indian River Lagoon islands and 0.5 dwelling units per acre on the mainland. The maximum FAR is 0.30.

Conservation (CV). The CV designation occupies 764 acres, which is 12.7 percent of land use acreage depicted on the Future Land Use Map. This designation is applied to those areas which possess lands with qualities and features that play an essential role in the functioning of the Indian River Lagoon ecosystem. This designation is applied to public and non-governmentally-owned conservation lands. Use of these lands is restricted to conservation, open space, limited passive recreation, and public utilities.

**Land Needed to Accommodate Future Growth**

To establish policies for guiding land use patterns and policies for 2035, an important consideration is the amount of land needed in the two major future land use categories to serve the future population. These two categories are residential and commercial/industrial uses.

Other nonresidential uses such as public facilities and recreation are not included as the projection of future population is insignificant, which is the major factor contributing to demand for these land use categories. The commercial and industrial demand is a different matter as the City is anticipated to experience some growth in its employment base despite a stable or slightly increasing future population. As the County seat and center of government and commerce in Indian River County, the City is anticipated to gain employment which will directly impact the need for nonresidential land.

Residential Demand. As indicated in Chapter 1, the permanent population for the City of Vero Beach is projected by the University of Florida Bureau of Economic and Business Research to decline with seasonal population to increase slightly over the 20-year period of the Comprehensive Plan. Seasonal population is expected to increase by slightly less than 100 seasonal residents, visitors, and tourists.

The population projections for the City in the recent socio-economic data projections for the Indian River County 2040 Long Range Transportation Plan indicate a population growth of less than 1,000 during this same period. However, even under this projection, the City has substantial amount of vacant residential land, vacancies in existing dwelling units, and redevelopment possibilities to accommodate further population growth.

Therefore, based on the above, it was not necessary in this planning update to estimate any demand for residential land use. However, the amount of vacant land available for new

residential is identified and evaluated under vacant land availability and suitability section below.

Nonresidential Demand. The City's employment is expected to continue growth over the next 20-years due to anticipated development at the Vero Beach Regional Airport, and redevelopment and infill in the City's several business districts discussed in this chapter. Using employment projection data prepared for the Indian River County 2040 Long Range Transportation Plan, employment in Vero Beach is anticipated to increase from 21,600 in 2015 to about 26,050 in 2035.[4]

Due to the mix of land uses inherent in both the Future Land Use and Zoning categories and the lack of specific employment data and site-specific floor area data, the staff had to apply a very simplistic forecasting methodology to determine land use acreage to accommodate future growth.

The acreage of existing land use within the Commercial, Transportation/Communications/Utilities, Industrial and Wholesale Trade, and Education/Government/Health Care and Institutional categories was totaled. The acreage of the occupied by the Vero Beach Regional Airport runway and taxi aprons was deducted from the aforementioned total to provide the estimated amount of existing employment based land uses.

The estimated employment-based existing land use was determined to be 1,065 acres in 2015. Based on an estimate of .26 FAR as the consolidated average for all nonresidential uses, the amount of existing floor area occupied by private and public businesses was calculated at 12.5 million square feet. This estimated was divided by the estimated employment for 2015 of 21,600 to yield an average of 579 square feet per employee.

The figure of 579 square feet per employee was utilized for projection of future land use needs. It was assumed that 60 percent of projected employment would be accommodated on property with existing uses, as redevelopment and infill opportunities coupled by increase in land values will encourage higher utilization of existing properties.

Therefore, it was assumed that 40 percent (1780) of the projected employment increase of 4450 by 2035 would be accommodated on vacant land. Using the figure of 579 square feet per employee and an assumption the vacant lands would be developed at a FAR of .35' it was estimated that an additional 67.6 acres of land for nonresidential uses would be needed. This estimate is considered on the high-end of land needed for nonresidential development.[5]

Vacant Land Availability and Suitability. The following is a breakdown of vacant land by future land use category available for residential and nonresidential development:

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[4] The employment projection data was extrapolated by Planning and Development Department staff assuming a level increase in employment over the 20-year period.

[5] The trends in retail and other businesses to utilize the internet for commerce may reduce the need for physical store locations and employees.

*Vacant Land Availability:* As discussed above, the number of vacant houses and the projected loss of or stabilization of the City's population over the next 20-years translates into little or no demand for new residential land use, except for proposed projects that are under review by the City. However, should conditions change, the City does have ample available vacant land to accommodate any anticipated growth inside its current corporate boundaries as shown in Table 2-3 below.

The available vacant land for nonresidential uses is presented by future land use designation in Table 2-3 below. The information in this table shows that the City has almost twice times the amount of available vacant land for nonresidential uses to meet the projected demand of slightly less than the additional 68 acres between 2015 and 2035.

Table 2-3. Vacant Land Availability

| Future Land Use Designation | | Number of Acres |
|---|---|---|
| *Residential* | | |
| Residential Low (up to 6 units/acre) | 386 | |
| Platted Vacant Lots (147) | | 53 |
| Unplatted Land | | 333 |
| Residential Medium (6 to 10 units/acre) | 27 | |
| Residential High (up to 15-18 units/acre) | 4 | |
| Mixed Residential (up to 10 units/acre) | 7 | |
| *Nonresidential* | | |
| Commercial (FAR .5/30 hotel rooms/acre) | 33 | |
| Industrial (FAR .5) | 67 | |
| Mixed Use (FAR .5-2.0/ 30 hotel rooms/acre | 29 | |

Source: Vero Beach Planning and Development Department, 2015.

*Vacant Land Suitability-Soils:* Within the City, soils can limit development activity in two major ways: load bearing capacity and suitability for sanitary facilities. Poorly drained soils that comprise a significant area of the City, create building limitations due to the wetness of the soil and limitations on septic tanks. This lack of drainage can result in the ponding of water, flooding and caving of excavation. These limitations may be overcome through building techniques and standards such as raising the elevation of sites through use of fill dirt and enhancing the natural drainage area of new development. The City's stormwater regulations and program to eliminate septic systems and connect them to the central sewer system should be emphasized in the policies of the Comprehensive Plan. A more detailed discussion is provided in the Infrastructure Element.

Moderately and excessively drained soils also create issues. These soils are shown in Figure 3. The most significant issue for development is that such soils are poor filters and, in the case of excessively drained soils may create the potential for groundwater contamination. Such containment may adversely affect groundwater recharge areas shown in Figure 3 and create potential for infiltration of nutrients from septic systems into the Indian River Lagoon.

Except for areas within existing development that are covered by impervious surfaces, the aquifer recharge areas are primarily contained with the boundaries of the Vero Beach Regional Airport. These areas are protected through a Conservation future land use designation and State/City regulations regarding protection of production wells. These issues are addressed more fully in the Infrastructure Element.

*Vacant Land Suitability-Coastal High Hazard Area.* Almost all vacant lands within the Coastal High Hazard Area (see Figure 8) are designated as Environmentally Sensitive or Conservation. Due to the presence of wetlands and significant habitat only isolated parcels may be developed for single-family residential use within the ES designated areas.

*Vacant Land Suitability-Wetlands.* A significant portion of wetlands are located within designated Conservation and Environmentally Sensitive Areas; however isolated pockets of wetlands exist on vacant lands suitable for residential development. These areas and the Indian River Lagoon are protected through the City's stormwater and development regulations and specific policy recommendations of this Plan. See discussion of wetlands earlier in this chapter and Chapter 8, Conservation.

*Vacant Land Suitability-Flood Prone Areas.* The major flood prone areas of the City may be generally found along the mainland and barrier island shorelines of the Indian River Lagoon. See Figure 6 for designated special flood hazard zones. These areas create special problems both for new and existing development; however, with increased emphasis on flood protection and enhanced requirements for development in special flood hazard areas these lands don't constitute a significant problem for development.

**Urban Sprawl**

As stated in the Indian River County 2030 Comprehensive Plan, urban sprawl is characterized by "scattered, poorly planned urban development that occurs in urban fringe and rural areas and frequently invades lands important for environmental protection. Urban sprawl typically manifests itself in one or more of the following patterns: leap frog development, ribbon strip development, and large expanses of low-density, single-dimensional development." Such patterns of development lead to increased cost of public services and facilities, loss of valuable open natural land and resources, inefficient use of land, excess increased transportation costs, increased vehicle miles travelled, greenhouse gas emissions, and lack of non-motorized travel options.

As noted previously, the City of Vero Beach is almost entirely built-out, except for a large tract of land suitable for development west of 43rd Avenue and north of 26th Street. Most existing development is rather compact and of urban density and intensity. Where new development is occurring it is mostly infill or replacement development.

The City should continue to implement specific strategies and policies to encourage and promote compact development patterns, which include the following:

- Promoting infill and mixed-use development in appropriate locations in major commercial corridors and commercial districts and infill development in the City's older neighborhoods in proximity to the Downtown through incentives and increased flexibility in the City's land development regulations;

- Promoting walkable and connected neighborhoods that provides for a mix of uses at urban densities and intensities that support a range of housing choices and a multi-modal transportation system.

- Improving non-auto dependent connectivity between residential, shopping, entertainment and employment areas through the provision of interconnected sidewalks, bike lanes/paths and expanded regional transit service;

- Directing future economic growth and associated development to areas of the City in a manner that does not have an adverse impact on and protects natural resources and ecosystems through specific policies in the Comprehensive Plan and implementation through the City's land development regulations; and

- Limiting annexation of properties in unincorporated Indian River County to only those lands within the designated Indian River County Urban Service Area and areas already served or able to be cost-effectively served by City utilities unless extenuating circumstances require connection to County utilities.

**Residential Neighborhoods Preservation and Stabilization**

The City of Vero Beach is almost entirely built out. Many of its older, historic neighborhoods located on the mainland surrounding the historic downtown have been under pressure for change resulting from expansion of nonresidential uses into neighborhoods, increased traffic, softening of property values, infill development inconsistent with the character of these neighborhoods, and deteriorating maintenance of yards and structures. The major issue is how residential, principally old established historic neighborhoods, should be preserved and stabilized using as a starting point the development of specific neighborhood preservation and conservation strategies.

As stated eloquently in the Vero Beach Vision Plan (Vision Plan), "Vero Beach is a community of neighborhoods–neighborhoods of all shapes, sizes, characters, and styles" and from neighborhoods on the barrier island to those on the Mainland represent "more than mere places to live." Neighborhoods form the backbone and lifeblood of the community.

Vero Beach neighborhoods have been undergoing increased pressure for change since the adoption of the 1992 Comprehensive Plan. In some neighborhoods, particularly on the barrier island, existing residences, some of which are of historical significance, have been replaced with larger, more expansive residences that some residents find are out of scale and the character with existing residences in the neighborhood and adversely affect the overall quality of life.

In older neighborhoods, commercial and institutional uses have experienced intrusion by institutional and nonresidential uses disruptive to these neighborhoods' integrity and the quality

of life of their residents. The very fabric of some of the older, less affluent neighborhoods show symptoms of destabilization, such as: loss of property values; a real or perceived increase in crime and a reduction in the sense of security among residents; an increase in the proportion of absentee landlords; and lack of property maintenance and code compliance.

During and subsequent to the "Great Recession," experienced throughout most of the country and Florida, the City experienced numerous foreclosures. The adverse impact of these foreclosures on neighborhood stabilization has been confined primarily to mainland neighborhoods.

The City has addressed property maintenance, squatters, and vandalism problems with these properties through code enforcement and abatement measures where necessary and appropriate. Unfortunately, the City has had to primarily rely on General Fund resources to pay for these abatements.

Residents of these neighborhoods, as typified in neighborhood enhancement strategies prepared for the Original Town and Osceola Park neighborhoods in 2009, recognize that the lack of private investment and market factors contribute to these problems, but that insufficient public infrastructure, lack of amenities and inadequate policies and regulations to protect these neighborhoods and promote reinvestment are also contributing factors.

The City has undertaken some capital improvements to improve its older, established neighborhoods through provision of new sidewalks, lighting, street resurfacing, stormwater and sewer improvements and expansion of the Neighborhood Watch program. Although these efforts are limited by the lack of sufficient financial and personnel resources and other competing needs, it would be appropriate to provide policy guidance in the Comprehensive Plan to address neighborhood stabilization and revitalization concerns.

General Neighborhood Issues and Strategies. As identified in the 2010 Evaluation and Appraisal Report (EAR), specific objectives and policies are needed. The specific objective and policies need to be more pro-active than just maintaining the status quo and emphasize comprehensive strategies for managing redevelopment to enhance and maintain the character of neighborhoods.

The Vision Plan calls the City of Vero Beach, a "community of neighborhoods-neighborhoods of all shapes, characters, and styles." Due to the importance of neighborhoods to residents' quality of life, the Comprehensive Plan should be updated to elevate the importance of neighborhoods to include specific objective and supporting policies focusing, particularly on neighborhood preservation and stabilization.

The following policy areas from the *Vision Plan* and EAR were analyzed for consideration in preparation of policies in the update of the Comprehensive:

*Property Maintenance and Housing Standards:* A significant factor in the conservation and stabilization of neighborhoods is the need for code enforcement to ensure that properties are

maintained and to prevent deterioration of properties that adversely impact other properties in the neighborhood and create a public nuisance.

The City has done its best to enforce property maintenance through the sanitary property regulations and public nuisance provisions of the City Code. Additionally, it has enforced the provisions of the Standard Housing Code and Standard Unsafe Building Abatement Code; however, both these codes are no longer supported by any sponsoring organization.

Many localities, including Indian River County, have adopted the International Property Maintenance Code or a modification of this model code. This code regulates and governs the condition of all property, buildings and structures. A policy needs to be included committing the City to follow through with adopting its own code using this model code or similar code.

*Neighborhood Conservation/Historic Preservation Overlay Districts:* The Vision Plan recommended that "residential regulations/overlay districts (with stricter zoning standards or the regulations of architectural design issues) or local historic preservation designation should be considered only by a neighborhood request or petition representing a "super majority" of property owners.

In amending the Comprehensive Plan to incorporate specific objective and policies for Original Town, this recommendation was thoroughly vetted by the staff and the Planning and Zoning Board. Two issues arose from this analysis.

Many of the City's older historic inner City neighborhoods suffer from the lack of investment that decreases the value of such neighborhoods for residential development. Although such regulations regulating building and site design may be appropriate in some cases, any such regulations should be linked to incentives to promote redevelopment and infill compatible with the existing neighborhood and in a manner that does not gentrify and displace long-term residents. The bottom line is more regulations without incentives will only further discourage investment and create significant opposition from property owners.

The second issue related to the threshold for enacting overlay or historic designation districts. Existing Policy 12.7 of the Comprehensive Plan for Original Town presents the policy guidelines for consideration of an overlay or historic designation district that should be moved under on objective and policies for all residential neighborhoods.

*Conditional Nonresidential and Institutional uses:* The expansion of nonresidential and institutional uses has threatened the residential character of several older, historic neighborhoods on the mainland such as Osceola Park and Original Town. Guidance on this issues has been addressed for the Original Town neighborhood (see below) in a Comprehensive Plan text amendment, but such policy guidance needs to be expanded to include specific development criteria to be applied city-wide for the locating and expansion of non-residential uses in the RM and RH designations. Any such policy guidance must balance the rights of property owners with the public purpose to stabilize and preserve older city neighborhoods.

Particular subject areas for such policy guidance should include, but are not limited to:

- Buffer standards for conditional uses in the Land Development Regulations to ensure they meet specific purposes intended and are compatible with maintaining the character of the neighborhood.

- Restrictions on approving nonresidential uses through rezoning or development approval, particularly those proposed uses that may adversely impact historic resources.

- Development and design standards for nonresidential uses to ensure compatibility with existing residences in neighborhood.

*Residential Infill and Redevelopment:* The establishment of specific incentive programs for residential infill development, similar to initial efforts in commercial areas is needed. The City adopted an ordinance that provides limited property tax abatement for renovation or improvements to structures designated or eligible for designation as a historic structure or a contributing structure in a designated historic neighborhood.

Existing Policy 3.8 b. of the Comprehensive Plan calls for density bonuses to "encourage infill, redevelopment, and provide affordable housing in designated locations and districts." The City has never adopted any regulations regarding such density bonuses, except through the Transfer of Development Regulations (TDRs) provisions of the Mixed Use zoning district.

A major obstacle to any such density bonus is the City's Charter. The Charter limits density levels (both permanent and transient residential densities) to those existing in the City's Zoning Ordinance in effect on August 15, 1989, unless an increase is approved by referendum. As called for in the 2010 EAR this policy needs to be further reviewed and modified in compliance with the City Charter, not only for residential multi-family land use designations, but also for nonresidential designations to encourage mixed use development.

The residential infill issue was clearly identified in the two neighborhood enhancement strategy plans prepared for Osceola Park and Original Town. Both documents identified the need for more efficient use of land to provide greater diversity and opportunities for residential development. The older neighborhoods are losing population due to many contributing factors that threatens their long term viability.

These older neighborhoods, generally designated as Residential Medium or High on the Future Land Use Map with underlying multiple family zoning, provide the opportunities for additional housing; however, the existing Land Development Regulations are a barrier due to restrictions on new development. More incentives and flexibility is needed to provide a wide range of housing types and styles that would enhance the sustainability of older developed neighborhoods. A discussion of the location areas within the City limits that the focus of residential infill and redevelopment is presented later in this chapter.

The following policy concepts should be considered in guiding the City's regulations and actions to encourage and promote infill development in its older neighborhoods:

- Infill development must show tangible benefits to the community as a whole, not just developers or new residents.

- Any policy and regulatory framework must balance the market demands for such infill development and the rights of property owners with the distinctive low density/intensity character of Vero Beach as espoused very clearly in the Vision Plan and the underlying goal of the Comprehensive Plan.

- Infill policies and regulations should be firmly based on the development costs and local market factors.

- Regulations need to be crafted in a manner that promotes flexibility to allow a diversity of housing opportunities, such as, but not limited to cottage housing, small lots, accessory housing, townhouses, zero-lot lines, TDRs and density bonuses, and revisions to nonconformity regulations. Such regulations must result in development that is compatible with the character of the existing neighborhood. Compatibility may be achieved through context-sensitive building design and site design such as the preparation of pattern books for individual neighborhoods as appropriate. Infill regulations may be implemented through an overlay district, special small lot standards, or planned residential development similar to concept of planned commercial developments allowed in the City's C-1A and C-1 zoning districts.

- Policies and resulting programs and regulations to foster infill residential development need to be incentive based and flexible in application both to encourage innovation and investment in the City's older neighborhoods and to ensure a diverse mix of housing types and market prices that serve the entire spectrum of future residents from singles, families, empty nesters and retirees.

- Policies should address neighborhood organizations and coordination with City staff as recommended in the neighborhood strategies for Original Town and Osceola Park.

*Neighborhood Infrastructure and Connections:* The viability and livability of neighborhoods is greatly dependent upon the presence and maintenance of basic infrastructure facilities such as sidewalks, lighting, street drainage, street paving. streetscape, and neighborhood parks. The City has routinely addressed these facilities through its Five-Year Capital Program, but some policy guidance in the Comprehensive Plan would further support such efforts.

In particular sidewalks are a major concern. In many older neighborhoods in particular, sidewalks need increased maintenance or are non-existent. Sidewalks provide for walkable

neighborhoods that yield health benefits for walkers, reduce dependence on the automobile, and very importantly, a safer neighborhood, Specific policy regarding sidewalks in residential neighborhoods with connectivity to schools, shopping, entertainment and employment need to be considered in any neighborhood infrastructure policy.

Many of the City's older neighborhoods have a traditional grid street network with alley's which allows great connectivity for pedestrians, bicyclists, and motorists. However, this grid network has been threatened in some neighborhoods with the abandonment of right-of-way. This issue was addressed in the Original Town plan amendment, but needs to be expanded as a general policy related to right-of-way abandonment in residential neighborhoods.

The grid network provides connectivity, but with connectivity comes traffic issues related to individuals cutting through neighborhoods at speed. To partially address this problem the maximum speed limit on local roads has been reduced to 25 mph. The City has adopted a traffic calming policy and program, which should be reviewed and referenced in the Comprehensive Plan update. The policy applies an incremental approach to traffic calming starting with small scale, relatively inexpensive measures, before going to larger scale and more costly physical improvements.

Although the City is primarily built-out, specific policies on subdivision development standards to ensure network connectivity to avoid issues that result in subdivision development with extensive reliance on cul-de-sacs. Such policies should address vehicle, pedestrian, and bicycle connections within and external to a subdivision.

*Neighborhood Protection from Incompatible Uses.* Existing Policy 3.1 of the Comprehensive Plan requires that neighborhoods need to be protected and/or buffered from the encroachment of higher density and intensity uses. This policy should be expanded to consider review of buffer and landscaping requirements between residential districts and nonresidential districts, including buffers between single family districts and multi-family zoning districts. Such measures may include landscape and physical barriers, step-down building setback requirements, and transitional uses.

An important issue that was never addressed in either the *Vision Plan* or 2010 EAR was short-rental (less than 30 calendar days) of dwellings in the City's residential districts. This issue came to the forefront with a code enforcement case in 2011 and subsequent City Council resolve to comprehensively and proactively enforce the prohibition.

Short-term rentals encourage and promote a constant influx and turnover of strangers obtaining temporary accommodations in the City's residential neighborhoods, similar to a hotel or motel in a commercial district. The constant influx of strangers into a residential neighborhood disrupts the tranquility, privacy, and sense of security that residents expect and deserve living in a residential neighborhood.

Legal challenges have been filed with the Circuit Court that the City's ban was in violation of the Florida Legislature's action in 2011 that pre-empted local governments from regulation the times and duration of vacation rentals. However, it is the City's contention that its

regulations have prohibited short-term rentals since at least the late 1970's. The City has been successful in defending its position in court.

Another issue not identified in the Vision Plan and 2010 EAR is the emergence of "sober houses," in residential areas.[6] Such uses are protected by the American for Disabilities Act and fair housing laws, but are not addressed satisfactorily in the Land Development Regulations. The biggest concern is not for those centers that operated under State licensing, but those that are unlicensed. Specific policy guidance on addressing such uses should be incorporated in the Comprehensive Plan update.

*General City-wide Neighborhood Policies and Program:* In preparing a text amendment to this Comprehensive with the participation of stakeholders in the Original Town neighborhood, many specific actions were identified In Policy 12.9 that should be incorporated as city-wide policies to be implemented in conjunction with neighborhood contact organizations, property owners, residents, and businesses. These actions, consistent with the constraints on the City's financial and personnel resources, should include:

- Encourage and support neighborhood participation in the Neighborhood Watch Program.
- Support of neighborhood efforts to impact traffic and pedestrian/bike safety through City's traffic calming program.
- Support efforts to establish neighborhood identification/gateway signs and specialized street signage with historic names.
- Support efforts to stabilize and improve overall appearance of neighborhoods through comprehensive enforcement of zoning, housing, and property maintenance regulations and active participation of residents and property owners with code enforcement and solid waste personnel in comprehensive cleanup programs.
- Encourage and support the establishment of neighborhood, civic, or business organizations as the contact or liaison with staff in matters related to development and permit review, identification of neighborhood issues and needs and the coordination of city planning, code enforcement, community policing and other public programs in the neighborhood.

Original Town. On July 6, 2015, the City Council adopted Objective 12 and supporting policies for Original Town amending the Comprehensive Plan. The specific objectives and policies established for Original Town are still relevant for that neighborhood; however, some of the policies, which are appropriate for city-wide application in other neighborhoods, are recommended to be shifted under a new city-wide objective for neighborhoods. In particular, this

[6] Sober houses are residential facilities for housing individuals who are transitioning from alcohol or drug dependency.

includes Policy 12.6 as this investigation of appropriate regulatory changes that would be relevant to other historic inner city neighborhoods of Osceola Park and Edgewood Addition.

Osceola Park. In 2009 the City Council adopted the *Osceola Park Neighborhood Enhancement Strategies* report. In the adoption resolution, the City Council directed staff to thoroughly review, refine, modify and/or expand the strategies contained in these documents with the expectation that such strategies would be incorporated in the Comprehensive Plan. The 2010 EAR recommended that an objective with supporting policies based on these documents be prepared for a text amendment to the Land Use Element.

As noted above, a text amendment to the Comprehensive Plan was adopted for the Original Town neighborhood; however, the cutback in staffing and budget of the Planning and Development Department and other priorities resulted in no action on preparing an amendment for the Osceola Park Neighborhood. However, with the proposed Cultural Arts Village (see later discussion related to the proposed village), it is recommended that a policy be added to the Land Use Element to address Osceola Park concerns in coordination with work amendment required to implement the Cultural Arts Village concept.

**Downtown and Commercial Districts**

The Vision Plan identified five distinct commercial districts outside the US Highway 1 strip commercial development corridor that runs through Vero Beach from north to south. The general boundaries of these five districts are depicted in Figure 9.

As stated in the Vision Plan, the challenges facing the City, business community, and other stakeholders is how to encourage and foster a diverse commercial environment in each of these districts. Such commercial environment needs to be sustainable and supportive of each district's the distinctive character and functions in a manner that is consistent with the small city "feel" of Vero Beach and contributes to the quality of life of its residents and businesses.

Each of these districts present certain challenges and issues, which can't be solely addressed by the market, but requires proactive public-private cooperation and partnerships that involve amendments to the Comprehensive Plan and land development regulations, and public and private investment with a central focus on strategies and incentives to encourage appropriate infill, redevelopment, and mixed use development. As applied in the Vision Plan and this Comprehensive Plan mixed use is defined as the combination of permanent residential or transient residential (hotels/motels) with compatible non-residential development such as professional offices, retail, restaurants, and entertainment establishments. Such development is intended to establish a pedestrian-friendly environment based on access and improved connections between various uses without over reliance on the automobile.

Downtown. Historically, the Downtown was the center of commerce, government, and professional white collar employment for the City and Indian River County; however, with the development of Miracle Mile and the Indian River Mall, its commercial functions changed. While losing many of its retail establishments to newer, more suburban commercial centers, the vacated space has been replaced with many destination restaurants and bars, and numerous art

galleries and antique shops. Several close-in historic residential neighborhoods are within walking distance of the Downtown.

Downtown property values have generally been stagnate with no significant new development in the Downtown over the last decade; however, in the last few years investments in the downtown have increased with many improvements being made to existing properties. The recent purchase of the old Diesel Power Plan on the National Register of Historic Buildings by a private developer for a microbrewery should provide a catalyst for further private investment along with the proposed Cultural Arts Village (see discussion later in this chapter).

Properties are generally well maintained with many interesting, historic buildings. Sidewalks and other streetscape features are also fairly well maintained. On- and off-street public parking is generally available, except parking is tight in the area south of SR 60 along 14th Avenue and Old Dixie Highway, where there is a dense concentration of restaurants and bars.

The goal of the Vision Plan for the Downtown is to "reinforce downtown as a mixed-use office, employment, and governmental center, as well as a unique cultural, arts, entertainment, and residential enclave, with shopping and dining opportunities that support the district and its surrounding neighborhoods." This goal was taken verbatim from Policy 7.3 of the Land Use Element of the Comprehensive Plan.

However, as articulated in the Vision Plan and in subsequent report entitled Downtown Charrette, prepared for Main Street Vero Beach, and the Downtown Action Plan prepared by a consultant for the City in cooperation with the Main Street Board of Directors, Downtown has issues and challenges that restrict its potential as a vibrant destination in the region. Some of the more significant issues identified include need for traffic calming modifications to State Route 60; more diversification of retailers; need for a master plan or unified urban design; lack of residential and transient residential development in the immediate Downtown area; more public landscaping and streetscape improvements; and need for funding mechanisms to finance public improvements.

The Vision Plan called for "increased downtown density" to encourage residential and transient residential needed in the downtown to support office and commercial development and create a more pedestrian-oriented environment. However, without voter approval in a referendum, the City Charter does not allow for any increased density (dwelling units or hotel rooms) in a specific zoning district not in the City's zoning regulations in 1989.

Other mechanisms need to be explored to provide for increased density on a site without increasing the overall density in the downtown district. Such mechanisms as TDRs (transfer of development rights) and "planned development" regulations that provide increased flexibility in development should be considered in the preparation of policies in the Comprehensive Plan update.

A major issue that continues to dominant the discussion regarding the future of Downtown is SR Route 60 ("Twin Pairs"). In numerous studies and public meetings concerns have been raised regarding the adverse impacts of this facility that splits the Downtown. These

concerns are about the adverse impacts on pedestrian safety, community appearance and vitality of Downtown businesses. The "Twin Pairs" encourages speeding, limits the visibility of retailers, and creates barriers to pedestrian movement between businesses.

In March 2013, a consulting firm for the City prepared a traffic calming feasibility study of the "Twin Pairs." This study, which was approved by the City Council, demonstrated that a reduction in travel lanes was feasible without adverse impacts on travel times and capacity of SR 60. A detailed discussion of this issue is presented in the Transportation Element.

Another significant transportation issue that has come to the forefront is the proposed "Brightline" (a.k.a. "All Aboard Florida") high speed rail service, which will not provide any rail service to the City, but will bring 32 high speed passenger trains passing through the middle of the City. Community concerns have been raised regarding the potential adverse impacts on Downtown property values, land uses, future investment in the Downtown, traffic safety, emergency services, and on the costs to local government.

In May 2012, the City County enacted Ordinance 2012-07 that authorized the establishment of economic development zones to enable the utilization of tax increment financing under the City's home rule powers. Subsequently the Historic Downtown Vero Beach Economic Development Zone (EDZ) was designated along with establishment of a five-person advisory committee. This advisory group is charged to recommend specific capital improvements and other actions to the City Council to promote and enhance the economic development and vitality of the Downtown.

The City should move forward by considering the recommendations from the above documents and subsequent actions taken by the City for policy consideration in the preparation of a specific objective and supporting policies for the Downtown.

Cardinal Drive/Ocean Drive. The commercial district on the barrier island centered on Ocean Drive and Cardinal Drive was recognized by the Vision Plan as a "symbolic heart" to many residents and visitors. The district is typified by small scale boutique retail and personal service businesses, hotels, and restaurants set in an up-scale pedestrian-oriented environment with a significant level of available public on-street and off-street parking facilities and well maintained landscaping.

In response to the recommendations of the Vision Plan, the Ocean Drive/Cardinal Drive and Beachland Boulevard Master Plan (Master Plan) was prepared by a planning-engineering consulting firm and adopted by the City Council on March 20, 2007. After a six -year period of numerous public workshops and hearings on specific development standards for the Ocean Drive/Cardinal Drive commercial district, the City Council adopted the Ocean Drive/Cardinal Drive Commercial Overlay District in 2013.

As of the date of this writing, only two projects have been reviewed and approved under these overlay development standards. Continued monitoring and evaluation are called for to ascertain if modifications to the regulations are appropriate. At a minimum, specific policies

should be considered for incorporation in this Comprehensive Plan update to reflect policies set forth in the Vision Plan and Master Plan for this commercial district.

As part of this consideration of policies some focus should be placed on addressing parking. Parking has become an issue again in the overlay district with the recovering economy. The Parking Management Strategies report for the beachside business district prepared by an engineering-planning consulting firm in 2009 should be reviewed to identify specific policies for consideration in the Comprehensive Plan update.

Beachland Boulevard. As the primary entrance to the barrier island and the Cardinal Drive/Ocean Drive commercial district, Beachland Boulevard is characterized by large office structures primarily occupied by financial and banking institutions and professional offices. The Vision Plan found that the market forces were replacing retail uses in the corridor, west of Eagle Drive, to financial and professional office uses. The newer buildings with smaller setbacks and planting areas, were replacing the "green spine" of the corridor characterized by many Live Oak trees.

The Vision Plan found that displacement of retail uses with office ones has a positive effect in that it reinforced the desired functions of the corridor as a financial, banking, and professional office district. According to the Vision Plan, this district has the capacity to absorb more office demand in Class A office space. Unlike the eastern segment of Beachland Boulevard, the segment west of Eagle Drive is much more automobile-oriented and retail uses on the ground floor are not essential to its viability.

The Vision Plan identified multiple functions for Beachland Boulevard. Beachland Boulevard should remain as the primary entrance gateway to the Barrier Island; respond to market demand for additional "Class A" office space to relieve pressures along Ocean Drive; and serve as an "entry portal" to neighborhoods and recreational opportunities in proximity to the corridor. A particular importance was also given to maintaining the "green spine" that historically defined Beachland Boulevard's character.

Since the Vision Plan, little new development has occurred in this Beachland Boulevard corridor. Preparation of an overlay zoning district were dropped due to other pressing priorities. However, it would be beneficial to consider specific policies for inclusion from the recommendations of the Vision Plan and 2010 EAR.

Royal Palm Pointe. Royal Palm Pointe was created when the Barber Bridge was constructed in 1995. At that time, the roadway and bridge approach was lined with primarily auto-oriented commercial uses. With the construction of the bridge, vehicle access through the corridor was eliminated. This created an opportunity for a new and unique commercial district in Vero Beach.

Significant public and private investments in common parking areas and the installation of extensive landscaping and streetscape improvements to the median in the early part of this decade encouraged redevelopment and upgrading of properties located on the finger peninsula. A public park was constructed at the tip of the peninsula.

Although the Vision Plan gave credit to this transformation, it found that further transformation is needed to achieve its potential as "one of Vero Beach's and Florida's most innovative mixed use districts." The goal of the Vision Plan called for "complete the transportation of Royal Palm Pointe as a regional mixed-use center residential, commercial, and entertainment district; focusing on restaurants, recreation, and boutique retail venues."

The Vision Plan identified a couple of issues that are still relevant the problem with multiple zoning districts that limit or discourage mixed use development and the lack of public water access. These issues have recently gained more attention with the development of a private country club-hotel replacing a former restaurant and the replacement of retail uses with a small condominium project on the peninsula. These issues and others identified by the Vision Plan should be examined in the preparation of an objective and supporting policies for this commercial district.

Miracle Mile. The Miracle Mile developed as an auto-oriented commercial center in the 1980's attracting retail and other commercial businesses from the Downtown. The development patterns along the Miracle Mile corridor (21st Street) resemble typical suburban commercial development of the latter half of the last century with large expanses of concrete for parking arranged in front of long commercial strip centers with little attention to pedestrian access.

The *Vision Plan* recognized the need to make this commercial district more environmentally and aesthetically pleasant and intimately scaled. The major concern in the plan was that such an area, as with other older suburban commercial auto-oriented corridors, will face increasing competition from newer outlying commercial developments.

Since the *Vision Plan* was prepared, the Miracle Mile corridor has witnessed increased private investment as typified by the redevelopment of the old Modern Age furniture store into a 37,000 square foot retail-restaurant-entertainment-office complex and redevelopment of the Three Avenues multiple-use commercial development containing over 65,000 square feet.

Renovations of existing commercial buildings have taken place with the purchase and expansion to approximately 69,000 square feet of the old Winn Dixie grocery store by Publix and purchase and upgrading of the old grocery store, vacated by Publix, by the upscale Fresh Foods market. Immediately adjacent to the north of the Miracle Mile District, is the Parc 24 office project along Indian River Boulevard with a planned build-out of 112,000 square feet of professional office space.

On 6th Avenue, a new 90-unit hotel was recently constructed, approved as a "planned commercial development" under new provisions in the City's zoning regulations. This investment typifies the expressed interest among developers and some major property owners for transforming Miracle Mile into a more active, mixed-use commercial corridor.

These developments have raised concerns about traffic safety and congestion problems on Royal Palm/Indian River Boulevard and 21st Street/Indian River Boulevard. To address these problems, the Public Works and Planning and Development Departments propose consideration of an extension of 5th Avenue across a drainage ditch to connect with Royal Palm

Boulevard. The Indian River County MPO has been asked to authorize funds to prepare a study of the impacts of such an extension on the road system. [A more detailed discussion of this proposed facility is presented in Chapter 3, Transportation Element.]

An objective and specific supporting policies to further the pertinent recommendations of the *Vision Plan* that promote creation of a mixed-use and "village" character incorporating residential, transient residential, and other non-retail uses. The real challenge to implement such recommendations is the limitation in the City Charter as discussed previously. One way to address this problem would be through creation of a special purpose zoning district for Miracle Mile. A specific policy for addressing this problem should be considered.

US Highway I Corridor. US Highway 1 bisects the City running north to south, generally following the Florida East Coast railroad tracks. The corridor is characterized by highway commercial uses typified by parking lots fronting linear strip commercial centers.

The appearance and maintenance of properties along the corridor varies. South of the intersection of 21st and US Highway 1, development occupies both sides of the highway. Several renovation, redevelopment and infill projects have been proposed, undertaken, or completed. Most properties are generally well maintained and occupied by retail, hotel, restaurant, and automobile service and sales establishments.

North of the above intersection, development is restricted to the eastern side of US Highway 1 due to the railroad tracts. The corridor is less attractive with many buildings and properties lacking proper maintenance and upkeep. Code compliance is a major problem in this segment of the corridor.

The Vision Plan treated both Miracle Mile and the US Highway I corridor together even though market and locational factors and zoning designations affecting these commercial areas are very different. The Vision Plan called for enhancing "the existing character, marketability, and long-term sustainability of the Miracle Mile and US 1 commercial corridors, while allowing for their future evaluation in accordance with changing commercial development trends.

The Vision Plan identified two strategies applicable to US Highway 1: (1) more innovative parking regulations for mixed-use development, interconnections between parking lots; and consolidate of landscape treatments; (2) modifications to zoning ordinances to allow creation of mixed-use and "village" character in strip commercial corridors.

The City's parking regulations have been completely revised since the *Vision Plan* to reduce parking requirements and promote shared parking. Amendments to existing zoning district regulations to promote mixed-uses in C-1 and C-1b zoning districts are restricted by the provisions of the City charter as discussed previously.

The update to the Comprehensive Plan should address promoting mixed uses through policies to create new commercial mixed use zoning districts that are appropriate for locations in the US Highway 1 corridor. Additionally, specific infill and redevelopment strategies that

include development bonus incentives to developers in return for public amenities or meeting of specific public purpose objectives should be considered.

**Vero Beach Regional Airport**

In 2012, the City adopted an amendment to the Comprehensive Plan establishing Objective 11 and ten supporting policies that address land use compatibility with the operations of the Vero Beach Regional Airport. These policies are applied in combination with City's airport zoning regulations.

Recent revisions to Chapter 333, Airport Zoning, of the Florida Statutes require some attention by both the City of Vero Beach and Indian River County. Chapter 333 requires either through interlocal agreement or the establishment of a joint airport protection board with the a political subdivision and any other political subdivision has land upon which an obstruction may be constructed or altered that affects air space of the airport, the adoption, administration, and enforcement of a "set of airport protection zoning regulations." Such set of airport protection zoning regulations that meet these and other provisions of Chapter 333 must be in effect by July 1, 2017.

Both the City of Vero Beach and Indian River County have separate airport protection zoning ordinances. The City has amended its existing regulations and entered into an interlocal agreement with the County pursuant to the requirements of Chapter. A policy related to this issue should be incorporated in this element of the Comprehensive Plan update.

Recently, the City initiated work on an airport master plan. In addition to addressing airport related improvements, the Airport's consultant is investigating alternatives to the existing Conservation (C) designation for a major portion of the airport. This study is identifying specific habitat and environmental areas, including the City's well fields that need to be protected from development and those areas suitable for development.

This work is being undertaken to comply with a finding in a Federal Aviation Administration (FAA) compliance report that the designation of a major portion of the airport property for conservation land "conflicted with the City's obligation to make the land available for airport purposes." As part of this effort, the Airport's consultant has completed a FAA Wildlife Hazard Management Plan and a draft Habitat Conservation Plan (HCP) in 2016 for endangered and threatened species such as the Florida Scrub Jay.[7] The draft HCP, which has yet to be approved by the U.S. Fish and Wildlife Service as of December 2016, identified approximately 174 acres requiring conservation for the Scrub Jay. It is anticipated that it will 2018 before any changes to the Future Land Use Map can be proposed.

The draft Master Plan for the Airport is proposing an "Airport Commercial Village" initiative. This concept calls for a mix of compatible commercial developments that may include food and beverage, retail stores, small businesses, and hotel facilities. The general boundaries of this

[7] A Habitat Conservation Plan (HCP) is a required as part of an application for an Incidental Take Permit under Section 10 of the Endangered Species Act for any non-Federal activities that will result in "take" of a threatened or endangered species.

proposed commercial village generally follow the parcels abutting and in proximity to Aviation Boulevard.

Also being considered in the longer term is the expansion of this commercial area to include the existing Citrus Mobile Home Park. This initiative will most likely require a Future Land Use Map change for the mobile home park and, at a minimum a change in zoning such as an overlay district for the commercial village.

**Police Department Pistol Range**

At the northern boundary of the Vero Beach Regional Airport is a 10.5-acre City-owned property currently incorrectly designated as Conservation (CV). The property is occupied by the City Police Department's pistol range and zoned ALI-MC (Airport Light Industrial-Multi-activity Center). The existing property is surrounded by light industrial and intensive commercial uses in unincorporated Indian River County.

To correct this oversight, the City transmitted a future land use amendment package (#16-1ESR) to the Department of Economic Opportunity (DOE) and other reviewing agencies on January 11, 2016, pursuant requirements of Chapter 163, Florida Statutes. On February 12, 2016, the City received an official letter from DOE that it had finished its review and had no comment. Unfortunately, the City was unable to adopt the ordinance amending the Future Land Use Map as it is unable to meet the six-month deadline provisions of Section 163.3184(3) due to the restrictions in Chapter 163 regarding the updating of the Comprehensive Plan.

Therefore, the proposed change in the Future Land Use Map designation of this property is included in the Future Land Use Map to this update of the Comprehensive Plan, presented in Exhibit A of the Policy Document. [Appendix A to this document provides a graphic of the specific property for re-designation of the property from CV to I (Industrial) and backup staff report provided to the Planning and Zoning Board and City Council.]

**Redevelopment and Infill Potential**

Numerous opportunities exist for infill and redevelopment in small isolated pockets throughout most of the mainland portions of the City; however, several areas of the City may have the potential for neighborhood or area wide approaches for residential and commercial redevelopment and infill.

Residential Redevelopment and Infill. Both Original Town and Osceola Park have been identified for potential residential infill development to encourage investment in residential properties, expand the existing residential population base, encourage more diverse housing opportunities to accommodate various lifestyles and stages in life, and to ensure the long-term residential viability of these neighborhoods. Any such policies should be applied in context of the historic nature of these neighborhoods and the need to ensure compatibility of any infill development with existing historic buildings in terms of mass, scale, and architecture including site design.

Mixed Residential/Commercial Redevelopment and Infill. The following two areas have been identified for potential mixed residential/commercial redevelopment and infill: (1) Sunnyside Neighborhood area generally north of 18th Street that is currently designated Commercial, Residential High and Medium on the Future Land Use Map; and the (2) Bullington Subdivision area bounded by SR 60 on the north, 10th Avenue on the west, commercial development along the US Highway 1 corridor on the east, and 18th Street on the south.

*Sunnyside Park Area:* As a result of a recommendation from the *Sunnyside Park Neighborhood Plan*, the City enacted the "Residential, Congregate Living, and Limited Offices" zoning district to replace the RM 10/12 (multiple-family) district. As stated in that document, the purpose of this new zoning district was to "help reverse decline and stimulate new development or redevelopment activity. The standards of the ordinance are intended to preserve the overall residential character of the area while permitting care facilities to mix with well planned, non-residential, office-oriented uses."

However, the area continues to be plagued by absentee-ownership, poor property maintenance, and lack of private investment. Specific policy guidance to investigate specific needed changes in the zoning regulations based on flexible standards and incentives needs to be considered.

*Bullington Subdivision Area:* In 1989, the City enacted an enabling ordinance to allow for the designation of a Mixed Use zoning district in areas of the city that were in a state of decline and areas where residential redevelopment activity is needed and desirable. The development standards were designed to preserve and enhance residential development, promote small-scale, low-intensity nonresidential uses and create an environment where people can live, work, and have recreation opportunities in the same area.

However, this area continues to be plagued by lack of private investment, poor property maintenance, deteriorating buildings, persistence of squatters and vandals, and criminal activity. Further efforts need to be focused on review of the Future Land Use Designation of Mixed Use (see discussion under Future Land Use and Zoning Designations) and the underlying Mixed Use District. The underlying regulations establish voluntary development standards intended to create the type of environment envisioned in purpose statement for the zoning district.

The regulations provided for specific development incentives that may be approved by the Planning and Zoning Board, such as Transfer of Development Rights (TDR), reduction of open space, and modifications to front yard setbacks. Since the designation of the area as Mixed Use no development application has been submitted to take advantage of the incentives available in the district. Part of the problem appears to be the inadequacy of the incentives and lack of clarity in the zoning regulations for that district. A specific policy should be considered to address this issue and focus on guidelines for addressing the issues that exist in the neighborhood.

Proposed Cultural Arts Village (Edgewood Subdivision). In 2015, the Leadership Team of the Cultural Council of Indian River County contracted with Treasure Coast Regional Planning Council (TCRP) to conduct a charrette for developing a conceptual master plan for the

creation of a Cultural Arts Village in the Edgewood neighborhood bordering the Downtown. TCRP conducted the charrette and prepared the *Cultural Arts Village Report*, which was approved by the City Council in March, 2016.

The location of the village is proposed between 14th Avenue and 20th Avenue, the Edgewood neighborhood together with the Downtown Business District between SR 60 East bound from 14th to 20th Avenue, and south to 18th Street.

The *Cultural Arts Village Report* calls for an inviting shaded pedestrian-friendly streetscape that supports a diversity of complementary creative environments for living, working, and selling in conjunction with cafes, restaurants, and small businesses. The neighborhood is intended to reflect the principles for retrofitting rather than redevelopment by maintaining a view to preserving structures, street layouts, and motifs that are important parts of this area's heritage and sense of place. The village concept is intended to attract more activities to the downtown district, "contributing to a comfortable, appealing, walkable environment, where people can spend time meeting, shopping, eating, and working."

At a minimum, the Cultural Arts Village Concept will require a text amendment to the Comprehensive Plan and the Zoning Map as well as revisions to the Land Development Regulations to allow for the creation of a special purpose zoning district.[8] The specific boundaries of the special purpose zoning district and uses to be allowed in the district will be vetted during the public hearing process.

The needed text amendment should be considered for inclusion in this update of the Comprehensive Plan. Specific policy guidance for the development of the Cultural Arts Village should be incorporated in this updated based upon the recommendations of the *Cultural Arts Village Report.*

*34th Street Neighborhood:* This existing neighborhood, located north of the Main Canal and east of US Highway 1, is centered on 34th Street. It is characterized by numerous vacant, unmaintained lots and numerous dilapidated and substandard buildings. Several buildings have been condemned and removed through City abatement procedure. The neighborhood is situated under the main runway for the Vero Beach Regional Airport and is impacted by noise generated by air operations.

The existing Future Land Use Designation for the neighborhood is Mixed Residential, which is intended for areas which are deteriorating or have a substantial amount of substandard housing and for areas where a mixture of housing, including mobile homes would not create a detrimental impact on an established residential neighborhood. The underlying zoning is RM 10/12 (multi-family up to 10 units per acre). The appropriateness of these land use designations at this location needs to be reconsidered considering its relationship and proximity to the airport and commercial activity in the US Highway 1 corridor.

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[8] The *Cultural Arts Village Report* recommended that an overlay zoning technique be utilized to implement the recommendations of the report; however, overlay zones are intended to incorporate underlying zoning with possible restrictions on certain uses normally allowed in the underlying zoning. Therefore, the preferred and most legally defensible approach would be to create a special district encompassing the area for the proposed arts village.

Additionally, the staff has been investigating connecting 37th Street in the hospital corridor to Aviation Boulevard to provide a bypass from SR 60 and Royal Palm Boulevard for east-west traffic flow. This extension would open up access to undeveloped properties designated Commercial and Residential Medium (up to 10 units per acre) located north of 37 Street and undeveloped properties in unincorporated Indian River County.

Any proposed action to redevelop the 34th Street neighborhood should be undertaken with consideration of a possible connection to 37th Street. A policy should be included in the Comprehensive Plan to direct this effort to explore options for redevelopment of this area.

City-Owned Waterfront and Postal Annex Properties. Two City-owned properties located on the Indian River Lagoon warrant further investigation to determine appropriate uses for their potential future development. These properties are a 16.3-acre parcel currently occupied by the City's wastewater treatment plant and the 17.4-acre property currently occupied by the City's Electric Power Plant. The third City-owned property that warrants review is a vacant 4.6-acre property known as the "Postal Annex," located directly across Indian River Boulevard from the two subject waterfront properties.

Any redevelopment of the two waterfront properties is subject to specific restrictions in the City Charter. Both properties may not be sold, leased, traded, or given away unless such action is approved in a public referendum. The exception to this restriction is where the property is leased for a public or civic purpose which serves a recreational, artistic, or cultural purpose, including incidental concessions. The Postal Annex property is not subject to any such restrictions.

At the behest of the City Council, a Task Force headed by the Indian River Chamber of Commerce and the Marine/Recreation Commissions reviewed the three properties and provided recommendations to the Council on the future uses of these properties. [Note; As part of their review, the two groups provided recommendations on the vacant 4.6-acre "Postal Annex" site located directly across Indian River Boulevard from the two subject waterfront properties.]

Both groups recommended various uses for all three properties. They suggested the City obtain professional assistance to conduct public meetings or a charrette in reaching a community consensus on future uses and development of these properties.

The following is a description and evaluation from a planning perspective of each of the three subject properties:

*Vacant Postal Annex Property:* The City Council is considering making as surplus the 4.6-acre Postal Annex property located at the southeast corner of the intersection of Indian River Boulevard and 17th Street. This property is in a prime location for commercial or mixed use development with good road access in a high volume traffic node and proximity to the waterfront. The property is currently designated Commercial on the Future Land Use Map and C-1A (Tourist Commercial) on the Zoning Map.

*Electric Power Plant Property:* The electric power plant property, located on the northeast corner of the intersection of 17th Street and Indian River Boulevard adjacent to the Indian River Lagoon contains 17.4 acres. As part of its agreement with the Orlando Utilities Commission, the City shutdown its electric power plant in December, 2015. The large fuel storage tanks and external piping are to be removed after shutdown and the generators and cooling towers sold. However, the building and foundation most likely will remain on the property until a decision is made regarding use of the land and the final location of the electric substation inside the existing power building.

From a strictly planning perspective, the priority should be given to considering water dependent uses (marina, public river access, and water recreation activities). A secondary priority would be for water enhanced uses such as restaurants, specialty retail, and transient and permanent residential uses.

The property is currently designated Government/Institutional/Public use that limits property to government facilities, utilities, and education and institutional facilities. Small scale recreational uses are allowed if compatible with and subordinate to an existing government utility. Clearly the Future Land Use Map will need to be amended to accommodate other uses that may be appropriate for the property.

*Wastewater Treatment Plant Property:* The wastewater treatment plant property located on the southeast corner of the intersection of 17th Street and Indian River Boulevard adjacent to the Indian River Lagoon contains 16.3 acres. At the present time, the property includes the wastewater treatment plant facilities and an office, storage, ramps/docks and other facilities for the Youth Sailing Foundation of Indian River County.[9]

As the wastewater treatment plant no longer dischargers any treated effluent into the Indian River Lagoon, some discussion has been on-going about relocating the plant to the airport where the treated effluent is discharged via deep-well injection. However, the costs for this relocation would be expensive. A recent cost estimate put the plant relocation costs at over $35 million.

The Youth Sailing Foundation has indicated its desire to expand its activities on the property. Any further expansion of this recreational use will require a consideration of an appropriate change in the Future Land Use Designation of, at a minimum, that portion of the property occupied by this recreational use since this property is designated Government/Institutional/Public Use. Even if the wastewater treatment plant were to remain, such a change in designation would be necessary to accommodate any expansion of this recreational use.

**Future Land Use and Zoning Designations and Land Development Regulations**

The 2010 EAR identified numerous conflicts and deficiencies that needed to be addressed in both Future Land Use and zoning designations and Land Development Regulations. As such

[9] The Rowing Club, which had been using this property, relocated to leasehold property in the Alex MacWilliam Boat Basin Park.

efforts take time and resources to complete that fully involves stakeholders and the public, the approach in this Comprehensive Plan update is to identify actions through its policies that are needed properly address these weaknesses.

Sufficient opportunities should be provided in this process to involve the public, property owners and other stakeholders and to properly vet proposed revisions. The basic approach would be to make appropriate amendments to the Comprehensive Plan and implement any needed changes to the Land Development Regulations as part of the effort to comprehensively revise those regulations.

The following are specific strategies and actions to be considered in the preparation of amendments to the Comprehensive Plan that address weaknesses identified in the 2010 EAR and other issues that have come to the forefront since the preparation of that document:

- A specific policy that establishes clear standards and criteria for the location and expansion of nonresidential uses in the RM and RH future land use designations and rezoning of properties to Professional Office Institutional (POI) to better protect residential neighborhoods from encroachment by incompatible residential uses.

- Amendments to the descriptions of various Future Land Use categories to identify and address the discrepancies between uses permitted in zoning districts and those uses allowed under specific Future Land Use categories.

- Specific objective and policies addressing TDRs for both environmental protection and provision of density/FAR incentives for infill development.

- Specific policy to establish actions to review the Mixed Land Use designation to narrow its focus which now provides an overly broad mix of different and not necessarily compatible zoning districts and uses; the result is a category that is too broad to be an effective policy or growth management tool, especially in areas where mixed use development, redevelopment, or infill are to be encouraged.

- Specific policy to establish actions to review overlap and conflicts in uses under the Commercial and Industrial future land use designations including underlying zoning designations, which limit their effectiveness as a policy or growth management tool.

Existing Objective 3 and supporting policies related to the Land Development Regulations should be considered for revisions to reflect further actions to support changes to the Future Land Use designations and supporting text amendment. Any such revisions should consider policies committing the City to a comprehensive revisions and codification of its Land Development Regulations to improve its organization, clarity, and administration, such as, but not limited to:

- Elimination of some zoning districts from the current unwieldy 29 by eliminating districts that are no longer relevant (e.g. Hospital-Institutional) or consolidation districts where a majority of uses are duplicated.

- Consolidation of city-wide regulations, such as height, accessory structures and setback modifications into one section similar to what was accomplished for on-site parking regulations.

- Reorganization of content in a manner that is more intuitive for the average user.

- Review and revisions to definitions of uses allowed in districts to eliminate vagueness and inconsistencies.

**Hazard Mitigation**

As required by State law, the City along with other municipalities in Indian River County, and Indian River County, have prepared Local Mitigation Strategies (LMS) that identify action to permanently reduce or eliminate the long term risk to people and property from different types of hazards. The first LMS was adopted in 1999 and was updated and approved in June, 2015. The City has undertaken numerous strategies and actions identified in the adopted LMS including improvements to flood proof the City's wastewater treatment plant.

Existing Policy 4.5 is recommended to be strengthened by including language for the City's participation in the maintenance and updating of the LMS.

**Coastal High Hazard Area**

The Coastal High Hazard Area (CHHA) is defined by the Florida Statutes as that "area below the storm surge line of a category 1 hurricane as established by the Sea, Lake, and Overland Surges (SLOSH) computer model developed by the National Weather Service. This area is one of increased risk to life and property due to hurricanes or severe storms.

The CHHA is depicted in Figure 10. Only isolated parcels of land along the Indian River Lagoon are within the storm surge line of the CHHA in areas designated for development. Almost all the area within the CHHA is either designated Conservation (CV) or Environmentally Sensitive (ES). Except for a large tract north of Barber Bridge most of this land is held in conversation by Indian River County and the Indian River Land Trust.

It is recommended that specific policies be considered in this Comprehensive Plan to limit further development by limiting any density increases and limiting extension or expansion of public utilities in the Coastal High Hazard Area.

**Development/Redevelopment in Flood Prone Areas**

Flood prone areas create various problems, the most serious of which is the potential loss of life and damage to property and environmental degradation due to flood waters and storm surges.

Such hazards also increase the cost of development due to site modifications and enhanced building techniques required.

The Federal Emergency Management Agency (FEMA) completed a series of Flood Insurance Rate Maps for Indian River County and its municipalities, which went into effect on December 4, 2012. This series of maps identifies the limits of areas of special flood hazards for the 100-year flood (1% annual chance of flood) and 500 year flood (0.2% annual chance of flood) and areas outside the 500 year flood.

Figure 6 depicts the special flood hazard zones in the City of Vero Beach. The major flood prone areas are generally located along the Indian River Lagoon on the barrier island and mainland as follows:

- An extended area on the barrier island containing many high value single-family and multiple-family residences that extends the full length of the City along the Indian River Lagoon with several inland locations where the flood prone areas cross over US Highway AIA.

- A significant area of the mainland running from the south city limits along the length of Indian River Lagoon up to the Barber Bridge generally located primarily east of 6th Avenue encompassing high value residential neighborhoods, multi-family developments, and commercial-office development including Miracle Mile.

- An area on the mainland north of the Barber Bridge and islands in the Indian River Lagoon that are mostly in conservation use with a few scattered residences with little potential for any development due to zoning, environmental constraints, and lack of public utilities.

Flood prone areas have not been a significant overall problem. In addressing this problem, the City has focused on retrofitting and expansion of its stormwater drainage to improve capacity. The City is considering the establishment of a stormwater utility district to better fund needed improvements to the City's stormwater management system. (See detailed discussion in the Infrastructure Element.)

New development or significant expansions to existing development are required to meet city's stormwater regulations that require retention of the first 1.5" of rainfall in a 24 hour storm event. Much of the barrier island contains excessively drained soils which permit rapid percolation of stormwater reducing flooding potential. All new development is required to meet the finished flood elevations established by the City as a participant in the National Flood Insurance Program (NFIP).

The City coordinates reviews with state and other regulatory in the review of proposed development projects to ensure drainage and stormwater management requirements are meet. Specific policies to continue or enhance this effort to ensure compliance with the NFIP and to further reduce flooding and risks to life and property.

**Indian River Lagoon**

Concerns over the health of the Indian River Lagoon are of a paramount interest for the City of Vero Beach and other governments in the Indian River Lagoon Basin. The Indian River Lagoon is a 156-mile long estuary, which has been declared by the State of Florida as a water body impaired by nutrients. The water quality degradation of the lagoon has been adversely impacted by many man-made alterations of the water basin and shoreline development that has contributed to an increase in nutrient input, sedimentation, turbidity, atmospheric deposition, nutrient releases from existing muck deposits, and changes in salinity due to freshwater discharges.

These impacts on water quality and other adverse man-made impacts threaten the natural communities that contribute to the lagoon's major role as a spawning and nursery ground for fish and marine life and the economic and recreational benefits to the community of this vital resource.

In response to these significant issues, the City of Vero Beach has taken the following steps to further reduce nutrients and pollutants entering the lagoon estuary from stormwater runoff and the leaching of septic tanks on the barrier island (Please refer to Infrastructure and Conservation Elements for a detailed discussion):

- Adopted a Florida-Friendly Fertilizer Ordinance based on the Florida Department of Environmental Protection, major components of which ban the use of fertilizers containing phosphorus; bans application of any fertilizers containing nitrogen or phosphorus from June 1 through September 30; and establishes fertilizer free zones.

- Adopted enhanced stormwater requirements that require additional on-site retention requirements for new or substantially improved development.

- Initiated a long-term capital program to retrofit City stormwater outfalls with baffles to significantly reduce nutrients and other pollutants entering the estuary;

- Eliminated all discharge of treated wastewater effluent to the lagoon.

- Adopted an Ordinance requiring mandatory pump out and inspection of existing septic tanks on a five (5) year basis and the septic tank effluent pump (STEP) program to encourage and facilitate the conversion of more than 1,500 septic systems of which more than two-thirds of these systems are locate on the barrier island.

- Joined together with the Cities of Sebastian and Fellsmere to serve as a voting member on the multi-county and agency Indian River Lagoon Council to sponsor and carry out the programs of the Indian River National Estuary Program.

The wetlands policies in the Comprehensive Plan have not been implemented through enactment of amendments to the Land Development Regulations as called for in the Comprehensive Plan to

further reduce pollutants entering into wetlands through buffering and limiting impacts on wetlands. (See a more detailed discussion under the Conservation Element). The existing wetland policies need to be reconsidered along with incorporation of policies to support the continuation of the above programs and actions.

# CHAPTER 3
# TRANSPORTATION ELEMENT

## INTRODUCTION

Transportation plays an integral role a community's infrastructure providing the connections between living, working, recreation, and other activities vital to the functioning of the community and quality of life. It also serves as the link the City to other areas within the county, region, state, country, and the world.

The transportation system consists of four separate, but ideally integrated components. These components include the roadway, transit, pedestrian/bicycle, and airport systems. No commercial ports exist within Indian River County and the City, only for recreational marina and support facilities.

As mentioned in Chapter 2, transportation, land use, and housing are interconnected and need to be coordinated. Travel patterns and transportation result from land use patterns. The location and intensity of development determines the number, length, routing of trips, which generate the need for transportation system improvements. In return, the types and scale of these transportation improvements can influence development patterns and, in conjunction with land use patterns, can either adversely and favorably impact housing choices and diversity.

Therefore, it is important that transportation and land use planning is properly coordinated. This coordination is needed to provide efficient and cost-effective transportation system that addresses transportation in a balanced manner and meets the land use and housing needs of the city and its residents.

## BACKGROUND ON MPO

The City of Vero Beach is a participant in the Indian River County Metropolitan Planning Organization (MPO) formed in 1993. It is a legislative agency responsible for transportation planning in the urbanized area of Indian River County, which includes the City of Vero Beach. The body consists of twelve voting members representing local governments, two-nonvoting representatives from Florida Department of Transportation (FDOT), and a non-voting representative from the Town of Orchid.

Funding is through a Joint Participation Agreement for Federal Highway Planning. This agreement between FDOT and the MPO provides for pass through of federal and state funds.

The MPO provides the policy framework for on-going transportation planning through its bi-annual Unified Planning Work Program and programming of regional transportation improvements through the annual Transportation Improvement Program. The MPO has developed a calibrated a countywide transportation planning model.

This agency prepares numerous transportation plans and products for the region. These include a Long Range Transportation Plan (updated every five years); a Congestion Management System Plan, a Bicycle-Pedestrian Plan, and a Transit Development Plan. These documents are revised on an annual or multi-year schedule to keep them current. The actions and transportation planning and policy documents prepared and adopted by the MPO serve as a framework for the data and policies in this Transportation Element.

## EXISTING CONDITIONS

This section provides a summary of the existing transportation system in the City including the roadway system, transit, bicycle-pedestrian, and aviation systems. This section also briefly discusses railroads and port/intermodal facilities.

The sources of this information are from documents prepared by the MPO, principally the 2040 Long Range Transportation Plan, the 2030 Indian River County Comprehensive Plan, information provided by the Indian River County Traffic Engineering Division, and studies and information prepared for or by the Vero Beach Public Works and Planning and Development Departments.

### Traffic Circulation System

Roads and highways are the most important component of the city's transportation system. This system not only accommodates the vast majority of trips within the city, but it also provides access to land uses.

The dependency on the regional and city roadway system of the motor vehicle as the mode of choice is well illustrated by survey dated collected between 2009 and 2013 by the U.S. Bureau of the Census in its *American Community Survey*. According to this survey data, the mean work commute time for city residents was 17.2 minutes. The travel mode of choice was the motor vehicle accounting for 93 percent of trips to work requiring a commute of which 80 percent consisted of single occupancy vehicles. Over 75 percent of all commutes by city residents was less than 20 minutes compared to an Indian River County wide figure of 53 percent.

Inventory and Level of Service. Table 3.1 describes the characteristics of the existing 2014 roadway network. This description provides a comprehensive inventory of all major roadway facilities by segment including the number of lanes, width of right-of-way, road type, existing Level of Service, ownership and functional classification. For planning purposes, a roadway's capacity and level of service are generally based on the number of lanes.

As stated in the Indian River 2030 Comprehensive Plan, "Level of Service (LOS) is a qualitative measure, describing motorist' perceptions of operating conditions within a traffic stream." Capacity of a roadway is a quantitative measure of the ultimate number of motor vehicles which can travel over a particular roadway segment during a particular hourly or daily time period. These conditions are described in terms such as speed and travel time.

Table 3-1. Existing Roadway Characteristics (2014)

| On Street | From Street | To Street | Length (Miles) | No. of Lanes | Exist. ROW | Road Type | Exiting LOS | Juris-diction | Fun. Class. |
|---|---|---|---|---|---|---|---|---|---|
| S. R. A1A | S.VB City L. | 17th St. | 1.30 | 2 | 120' | D | C | SR | MA |
| S.R. AIA | 17th St | S.R. 60 | 1.50 | 2 | 80' | D | D | SR | MA |
| S.R. A1A | S.R. 60 | N.VB City L | 1.50 | 2 | 50' | D | D | SR | MA |
| Ind. Riv. Blvd. | 12th St | 17th St | 0.50 | 4 | 150' | D | C | CR | PA |
| Ind. Riv. Blvd. | 17th St | 20th St | 0.39 | 4 | 150' | D | C | CR | PA |
| Ind. Riv. Blvd. | 20th St | 21st St | 0.19 | 4 | 150' | D | C | SR | PA |
| Ind. Riv. Blvd. | 21st St | Royal Palm | 0.37 | 4 | 150' | D | C | SR | PA |
| Ind. Riv. Blvd. | Royal Palm | MB Bridge | 0.46 | 4 | 150' | D | C | SR | PA |
| Ind. Riv. Blvd. | MB Bridge | 37th St. | 0.71 | 4 | 150' | D | C | CR | PA |
| U.S. 1 | S.VB City L | 17th St. | 0.50 | 4 | 80' | D | D | SR | PA |
| U.S. 1 | 17th St | S.R. 60 | 0.50 | 4 | 80' | D | D | SR | PA |
| U.S. 1 | S.R.60 | 23rd St | 0.50 | 4 | 70' | D | D | SR | PA |
| U.S. 1 | 23rd St | 26th St | 0.50 | 4 | 120' | D | D | SR | PA |
| U.S. 1 | 26th St | Aviation Blvd | 0.43 | 4 | 120' | D | D | SR | PA |
| U.S. 1 | Aviation Blvd | 37th St | 0.64 | 4 | 120' | D | C | SR | PA |
| S.R. 60 | 58th Av | 43rd Av | 1.00 | 6 | 100' | D | C | SR | PA |
| S.R. 60 | 43rd Av | 27th Av | 1.00 | 6 | 100' | D | C | SR | PA |
| S.R. 60 | 27th Av | 20th Av | 0.50 | 6 | 100' | D | C | SR | PA |
| S.R. 60 (EB) | 20th Av | Old Dixie Hwy | 0.50 | 3 | 70' | O | C | SR | PA |
| S.R. 60 (EB) | Old Dixie Hy | 10th Av | 0.30 | 3 | 70' | O | C | SR | PA |
| S.R. 60 (EB) | 10th Av | U.S. 1 | 0.30 | 3 | 70' | O | C | SR | PA |
| S.R. 60 (EB) | U.S. 1 | 6th Av | 0.50 | 3 | 70' | O | C | SR | PA |
| S.R. 60 | 6th Av | Indian River Blvd | 0.34 | 4 | 140' | D | C | SR | PA |
| S.R. 60 | MB Bridge | S.R. A1A | 0.50 | 4 | 80' | D | C | SR | MA |
| S.R. 60 (WB) | 20th Av | Old Dixie Hy | 0.43 | 4 | 70' | O | C | SR | PA |
| S.R. 60 (WB) | Old Dixie Hy | 10th Av | 0.35 | 4 | 70' | O | C | SR | PA |
| S.R. 60 (WB) | 10th Av | U.S. 1 | 0.25 | 4 | 70' | O | C | SR | PA |
| S.R 60 (WB) | U.S. 1 | 6th Av | 0.24 | 4 | 70' | O | C | SR | PA |
| 16th St | 43rd Av | 27th Av | 1.00 | 2 | 50' | U | D | CR | COL |
| 16th St | 27th Av | 20th Av | 0.50 | 2 | 100' | U | D | CR | COL |
| 16th St | 20th Av | Old Dixie Hy | 0.50 | 2 | 100' | U | D | CR | COL |
| 16th St/17th St | Old Dixie Hy | U.S. 1 | 0.50 | 4 | 100' | D | C | CR | COL |
| 17th St | U.S.1 | Indian River Blvd | 0.50 | 4 | 100' | D | C | SR | MA |
| Old Dixie Hy | S. VB City L | 16th St | 0.50 | 2 | 60' | U | D | CR | MA |
| Old Dixie Hy | 16th St | S.R. 60 | 0.50 | 2 | 60' | U | C | CR | MA |
| 27th Av | S. VB City L | 16th St | 0.40 | 2 | 80' | U | D | CR | MA |
| 27th Av | 16th St | S.R. 60 | 0.50 | 2 | 80' | U | D | CR | MA |
| 27th Av | S.R. 60 | Atlantic Blvd | 0.30 | 2 | 80' | U | D | CR | COL |
| 27th Av | Atlantic Blvd | Aviation Blvd | 0.30 | 2 | 80' | U | D | CR | COL |
| 6th Av | S. VB City L | S.R.60 | 0.50 | 2 | 60' | U | D | CR | COL |
| 10th Av | 17th St | S.R. 60 | 0.43 | 2 | 60' | U | C | VB | COL |
| 10th Av | S.R. 60 | Royal Palm Blvd | 0.21 | 2 | 60' | U | C | VB | COL |
| 20th Av | S.VB City L | 16th St | 0.50 | 4 | 80' | D | C | CR | MA |
| 20th Av | 16th St | S.R. 60 | 0.50 | 4 | 80' | D | C | CR | MA |
| 20th Av | S.R. 60 | Atlantic Blvd | 0.50 | 2 | 80' | U | C | CR | COL |
| 43rd Av | 16th St | S.R. 60 | 0.50 | 2 | 80' | U | D | CR | MA |
| 43rd Av | S.R. 60 | 26th St | 0.50 | 2 | 80' | U | C | CR | MA |
| 43rd Av | 26th St | 41st St | 2.00 | 2 | 80 | U | C | CR | MA |
| 41st St | 58th Av | 43rd Av | 1.00 | 2 | 30' | U | C | CR | COL |
| 41st St | 43rd Av | Old Dixie Hy | 3.50 | 2 | 30' | U | C | CR | COL |
| 26th St | 58th Av | 43rd Av | 1.00 | 2 | 50' | U | C | CR | MA |
| Aviation Blvd | 43rd Av | 27th Av | 1.05 | 2 | 50' | U | D | VB | MA |
| Aviation Blvd | 27th Av | U.S. 1 | 0.91 | 2 | 60' | U | C | VB | MA |
| Atlantic Blvd | S.R. 60 | 27th Av | 1.07 | 2 | 60' | U | C | VB | COL |

Table 3-1. (Cont'd), Existing Roadway Characteristics (2014)

| On Street | From Street | To Street | Length (Miles) | No. of Lanes | Exist. ROW | Road Type | Exiting LOS | Juris-diction | Fun. Class. |
|---|---|---|---|---|---|---|---|---|---|
| Atlantic Blvd | 27th Av | 20th Av | 0.50 | 2 | 60' | U | C | VB | COL |
| 26th St | 20th Av | U.S. 1 | 0.50 | 2 | 60' | U | C | VB | COL |
| Ocean Dr | Greytwig | Beachland | 0.44 | 2 | 80' | U | C | VB | COL |
| Ocean Dr | Beachland | Riomar | 0,63 | 2 | 80' | U | C | VB | COL |
| 21st St | Ind. River Blvd | U.S. 1 | 0.52 | 2 | 90' | U | C | VB | COL |
| 21st St | U.S. 1 | 20th Av | 0.54 | 2 | 70' | U | C | VB | COL |
| 23rd St | 20th Av | U.S.1 | 0.47 | 2 | 70' | U | C | VB | COL |
| Royal Palm Blvd | U.S. 1 | Royal Palm Pl | 0.38 | 2 | 80' | U | C | VB | COL |
| Royal Palm Blvd | Royal Palm Pl | Indian River Blvd | 1,00 | 2 | 80' | U | C | VB | COL |
| Royal Palm Pl | Roy.Palm Blvd | Indian River Blvd | 1.00 | 2 | 80' | U | C | VB | COL |
| 14th Av | Old Dixie Hwy | 16th St | 0.31 | 2 | 70' | U | C | VB | COL |
| 14th Av | 16th St | S.R. 60 | 0.51 | 2 | 70' | U | C | VB | COL |
| 14th Av | S.R. 60 | U.S. 1 | 0.48 | 2 | 70' | U | C | VB | COL |
| Victory Blvd | Atlantic | Cordova | 0.30 | 2 | 80' | U | C | VB | COL |
| Victory Blvd | Cordova | 20th Av | 0.26 | 2 | 80' | U | C | VB | COL |
| Beachland Blvd | S.R. A1A | Ocean Dr | 0.24 | 4 | 80' | D | C | VB | COL |

Sources: Table 4.7.1 of *2030 Indian River County Comprehensive Plan*
2014 Annual Traffic Volume Report prepared by Indian River County Traffic Engineering Division
Vero Beach Planning and Development and Public Works Departments, 2015

Legend and Notes:

1. Road Types-
   - U-Undivided
   - D-Divided
   - O-One-way

2. Jurisdiction-
   - SR-State road
   - CR-County road
   - VB-City road

3. Functional Classification (Fun. Class.)
   - PA-Urban Principal Arterial
   - MA-Urban Minor Arterial
   - COL-Urban Collector

4. Existing Level of Service (LOS) is based on the *2012 FDOT Quality/Level of Service Handbook.*

Levels of Service (LOS) are generally designated by letters A through F, with LOS A representing the best operating conditions (free flow) and LOS F the worst (forced or breakdown flow). For the general planning purposes of the Comprehensive Plan, LOS is determined by comparing the traffic's average annual daily traffic volume to its roadway capacity using the guidelines established in the *2012 FDOT Quality/Level of Service Handbook Tables.* For concurrency purposes in the development review process, tables that provide peak hour and peak direction conditions based on tables in the FDOT handbook are utilized to define capacity and level of service based on annual average peak season/peak hour/peak direction counts.

Except as noted in the next paragraph, LOS "D" is the minimum accepted standard during peak hour, peak season, and peak direction conditions for all arterials and collector roadways. The LOS for local roads is "E."

The City Council has adopted level of service standards for specific roads, primarily due to constraints on further widening of these facilities. These roadways include the following:

- 27th Avenue from South City Limits to S.R. 60 - LOS "E Plus 20%"
- A1A from S.R. 60 to North City Limits - LOS "D Plus 30%"
- A1A from South City Limits to 17th Street – LOS "D Plus 30%"

It should be further noted that the three roadway segments listed above have been operating at a LOS of "D" or better over that last couple of years. However, traffic projections for the MPO's 2040 Long Range Transportation Plan (LRTP) indicate that all A1A segments will be operating at a LOS of less than "D."

Based on the modeling projections used to prepare the 2040 LRTP, the LOS for 27th Avenue is and is projected to remain within the acceptable LOS standard of "D" through 2040 except for a segment of that facility from the South City Limits to 16th Street. Therefore, this LOS standard for this facility may be considered by the County and City for revision at some future date to reflect both existing and forecast conditions.

Safety. In 2014, 324 vehicle accidents were recorded within the city limits. These accidents involved three fatalities. The highest crash counts were for the intersection of Indian River Boulevard/Merrill Barber Bridge (S.R. 60) with 27; US Highway 1 and 20th Street with 23; Indian River Boulevard and Royal Palm Boulevard/Royal Palm Place with 20; and 20th Place and US Highway 1 with 20. These roadways routinely are the highest accident locations in the City of Vero Beach. However, if the number of accidents per million vehicles entering the intersection is calculated all the major intersections are considered by traffic engineers to be in a low category (less than 2 accidents per one million) for traffic accidents.

Jurisdictional Administration. Public roadways within the city limits are under the jurisdiction of the Florida Department of Transportation, Indian River County, and the City of Vero Beach. Chapter 335, Florida establishes the roadway jurisdictional responsibility existing on July 1, 1995. This statute provides that jurisdictional responsibilities of roadways may be transferred from one jurisdiction to another only by the mutual consent of both jurisdictions.

The primary jurisdictional responsibility is generally for maintaining and improving the facility including maintenance of and regulation of any improvements or uses within the designated right-of-way for that facility. Additionally, through intergovernmental agreements with FDOT, local governments may provide and maintain specific operational equipment such as traffic signals. Figure 11 graphically depicts the jurisdictional responsibility for all roads in the network including the number of lanes associated with each road segment.

Functional Classification. Functional classification organizes roads into different categories. Roads are generally classified according to the degree of mobility and accessibility.

Roads with a lower classification provide access to adjacent land uses with low levels of mobility. Roads with a higher functional classification may provide access to land uses, but are intended primarily to allow for high levels of mobility.

Figure 12 depicts the functional classification of the roads. The following are the four general classifications for urban streets:

- *Urban principal arterials* provide long distance "trunk-line" continuous routes within and between urban areas. Typically, such highways carry high volumes of traffic. Where such facilities are "limited-access," such as the I-95 Interstate, they also provide for high speeds.

- *Urban minor arterials* form the backbone of the city's street system. Minor arterials are continuous routes through urban areas. As most trips are on minor arterials, the traffic functions of these facilities is somewhat challenged by their attractiveness as a business address.

- *Urban collector streets* typically provide continuity over short segments (up to one-half mile). They act as tributaries gathering trips from numerous local streets and delivering it to minor arterials and within commercial districts may provide direct access to businesses. These streets are typically not numbered or designated as a touring route.

- *Local streets* include all other streets including private roads not included above. They comprise an overwhelming percentage of street mileage, but carry a significantly small amount of the overall traffic. These streets are generally short in length, with low speeds (20 to 30 mph). These streets have numerous driveways for residences and non-residential uses not requiring visibility to large numbers of passing traffic.

Access Management. The management of access connections to roadways provides measures for preserving capacity and reducing safety hazards due to conflicting traffic patterns and turning movements. Such management includes the number and location of roadways, driveways, median openings, and traffic signals, which are subject to state and locally mandated guidelines.

Unlike FDOT or Indian River County through its Land Development Regulations, the City has never formally adopted specific guidelines or regulations governing access management even though such guidelines are called for under existing Objective 4, Traffic Management and supporting policies in this Comprehensive Plan. For those roadways subject to the jurisdiction of FDOT or Indian River County, the City references the standards or guidelines of those respective organizations in the development review process.

The City does apply generally accepted traffic engineering guidelines in addressing access management. These design guidelines include: sight triangle requirements at intersections and access points; provisions for circulation between adjacent parcels where practicable; limiting

the number of driveways to the minimum necessary to adequately accommodate access; requiring driveways on opposite sides of any undivided collector or arterial to aligned or minimally offset; and ensuring driveways to major traffic generators be located a sufficient distance from intersections based on functional classification, traffic volumes, and type of movements.

Hurricane Evacuation. The City of Vero Beach, as with all coastal localities in Florida, is vulnerable to hurricanes. Hurricane evacuation is an important consideration not only due to the immediate threat to lives, but due to the aftermath of such events that make it difficult to provide emergency, medical and other vital services to stranded residents.

All residents of the City are not required to evacuate in the event of a hurricane; however, those residents living on the barrier island or in mobile homes and residents at risk are required to evacuate even in the event of a Category 1 hurricane. The designated hurricane evacuation routes are shown in Figure 13.

Both the existing Comprehensive Plan and the 2030 Indian River Comprehensive Plan have established a hurricane evacuation time of a maximum of 12 hours for a Category III storm. The specific objective in both of these policy documents does not specify whether this clearance time is out-of-county or in-county clearance time to shelter.

The 2015 out-of-county clearance times range from 14.5 hours for a Category 1 hurricane to 41 hours for a Category 5 hurricane as calculated in the *Statewide Regional Evacuation Study Program* prepared in 2010. These clearance times are based on the simultaneous evacuations of multiple jurisdictions in South Florida, which dramatically affect evacuation times. A detailed discussion of hurricane evacuation and need to address this policy is covered under the Coastal Management Element.

**Bicycle and Pedestrian System**

The City of Vero Beach has an extensive bicycle and pedestrian network composed of sidewalks/bicycle paths and bicycle lanes sharing the road with motor vehicles on arterials and collectors. Existing bicycle lanes and sidewalks/bicycle paths are depicted in Figure 14.

Bicycle and pedestrian facilities and infrastructure play an important role in the regional and City transportation system. As documented in the MPO's *Indian River County Bicycle and Pedestrian Plan* adopted in 2015, the "benefits associated with bicycling include the ability to ease traffic congestion, increased personal health/recreation opportunities. environmental benefits, and a reduced need for automobile parking facilities." This policy document provides a detailed review and analysis of the bicycle and pedestrian system in the County and its municipalities.

The City's Land Development Regulations require that bicycle storage facilities be provided in all development requiring 20 or more off-street parking spaces. The City annually budgets funds of approximately $20,000 to repair existing sidewalks and curbs. Historically $100,000 has been budgeted for new sidewalk construction.

## Transit

The availability and service coverage of public transit is essential component of a balanced transportation system. Not only does public transit reduce vehicular trips on the roadway system that provides environmental benefits and protect public infrastructure investment, but it provides in many cases the only viable transportation alternative for many of the elderly, children, the disabled, low income households, and households without a vehicle. Public transit is a significant asset for the City of Vero Beach where 20.4 % of households are below the Federal poverty line, 27.1 percent of residents are 65 years and older and 16.9 percent are disabled, and 10.1 percent of households have no access to a vehicle.

Since 2007, the Senior Resources Associates (SRA) has operated a fixed route transit service throughout Indian River County and the City of Vero Beach under the name GoLine. As Community Transportation Coordinator, SRA has provided and coordinated demand-response paratransit services to the eligible transportation disadvantaged since 1990.

This door-to-door demand-response service is available Monday through Friday from 5:30 a.m. to 6:30 a.m. and meets numerous transportation needs, including access to adult day care, congregate meal sites, nutrition sites, medical facilities and social, employment and recreational appointments. In addition, through contracted transportation provides, services are available 24/7 for eligible households.

GoLine operates from 6:00 a.m. through 7:00 p.m. on weekdays over 16 routes. On weekends, it provides fixed-route bus service on 12 routes from 9:00 a.m. to 3:00 p.m. on Saturdays. A special beachside circulator (Route 16) operates between 5:40 a.m. to 6:00 p.m. seven days-a-week.

Service is free to passengers, which is subsidized by federal and state grants, gas taxes, and local private/public donations. Ridership has increased from over 708,000 passengers in 2010 to over 1.13 million passengers in 2015.

The GoLine fixed-route transit system serves all the significant trip attraction and production locations within the city limits. The only areas with little or no service (no transit stop within 500-750 feet) include the South Beach area of the barrier island and isolated neighborhoods on the mainland located generally north of State Route 60.

With the relocation in 2016 of GoLine's main transit hub, currently located at the Vero Beach Regional Airport, to a parcel of land owned by the City of Vero Beach on 16th Street further adjustments will have to be made to the transit's route system to maintain the headway standard of one-hour.

## Aviation Facilities

The 1660-acre Vero Beach Regional Airport provides general aviation and charter services, and flight training facilities. In December 2015, regularly scheduled commercial air service between Vero Beach and Newark (NJ) Liberty International Airport was initiated.

The airport is a vital component in the City's and region's economy. A recent FDOT statewide economic impact study updated in 2014, showed that the airport through direct and indirect economic impacts contributes $188 million to the region's economy and supports approximately 3,500 jobs.

The airport is fully funded through a variety of federal and state grants, and revenues from leasing of airport property. As required by FAA, all revenue generated at the airport must be market-based and must accrue to the airport for its maintenance and improvements. Unlike other proprietary funds, no revenues are transferred from the Airport Fund to the City's General Fund.

The existing airfield at the Vero Beach Regional Airport has three runways. The primary runway (12R-30L) is 7,314 feet in length; Runway 12L-30R is 3,504 feet in length; and Runway 4-22 is 4,974 feet in length. The airport has the capability to handle high performance military aircraft and large civilian aircraft such as the Boeing 737-800W or Airbus 320.

In FY 2013 (ended September 30, 2013), the airport accommodated over 185,000 aircraft operations of which 98 percent were general aviation aircraft operations. Based on the forecast of aircraft operations in the draft *Airport Master Plan Update* for the Vero Beach Regional Airport, it is projected that total operations will increase from over 185,000 in FY 2013 to 249,500 in FY 2033.

The 65 decibel Day-Night Average Sound Level (DNL) noise contour as adopted in the latest FAR Part 150 Noise Study does not extend beyond airport property. Noise sensitive uses such as schools and residential uses are not allowed within this contour. Projections of the 65 DNL contour based on forecast airport operations through the 2035 planning horizon of this Comprehensive Plan indicate that the noise contour will continue to remain on airport property.

In 2011, the Comprehensive Plan was amended to include Objective 11 and supporting policies in the Land Use Element related to the planning and regulations of uses surrounding the airport to ensure future uses are compatible with Vero Beach Regional Airport operations in order to promote public health, safety, and welfare. The supporting policies are based on Federal Aviation Administration Advisories and Chapter 333, Florida Statutes.

In addition to the objective and policies in the Comprehensive Plan, Chapter 68 of the Land Development Regulations prohibits incompatible land uses, activities, or construction within airport runway protections zones (RPZ). Chapter 68 establishes an airport noise impact zone that extends from the edge of the pavement of each runway, a distance equal to one-half the length of the longest runway. Within the noise impact zone, regulations require that either soundproofing is installed to achieve an outdoor to indoor noise reduction of 25 decibels or grant an avigation easement to the City.

**Railroads**

No rail yards or rail terminals exist within the City of Vero Beach and Indian River County. However, passenger and freight rail service is an important local issue based on efforts to attract

passenger rail service and the recent proposed All Aboard Florida high speed passenger rail project.

The Florida East Coast (FEC) Railroad right-of-way and track paralleling U.S. Highway 1 to the west runs for approximately 1.9 miles bisecting the City of Vero Beach. Eight closely located railroad crossings over the FEC tracks are located with the municipal boundaries. FEC provides freight service through the City. No passenger rail service is currently provided to the City.

Over the last 20 years, the City has explored in conjunction with the State, Treasure Coast Regional Planning Council, and other municipalities the possible of reinstating passenger rail service between Jacksonville and Miami without any positive results. In 2012, All Aboard Florida (now called "Brightline"), a subsidiary of Florida East Coast Industries, announced its intention to establish high speed passenger rail service between Miami and Orlando utilizing the FEC rail system.

The proposed high-speed passenger rail service will have no stops in Vero Beach and will involve running 32-passenger trains a day through the city at speeds reaching upwards of 110 miles per hour. Additionally, improvements to the FEC rail system made in conjunction with the rail service will increase the number of freight trains running through the city from 14 to 20 trains per day.

The proposed funding for the proposed project will be through multiple federal and state mechanisms and private sources. The request for a loan from the Federal Railway Administration resulted in the need to prepare a Draft Environmental Impact Statement (EIS).[1]

The City of Vero Beach along with Indian River County and other municipalities submitted specific comments on the draft EIS regarding the potential adverse impacts of the project passenger rail project on the City of Vero Beach. In addition to concerns about impacts on emergency response times and vehicular traffic backups, the City Council by resolution raised concerns on adverse land use impacts including impacts on historic buildings in the downtown and residential neighborhoods, the Vero Man Historic/Archeological Zone, and Pocahontas Park.

Included in the resolution was a major request to federal and state agencies involved with financing and regulating the proposed project, to require All Aboard Florida to pay for all the costs of the project including the design, construction, and maintenance of upgraded rail crossing safety enhancements to meet high speed rail and quiet zone requirements.

The comments from the City of Beach, Indian River County, and other governing bodies and interest groups had little impact on the final Environmental Impact Statement issued in August, 2015. However, subsequently the City of Vero Beach and other local governments have been notified by the Federal Rail Administration that required improvements to rail crossings to allow high speed rail service will be borne by the project not local governments.

[1] During the preparation of the Comprehensive Plan, numerous changes were made to the proposed funding sources for this project that are not reflected in this section.

The improvements to the crossings to allow high speed rail will meet federal quiet zone standards, so local governments should be able to apply to the Federal Rail Administration for designation of quiet zones in their respective municipalities. However, costs for the maintenance of these rail crossings borne by local governments will most likely increase.

**Ports and Intermodal Facilities**

No commercial seaports exist in the City of Vero Beach or Indian River County. In coordination with Indian River County Metropolitan Planning Organization (MPO) and GoLine, efforts have been made to link transit for intermodal transfer of passengers, at such points as the Vero Beach Regional Airport terminal and the City's marina on the barrier island. The City has participated with the MPO in preparation of the Indian River County Bicycle and Pedestrian Master Plan and Central Greenway Plans that provide guidance and plans for linking pedestrian and bicycle travel with other travel modes.

## ANALYSIS

Except for "ports and intermodal facilities," each component of the transportation system is evaluated as briefly described in this paragraph. As appropriate, specific capital improvements and their costs required to maintain or meet transportation needs over the next five and ten year period will be identified.

**Traffic Circulation System**

Into the future, the traffic circulation system will continue to be by far the most significant component of the City's transportation system for accommodating all manner of trips by private motor vehicles. The analysis of the traffic circulation relies heavily on the analysis of travel demand, road capacity, level of service, and recommended highway improvements based on the adopted MPO 2040 Long Range Transportation Plan Update (LRTP). This analysis is supplemented with specific projects and issues of importance to the City of Vero Beach over the 20-year planning horizon.

MPO 2040 LRTP. In December, 2015, the MPO completed and adopted its 2040 LRTP. This plan included specific objectives, policies, and performance standards for the regional network. The major processes and components of the LRTP as it pertains to traffic circulation are described in the following sections.

*Trip Generation and Distribution for Development of the Plan:* As part of the development of this plan, travel demand was forecast to the year 2040 using the Treasure Coast Regional Planning Model (TCRPM). As noted under Existing Conditions, no highway segment within the city limits has an existing Level of Service of less than the "D" standard. To identify future deficiencies, projected travel demand was distributed on the Existing Plus Committed highway network, which assumes no capacity-producing improvements would be implemented beyond those projects that are programmed for construction within the MPO's 5-year Transportation Improvements Program (TIP). Volume to capacity (V/C) ratios were examined to

identify roadway deficiencies resulting from roadways that fell below the overall Level of Service Standard of "D."

*2040 Deficiencies:* Within the City of Vero Beach, the following road segments were identified as being deficient during the 25-year planning period of the LRTP:

- Aviation Boulevard -From U.S. Highway 1 to 43rd Avenue.
- 43rd Avenue -From the South City Limits to 26th Street/Aviation Boulevard.
- U.S Highway 1-From the North City Limits to 26th Street.
- Indian River Boulevard-From the North City Limits to the South City Limits.
- S.R. A1A-From the North City Limits to the South City Limits.

In the MPO's Adopted Needs Plan the following road segments with the Vero Beach city limits were deleted:

- S.R. AIA was dropped from further consideration due to the environmental concerns and limited right-of-way. It should be noted that the north segment of S.R. A1A from North City Limits to Beachland Boulevard and the south segment of S.R. AIA from 17th Street to the South City Limits both have a Level of Service Standard of "D plus 30%."

- U.S. Highway 1 segment was dropped due to limited right-of-way and high costs for acquisition of developed properties.

*Road Costs and Revenue Forecasts:* The MPO prepared base year (2015) cost estimates for road projects identified in the Adopted Needs Plan. These costs were adjusted for the year of expenditure. The construction costs of the Final Needs Projects, detailed in Table 2 of the Long Range Transportation 2040 Update shows costs grouped by eligible funding categories. With inflation the project construction costs increase from $571 million in 2015 to $1.09 billion in 2040.

The MPO prepared revenue forecasts for funding the various capital highway projects. In addition to State and Federal grants, local funding sources include:

- 6-Cent Local Option Gas Tax
- Constitutional Gas Tax
- County Gas Tax
- Traffic Impact Fees
- 1-Cent Local Option Sales Tax[2]

*Roadway Project Priorities:* In identifying priorities of projects to move forward for implementation, seven major projects were identified by the MPO in its Priority Projects Report. The top rated projected was a new interchange at Oslo Road and I-95. None of the priority

[2] At the time the 2040 LRTP was adopted, the optional sales tax had yet to go to referendum. The optional sales tax was overwhelming approved in November 2016.

projects are located in the City of Vero Beach or its immediate vicinity. Additional projects, including a couple within the City of Vero Beach, were identified for inclusion in the Cost Feasible Plan using a set of criteria evaluating traffic volumes, connectivity, and potential impacts.

*Roadway Cost Feasible Plan:* The above processes resulted in the preparation of a Cost Feasible Plan that considers roadway deficiencies, Needs Plan, financial resources, and goals and objectives by organizing proposed transportation improvements necessary to maintain satisfactory mobility conditions to the year 2040.

The plan was purposefully prepared to be fiscally constrained based on transportation revenues anticipated to be available through 2040. Projects were grouped into five-year timeframes starting with 2021, which excludes projects that were are already programmed for implementation by 2020.

The total estimated cost to implement the improvements in the Cost Feasible Plan (in 2015 dollars) was estimated at $375 million. Local funds account for over 75% of total revenue sources for these projects.

Table 3-2 presents those projects in proximity or within the City of Vero Beach identified in the 2040 Cost Feasible Roadway Projects List. These projects are funded within local funds, except for 43rd Avenue widening from 26th Street to 16th Street, which is to be funded with both local and Other Arterials funds.

Table 3-2. MPO 2040 Cost Feasible Roadway Projects in City of Vero Beach

| Facility | From | To | Improvement | Cost* (2015 $$) | Implementation Timeframe |
|---|---|---|---|---|---|
| 43rd Avenue | 26th Street | 16th Street | Widen from 2L to 4L | $2.9 million | 2026 -2030 |
| 43rd Avenue | 16th Street | Oslo Road | Widen from 2L to 4L | $48.2 million | 2031-2040 |
| 26th Street / Aviation Blvd. | 66th Avenue | U.S. 1 | Widen from 2L to 4L | $39.2 million | 2026-2030 |

Source: MPO 2014 Long Range Transportation Plan Update

City of Vero Beach Roadway Plans. The City of Vero Beach's Public Works and Planning and Development Departments have identified specific projects to improve the City's traffic circulation system that are deemed needed or desirable over the next 10 or more years in addition to the projects shown on the MPO 2014 LRTP.

These proposed roadway projects, including those identified in the 2040 LRTP, are shown in Table 3-3. Unless a project has been budgeted in the currently adopted *Five Year Capital Program, Fiscal Years Ending 2016-2020,* the time frame for implementation is after

2020. The estimated costs for each project are based on current dollars adjusted to the time frame shown for implementation.

Only significant projects intended to maintain or improve the existing capacity of the road network or to meet specific land use and other public policy objectives are presented in Table 3-3 below and depicted in Figure 15. The proposed time frame for implementation of individual projects doesn't preclude a project being advanced if funding becomes available. The time frames for implementation are based on priorities recommended by staff for each proposed project.[3]

Table 3-3. City of Vero Beach 2035 Roadway Projects

| Facility | From | To | Improvement | Cost[1] ($1,000) | Implementation Time Frame |
|---|---|---|---|---|---|
| Airport Dr. | Atlantic Blvd | Cherokee Dr. | 34th Ave. Bridge Replacement, etc. | $ 4,200 | 2015-2016 |
| "Twin Pairs' S.R. 60 (E/W) | 20th Ave | FEC RR | Reduce to 2L with parking both E and W Bound | $1,130 to $1,509 | 2021-2025 |
| 17th – SR AIA Intersection | N/A | N/A | Add additional left turn lane and extend right turn lane | $1,270 | 2021-2025 |
| Fifth Av. Extension | 21st Street (Miracle Mile) | Royal Palm Boulevard | New 2L facility and ROW acquisition | $571 | 2021-2025 |
| Aviation Blvd. | U.S. 1 | 43rd Ave. | Widen from 2L to 4L | $20,000[2] | 2026-2030 |

Sources: City of Vero Beach Public Works and Planning and Development Departments, December, 2015.
Notes: 1. Present day (2015) dollars based on the timeframe to be implemented.
2. This figure represents an estimate of the project costs for that portion of the improvements to be completed within the City of Vero Beach.

Not included in the list of above projects is the possible connection of Aviation Boulevard across U.S. 1 to connect with 37th Street through 15th Avenue near the Indian River Medical Complex. Such a connection would provide an additional east-west connection to allow traffic to bypass S.R. 60. It could open for development other lands both within and outside of city limits that currently have little or marginal highway access. Costs to complete the project would need to be estimated as it would involve both construction of the facility and acquisition of ROW. If any redevelopment is proposed for the mixed use 34th Street neighborhood identified in the Land Use Element, consideration should be given to studying the feasibility of this project in conjunction with any redevelopment of the area.

[3] The Twin Pairs project was not included in the 2035 Roadway Plan in Exhibit B of the Comprehensive Plan Policy Document.

The City Public Works Department has identified the need for an increase in the length of the southbound right turn lane on SR AIA at the intersection of Beachland Boulevard to ease congestion and traffic conflicts. No design or costs estimates have been prepared for this potential project.

The following is a description of the five projects in Table 3-3, including possible funding sources for their implementation:

*Airport Drive:* This project was approved for inclusion in the current fiscal year Five Year Capital Program. Funding for the project is from a $3.345 million FDOT grant, $840,000 in borrowed funds, and $30,000 from the Airport Fund. This project replaces the obsolete 50-year old 34th Avenue Bridge and includes drainage, resurfacing, sidewalk, new traffic signal and landscaping.

*"Twin Pairs:"* The need for this project has been identified for at least 15 or more years by the City of Vero Beach. As discussed in the Land Use Element, this 3 and 2-lane pair of one-way road segments bisects the historic downtown. It has been identified as a major impediment to the development of the downtown as a pedestrian friendly mixed-use destination with boutique shops, entertainment, cafes and restaurants, and art galleries. As configured the "Twin Pairs" has had an adverse impact on pedestrian safety, community appearance, and the vitality of the downtown.

With funding from the Indian River County MPO, a traffic calming feasibility study was prepared in 2013 by the traffic engineering consultant that demonstrated that both the west bound and east bound segments of S.R. 60 through the downtown between the FEC railroad and 20th Avenue could be eliminated without any adverse impacts on existing or future traffic or hurricane evacuation capacity through 2035.[4] The elimination of these lanes would allow on-street parking and other improvements to make these roadways much more pedestrian friendly.

The study identified the following three options that could be considered to implement the "traffic diet" or "calming" program for the facility:

- Alternative 1- Restriping only (milling and resurfacing) with striping of on-street parking -$680,000.
- Alternative 2-Restriping (with milling resurfacing) with delineation of parking spaces with stamped asphalt -$890,000.
- Alternative 3-Restriping (with milling and resurfacing) with delineation of parking spaces with stamped asphalt, and landscaping knuckles at 14th Avenue, 16th Avenue, and 18th Avenue - $1.09 million.

The study results were approved by the City Council and the Indian River County MPO. The FDOT's District Planning and Environmental Engineer stated in a letter to the City Engineer

[4] *SR 60 "Twin Pairs" Traffic Calming Feasibility Study, Vero Beach, Florida,* prepared for Indian River County MPO and City of Vero Beach by Kimley-Horn and Associates, Inc., March, 2013.

that the "Department is receptive to the land elimination concept." To move forward, the City will need to submit an application to FDOT requesting a permit for the lane reductions.

City staff recommended that a traffic engineering firm be hired to prepare and submit the permit application that would contain details on design, operations, local support documentation, and a funding/implementation plan for the concept. The City Council approved funds for such a consultant in the City's FY 2015-2016 Budget. If approved and issued by FDOT, the permit will remain in effect for a number of years.

The significant barrier to implementing this project is funding. Funding through the MPO process is not a viable option as the MPO has identified more regional transportation needs than funds are available. As FDOT normally does resurfacing and milling of its highways every seven to ten years, waiting for FDOT to resurface the road would eliminate the $680,000 costs for restriping. The City Council decided several years ago to wait until FDOT resurfaces S.R. 60 before moving forward with the project.

The additional costs for the alternative preferred by the City (Alternative #3) would have to be borne by local or other funding sources as the FDOT does not pay for such enhancements as stamped colorized parking spaces or landscaping knuckles. Such local funding sources may include, but not be limited to general fund revenues, special assessment of downtown property owners, or revenues from the Historic Vero Beach Downtown Economic Development Zone's tax increment trust fund.

The Comprehensive Plan should consider a specific policy or policies to provide guidance in the eventual funding and completion of this project vital to the historic downtown's renaissance. [The City Council dropped this project from consideration in the 2035 Roadway Improvement Plan.]

*17th Street/AIA Intersection:* The MPO had programmed a project to improve the intersection of 17th Street/East Causeway Boulevard and SR A1A in early 2000's. The scope of the project was to acquire additional ROW and construct another dedicated left turn lane and extend the existing dedicated right hand turn lane along with new traffic signals.

Funding of the project through impact fees was withdrawn for the project in 2012. Prior to and subsequent to the withdrawal of the impact fees, right-of-way was acquired and new traffic signals installed; however, no funds were available for construction of intersection and turning lane improvements. During season, the traffic backups continue to worsen as development continues in the unincorporated Indian River area south of the Vero Beach city limits and with the consolidation of students from the Upper St. Edward's School to Lower St. Edwards School.

It is the staff's opinion, that this project should still be reconsidered for inclusion in the MPO's Transportation Improvements Program and funded through sources available in that regional transportation planning process. The project is needed to maintain and enhance the capacity of the road network serving the barrier and hurricane evacuation and is the intersection of two urban minor arterials in the State highway system.

*Fifth Avenue Extension:* The staff has identified the extension of 5th Avenue as a measure to reduce congestion management tool to reduce traffic congestion and conflicts on Indian River Boulevard and Miracle Mile (21st Street). This proposed 0.2 mile facility would link existing 5th Avenue intersecting Miracle Mile to the segment of 5th Avenue north of 23rd Street ROW. As proposed the roadway would be a 2-lane undivided facility with 60-foot right-of-way (ROW of existing 5th Avenue), 8-foot multi-purpose path, and street trees. It would allow traffic to return to Indian River Boulevard without entering the Miracle Mile and the Miracle Mile/Indian River Boulevard intersection.

The entire length of Indian River Boulevard through the City of Vero Beach was identified on the list of 2040 Final Roadway Needs Projects. To address this capacity deficiency, Indian River Boulevard would be expanded to 6 lanes; however, the lack of available revenues to fund such a project eliminated the proposed improvement from the 2040 Cost Feasible Projects list. The staff is concerned that further expansion of the roadway capacity will not necessarily improve traffic conditions and safety issues due to the numerous driveways, intersections, and close spacing of signalized intersections.

The proposed 5th Avenue Extension may not necessarily address the capacity issues with Indian River Boulevard; however, it would help relieve the congestion and improve vehicular and pedestrian safety on both that Indian River Boulevard and Miracle Mile. It may at least delay the need to expand the lanes on Indian River Boulevard. However, the anticipated benefits of the proposed facility need to be further evaluated.

The staff has requested the MPO to consider funding a transportation engineering consultant study to evaluate the impacts of the proposed facility on Indian River Boulevard. The MPO has approved this request as one of several proposed studies in its Corridor Studies element in the 2014-2016 Unified Planning Work Program.

No potential funding has been identified for implementation of this project. Even if the engineering study were to demonstrate specific congestion management benefits of the project, it is not certain that it would be funded through the MPO process. If not, all funding would have to be from local sources. Excluding a general ad valorem tax increase, the project could be funded under various options or combination of options. These options could include special assessment of benefiting properties, contributions from development projects to address off-site impacts, proffers made by developers, or public-private partnerships supplemented with federal or state grant funds.

*Aviation Boulevard:* Improvements to Aviation Boulevard between US 1 and 43rd Avenue have been in the works for more than a decade including the preparation of engineering design and plans for the facility. The project had been programmed for implementation in the MPO's 2010-2015 Transportation Improvements Plan (TIP); however, it was deleted by the MPO in its 2011-2016 TIP much to the consternation of City staff.

The project is included for implementation in the 2026-2030 implementation time frame of the MPO 2040 LRTP; however, its inclusion in the plan doesn't guarantee that the project

won't be further delayed beyond the time frame, eliminated due to other MPO priorities, or that the City will be required to come up with City revenues to fund the project.

It is the staff's professional opinion that this project is needs to be implemented in the next few years, not in a decade or more. With the redevelopment of commercial area at the Vero Beach Regional Airport and potential development of the 333-acre Heritage Reserve project on 26th Street west of 43rd Avenue, the need for the project is very apparent. Delaying the project until 2026 will only double the cost of the project.

To ensure that this project is moved forward in an expeditious and timely manner, the staff recommends including specific policies supporting the need and construction of this project in the Transportation Element as part of the update to the Comprehensive Plan.

Roadway Maintenance Costs. A major issue is the need to maintain existing local roads through resurfacing and rehabilitation. The current trend in the condition of roads in the network, particularly considering the age and condition of many roads, make traditional asphalt overlay or preservation treatments no longer a viable option raising the costs maintaining the City's roads.

In May, 2016, the JG3 Consulting prepared a report for the Public Works Department that evaluated the current condition trends in the maintenance and rehabilitation of the City's paved roads and identified road network maintenance and budgetary needs over the next four fiscal years.[5] This report recommended a proposed annual budget of $625,000 over the next four years to maintain the current condition of the road network.

As pointed out in the report, the City has only been able to budget for pavement maintenance and rehabilitation $50,000 annually through 2017 with an increase to $100,000 in 2018 and then to $150,000 in 2019. The report concludes that this will lead to a further deterioration of overall pavement conditions.

Traffic Circulation GOPs. The existing goals, objectives, and policies (GOPs) related to traffic circulation and road network need to be re-evaluated in the update of the Comprehensive Plan. In addition to the recommendations mentioned previously, the following warrant special attention in the updating of the existing GOPs:

- GOPs should be amended to be consistent with pertinent objectives and policies of the MPO 2040 LRTP unless specific policy concerns warrant otherwise;
- Existing Objective 1 of this element needs to be revised to more recognizes the balance between land or recognizes the interaction of land use and roadways;
- Specific policies are needed related to funding of for needed roadway improvements and City involvement with MPO process in identifying and programming improvements;

[5] *Maintenance and Planning Report*, prepared by JG3 Consulting, LLC for City of Vero Beach, May 12, 2016.

- More emphasis needs to be given to traffic calming and protection of neighborhoods from high volume through traffic; and
- Specific policies that set forth guidelines for street layout and specifications in the subdivision regulations should be considered.

**Bicycle and Pedestrian System**

The bike and pedestrian system is an important component of the transportation network and should be further enhanced. Bicycle and pedestrian improvements may be implements as part of roadway projects, such as suggested for the 5th Avenue Extension, or standalone projects. All roadway projects in both the MPO 2040 Cost Feasible Road projects and City 2035 Roadway Improvement Projects assume construction of sidewalks and bike lanes.

The analysis of the bicycle and pedestrian system includes a review of bicycle and pedestrian facility improvements identified in the MPO's planning process and projects identified by the City Public Works Department for possible implementation over the next ten years are identified.

The MPO identified bicycle and pedestrian facilities in its 2040 LRTP based on the Indian River County's Bicycle and Pedestrian Master Plan updated in 2015. The Bicycle and Pedestrian Master Plan contained specific goals, objectives and policies along with recommendations for amendments to the Indian River County Comprehensive Plan.

This master plan sets priorities for needed projects based on (a) level of service for walking and bicycling conditions; (b) latent pedestrian and bicycle demand; (c) public input; and (d) construction cost. These projects were organized into different tiers (priority levels) with only Tier 1 projects meeting the final grade for incorporation into the 2040 LRTP.

The cost of needed sidewalk and bike lane projects, excluding the projects anticipated to be implemented in conjunction with cost feasible highway projects, totaled $10 million and $15 million respectively in current dollars. Indian River County allocates a portion of gas tax (approximately $500,000 annually) to construct standalone bicycle and pedestrian facilities. Additionally, the MPO receives approximately $400,000 each year in Transportation Alternatives Program funds for such facilities.

The City has not adopted a formal plan for the identification and funding of the construction of new pedestrian and bicycle facilities. However, the Public Works Department routinely monitors and evaluates the need for bicycle and pedestrian facility improvements, including requests from business and neighborhood groups.

As part of this process, the Public Works Department has identified needed pedestrian and combined pedestrian-bicycle facilities beyond those identified in the MPO process. Most of these projects are targeted for areas where existing pedestrian-bicycle activity exists or the potential exists.

Table 3-4 lists bicycle and pedestrian facilities within the corporate limits of Vero Beach identified as needed in the MPO 2040 LRTP and other projects identified by the Vero Beach

Public Works Department. This table does not list those pedestrian and bicycle facilities to be constructed in coordination with major roadway projects or five bike lane re-stripping projects estimated to cost under $10k identified in the 2040 LRTP.

Table 3-4. Pedestrian and Bicycle Facilities, City of Vero Beach

| Roadway | From | To | Type | Length (Miles) | Cost ($000)[1] |
|---|---|---|---|---|---|
| 10th Ave. | Royal Palm Blvd. | S.R. 60 | SW | 0.3 | 25.2 |
| Victory Blvd. | Atlantic Blvd. | 20th Ave. | SW | 0.6 | 132.9 |
| Indian River Blvd. | Royal Palm Blvd. | M. Bridge | SW | 0.4 | 154.0 |
| Ocean Drive | Riomar Dr. | Gay Feather Ln. | SW | 0.3 | 62.4 |
| Live Oak Rd. (VB) | Greytwig Rd. | Mockingbird. Dr. | SW | 0.7 | 149.6 |
| 24th Ave. (VB) | Charles Park | 18th St. | SW | 0.4 | 75.8[2] |
| Greytwig Rd. | SR AIA | Ocean Drive | SW | 0.2 | 34.4 |
| Greytwig Rd. (VB) | Indian River Dr. E. | Mockingbird Dr. | SW | 0.2 | 46.8 |
| 18th St. (VB) | U.S. 1 | Indian River Blvd. | SW | 0.5 | 108.0 |
| Atlantic Blvd. (VB) | 20th Ave. | 27th Ave. | SW | 0.6 | 127.0 |
| Seminole Ave. (VB) | Old Dixie Hwy. | 16th St. | SW | 0.3 | 63.0 |
| Buena Vista (VB) | Atlantic Blvd. | SR. 60 | BL | 0.6 | NA |
| Old Dixie Highway | S. VB City Limits | 16th /17th Streets | BL | 0.3 | 26.0 |
| 20th Ave. | S. VB City Limits | 16th Street | BL | 0.3 | 10.4 |
| Old Dixie Highway | 16th/17th Streets | S.R. 60 (EB) | BL | 0.4 | 43.0 |
| 16th Street | 27th Avenue | 20th Avenue | BL | 0.5 | 87.5 |
| 21st Street | U.S. 1 | Indian River Blvd. | BL | 0.6 | 22.8 |

Sources: Tables 8 and 9, *Long Range Transportation Plan 2040 Update,* Indian River County MPO and City of Vero Beach Public Works Department, 2015.

Legend: (VB) - City projects not identified in 2040 LRTP.
SW - Sidewalk project
BL – Bicycle lane project

Notes; 1. Cost estimates are in 2015 dollars.
2. Does not include estimated costs for a bridge over 16th Street drainage canal.

Existing Comprehensive Plan Policy 3.3 of this element calls for through the City's Land Development Regulations a requirement that all new non-residential development provide sidewalks along roadways. The City has yet to amend its Land Development Regulations to incorporate this requirement, but has required applicants to provide such sidewalks through the development approval process. However, this requirement should be incorporated in the regulations. Further policy guidance should be considered for incorporation in this Comprehensive Plan to ensure such requirements are equitably applied and the "rational nexus" test is met based on recent case law.

Another policy area that needs to be identified is the concept of "complete streets," which is an excellent strategy to support and complement the City's land use strategies for mixed use and pedestrian friendly districts. Under a "complete streets" program streets are designed and operated to enable safe access for all users including pedestrians, bicyclists, motorists and transit

riders of all ages and abilities. This approach has direct application in the Downtown and other business districts to create better opportunities for use of public streets and rights-of-way for pedestrians and bicyclists, including such elements as frequent and safe crossing opportunities, wide sidewalks, bike lanes, accessible pedestrian signals, curb extensions, narrower travel lanes, and roundabouts.

**Transit**

Indian River County's *Transit Development Plan* 2014 (TDP) was a basis for the preparation of the transit component of the MPO 2040 LRTP. The *Strategic Service Plan* outlined in the TDP identifies transit improvements to meet needs over a ten-year period. As part of the ten-year plan is the on-going effort to install bus shelters on the GoLine routes and make fleet upgrades and expansion.

The most significant short-term improvements proposed include (1) extending weekday and Saturday operations to provide service over a longer portion of the day; and (2) implementing Sunday service. The longer term projects that affect the City of Vero Beach include increasing headways on four major routes to every 30 minutes and a new route on AIA from the Village Beach Market in Vero Beach to CR 510 Causeway.

The only area of the City not identified for future fixed-route service includes most of the low density and affluent residential areas on the barrier island. These areas are not considered viable for any fixed transit service in the foreseeable future. The Senior Resources Association also provides door-to-door paratransit service throughout the County and City.

The current annual operating cost of the fixed transit system is approximately $2.5 million and approximately $1 million for paratransit service. The operational cost for implementing proposed operational improvements in the 10-year transit needs plan is approximately $3.0 million.

The funding sources for transit improvement include Federal Transit Administration grants, FDOT Service Development Grants, local funding, and private sector sources. The estimated federal and state funding for transit between 2021 and 2040 is approximately $65 million in year of expenditures and $26 million in local funds in year of expenditures. Present day dollars the total is $40 million and $16 million for these revenue sources.

The existing GOPs of this element regarding transit should be reviewed and, if appropriate, amendments made to reflect updated conditions and to stress intergovernmental planning and coordination of services with the Indian River County MPO and GoLine.

**Aviation Facilities**

As discussed under Existing Conditions, an update of the Vero Beach Airport Master Plan is fully underway. This plan is outlining specific proposed improvements both to airside facilities and to other development on the airport property to create a viable commercial center to support maintenance and enhancement of the airport. It is anticipated that the recommendations from this plan may require further amendments to the Future Land Use and Zoning Maps and Land

Development Regulations in the near future to implement proposed development strategies in the master plan when adopted.

**Railroads**

As stated under Existing Conditions, a major concern of the City and the region relates to the proposed high-speed rail service and additional freight service that is expected to occur in the next few years. Specific GOPs need to be included in this update that addresses this issue and measures to mitigate its adverse impacts on the City. Furthermore, specific guidance on future passenger rail service to serve the City should be considered in the update.

# CHAPTER 4
# HOUSING ELEMENT

## INTRODUCTION

This chapter presents the inventory and analysis of the housing element. The purpose of the housing element is to analyze supply, demand, and internal and external factors in the Vero Beach housing market to provide the framework for review and revisions to the Housing Element goals, objectives and policies in the update of the Comprehensive Plan. The chapter reviews existing conditions and identifies projected demand in the supply of housing.

This analysis recognizes that *"Housing is most Americans' largest expense. Decent and affordable housing has a demonstrable impact on family stability and the life outcomes of children. Decent housing is an indispensable building block of healthy neighborhoods, and this shapes the quality of life...better housing can lead to better outcomes for individuals, communities, and American society as a whole. In short, housing matters."* Bart Harvey, 2006, Joint Center of Housing Studies of Harvard University.

## BACKGROUND

The 2003-2005 nationwide "housing bubble" caused a meteoric rise in home prices that resulted in a severe imbalance between housing supply and demand in South Florida. Indian River County's affordable housing shortage was largely due to several key factors:

- inflationary housing values that exceed the income of most city residents;
- substantial loss of multi-family rental housing through condominium conversions;
- rising interest rates, construction costs and materials; and
- increasing costs associated with homeownership (taxes, insurance, etc.).

After the "bust," the housing market was impacted by the foreclosure crisis, more stringent requirements from lenders to qualify for mortgages because of sub-prime mortgage meltdown, slowing of the economy, increased rate of unemployment, and high gas prices. Generally, a high number of foreclosures creates several problems. First, foreclosures create housing affordability

problems for those whose homes are foreclosed. Second, foreclosed properties often are not maintained, turning into eyesores, and adversely affecting the value of properties in the surrounding neighborhood and if left abandoned may attract vandals and squatters. Third, foreclosed properties usually sell at lower-than-actual-value which also devalues properties in the surrounding neighborhood. Finally, foreclosures impact banks and lending institutions which often reduce the credit available to individuals and businesses. Overall, foreclosed properties negatively impact the entire community as well as the owners of those properties.

With the recent decrease in housing costs, the focus has shifted to very low- and low-income households, with less emphasis on moderate income households and workforce housing.[1] This allows resources to be concentrated on a smaller segment of the population, resulting in a higher percentage of that smaller segment receiving assistance.

Vero Beach is a coastal community located on Florida's East Coast. The area is popular among retirees which accounts for the low average number of persons per household. It is also a popular resort and second-home community. The economy is primarily service-based with little in the way of industry and manufacturing.

Population growth in Vero Beach has been slow and the City is nearly built out. Therefore, population growth potential and housing demand is limited. According to the 2000 and 2010 US Census data, Vero Beach had an inventory of 10,232 and 10,258 housing units respectively. The total number of housing units increased by only 26 units in 10 years. This minor growth is consistent with the negative population change in the same years. Per US Census data, the Vero Beach population figures decreased from 17,705 in the year 2000 to 15,220 in 2010 (-2,485).

Many of its older, established historic neighborhoods located on the mainland surrounding the historic downtown have been under pressure for change resulting from expansion of nonresidential uses into neighborhoods, increased traffic, softening of property values, infill development inconsistent with the character of these neighborhoods, and deteriorating maintenance of yards and structures. The major issue is how residential, principally older historic neighborhoods should be preserved and stabilized using as a starting point for this investigation the recommendations of the adopted Vision Plan and two neighborhood plans.

The City has undertaken capital programs to improve its older, established neighborhoods through provision of new sidewalks, lighting, street resurfacing, and stormwater and sewer improvements. An increased level of law and code enforcement activities has also been assigned to neighborhoods. However, no substantive comprehensive strategies or policies for directing such capital improvements and programs are in place.

The goal for neighborhoods in the Vision Plan includes the reinforcement of a "community of neighborhoods" by developing pro-active rather than reactive, city-wide and local neighborhood strategies, some of which are not identified in the current Comprehensive Plan or conflict with existing land development regulations. Where infill/redevelopment opportunities may exist, no comprehensive set of policies or programs exist to encourage such activities or provide guidance

[1] It should be noted that the price of housing has recently started to increase along with the economic recovery.

on their application citywide or to specific neighborhoods. The Vision Plan identified the following strategies for achieving the goal for the City's neighborhoods:

- Preserve native tree canopy by increasing plantings by the City on public lands and stronger tree protection regulations.
- Limit all housing in residential areas to a 35-foot maximum height limit.
- Require a site plan review for single family development.
- Institute aggressive code and public safety enforcement in neighborhoods.
- Develop design standards and zoning regulations to preserve and retain the character of neighborhoods, including the creation of overlay districts if supported by a supermajority of property owners.
- Provide buffering between residential areas and incompatible uses.
- Identify individual neighborhoods with gateway and entrance features.
- Prepare plans for stabilization/revitalization of neighborhoods that encourage renovation of existing structures, as well as infill development and redevelopment as appropriate.
- Create zoning regulations that encourage and allow mixed use development, including residential uses, in appropriate commercial areas.

Since adoption of the Vision Plan, the City has moved forward to partially or fully implement some of the above strategies. In 2009, the City adopted more stringent tree protection provisions both in terms of protection and mitigation. A tree replacement fund has been established where mitigation funds are made available for planting of trees on public lands.

In 2007, after much debate, new height limitations were enacted. The maximum height of all new single family and duplex housing was set at 35 feet. With the comprehensive revisions to the City's development review and approval procedures, site plan approval was required for all single family development.

A Historic Preservation Ordinance was enacted in 2008 that established the Historic Preservation Commission and regulations and procedures for designating and protecting historic sites. The first application for voluntary historic designation under the ordinance was approved by the City Council for a single family residence in the Original Town neighborhood in early 2010.

The City adopted enhancement strategies for the historic Original Town and Osceola Park neighborhoods in October 2009. These strategies were built upon the Vision Plan to address preservation and stabilization of these neighborhoods. These strategies focus on issues of neighborhood identity, public safety, community appearance and property maintenance, and the

intrusion of institutional and commercial development. On January 6, 2015, the City Council adopted an amendment to the Land Use Element for the Original Town Neighborhood. The City has also been working on a continuing basis with the other neighborhoods in addressing traffic calming, public safety, and code enforcement issues.

## EXISTING CONDITIONS

To effectively guide and direct future development within the City of Vero Beach, it is useful to have a clear understanding of existing housing conditions. This section examines the characteristics of existing housing in Vero Beach, and presents an inventory of all housing related data.

The following analysis is based on the American Community Survey (ACS) of the U.S. Census Bureau which includes estimates based on a sample of households over a 5-year period. The data provided by the ACS allows an in-depth analysis of housing variables and trends. The following tables are organized in columns, each representing a 5-year period from 2009-2013: the first column provides data for the State of Florida, the second focuses on Vero Beach, and the third on Indian River County.

### Occupancy and Tenure

As summarized in Table 4-1, in 2013 there were an estimated 10,286 housing units in Vero Beach. Of that number, 7,312 (71.1 percent) were classified as occupied, compared to 75.9 percent in Indian River County and 79.5 percent statewide. The percentage of vacant housing units was slightly higher in Vero Beach (28.9 percent) compared to 24.1 percent in the County, and 25percent statewide.

Table 4-1. Housing Occupancy

| | 2013 (2009-2013) | | | | | |
|---|---|---|---|---|---|---|
| | **Florida** | | **Vero Beach** | | **Indian River County** | |
| | Estimate | Percent | Estimate | Percent | Estimate | Percent |
| Total housing units | 9,003,933 | 100% | 10,286 | 100% | 76,500 | 100% |
| Occupied housing units | 7,158,980 | 79.5% | 7,312 | 71.1% | 58,038 | 75.9% |
| Vacant housing units | 1,844,953 | 20.5% | 2,974 | 28.9% | 18,462 | 24.1% |
| Vacancy rate for sale | 3.3 | (X) | 3.3 | (X) | 4.6 | (X) |
| Vacancy rate for rent | 10.7 | (X) | 19.9 | (X) | 15.3 | (X) |

Source: U.S. Census Bureau; 2009-2013 5-Year American Community Survey.

Table 4-2 shows that 62.8 percent of all occupied housing units in Vero Beach is owner-occupied. This figure is consistent with county and statewide trends where there are more owner-occupied units than renter-occupied units. The average number of persons per household, both owner- and renter-occupied, is slightly over two in Vero Beach, lower than in Indian River County and Florida as a whole. This is consistent with the larger concentration of retirees and "empty nesters" in Vero Beach.

Table 4-2. Housing Tenure

| | 2013 (2009-2013) | | | | | |
|---|---|---|---|---|---|---|
| | Florida | | Vero Beach | | Indian River County | |
| | Estimate | Percent | Estimate | Percent | Estimate | Percent |
| Occupied housing units | 7,158,980 | 100% | 7,312 | 100% | 58,038 | 100% |
| Owner-occupied | 4,806,997 | 67.1% | 4,593 | 62.8% | 43,482 | 74.9% |
| Renter-occupied | 2,351,983 | 32.9% | 2,719 | 37.2% | 14,556 | 25.1% |
| Average household size of owner-occupied unit | 2.60 | (X) | 2.06 | (X) | 2.33 | (X) |
| Average household size of renter-occupied unit | 2.63 | (X) | 2.14 | (X) | 2.48 | (X) |

Source: U.S. Census Bureau; 2009-2013 5-Year American Community Survey.

## Type of Housing

Table 4-3 shows that 49.1 percent of Vero Beach's housing supply is single home units, 45.4 percent are duplexes and multifamily units, and 5.4 percent are mobile homes, RVs and others. The smaller proportion of single home units in Vero Beach in the total housing stock compared to Indian River County and the State of Florida reflects its more urbanized development patterns.

Table 4-3. Number of Units in a Structure

| | 2013 (2009-2013) | | | | | |
|---|---|---|---|---|---|---|
| | Florida | | Vero Beach | | Indian River County | |
| | Estimate | Percent | Estimate | Percent | Estimate | Percent |
| Total housing units | 9,003,933 | 100% | 10,286 | 100% | 76,500 | 100% |
| 1-unit, detached | 4,877,611 | 54.2% | 4,678 | 45.5% | 48,075 | 62.8% |
| 1-unit, attached | 567,262 | 6.3% | 371 | 3.6% | 3,365 | 4.4% |
| 2 units | 196,349 | 2.2% | 656 | 6.4% | 2,113 | 2.8% |
| 3 or 4 units | 344,333 | 3.8% | 529 | 5.1% | 2,429 | 3.2% |
| 5 to 9 units | 447,133 | 5.0% | 990 | 9.6% | 4,642 | 6.1% |
| 10 to 19 units | 530,620 | 5.9% | 1,390 | 13.5% | 5,673 | 7.4% |
| 20 or more units | 1,194,747 | 13.3% | 1,111 | 10.8% | 4,275 | 5.6% |
| Mobile homes | 833,695 | 9.3% | 509 | 4.9% | 5,850 | 7.6% |
| Boat, RV, van, etc. | 12,183 | 0.1% | 52 | 0.5% | 78 | 0.1% |

Source: U.S. Census Bureau; 2009-2013 5-Year American Community Survey.

## Number of Bedrooms and Overcrowding

As shown in Table 4-4, two-bedroom units make up the largest supply of housing in Vero Beach (49.1 percent), in contrast with the County's 36.6 percent, and the State's 33.8 percent. Citywide,

only 35.2 percent of the housing units have more than two bedrooms, while 56.80 percent of the County's and 53.80 percent of the State's total housing units have more than two bedrooms. These percentages are consistent with the character of Vero Beach as a retiree and empty nesters' community and the more dense, urban character of the city.

Overcrowding is indicated by the presence of more than one person per room. Table 4-5 shows that the number of overcrowded units within the City is negligible, with 97.7 percent of the units having no more than one person per room. This figure is consistent with those for the County (98.2 percent) and State (97.3 percent). Vero Beach has 168 units or 2.3 percent overcrowding.

Table 4-4. Number of Bedrooms

| | 2013 (2009-2013) | | | | | |
|---|---|---|---|---|---|---|
| | **Florida** | | **Vero Beach** | | **Indian River County** | |
| | Estimate | Percent | Estimate | Percent | Estimate | Percent |
| **Total housing units** | 9,003,933 | 100% | 10,286 | 100% | 76,500 | 100% |
| **No bedroom** | 158,481 | 1.8% | 648 | 6.3% | 1,221 | 1.6% |
| **1 bedroom** | 959,667 | 10.7% | 963 | 9.4% | 3,785 | 4.9% |
| **2 bedrooms** | 3,038,874 | 33.8% | 5,049 | 49.1% | 28,020 | 36.6% |
| **3 bedrooms** | 3,466,631 | 38.5% | 2,791 | 27.1% | 34,426 | 45.0% |
| **4 bedrooms** | 1,161,956 | 12.9% | 755 | 7.3% | 8,026 | 10.5% |
| **5 or more bedrooms** | 218,324 | 2.4% | 80 | 0.8% | 1,022 | 1.3% |

Source: U.S. Census Bureau; 2009-2013 5-Year American Community Survey.

Table 4-5. Occupants per Room and Overcrowding

| | 2013 (2009-2013) | | | | | |
|---|---|---|---|---|---|---|
| | **Florida** | | **Vero Beach** | | **Indian River County** | |
| | Estimate | Percent | Estimate | Percent | Estimate | Percent |
| **Occupied housing units** | 7,158,980 | 100% | 7,312 | 100% | 58,038 | 100% |
| **1.00 or fewer** | 6,967,729 | 97.3% | 7,144 | 97.7% | 57,020 | 98.2% |
| **1.01 to 1.50** | 140,990 | 2.0% | 32 | 0.4% | 676 | 1.2% |
| **1.51 or more** | 50,261 | 0.7% | 136 | 1.9% | 342 | 0.6% |

Source: U.S. Census Bureau; 2009-2013 5-Year American Community Survey.

## Age and Condition of Housing Stock

As summarized in Table 4-6, the majority of Vero Beach's housing supply (48.5 percent) was built between the 1970s and 1980s. During the 1990s, the housing supply increased by 12.3 percent, and from 2000 to 2009, there was an 8.1 percent increase. In contrast, during the same

period, the County's housing supply increased by 28.0 percent, and statewide by 20.5 percent. Twenty percent of Vero Beach's housing stock was built prior to 1960, which means that those structures have been in the housing market for more than 55 years. In contrast, 11.9 percent of the County's, and 12 percent State's housing stock were built prior to 1960.

Table 4-6. Year Structure Built

| | 2013 (2009-2013) | | | | | |
|---|---|---|---|---|---|---|
| | **Florida** | | **Vero Beach** | | **Indian River County** | |
| | Estimate | Percent | Estimate | Percent | Estimate | Percent |
| Total housing units | 9,003,933 | 100% | 10,286 | 100% | 76,500 | 100% |
| Built 2010 or later | 43,654 | 0.5% | 10 | 0.1% | 120 | 0.2% |
| Built 2000 to 2009 | 1,841,941 | 20.5% | 835 | 8.1% | 21,427 | 28.0% |
| Built 1990 to 1999 | 1,562,885 | 17.4% | 1,261 | 12.3% | 16,292 | 21.3% |
| Built 1980 to 1989 | 1,936,813 | 21.5% | 2,298 | 22.3% | 17,773 | 23.2% |
| Built 1970 to 1979 | 1,661,132 | 18.4% | 2,695 | 26.2% | 11,852 | 15.5% |
| Built 1960 to 1969 | 879,534 | 9.8% | 1,130 | 11.0% | 4,180 | 5.5% |
| Built 1950 to 1959 | 674,729 | 7.5% | 1,203 | 11.7% | 3,292 | 4.3% |
| Built 1940 to 1949 | 205,205 | 2.3% | 319 | 3.1% | 511 | 0.7% |
| Built 1939 or earlier | 198,040 | 2.2% | 535 | 5.2% | 1,053 | 1.4% |

Source: U.S. Census Bureau; 2009-2013 5-Year American Community Survey.

While a larger portion of the City's housing stock is older than the County's or the State's, Table 4-7 shows that the percentage of the City's housing units with plumbing and kitchen facilities (99.5%) is comparable to the County (99.3 percent) and slightly higher than percentage for the State (88 percent).

Table 4-7. Plumbing and Other Facilities

| | 2013 (2009-2013) | | | | | |
|---|---|---|---|---|---|---|
| | **Florida** | | **Vero Beach** | | **Indian River County** | |
| | Estimate | Percent | Estimate | Percent | Estimate | Percent |
| Occupied housing units | 7,158,980 | 100% | 7,312 | 100% | 58,038 | 100% |
| Lacking complete plumbing facilities | 27,800 | 0.4% | 28 | 0.4% | 141 | 0.2% |
| Lacking complete kitchen facilities | 54,810 | 0.8% | 9 | 0.1% | 275 | 0.5% |

Source: U.S. Census Bureau; 2009-2013 5-Year American Community Survey.

Housing indicators that can generally be assumed to be a barometer of the overall condition of housing in a City include a lack of complete plumbing facilities, a lack of complete kitchen

facilities, and overcrowding. (Due to the temperate climate in Vero Beach, the lack of central heating is not considered to be an indicator of substandard housing.)

As only an insignificant percentage of the City's housing stock lacks complete plumbing facilities or complete kitchen facilities or is occupied by more than one person per room (the standard by which overcrowding is measured), housing conditions in Vero Beach are generally good, if measured by these standards.

However, housing in the City of Vero Beach must comply with the Southern Standard Housing Code. Code enforcement actions over the last five years indicate that the City has some substandard or deteriorating housing generally confined to the mainland. From July 2011 to July 2016 the code enforcement personnel processed 12 citations for unsafe structures (Standard Unsafe Building Abatement Code) and 76 citations for violations of Southern Standard Housing Code. The City is very proactive in addressing and abating these types of violations.

**Housing Cost and Affordability**

Table 4-8 indicates the value of owner-occupied housing. In 2013, approximately 51.1 percent of the homes in Vero Beach were valued at less than $200,000, compared to 63 percent at the County level and 62.5 percent at the State level. Over 15 percent of the City's homes were valued at over $500,000, compared to approximately 10 percent in the County, and 7 percent statewide. In 2013, median home values in the City were higher ($191,800) than homes within the County ($157,400) and the State ($160,000). Much of these differences is directly the result of the higher value of land within the City due to both lack of vacant developable land and proximity to the water.

Table 4-8. Housing Value

| | 2013 (2009-2013) | | | | | |
|---|---|---|---|---|---|---|
| | Florida | | Vero Beach | | Indian River County | |
| | Estimate | Percent | Estimate | Percent | Estimate | Percent |
| Owner-occupied units | 4,806,997 | 100% | 4,593 | 100% | 43,482 | 43,482 |
| Less than $50,000 | 464,733 | 9.7% | 353 | 7.7% | 3,942 | 9.1% |
| $50,000 to $99,999 | 890,305 | 18.5% | 906 | 19.7% | 9,213 | 21.2% |
| $100,000 to $149,999 | 848,114 | 17.6% | 577 | 12.6% | 7,297 | 16.8% |
| $150,000 to $199,999 | 803,613 | 16.7% | 509 | 11.1% | 6,916 | 15.9% |
| $200,000 to $299,999 | 882,518 | 18.4% | 590 | 12.8% | 6,653 | 15.3% |
| $300,000 to $499,999 | 586,986 | 12.2% | 930 | 20.2% | 4,948 | 11.4% |
| $500,000 to $999,999 | 244,205 | 5.1% | 514 | 11.2% | 2,790 | 6.4% |
| $1,000,000 or more | 86,523 | 1.8% | 214 | 4.7% | 1,723 | 4.0% |
| Median (dollars) | 160,200 | (X) | 191,800 | (X) | 157,400 | (X) |

Source: U.S. Census Bureau; 2009-2013 5-Year American Community Survey.

The majority of Vero Beach householders own their homes with no mortgage payments. Table 4-9 indicates that 57.1 percent of owner-occupied housing units in the City are without a mortgage,

and 42.9 percent of housing units are with a mortgage. These figures contrast with the County's housing mortgage status where 51.5 percent of the housing units have a mortgage, and the State's, where 62.4 percent of the housing units have a mortgage, and only 37.6 percent are without a mortgage. The City's housing mortgage status is consistent with the demographic and socio-economic characteristics presented in Chapter 1. Twenty-four percent of the population was over retirement age (60-85 years and over) in 2013. Age structure and higher income levels impact the City's ownership status.

Table 4-9. Mortgage Status

| | **2013 (2009-2013)** | | | | | |
|---|---|---|---|---|---|---|
| | **Florida** | | **Vero Beach** | | **Indian River County** | |
| | Estimate | Percent | Estimate | Percent | Estimate | Percent |
| Owner-occupied units | 4,806,997 | 100% | 4,593 | 100% | 43,482 | 100% |
| Housing units with a mortgage | 3,001,494 | 62.4% | 1,970 | 42.9% | 22,402 | 51.5% |
| Housing units without a mortgage | 1,805,503 | 37.6% | 2,623 | 57.1% | 21,080 | 48.5% |

Source: U.S. Census Bureau; 2009-2013 5-Year American Community Survey.

Table 4-10 indicates a median contract rent of $812 for the City, compared with $854 for the County, and $990 for the State. In Vero Beach, 75.8 percent of occupied rental units cost less than $1,000 compared to 66.10 percent in the County and 51.2 percent statewide. Approximately, 24 percent of the rental housing units have rental values higher than $1,000 in the City compared to 34 percent in the County, and 48.8 percent at the State level.

Table 4-10. Gross Rent

| | **2013 (2009-2013)** | | | | | |
|---|---|---|---|---|---|---|
| | **Florida** | | **Vero Beach** | | **Indian River County** | |
| | Estimate | Percent | Estimate | Percent | Estimate | Percent |
| Occupied units paying rent | 2,232,579 | 100% | 2,587 | 100% | 13,745 | 100% |
| Less than $200 | 24,856 | 1.1% | 0 | 0.0% | 71 | 0.5% |
| $200 to $299 | 41,763 | 1.9% | 9 | 0.3% | 136 | 1.0% |
| $300 to $499 | 92,244 | 4.1% | 297 | 11.5% | 794 | 5.8% |
| $500 to $749 | 359,284 | 16.1% | 659 | 25.5% | 3,478 | 25.3% |
| $750 to $999 | 624,883 | 28.0% | 995 | 38.5% | 4,598 | 33.5% |
| $1,000 to $1,499 | 759,544 | 34.0% | 456 | 17.6% | 3,445 | 25.1% |
| $1,500 or more | 330,005 | 14.8% | 171 | 6.6% | 1,223 | 8.9% |
| Median (dollars) | 990 | (X) | 812 | (X) | 854 | (X) |
| No rent paid | 119,404 | (X) | 132 | (X) | 811 | (X) |

Source: U.S. Census Bureau; 2009-2013 5-Year American Community Survey.

Table 4-11 shows the percentage or proportion of income that households pay for housing in Vero Beach. As defined by the U.S. Housing and Urban Development Department, a housing unit is affordable if a household's monthly housing expenses do not exceed 30% of the household's gross income. For owner-occupied households, housing cost includes principal, interest, taxes, and insurance.

Table 4-11. Selected Monthly Owner Costs as a Percentage of Household Income (SMOCAPI)

| | **2013 (2009-2013)** | | | | | |
|---|---|---|---|---|---|---|
| | **Florida** | | **Vero Beach** | | **Indian River County** | |
| | Estimate | Percent | Estimate | Percent | Estimate | Percent |
| Housing units with a mortgage | 2,975,962 | 100% | 1,970 | 100% | 22,229 | 100% |
| Less than 20.0 percent | 849,661 | 28.6% | 471 | 23.9% | 6,622 | 29.8% |
| 20.0 to 24.9 percent | 426,742 | 14.3% | 227 | 11.5% | 3,538 | 15.9% |
| 25.0 to 29.9 percent | 348,769 | 11.7% | 197 | 10.0% | 2,449 | 11.0% |
| 30.0 to 34.9 percent | 269,053 | 9.0% | 385 | 19.5% | 2,135 | 9.6% |
| 35.0 percent or more | 1,081,737 | 36.3% | 690 | 35.0% | 7,485 | 33.7% |
| Not computed | 25,532 | (X) | 0 | (X) | 173 | (X) |

Source: U.S. Census Bureau; 2009-2013 5-Year American Community Survey.

An estimated 54.5 percent of Vero Beach homeowners spend 30 percent or more of their income on housing cost. This percentage is comparable with the percentage of homeowners in Indian River County and the State of Florida paying 30 percent or more of their income on housing.

Table 4-12. Gross Rent as a Percentage of Household Income (GRAPI)

| | **2013 (2009-2013)** | | | | | |
|---|---|---|---|---|---|---|
| | **Florida** | | **Vero Beach** | | **Indian River County** | |
| | Estimate | Percent | Estimate | Percent | Estimate | Percent |
| Occupied units paying rent (excluding units where GRAPI cannot be computed) | 2,172,123 | 100% | 2,491 | 100% | 13,456 | 100% |
| Less than 15.0 percent | 167,691 | 7.7% | 128 | 5.1% | 1,008 | 7.5% |
| 15.0 to 19.9 percent | 212,984 | 9.8% | 111 | 4.5% | 922 | 6.9% |
| 20.0 to 24.9 percent | 256,215 | 11.8% | 345 | 13.8% | 1,752 | 13.0% |
| 25.0 to 29.9 percent | 244,671 | 11.3% | 140 | 5.6% | 1,406 | 10.4% |
| 30.0 to 34.9 percent | 207,750 | 9.6% | 306 | 12.3% | 1,466 | 10.9% |
| 35.0 percent or more | 1,082,812 | 49.9% | 1,461 | 58.7% | 6,902 | 51.3% |
| Not computed | 179,860 | (X) | 228 | (X) | 1,100 | (X) |

Source: U.S. Census Bureau, 2009-2013 5-Year American Community Survey.

Table 4-12 indicates that 71 percent of Vero Beach renters spend more than 30 percent of their income toward rent in comparison with 72.2 percent at the County and 70.8 percent at the State levels.

## AFFORDABLE HOUSING NEEDS SUMMARY

According to the U. S. Department of Housing and Urban Development (HUD), households spending more than 30 percent of their income for these housing costs are considered to be "cost-burdened." Households spending more than 50 percent are considered to be "severely cost-burdened." Housing is generally considered to be affordable if the household pays less than 30 percent of income for housing costs.

As a summary indicator of local affordable housing need, the Florida Housing Data Clearinghouse, Shimberg Center for Housing Studies, provides estimates of the number of households that are low-income (incomes below 80% of area median) and severely cost-burdened (paying 50% or more for mortgage costs or rent) for each county and jurisdiction. The Clearinghouse provides estimates and projections of the number of these households by tenure for the years 2013-2035.

This indicator encompasses a broad range of households likely experiencing distress because of their housing costs. With their low incomes, the large portion of income taken up by housing costs is likely to limit these households' ability to afford other necessities. Moreover, the 80% of median income figure is a traditional measure of eligibility for programmatic housing assistance. For example, all beneficiaries of the federal public housing program and federal HOME program must have incomes below this amount.

The need indicator serves as an approximation of the total number of households that would benefit from some type of housing assistance, particularly if homeless and migrant households are added. Such assistance could include the construction of new affordable housing units, but it could also include the provision of subsidies to make current units more affordable.

In addition to this summary level of information, a more detailed understanding of the presence of low-income and cost-burdened households can help local governments plan for and target assistance. The following supplemental tables provide this additional level of detail for Vero Beach. Note, however, that the number does not include homeless individuals and families, as they are not included in household enumerations. It also does not include many migrant farmworker households, missed by Census counts.

As Table 4-13 indicates, the number of severely cost-burdened households with income less than 80% of the Area Median Income (AMI) is greater for renter-, than for owner- households at present and for each five-year projection. As a whole, the number is projected to decrease slightly over the next 20 years for both owner- and renter-households in Vero Beach.[2]

[2] The numbers in Table 4-13 showing a decrease in the number of cost-burdened households may be primarily due to the fact that the Shimberg Center relies on population projections that show a decrease in the City of Vero Beach's overall population during the planning period of this Comprehensive Plan.

Table 4-13. Affordable Housing Need Summary 2010-2035

| Number of Severely Cost-Burdened (50%+) Households with Income Less than 80% AMI by Tenure | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Vero Beach | Tenure | **2010** | **2014** | **2015** | **2020** | **2025** | **2030** | **2035** |
| | Owner | 823 | 853 | 851 | 848 | 827 | 815 | 798 |
| | Renter | 951 | 958 | 952 | 912 | 871 | 828 | 805 |

Source: Florida Housing Data Clearinghouse. Shimberg Center for Housing Studies.

While the summary indicator provides a measure of overall housing need, targeting housing assistance appropriately requires more detail about income variation within the total number of low-income, severely cost-burdened households, for two reasons:

1) If needs are to be addressed through construction of new units, income variation within low-income households means that not all new rent- or price-restricted units will be affordable to all households. For example, a household at 30% Annual Median Income (AMI) would still pay more than half of its income for rent in an apartment with rent set for households with incomes of 60% AMI.

2) A number of housing programs, such as the Low Income Housing Tax Credit and, in most cases, Section 8 Housing Vouchers, set income limits below 80% of area median.

The following tables provide more detail on the income categories that make up the summary need indicator.

Table 4-14 indicates that the largest number of renter-households is projected to be at or below incomes of 30% AMI at each five-year interval. There are significantly fewer (roughly half) cost-burdened households with projected incomes between 30.1% and 50% AMI, and fewer still between 50.1% and 80% AMI. This data suggests that any Vero Beach affordable housing initiative should be best targeted at the cost-burdened and the severely cost-burdened households, even though they represent a relatively smaller number of total renter-households.

Table 4-14. Affordable Housing Need Detail 2010-2035 (Renters)

| **Vero Beach** | Household Income as % of AMI | 2010 | 2014 | 2015 | 2020 | 2025 | 2030 | 2035 |
|---|---|---|---|---|---|---|---|---|
| | 30% AMI or less | 591 | 594 | 590 | 561 | 533 | 501 | 487 |
| | 30.1-50% AMI | 309 | 312 | 310 | 299 | 288 | 276 | 269 |
| | 50.1-80% AMI | 51 | 52 | 52 | 52 | 50 | 51 | 49 |
| | Total | 951 | 958 | 952 | 912 | 871 | 828 | 805 |

Source: Florida Housing Data Clearinghouse. Shimberg Center for Housing Studies.

Table 4-15 indicates that, similar to renter-households, the greatest number of owner-households is projected to be at or below the 30% AMI, and roughly half at the 30.1 to 50% AMI. However, severely cost-burdened owner-households with incomes of 50.1% to 80% AMI, are a much larger portion of total owner-households than in renter-households. These numbers reflect the

larger concentration of elderly households in Vero Beach.

Table 4-15. Affordable Housing Need Detail 2010-2035 (Owners)

| Number of Owner-Households by Cost Burden | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Tenure: Owner | | | | | | | | |
| Vero Beach | **Household Income as % of AMI** | **2010** | **2014** | **2015** | **2020** | **2025** | **2030** | **2035** |
| | 30% AMI or less | 458 | 475 | 474 | 472 | 458 | 449 | 439 |
| | 30.1-50% AMI | 174 | 181 | 181 | 182 | 180 | 180 | 177 |
| | 50.1-80% AMI | 191 | 197 | 196 | 194 | 189 | 186 | 182 |
| | Total | 823 | 853 | 851 | 848 | 827 | 815 | 798 |

Source: Florida Housing Data Clearinghouse. Shimberg Center for Housing Studies.

Table 4-16 shows that in Vero Beach, 29.2% of households headed by the elderly are cost-burdened, somewhat higher than 17.8 percent Countywide. These figures are comparable to those for all households (27 percent in Vero Beach and 17.9 in the County). This may be attributed to the higher proportion of homes owned, as opposed to rented, by the elderly.

Table 4-16. Households with Cost Burden Above 30% and Income Below 50% AMI – Elderly-Headed Only, 2013

| Place | Households | Percent of All Elderly Households (%) |
|---|---|---|
| Indian River | 3947 | 17.8 |
| Vero Beach | 821 | 29.2 |

Source: Florida Housing Data Clearinghouse. Shimberg Center for Housing Studies.

As Table 4-17 indicates, 3288 households in Vero Beach (42.6%) were headed by a person age 65 or older in 2014; of those elderly households, 1233 (38%) paid more than 30% of income for rent or mortgage costs. By comparison, 29.4% of households statewide were headed by elderly persons during the same year. In Vero Beach, 2645 of elderly householders (80.4%) owned their homes in 2014.

Table 4-17. Elderly Households by Age and Cost Burden, 2014

| Age of Householder | Amount of Income Paid for Housing | | |
|---|---|---|---|
| | **0-30%** | **30-49.9%** | **50+ %** |
| 65 or more | 2055 | 565 | 668 |

## HOUSING PROGRAMS AND STRATEGIES

In Vero Beach, the future housing needs of the middle and upper income population categories can be readily met by the normal functioning of the building/financing/regulatory markets. On the other hand, the housing needs of persons and families in the very low and low income groups cannot be met without a concerted effort by the private residential development industry, lending

institutions, municipal and county governments, and special interest organizations devoted to improving the quality and affordability of housing.

While providing housing is primarily a function of the private sector, there is much that the City can do to set the framework and create the environment for the private sector to meet housing needs at lower costs, without sacrificing community character and acceptable standards of housing quality.

**Housing Programs**

Generally, existing housing is more affordable than newer housing, but existing housing may require additional expenditures for upgrading and rehabilitation. For that reason, financial assistance or incentives from publicly-financed programs or regulatory programs geared to existing housing offer the most feasible means of achieving affordable housing.

Existing Housing Programs. To encourage the creation and/or preservation of affordable and workforce housing, the City of Vero Beach is represented on the Indian River County "Affordable Housing Advisory Committee" (AHAC), and participates in the following Federal and State programs that assist in the provision of affordable and workforce housing:

*Community Development Block Grant (CDBG):* The CDBG program works to ensure decent affordable housing, to provide services to the most vulnerable in our communities, and to create jobs through the expansion and retention of businesses. CDBG is an important tool for helping local governments to tackle serious challenges facing their communities. The CDBG program has made a difference in the lives of millions of people and their communities across the nation.

The annual CDBG appropriation is allocated between States and local jurisdictions called "non-entitlement" and "entitlement" communities respectively. Entitlement communities are comprised of central cities of Metropolitan Statistical Areas (MSAs); metropolitan cities with populations of at least 50,000; and qualified urban counties with a population of 200,000 or more (excluding the populations of entitlement cities). States distribute CDBG funds to non-entitlement localities not qualified as entitlement communities.

The U.S. Housing and Urban Development Department (HUD) determines the amount of each grant by using a formula comprised of several measures of community need, including the extent of poverty, population, housing overcrowding, age of housing, and population growth lag in relationship to other metropolitan areas.

The City of Vero Beach is eligible to be classified as an "entitlement" community. However, the City has annually declined the invitation to be an "entitlement" community due to the requirements to be an entitlement community and the low level of funding (~$125,000), which would be totally consumed to pay for maintenance of this program. Instead the City continues to be eligible to participate in the Florida Small Cities CBDG Program which has significantly fewer requirements and conditions, but does require that the City must compete with other communities in obtaining a grant.

*Home Investment Partnerships Program (HIPP)*: The HOME Investment Partnerships Program (HOME) provides formula grants to States and localities that communities use – often in partnership with local nonprofit groups – to fund a wide range of activities including building, buying, and/or rehabilitating affordable housing for rent or homeownership or providing direct rental assistance to low-income people. HOME is the largest Federal block grant to state and local governments designed exclusively to create affordable housing for low-income households.

HOME funds are awarded annually as formula grants to participating jurisdictions (PJs). The program's flexibility allows States and local governments to use HOME funds for grants, direct loans, loan guarantees or other forms of credit enhancements, or rental assistance or security deposits.

*State Housing Initiative Partnership (SHIP)*: SHIP funds are distributed on an entitlement basis to all 67 counties and 52 Community Development Block Grant entitlement cities in Florida. The minimum allocation is $350,000. In order to participate, local governments must establish a local housing assistance program by ordinance; develop a local housing assistance plan and housing incentive strategy; amend land development regulations or establish local policies to implement the incentive strategies; form partnerships and combine resources in order to reduce housing costs; and ensure that rent or mortgage payments within the targeted areas do not exceed 30 percent of the area median income limits, unless authorized by the mortgage lender.

SHIP dollars may be used to fund emergency repairs, new construction, rehabilitation, down payment and closing cost assistance, impact fees, construction and gap financing, mortgage buy-downs, acquisition of property for affordable housing, matching dollars for federal housing grants and programs, and homeownership counseling. SHIP funds may be used to assist units that meet the standards of chapter 553.

A minimum of 65 percent of the funds must be spent on eligible homeownership activities; a minimum of 75 percent of funds must be spent on eligible construction activities; at least 30 percent of the funds must be reserved for very-low income households (up to 50 percent of the area median income or AMI); an additional 30 percent may be reserved for low income households (up to 80 percent of AMI); and the remaining funds may be reserved for households up to 140 percent of AMI. No more than 10 percent of SHIP funds may be used for administrative expenses. Funding for this program was established by the passage of the 1992 William E. Sadowski Affordable Housing Act. Funds are allocated to local governments on a population-based formula.

In Indian River County, the SHIP program is administered by the Indian River Community Development Department which works with local municipalities and non-governmental affordable housing organizations in distributing funds for needed projects. In FY 2014-2015, the SHIP program provided assistance to 40 housing units in Indian River County including one unit within the City of Vero Beach. Approximately $836,000 was expended for rehabilitation of 24 units, purchase assistance for 15 units, and impact fee assistance to one unit.

Potential Housing Assistance Programs. Although not utilized to any extent in Indian River County the following housing assistance programs or mechanisms may have some potential for providing housing assistance to meet affordable housing needs:

*Employer Assisted Housing:* Employer Assisted Housing is an initiative where employers assist their employees in purchasing a house, paying the rent, or providing a residence in exchange for the employee working with the company. It has been primarily used by both private companies and government organizations in high cost areas of Florida, such as the Florida Keys or areas with very low unemployment; however, this type of housing program has also been used in the Indian River County by companies to house their low-paid service employees.

*Community Development Corporation:* Community Development Corporation (CDC) is a broad term referring to a not-for-profit organization to provide services and programs to support community with housing assistance being one service or program. Generally, CDC serves a specific geographic location. Although the City may provide assistance to the any not-for-profit organization proposing to form a CDC; however, generally such programs are more viable in much larger and higher density urban areas.

*Private/Public Housing Trust Fund:* Housing Trust Funds generally are established by an ordinance enacted by a county, city, or the state legislature. To establish such a trust fund requires identification of a revenue source and a separate and distinct that can receive and disburse funds to use in housing assistance programs. Other than donations from private and governmental sources, the major issue is the identification and securing of alternative revenue sources. Some localities have employed impact fees on new market rate housing or nonresidential commercial development, both of which are politically unpopular sources. Therefore, other than private sources, the staff doesn't believe this option is very viable for this area.

*Community Land Trust:* A Community Land Trust (CLT) is a not-for-profit organization that seeks to preserve housing affordability over the long term. A CLT preserves housing affordability by selling homes to low or moderate income families, but retaining ownership of the land under these homes. The land is leased to the homeowner for 99 years, while the homeowner retains ownership of the structure. The resale of the house must be to a qualified household and resale prices are limited to keep CLT units affordable for next homebuyer.

This program is a viable option, particularly in areas where the land costs significantly affect the price of housing such as the Florida Keys. As with most housing options, the real issue has to do with the funding of this type of trust. Unless a sufficient initial revenue source is secured, the program will have little success.

## Housing Strategies

In preparing the Goal, Objectives, and Policies for the Housing Element, the staff focused on the following strategies:

Affordable Housing Creation and Preservation. While providing housing is primarily a function of the private sector, there is much that the City can do to set the framework and create the environment for the private sector to meet housing needs at lower costs, without sacrificing community character and acceptable standards of housing quality. The Goals, Objectives and Policies of this Housing Element include measures to assure neighborhood preservation and rehabilitation, flexible zoning regulations, density bonuses, adequate sites and appropriate land use designations. The City coordinates with the Indian River Affordable Housing Advisory Committee, and participates in State and Federal programs that assist in the provision of affordable and workforce housing. The City also encourages housing and supportive services for the elderly and special needs population to ensure a diverse and affordable housing stock for all of its residents.

Elimination of Substandard Housing Conditions. The City of Vero Beach does not have a significant problem with substandard housing. The housing stock is relatively new and in good condition; however, it is important for the City to maintain the structural integrity and aesthetic nature of its housing. Vero Beach accomplishes this is through enforcement of property maintenance and housing codes.

The current property maintenance provisions of the Code will be replaced by the International Property Maintenance Code as called for in the update to this Comprehensive Plan. Codes and standards are rigorously enforced by the City's Code Enforcement section of the Police Department. While the property owner is ultimately responsible for the safety and maintenance of their property, the City also encourages tenants and neighborhood associations to become active participants in the City's effort to maintain a safe and aesthetically pleasing housing environment.

Adequate Housing Sites. Within the City of Vero Beach, a wide range of sites, from in-fill sites in moderate-cost older subdivisions to high-value waterfront locations, are available for new housing development. The inventory of sites ranges from lots in low-density single-family neighborhoods to sites zoned for medium density multi-family and condominium development. Infrastructure is also available in the City, and system capacities are expanded as necessary to meet the demands of new urban development.

Diversity of Housing Choices. To ensure housing diversity, the City supports infill development, redevelopment, flexible zoning regulations, and adequate sites and appropriate land use designations, including adequate sites for continuation of mobile and manufactured homes on existing sites to meet the housing needs for lower-income residents without sacrificing community character and acceptable standards of housing quality. Additionally, the City proposes to review its Land Development Regulations to address "sober houses" and housing for other "protected" classes of individuals to ensure their housing needs are appropriately met without undue delays in the permitting and development approval process.

Participation with Indian River County. To encourage the creation and/or preservation of affordable and workforce housing, the City of Vero Beach is represented on the Indian River County "Affordable Housing Advisory Committee" (AHAC), and participates State and Federal programs that support and promote affordability in housing.

Housing Construction Costs. Housing construction permitting services for the City of Vero Beach are centralized within the County administration building. Under normal circumstances, application and plan review procedures do not cause delays, and are conducive to efficient processing. New construction technologies such as modular homes and new energy efficient ("green") building programs may be used for housing. The Indian River County Building Division which serves as the building permitting office for the City of Vero Beach, supports new construction technologies and expedites building permits for affordable housing projects.

Quality of Housing and the Stabilization of Neighborhoods: Neighborhood Preservation and Stabilization" was identified as a priority in the City's 2010 Evaluation and Appraisal Report. Toward this objective, the City will continue to support neighborhood enhancement projects, and historic preservation and conservation efforts. Special zoning districts that recognize the limitations of older neighborhoods, and mixed-use zoning will be promoted to provide the flexibility necessary to stabilize and revitalize older neighborhoods while protecting those neighborhoods from incompatible uses and encouraging compatibility through context-sensitive building and site design.

Conservation of Historically Significant Housing. The City's Historic Preservation commission administers a comprehensive historic preservation program to identify and maintain the City's historic resources for the benefit of both present and future residents. The Goals, Objectives, and Policies of this Housing Element call for an update to the City's current survey of historic buildings. Additionally, special zoning districts that recognize the limitations of older neighborhoods, and mixed-use zoning will be promoted to provide the flexibility necessary to stabilize and revitalize older neighborhoods while protecting those neighborhoods from incompatible uses and encouraging compatibility through context-sensitive building and site design.

Energy Efficiency. While striving to fulfill its housing needs, the City also recognizes the importance of promoting sustainable and energy efficient standards. The City supports building and development practices that reduce housing operation costs for energy, sewer and water usage inside the structure and for landscaping outside. The City encourages the construction of structures that meet or exceed the United States Green Building Council (USGBC) Leadership in Energy and Environmental Design (LEED) system.

# CHAPTER 5
# COASTAL MANAGEMENT ELEMENT

## INTRODUCTION

The purpose of the Coastal Management Element is to plan for, and where appropriate, restrict development activities where such activities would damage or destroy coastal resources and to protect human life and property and limit public expenditures in areas subject to destruction by natural forces.

Because coastal resources are highly impacted by man-made activities, this element is significantly related to land use, infrastructure (water, sewer, and stormwater utilities), transportation, recreation and open space, economic considerations (including capital improvements and other public expenditures). In many ways it is basically comprehensive plan in itself.

The data and analysis provided in this chapter lay the foundation and framework for the updating and revision of specific goal, objectives, and policies for the Coastal Management Element of the Comprehensive Plan.

## COASTAL ZONE BOUNDARY DESCRIPTION

The coastal zone of the City of Vero Beach is the area influenced and directly related to estuarine and oceanic waters. Therefore, the coastal zone includes the entire city limits of Vero Beach including the barrier island, Indian River Lagoon, and the mainland. This area is compatible with the State's and Indian River County's coastal zone designation.

## THE COASTAL ENVIRONMENT

The components of the coastal environment include the barrier island, Indian River Lagoon, and coastal mainland.

### Barrier Island

The portion of the barrier island located within Vero Beach is called Orchid Island. Orchid Island is +/- 22.4 miles in length within Indian River County. Approximately 17% of Orchid Island's length is within the City of Vero Beach.

As components of the barrier island, the nearshore Atlantic and beach/dune systems dissipate wave and wind energy, forming the first line of defense against coastal storms. In addition, the barrier island environment provides a variety of recreation opportunities and aesthetic qualities for the enjoyment of residents and visitors.

Nearshore Atlantic. Two main components comprise the near shore system of the Atlantic Ocean: the sub-tidal zone and the surf zone. The surf zone extends from depths of nine feet below mean low water line (MLWL), while the sub-tidal zone extends from depths of approximately nine feet to twenty-five feet below the MLWL.

Off shore of the City of Vero Beach, two zones are characterized by rock/reef development that runs the length of city and stabilizes the barrier island shoreline by moderating wave action and providing a hard bottom for marine plants and animals. These rock and reef areas have an abundance of marine life with many types of invertebrates that serve as feeding grounds for sea turtles and the many 255 species of fish. More than 75 percent of these fish are Caribbean reef fish.

In addition to dissipating wave energy, the offshore reef provides hard bottom for growth of plankton. Plankton provide habitat for marine organisms and the foundation of the food web for marine life. Physical alterations include storm damage, beach re-nourishment projects, shoreline stabilization projects, and recreation/fishing activities that disturb the natural habitat.

Beaches and Dunes. Beaches define the coastline of the barrier island. There are 3.9 miles of Atlantic Coast shoreline in Vero Beach. Subject to winds, tides, waves, and currents, a beach is a constantly changing boundary. Its primary value to the barrier island is its capacity to absorb and dissipate wave energy, thus stabilizing the coastline. The beach is un-vegetated and consists of sand and shell materials.

It is subject to constant change due to the continual drift and movement of sand. Littoral drift is the sand which is moved by the process of being washed away by waves and re-deposited down drift of its origin. When this process is interrupted, for example by jetties and groins, the sand is deposited unevenly in one area and eroded in others.

Dunes are divided into two zones, the primary dune (fore-dune) and secondary dune (back-dune). The primary dune extends landward of the backshore. It varies in height and may be only slightly higher than the backshore. The primary dunes in the study area reach a

maximum height of approximately 15 feet. Secondary dunes are not well developed throughout the study area and in some sections are nonexistent. Typical vegetation associated with a primary dune is sparse to moderately dense and is dominated by a few species tolerant of salt spray, desiccation, fluctuating salinities, and changing dune formation. Common primary dune species include sea rocket, railroad vine, sea oats, and a low trailing form of sea grape.

The dune community, while tolerant of environmental stresses such as desiccation and salt spray, is particularly sensitive to physical alteration. The dune flora is intolerant of trampling, requiring long periods of stabilization before complete recovery. Even more destructive to dune integrity is the historic practice of dune-line construction. This practice destroys the native dune flora and fauna, and ultimately the beach-dune structure itself. Attempts to stabilize dunes with such features as bulkheads often accelerate dune erosion because wave energy is no longer dissipated over a dune-fed beach, but concentrated at the wave-bulkhead interface. Because of the expense of beach nourishment or alternative shore stabilization techniques, it is imperative that beach-dune communities be preserved or redeveloped.

Coastal Strand Community. The South Florida Coastal Strand community occurs along the Atlantic Ocean. This community generally encompasses the area affected by ocean spray. Therefore, plants associated with the community are adapted to salt, intense sunlight, and strong winds.

Coastal strand vegetation is usually dominated by saw palmetto, with other important species including sand live oak, wax myrtle, beach bean, Spanish bayonet, seagrape, and sea oats. Remnants of this vegetative community are interspersed in developed areas. The protection and maintenance of indigenous species in governed through the Land Development Regulations.

Coastal Hammock Community. Coastal strand associations succeed to a coastal hammock community, often via a transitional hammock or coastal scrub stage. The coastal hammock can vary from a mature canopy of live oaks and cabbage palms with a sparse understory of wild coffee and stoppers, and a dense ground cover of ferns and vines, to a jungle-like community of tropical hardwoods, vines, and shrubs, with a fairly open canopy of oaks and cabbage palms.

Mature coastal hammocks that would typically be found within the study area are dominated by large live oaks. Significantly, laurel oaks and scrub oaks are rare, although these species are abundant west of the Indian River and north of the study area on the barrier islands. This may be due to recent development in the study area's coastal hammocks, and the relatively immature alkaline soils.

**Indian River Lagoon**

The Indian River Lagoon is a 156-mile long estuary that traverses Brevard, Indian River, St. Lucie, and Martin counties. The Lagoon separates the Vero Beach's barrier island from the mainland portion of the city. It traverses the City for approximately 3.3 miles and ranges in width from several hundred feet to almost ¾ of a mile.

The Indian River estuarine community is considered to be one of the richest in the United States in terms of productivity and the numbers of existing plant and animal species. It derives its estuarine character from the mixing of fresh and salt waters.

The Indian River Lagoon is one of the most biologically diverse estuaries in the Nation. One of the 28 estuaries in the country in the Environmental Protection Agency's National Estuary Program, the Indian River Lagoon is the only estuary on the east coast of Florida. The Lagoon supports seagrass beds, mangroves, drift algae, salt marshes, oyster bars, tidal flats, and man-made spoil islands that serve as important spawning and/or nursery grounds for commercially important species including shrimp, grouper, snapper, and drum. It is an important recreational and commercial resource for the community.

The Lagoon's freshwater sources are rainfall, groundwater from both the surficial and Floridan aquifers, small amounts of overland sheet flow, discharges from drainage canals, and Sebastian and St. Lucie Rivers. Five inlets to the ocean allow for mixing of saline and fresh waters. These five connections are the Ponce Inlet, Port Canaveral Inlet, Sebastian Inlet, Ft. Pierce Inlet and the St. Lucie Inlet. The Sebastian and Ft. Pierce Inlets exert the greatest tidal influences over the lagoon. However, flushing currents which are strong near the inlets are greatly reduced by the narrow configuration of the lagoon and the constrictions created by the causeways which span the river.

Seagrass and Drift Algae. Seagrass is the Lagoon's prime nursery for fish and other marine life. It provides substrate, habitat, and protection from predators for fish and invertebrates. It provides food for herbivores and the detritus food web. It is also important in nutrient cycles and helps to stabilize sediments. The estimated economic value of seagrass is $16,594 per acre per year (Florida Fish and Wildlife Conservation Commission, 2009). [A full discussion of seagrass is provided in the Conservation Element.]

Within the lagoon waters are two important vegetative communities: seagrass meadows and drift algae. Seagrass meadows form the most important lagoon biotope. Seagrass Ecosystems Analysts mapped the seagrasses of the Indian River Lagoon from Sebastian Inlet to St. Lucie Inlet in 1986. Seven seagrass species were found; all species occur throughout the lagoon but not in a uniform pattern over all areas. The worst water quality and seagrass conditions were found near the Vero Beach area. Water there is almost always turbid, and only scattered patches of seagrass are found around the spoil islands.

Drift algae communities are intermediate between exposed bottoms and rooted seagrass meadows. These are formed of unattached, free drifting algae which aggregate in response to prevailing winds, water currents and bottom topography. Particularly large and persistent aggregations occur south of Sebastian Inlet and north of Vero Beach.

According to the Indian River Lagoon National Estuary Program, most areas with good seagrass coverage tend to be adjacent to undeveloped lands or close to inlets, with sparse coverage located adjacent to developed areas, tributaries and major drainage systems. Consistent with this finding, seagrass coverage in Indian River County is sparsest in the Vero Beach narrows of the Lagoon. Overall, the amount of seagrass in the Indian River Lagoon Basin has decreased over the years due to changes in water quality conditions.

Seagrass needs sunlight to grow. Although regulations are in place governing installation of docks and other structures over submerged lands to allow for sunlight for underlying seagrass, high concentrations of nutrients entering the Lagoon act as fertilizer on algae causing algae growth to increase. The algae form mats or blooms on the surface of the water that prevent sunlight from reaching the seagrass on the lagoon bottom. Polluted runoff contributes to darker and less transparent water preventing sunlight from reaching the deeper seagrass beds.

The major goal of the Central Indian River Lagoon Basin Management Action Plan (BMAP) is to reduce TP (total phosphorus) and TN (total nitrogen) through the establishment of a Total Maximum Daily Load (TMDL) budget as discussed previously. The implementation of the TMDL "budget" for dischargers to the Central Indian River Lagoon is intended to have a positive impact on the water quality of the Indian River Lagoon with the ultimate restoration goal of returning seagrass coverage to 90% of the historical seagrass coverage.[1]

High Salt Marshes and Mangroves Swamp. The high salt marsh areas consist of salt tolerant wetland vegetation bordering the Indian River Lagoon proximate to the Mean High Water Line (MHWL). These marshes are important pollution filters and serve as nursery and spawning grounds for fish and other marine organisms.

The high salt marsh transcends into intertidal mangrove swamps. Mangrove swamps consist of red, white, and black mangrove stands that dominate the coastal fringes above MHWL. Mangroves help stabilize the shoreline, reduce erosion, and retain and filter flood water. Intertidal mangroves are extremely valuable marine and terrestrial wildlife habitat.

Spoil Islands. The spoil islands in the Indian River Lagoon were created through dredging and maintenance of the Intracoastal Waterway. These artificially created islands provide rookeries for migratory and shorebird species. The designated usage of the islands is conservation or recreation. The islands are either owned by the State of Florida or Indian River County and are designated Conservation on the Future Land Use Map.

Mosquito Impoundments. The salt marshes are home to salt-marsh mosquitoes. These mosquitoes are controlled through larvaciding and impoundments. The Indian River Mosquito Control District is responsible for managing mosquito impoundments and application of chemicals to salt marsh areas that are not impounded.

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[1] *Indian River Lagoon (IRL) Basin Management Actions Plans (BMAPs) Fact Sheet; Improving Water Quality and Seagrass Bed Coverage in the Lagoon,* Florida Department of Environmental Protection, July 2009.

**Mainland**

The mainland component of the coastal environment consists of coastal hammocks (discussed under the Barrier Island section above), sandpine/xeric scrub, flatwoods and freshwater wetlands.

Sandpine/xeric scrub. The Sand Pine Scrub ecological community is almost exclusively found on well-drained and infertile sands of relict dunes and sand bars, such as the Atlantic Coastal Ridge. It is essentially a fire-maintained community that requires periodic fires for healthy growth.

Within the City of Vero Beach, the xeric scrub communities are typically found in the Astatula-St.Lucie-Archbold soil association. These scrub communities are found along the Atlantic Coastal Ridge west of US. Highway 1 in the northwest corner of the Vero Beach Regional Airport. Generally, vegetation in the sand pine scrub community consists of sand pines occupying the canopy, and scrubby oaks, saw palmetto and other shrubs, vines, and lichens comprising the understory.

South Florida Flatwoods. South Florida flatwoods occur throughout south and central Florida. Although it historically covered a good portion of mainland Vero Beach, only fragments remain. The major remnants include areas on both sides of US Highway 1 north of the Main Relief Canal and areas of a large 333-acre vacant property formerly occupied by the Dodger Pines Golf Course. These areas contain primarily longleaf-slash pine forest and range in width from 2.5 to 3 miles wide.

The natural vegetation of the South Florida flatwoods is scattered pine trees with an understudy of saw palmetto and grasses. Trees and shrubs include slash pine, longleaf pine, live oak, dwarf huckleberry, gallberry, saw palmetto, tarflower, shining sumac, and wax myrtle.

Freshwater Wetlands. Freshwater forested/shrub and freshwater pond wetlands account for approximately 150 acres. Figure 5 of the Map Series depicts the general location of these wetlands. The forested/shrub wetlands are generally scattered throughout the Vero Beach Regional Airport property except for small pocket of wetlands located west of Indian River Boulevard near the Barber Bridge. A great majority of freshwater ponds are manmade stormwater retention facilities.

## LAND USE IN THE COASTAL ZONE

The City of Vero Beach is densely developed and populated. The barrier island consists of large tracts of low density residential use with concentrations of higher density residential and commercial development adjacent to the major roads, bridges and ocean front. Except for a few remaining areas of undeveloped land, the barrier island is urbanized from the Indian River to the ocean.

The mainland area is likewise almost completely developed except for a large vacant tract of land located west of 43rd Avenue. Residential land uses predominate. The location and distribution of existing land uses are depicted in Figure 1 of the Map Series and described in the Land Use Element.

**Water-Dependent Uses**

Water-dependent uses are those "activities which can be carried out only on, in or adjacent to water areas because the use requires access to the water body for: waterborne transportation including ports or marinas; recreation; or water supply." Water-dependent uses occurring in Vero Beach include marinas, recreational fishing piers, and boat ramps on both sides of the Indian River Lagoon. A full description of these facilities is presented later in this chapter.

**Water-Related Uses**

These uses are defined as "activities which are not directly dependent upon access to a water body but which provide goods and services that are directly associated with water-dependent or waterway uses."

Such activities may include recreation and supporting facilities/structures for access to a water body. Land uses in Vero Beach which are considered water-related include the following: support facilities for marinas; commercial resorts associated with water-dependent recreation activities or marinas; upland areas and support facilities for fish camps, parks and recreation areas.

**Shoreline Land Use Conflicts**

The shorelines of the lagoon and ocean do not contain any significant conflicts in land use. The majority of the lagoon is bounded by low density uses which allow people access to the resource; the resource is not significantly threatened; and the uses themselves are not incompatible with each other. The potential areas of conflict are the marinas and utility plants. As located, the marinas have a low impact on surrounding uses and are sited in appropriate locations. Expansion of the marinas should not cause conflicts with adjacent residential uses because sufficient expansion space exists. The marinas are adjacent to public open spaces which provide some buffer between the marinas and residential uses. The utility plants occupy a small area of the shoreline.

The oceanfront is dominated by high density uses from the northern City limits to approximately Riomar Drive and between Sandpiper Lane and Seagull Drive. Hotels, condominiums and tourist-oriented commercial uses line these sections of the beachfront. Lower density residential uses are located on the ocean between these sections as well as westward of the higher density uses. The most obvious conflict the high intensity uses create is the restriction of beach access, both visually and physically. However, Vero Beach maintains sufficient numbers of walkways, access drives and parks to provide adequate physical access for beach users. Due to existing elevations, visual access to the beach is limited. The public access points used by pedestrians offer the best visual accessibility.

Based on the projections for future needs for water-dependent and water-related shoreline uses, there should be no additional shoreline conflicts resulting from siting new facilities. Marina expansion will occur in areas already designated for that use. No other major facilities are proposed for shoreline sites.

**ECONOMY**

The economy of Vero Beach is primarily governmental (city, county, school board) with tourism and resort economic sectors and related support retail and service facilities making up the remainder. Current land uses in the coastal zone are predominantly low-density residential, with some concentrations of higher density residential and commercial uses located along the ocean front and major roadways. The higher density residential uses are typically condominium developments, many of which are rented to seasonal visitors or used as winter homes by their owners. Commercial uses consist primarily of hotels/motels and tourist-oriented commercial uses, as well as retail and service establishments that serve the needs of both the permanent resident population as well as the seasonal visitors.

There are nearly 1,000 (944) hotel/motel rooms in Vero Beach. Most of these are located in the coastal zone area. Many establishments such as restaurants, hotels and condominiums are located on the 3.9 miles of Atlantic Coast shoreline in Vero Beach in order to take advantage of the recreational opportunities provided by the beach and the intrinsic value of being in proximity to the water. These are in addition to the five marinas, three boat ramps, and six public parks, three of which include a boardwalk/pier facility of these facilities cater to recreation-oriented demands, including those of the seasonal tourist population.

The employment base is rather mixed, but nevertheless dominated by, and dependent upon, the tourism/recreation industry. On the barrier island, the employment base is almost entirely related to retail sales and services. The predominant employment categories in the retail sector are General Merchandise Stores (SIC 53), Apparel and Accessory Stores (SIC 56), Eating and Drinking Places (SIC 58), Miscellaneous Retail (SIC 59), Hotels and Other Lodging Places (SIC 70) and Personal Services (SIC 72). Clearly, these employment categories represent an economic base that is dependent upon a continued tourism and recreation industry. Future land use plans for the coastal zone do not anticipate any departure from this tourism/recreation base. The existing economic base of the Vero Beach should continue through the horizon of this Comprehensive Plan.

## ESTUARINE WATER QUALITY

As part of the Clean Water Act of 1987, the National Estuary Program (NEP) was established. Under this program, the Indian River Lagoon was identified as being an estuary of national significance threatened by pollution, overuse, and development. The Indian River Lagoon National Estuary Program (IRLNEP) was established by EPA in 1991 and charged with developing a Comprehensive Conservation and Management Plan to ensure preservation of the IRL's ecosystem through consensus-driven decision making and problem solving.

The Lagoon system within the City of Vero Beach is classified by the Florida Department of Environmental Protection as Class III waters designated for "fish consumption, recreation, propagation and maintenance of a health, well-balanced population of fish and wildlife." Portions of the Lagoon outside the city limits are designated Class II, that is designated for "shellfish propagation and harvesting" and requires a higher level of protection than Class III. These areas include the Malabar-Vero Beach Aquatic Reserve located north of the city limits and the Vero Beach-Ft. Pierce Aquatic Reserve located south of the city limits.

Because it is in an urban area, the Lagoon is subject to impacts from urban stormwater runoff. However, it is also subject to the impacts of runoff from the agricultural lands in the interior of the County. These types of runoff are the major sources of water quality degradation in the Lagoon, and because of its shallow, narrow configuration with limited flushing characteristics, the Lagoon is vulnerable to nutrient eutrophication. High nutrient inputs to the waters of the Indian River Lagoon ecosystem also result, in part, from seeping septic and drain field wastewater disposal systems. Additionally, legacy nutrient loading from "muck" may be contributing to the severity of recent algal blooms.

As recognized in the 2015 document, *Impediments of Implementation of the Indian River Lagoon Basin Management Action Plans,* water quality degradation is the single "most important issue impacting the lagoon." This decline in water quality is "attributed to an increase in nutrient input, sedimentation, turbidity, atmospheric deposition, nutrient releases from legacy muck deposits, and changes in salinity due to freshwater discharges." The decline in water quality is visibly characterized by loss of seagrass coverage and depth, algal blooms, and decrease in the amount and diversity of wildlife. [A more detailed discussion of the Central Indian River Lagoon BMAP is discussed under the Stormwater Management Sub-Element.]

To address these problems, the FDEP has established and administers the Total Maximum Daily Load (TMDL) program, which is a statewide watershed-based management approach to restore and protect water quality in Florida. As part of this program Basin Management Action Plans (BMAPs) have been or are being prepared throughout the state to address key elements required by the Florida Watershed Restoration Act. The Indian River Lagoon is covered by four BMAPs.

The adopted BMAP (2013) for the Central Indian River Lagoon, which includes the City of Vero Beach, establishes specific reductions in the yearly discharge of nitrogen and phosphorus into the

Indian River Lagoon.[2] Specific target reductions for individual jurisdictions have yet to be established.

In the Indian River Lagoon National Estuary Program's 2008 update to the Indian River Comprehensive Conservation and Management Plan (CCMP) set forth various actions to address issues that affect the lagoon that supplement the efforts of the BMAP for the Central Indian River Lagoon. These actions include eradication of invasive flora and fauna, reduction of sedimentation, and assessment of potential climate change impacts to lagoon resources.

The development of this plan was closely coordinated with the goals and objectives of the Indian River Lagoon Surface Water Improvement and Management (SWIM) Plan, which is a state mandated effort directing the state's five regional water management districts to design and implement plans for specific surface water systems that have been or are threatened with being degraded. The SWIM Plan primarily concentrates on conducting scientific investigation and applying the findings of these investigations directly to restoration actions.

As an active participant in the Indian River Lagoon National Estuary Program (NEP) and development and implementation of the Indian River CCMP and SWIM plans, the City should consider policies and actions consistent with and complementary to these plans and the Indian River NEP. A detailed discussion of local programs, policies, and regulations to protect and improve the water quality of the Indian River Lagoon is presented in the Stormwater Sub-Element and Conservation Element.

## NATURAL RESOURCES

Despite the continued loss of native plant communities due to development, the City has continued to promote conservation of natural resources through its land use planning and development regulations. However, due to limited resources, the City must rely on the Indian River Land Trust to acquire lands. In just the last few years, that organization obtained over 130 acres of estuarine wetlands north of the Barber Bridge. It should be pointed out that almost all lands eligible for conservation are under public ownership or are extremely limited for development.

### Invasive Exotic Plants

The Florida Exotic Pest Council maintains a list of invasive exotic plants found in Florida. These invasive plants are ranked into two basic categories. Category I invasive plants are known to alter native plant communities by displacing native species. Category II invasive plants are those that have increased in abundance or frequency in natural areas, but have not yet altered Florida plant communities to the extent shown by Category I species.

The City has no specific requirements to even remove nuisance exotic species such as Brazilian pepper, Australian pine, and melaleuca. The City should consider a Comprehensive Plan policy calling for an amendment to its Land Development Regulations that would require Category 1

[2] Basin Management Action Plan for the Indian River Lagoon Basin Central Indian River Lagoon, developed by Central Indian River Lagoon stakeholders in cooperation with the FDEP, 2013.

invasive plants be removed from development sites and that such sites be maintain free of nuisance exotic plants.

**Native Uplands and Wetlands**

The City has specific development standards in its Land Development Regulations to identify and limit adverse impacts on native uplands and wetlands. Some specific language in the Comprehensive is needed that requires through amendments to the Land Development Regulations the preservation of some portion of native upland habit in projects of 5 acres or more. Indian River County requires a minimum 15% set-aside. Any land placed in a set-aside should have a conservation easement placed on the native upland habit.

As discussed under the Conservation Element, the City has established Comprehensive Plan policies governing wetlands and buffer zones for wetlands; however, it has yet to amend its Land Development Regulations to incorporate these policies. The update of the Comprehensive Plan should include provisions to require this update.

**Threatened and Endangered Species**

The City's Land Development Regulations require that any proposed development must identify and address any potential impacts on threatened and endangered species or species of special concern. Several plans or programs to conserve specific threatened and endangered species have been adopted or will be adopted by the City of Vero Beach as discussed below:

Florida Scrub-Jay Habitat Conservation Plan. In 2000, Indian River County adopted the Sebastian Area-Wide Scrub Jay Habitat Protection Plan (HCP). Since that time, the number of documented Scrub Jay families has remained constant. Prior to the Scrub Jay HCP adoption, a drastic decline in the number of scrub jay families occurred from 1991 to 1998, resulting in a 50% decrease in the number of Scrub Jays. Since HCP adoption, the number of Scrub Jay families has fluctuated by less than 10%.

The City of Vero Beach was not a party to the HCP; however, a suitable habitat for the Scrub Jay outside the scope of that HCP is located on the City of Vero Beach Regional Airport on the northeast corner of that facility. This area is designated Conservation on the Future Land Use Map.

As discussed in the Land Use Element, the Vero Beach Regional Airport is going through a master planning process. As part of this process a draft Habitat Conservation Plan for the Scrub Jay has been prepared for approval by the US Fish and Wildlife Serve. The draft HCP indicates that 174 acres of Scrub Jay habitat located at the northeast corner of the airport property needs protection. The results of HCP will provide the basis for specific amendments to this Comprehensive Plan and Future Land Use Map.

Manatee Protection. In Vero Beach, manatees are protected in the Indian River Lagoon via boating restrictions primarily through limits on speed: from the southern end of the City north to SR-60, and from the northern end of the City south to approximately 36th Street, there is a 30-miles-per-hour (MPH) speed limit in the Intracoastal Waterway channel and within 100 feet

of the channel. Within the Channel and within 100 feet between those two zones, speed is further restricted to Slow Speed (i.e. "minimum wake"). All Lagoon waters east of the Intracoastal Channel, and those to the west other than finger canals penetrating into the mainland, are limited to Slow Speed. Most of the finger canals are limited to Idle Speed (i.e. "no wake"), except for one finger canal on the west side of Robalo Drive from 18th Street to Tarpon Drive, where no entry is permitted between November 15 and March 31 of each year.

Sea Turtle Habitat Conservation Plan. In 2004, Indian River County adopted a Sea Turtle Habitat Conservation Plan (HCP). The City of Vero Beach is a participant in implementation of the HCP. Adoption of the Sea Turtle HCP has led to the development of a complete and accurate sea turtle nesting data set, increased public awareness of the issues facing sea turtle nesting, and specifically identified threats to sea turtle nesting and survival.

The City of Vero Beach initially adopted a Marine Turtle Protection Ordinance in 1993. The ordinance was comprehensively revised in 2009 based on the State model marine turtle protection ordinance.

The provisions of the Ordinance are administered through the building permitting process for new development. For existing development, the City Code Enforcement personnel with assistance from Indian River County code enforcement monitor and enforce the strict lighting requirements of the Ordinance. As part of this enforcement process, code enforcement provides educational materials to property owners and residents concerning rules governing lighting and beach use during turtle season.

Gopher Tortoise Protection. In 2007, the FFWC's Gopher Tortoise Management Plan was revised. At that time, the gopher tortoise was upgraded from a species of special concern to a threatened species. This upgraded status, along with FWC's prohibition of gopher tortoise entombment on development sites, has heightened the importance of gopher tortoise habitat within the City.

According to the FFWC's revised gopher tortoise management plan, gopher tortoises must be relocated in all cases. At this time, the City has no established policies for gopher tortoise relocation beyond those established by the FWC; however, the City does require gopher tortoise habitat to be identified during the development review and approval process and comply with the FFWC's Gopher Tortoise Management Plan. At a minimum this requires a gopher tortoise survey and plan that must be approved by FFWC to obtain development approval.

## HISTORIC RESOURCES

Thirteen sites within the City of Vero Beach are listed on the National Register of Historic Places. Five of these sites and two single family residences are listed on the Vero Beach Register of Historic Places and are protected under the City's Historic Preservation Ordinance. In 2015, the City was approved as a Certified Local Government by the U.S. Department of the Interior and Florida Department of State.

In 2012, the City designated the 8.6-acre "Old Vero Man Site" as a "Historic Site/Archaeological Zone" on the Vero Beach Register of Historic Places. The site is located on the Vero Beach

Regional Airport property adjacent to the Main Drainage Canal and right-of-way owned by Indian River Farms Water Control District (IRFWCD). Many of the artifacts and fossils found in the zone and nearby on IRFWCD property are from the Pleistocene age over 13,000 years ago. Under the leadership of the not-for-profit Old Vero Ice Age Sites Committee, scientific excavation of the site was initiated in 2013.

The Osceola Park Residential Historic District was designated on the National Register of Historic Places by the U.S. Department of the Interior in 2014. The historic neighborhood covers approximately 40 acres and contains 89 contributing buildings and 25 noncontributing buildings. The contributing buildings are not under the protection of the City's Historic Preservation Ordinance.

Figure 2 of the Map Series shows the location of the aforementioned designated historic sites, historic site/archaeological zone, and historic neighborhood district. Other sites of historic and archaeological value not shown in Figure 2 may be found in the Florida Master Site File. These sites include shipwrecks and artifacts; Indian middens; and many private buildings eligible for historic designation. The City was recently awarded a grant from the State of Florida to update its inventory of historic resources. The last such survey was conducted in 1992.

The archaeological sites in in the coastal management zone are afforded little substantive legal protection. For sites on private property, the owner is only obligated to submit for permit review if federal or state funds are used for work done to the site. Otherwise, the owner has no legal obligation to maintain the site. For sites that are on state property, Florida law requires a review before any sites are changed or moved. Shipwrecks are considered state property and would therefore be subject to the review process before any salvage, dredging or other activities occurred which would negatively impact their existing conditions.

Except for the two shipwrecks, the sites are in developed areas and have, therefore, most likely been impacted by urban development. The City has no jurisdiction over privately-owned sites or the shipwrecks in state waters. The City will continue to cooperate with private local owners and the state in efforts to preserve the integrity and historic value of the sites.

## BEACH AND DUNE SYSTEM

Vero Beach has approximately 3.9 miles of beach. The amount of usable beach area north of Riomar Point is expected to decrease as a function of the erosion rate. From Riomar Point southward, the beach is accreting and is generally stable.

Sandy dunes occur behind the beaches except for a 1.6-mile section of beach between the Village Spires Condominiums and Humiston Park. The City owns 162 feet of seawall in front of Sexton Plaza. Private seawalls are interspersed along this beach section. North and south of this area there are vegetated dunes.

### Beach and Dune Re-nourishment

Under existing programs, the City of Vero Beach re-nourishes the dunes around Conn Beach, Jaycee Beach and Humiston Park on an annual basis. The amount of sand varies at each location

each year, depending on the amount of sand lost. Between five and ten thousand yards of sand are generally required along Conn Beach each year.

The Indian River County Beach Preservation Plan prepared in 2015, provides specific recommendations for beach and dune preservation. The plan determined that the annual coast for implementation of beach management projects for the eight sectors in Indian River County would be $8.176 million per year. If no action is taken the ultimate costs to the County would be over $29 million per year (including loss of land, property, taxes, and recreational value).

The management plan for Sector 5 (area along a major portion of the barrier island), which is recognized as the most heavily "armored" section of beach in Indian River County, calls for beach re-nourishment (includes dune restoration) every four years at a annual cost of $637,100 (current dollars). The projected annual costs of no action are $11.7 million per year. [A discussion of the need for financial resources to preserve and restore beaches is discussed in the Conservation Element.]

**Impact of Coastal or Shore Protection Structures on Beach Conditions**

There have been numerous attempts to protect upland property within the City of Vero Beach as the beach erodes. These efforts have involved construction of seawalls, placement of fill material, revegetating the dunes, and placement of riprap or sandbags. These isolated efforts have not uniformly reduced or halted the erosion process. The sections of beach which continue to erode are being evaluated by the City for restoration and/or re-nourishment projects. Currently, no state- or federally-funded programs are being implemented in the City.

Indian River County constructed a Prefabricated Erosion Prevention (PEP) reef just off-shore of the commercial-tourist district on the barrier island. Beach profile surveys have shown that the shoreline has stabilized within the area of the PEP reef.

**Coastal Construction Control Line**

The state administers the Coastal Construction Control Line (CCCL) program and 30-year erosion setback through the Department of Natural Resources, Division of Beaches and Shores. FDEP regulates all development seaward of the CCCL to ensure that the proposed development has minimal impact on the beach and dune system and can survive a major storm.

As a part of the coastal construction permitting process, 30 years worth of erosion must be considered, and Florida law prohibits (with limited exceptions) construction of buildings that will be in the water in 30 years. FDEP's jurisdiction is limited to areas seaward of the CCCL. The control line for Vero Beach was set in 1979 and was reset in 1987. The new line moved landward of the old line by an average of 125 feet. In most cases it now runs through, or west of, the majority of beachfront structures.

## PUBLIC ACCESS FACILITIES TO BEACH OR SHORELINE

The resources of the coast and shoreline should be accessible to the residents of Vero Beach. Facilities such as marinas, boardwalks, boat ramps, waterside parks and fishing piers allow

residents to enjoy the advantages of coastal living. A summary of the existing facilities is provided in the following tables.

Table 5-1. Existing Marinas

| Name | Public/Private | # Slips Wet/Dry | Freshwater/Saltwater |
|---|---|---|---|
| 1. Vero Beach Municipal Marina | Public | 108/57 | Saltwater |
| 2. Vero Beach Yacht Club | Private | 24/0 | Saltwater |
| 3. Jack's Marina | Private | 25/0 | Saltwater |
| 4. Vero Marine Center | Private | 50/0 | Saltwater |
| 5. Quail Valley River Club | Private | 40/0 | Saltwater |

Source: City of Vero Beach

Table 5-2. Public Boat Ramps

| Name | # Ramp/Lanes | Freshwater/Saltwater |
|---|---|---|
| 1. Riverside Park | 1 ramp, 2 lanes | Saltwater |
| 2. Mac William Boat Basin Park | 4 ramp, 4 lanes | Saltwater |

Source: City of Vero Beach

Table 5-3. Public Boardwalks/Piers

| Name | Linear Feet | Freshwater/Saltwater |
|---|---|---|
| 1. Conn Beach – Boardwalk | 1,395' | Saltwater |
| 2. Humiston Park – Boardwalk | 437' | Saltwater |
| 3. Jaycee Park – Boardwalk | 498' | Saltwater |
| 4. Royal Palm Pointe Park – Pier | 180' | Saltwater |

Source: City of Vero Beach

Table 5-4. Existing Beach Parks

| Name | Beach Front | Area | Parking |
|---|---|---|---|
| Humiston Park | 522 lf front | 5.34 ac | 145 sp |
| Jaycee Park* | 520 lf front | 10.80 ac | 174 sp |
| Conn Beach | 1,470 lf front | 2.60 ac | 73 sp |
| South Beach Park | 830 lf front | 13.05 ac | 228 sp |

*Includes 2.16-acre Bethel Creek House
Source: City of Vero Beach

Table 5-5. Existing Walkways and ROWs

| Name | Access Width | Parking Spaces |
|---|---|---|
| Sandpiper Lane | 10' | -- |
| Jasmine Lane | 10' | -- |
| Coquina Lane | 10' | -- |
| Pirate Cove Lane | 10' | -- |
| Turtle Cove Lane | 10' | -- |
| Lady Bug Lane | 10' | -- |
| Sexton Plaza | 150' | 90 |
| Flamevine Lane | 20' | -- |
| Gayfeather Lane | 10' | -- |
| Riomar Drive | 50' | 5 |

Source: City of Vero Beach

Table 5-6. Existing River Parks

| Name | Area | Parking Spaces |
|---|---|---|
| Mac William Boat Basin Park | 8.0 ac | 49 |
| Mac William Park | 4.8 ac | 43 |
| Bob Summers Park | 9.2 ac | 12 |
| Riverside Park/Memorial Island | 75.6 ac | 482* |
| Royal Palm Pointe Park | 9.57 ac | 54 |
| Young Park | 50.0 ac | 40 |

* Excludes leasehold parking spaces for museum and theater.
Source: City of Vero Beach

Over the years, the City of Vero Beach has provided beach and river parks and neighborhood parks to accommodate permanent, seasonal, and tourist population. At this point, the City has no real need to further acquire park lands, especially due to limited capital fund resources and the cost to maintain such properties.

However, the City is considering measures through its development process to obtain public benefits, such as public access to waterways or public view sheds to waterways. Such public benefits could be obtained through granting of development bonuses to developers in return for providing a public benefit. A full discussion of this approach is provided in the Land Use Element.

## NATURAL DISASTER PLANNING

### Local Mitigation Strategies

According to state law, local governments are required to prepare Local Mitigation Strategies (LMS) to identify actions that permanently reduce or eliminate the long term risk to people and property from the different types of hazards faced by Florida residents. As such, the City of Vero

Beach is also a part of and subject to, the Indian River County LMS, which was first established in 1998 and last amended in June, 2015.

The LMS comprises Indian River County, the City of Vero Beach, the City of Fellsmere, the Town of Indian River Shores, the Town of Orchid, and the City of Sebastian. The purpose of the Indian River County LMS is to develop a unified approach among County and municipal governments for dealing with identified hazards and hazard management problems in the Indian River County area. This strategy serves to direct the County and municipal governments in their ongoing efforts to reduce their vulnerabilities to impacts produced by both the natural, technological, and societal hazards to which southeast Florida is exposed. The strategy also helps establish funding priorities for currently proposed mitigation projects and for such disaster assistance funds as may be made available for disaster mitigation activities.

One of the most important elements of the LMS is that identified mitigation practices are to be instituted prior to the disaster occurring. Mitigation practices can be applied to strengthen homes so that people and their belongings are better protected from hurricanes, tropical storms, and inland floods. Pre-disaster mitigation planning can be used to identify and protect at-risk critical facilities, such as hospitals and fire stations, so they can remain operational or reopen more quickly after a hazard event.

Mitigation planning allows communities to consider the vulnerability of land that is currently undeveloped but which may be developed in the future, as well as the risk to people and property on currently developed land. The consideration of the potential for damage to properties in vulnerable areas and the implementation of actions to reduce the impact can go a long way towards eliminating the disruption a disaster can create in the community.

In following the recommendations of the LMS, the City of Vero Beach has undertaken numerous capital projects to retrofit critical city facilities. The City has installed shutters on city hall, at the police, airport terminal, public works buildings, and the transmission & distribution facilities. It has also constructed new hardened operations facilities at the airport and at the water and sewer building. The City administers an ongoing (twice-a-year) stormwater inspection and maintenance program for drainage ditches, catch basins, and culverts in the City's stormwater system. The Public Works Department removes all excess debris as needed after major storm events. The City is also actively upgrading stormwater outfalls that are susceptible to storm surge events by installing backflow prevention devices to reduce the impact of storm surge flooding in low-lying areas.

The City is active in upgrading staff skills, affording staff the opportunity to attend technical conferences and workshops, including a conference that focused on effective disaster recovery techniques. County building officials, who also serve the City, attend State-mandated continuing education programs annually. In terms of public information, each year the City prepares and distributes a brochure entitled "*Flood Protection Information for the Community*" to property owners and residents.

The City should continue to enforce provisions of the Comprehensive Plan and the LMS related to hazard mitigation.

## Coastal High Hazard Area

The Florida Legislature has revised the definition of Coastal High Hazard Area (CHHA). Prior to the new legislation, the CHHA encompassed all the evacuation areas for a Category I hurricane. In the case of the City of Vero Beach, this area included the entire barrier island.

The CHHA is now defined as the area below the storm surge line of a Category 1 hurricane as established. The CHHA is depicted in Figure 8 of the Map Series. Except for roads and drainage facilities, no major public infrastructure is located within the CHHA. However, the Bethel Creek House (2.16 acres) is located within the CHHA.

Section 163.3177(6)(a)10.a, F.S., requires that local government limit public expenditures that subsidize development in the CHHA.

With the revision to the definition of CHHA, existing Objectives 4 through 6 and supporting policies need to be revised to reflect the changes in the state statutes. One new policy needed is to require that the CHAA boundary, as defined by state statutes, be depicted in Figure 9 of the Map Series, be incorporated by reference as a part of the Future Land Use Map.

## Flood Protection

National Flood Insurance Program (NFIP). The U.S. Congress established the NFIP with the passage of the National Flood Insurance Act of 1968. The NFIP is a Federal program enabling property owners in participating communities to purchase insurance as a protection against flood losses in exchange for State and community floodplain management regulations that reduce future flood damages. Participation in the NFIP is based on an agreement between communities and the Federal government. If a community adopts and enforces a floodplain management ordinance to reduce future flood risk to new construction in floodplains, the Federal government will make flood insurance available within the community as a financial protection against flood losses. This insurance is designed to provide an insurance alternative to disaster assistance to reduce the escalating costs of repairing damage caused by floods to buildings and their contents. The City of Vero Beach is a participant in the NFIP.

Community Rating System (CRS). The NFIP's CRS was implemented in 1990 as a program for recognizing and encouraging community floodplain management activities that exceed the minimum NFIP standards. The City participates in the NFIP's CRS program, and has a CRS rating of 7. This rating enables Vero Beach property owners to receive a 15% reduction in their NFIP rates. In addition, the City is eligible to seek FEMA funds to be used to remedy flooding problems and will continue to participate in activities to comply with NFIP requirements.

Flood Protection Ordinance. In conformance with the requirements of the National Flood Insurance Program, the City has adopted and enforced regulations governing development in special flood hazard zones through Chapter 73 of its Land Development Regulations (LDRs). The City's LDRs include floodplain provisions and regulations related to buildings and structures, subdivisions, subdivision plats, site improvements, and utilities.

Special flood hazard zones are depicted on Figure 6 of the Map Series. These special flood hazard zones are based on the December 4, 2012, Flood Insurance Rate Maps.

The floodplain regulations include requirements for all development wholly within or partially within any flood hazard area to safeguard the public health, safety, and general welfare and to minimize public and private losses due to flooding through regulation of development in flood hazard areas. The article is intended to be administered and enforced in conjunction with the Florida Building Code. Where cited, ASCE 24 refers to the edition of the standard that is referenced in the Florida Building Code.

With sea level rise (see Sea Level Rise section), flood experts are recommending that coastal communities raise the minimum floor level of habitable structures at one to two feet (called "Freeboard") over the minimum base flood elevation. Currently the City of Vero Beach requires 18 inches of freeboard in "VE, but no freeboard requirement in all other special flood hazard zones, except for certain nonresidential buildings as required under ASCE 24. Each foot of freeboard (up to a maximum of three feet) lowers flood insurance rates. The City should consider including a policy to consider amending the floodplain regulations to require "freeboard" for all special hazard districts. [As of January 1, 2018, the new 2017 Florida Building Code requires plus one foot freeboard for residences.]

**Florida Building Code**

Through an intergovernmental agreement with Indian River County, the County Building Division issues building permits for development within the city limits. Development with the City of Vero Beach must be built to withstand wind loads of 150 mph for Risk Category 1 buildings; 160 mph for Risk Category 2 buildings (residential); and 170 mph for Risk Category 3 and 4 buildings. These risk categories are delineated in ASCE 7 and are the same as the risk categories in ASCE 24.

**Comprehensive Emergency Management Plan**

In accordance with Chapter 252, F.S., Indian River County has adopted a Comprehensive Emergency Management Plan (CEMP). The Indian River County CEMP replaced the Peacetime Emergency Plan (PEP), the Florida Nuclear Civil Protection Plan, and the Disaster Event Recovery Plan. The CEMP outlines the responsibilities of various county departments, municipalities and volunteers through an Emergency Support Function approach. As participants in the preparation, updating, and implementation of the Indian River County CEMP, the City of Vero Beach Council and the governing bodies of the other municipalities have officially adopted the Indian River County CEMP.

The City of Vero Beach adopted its city-specific Comprehensive Emergency Management Plan in 2006. The City Plan is divided into the following three parts: Part 1 – Emergency Operations Plan; and Part 2 – Disaster Recovery Plan; and Part III – Debris Management Plan. The objectives of the city Comprehensive Emergency Management Plan is to:

- Set forth procedures to manage and coordinate emergency operations in the City of Vero Beach;

- Efficiently coordinate resources within the City of Vero Beach;

- Request and allocate resources from outside the City of Vero Beach in a proper and timely manner;

- Coordinate mutual aid for the City through Indian River County in a manner to minimize delays and endure proper procedures are followed; and

- Ensure response operations are conducted in the manner consistent with the National Incident Management System (NIMS).

The Disaster Recovery Plan is intended to be a guide for the City of Vero Beach government and departments for pre-disaster, post-disaster short- and long-term recovery efforts. The Debris Management Plan, which was updated in 2008, identifies actions required to plan for and respond to a natural or man-made debris generating event.

The specific recommended actions in the Comprehensive Emergency Management Plan, particularly the Disaster Recovery Plan, need to be reviewed from time to time to determine what actions are needed to be accomplished.

**Hurricane Damage and Evacuation**

Hurricanes. Hurricanes are tropical cyclones with winds that exceed 74 mph and which blow counter-clockwise about their centers in the Northern Hemisphere. They are essentially heat pumping mechanisms that transfer the sun's heat energy from the tropical to the temperate and polar regions. This helps to maintain the global heat budget and sustain life. Hurricanes are formed from thunderstorms that form over tropical oceans with surface temperatures warmer than 81°F (26.5°C).

Advisories and hurricane watches and warnings will frequently refer to the category of a storm. Hurricanes are classified using the Saffir-Simpson scale as follow with Category 3 through 5 hurricanes being considered as "severe hurricanes:"

- Category 1 – Winds 74 to 95 mph;
- Category 2 – Winds 96 to 110 mph;
- Category 3 – Winds 111 to 129 mph;
- Category 4 – Winds 130 to 156 mph; and
- Category 5 – Winds 157 mph or higher.

As documented in the Indian River County CEMP, the annual probability of a Category 1 to 3 hurricane event is 16%. The annual probability of a Category 4 to 5 hurricane is 2%.

Hurricane damage results from high winds and storm surge. A storm surge is a wave that has outrun its generating source and become a long period swell. Such a surge of high water topped by waves driven by hurricane force winds can be devastating to coastal regions.

Generally it is the wind that produces most of the property damage associated with hurricanes, while the greatest threat to life is from flooding and storm surge. Although hurricane winds can exert tremendous pressure against a structure, a large percentage of hurricane damage is caused not from the wind itself, but from flying debris. Tree limbs, signs and sign posts, roof tiles, metal siding, and other loose objects can become airborne missiles that penetrate the outer shells of buildings, destroying their structural integrity and allowing hurricane winds to act against interior walls not designed to withstand such forces. Once a structure's integrity is breached, the driving rains associated with hurricanes can enter the structure and completely destroy its contents.

Risk. As a coastal community the City of Vero Beach is highly vulnerable to hurricanes. The barrier island is obviously highly vulnerable to both wind and storm surge damage from hurricanes, except a portion of the barrier island along Highway AIA is less vulnerable to storm surge and flooding due to elevation. Residential areas fronting on the Indian River Lagoon are also highly vulnerable to flooding associated with hurricane winds and storm surge.

Evacuation. Prior to or during hurricanes, the Governor of the State of Florida has the authority declare an area as an emergency disaster site and therefore, issue order for residents of that region to evacuate. If a disaster threatens prior to the Governor's decision to issue an Executive Order or Proclamation of a State of Emergency, the Indian River County Emergency Management Director may (subject to Board of County Commissioner's approval) activate the Comprehensive Emergency Management Plan; this may be followed by a declaration of a local State of Emergency as outlined in County Ordinance 91-18. In this situation, the Department of Emergency Services will coordinate any emergency response actions that may be necessary for the immediate protection of life and property. The Director of Emergency Management manages the evacuation by opening shelters, notifying appropriate agencies, and coordinating with local, state, and federal government agencies.

Shelters. Three types of shelters are identified in the Indian River County CEMP. Primary shelters consist mainly of school facilities, while secondary shelters generally consist of privately-owned buildings, such as churches, fraternal organizations and businesses. Special needs facilities provide for citizens in need of medical or other assistance. One shelter is designated as pet-friendly. None of the shelters are located within a storm surge zone and none of the shelters is rated to provide protection from a Category 5 hurricane.

Hurricane Evacuation Clearance Times. In the 2010 Statewide Regional Evacuation Study (SRES) for the Treasure Coast Region prepared by the Treasure Coast Regional Planning Council and the State Emergency Response Team calculated estimated clearance times for various base and operational scenarios. The base scenario that is followed in the Indian River County CEMP indicates in-county clearance times for each of the five categories of hurricanes.

The definition of an "in-county clearance time" in the SRES is the time required from the point an evacuation order is given until the last evacuee can either leave the evacuation zone or arrive at safe shelter within the county –excluding those evacuees leaving the county on their own. The evacuation areas within the City of Vero Beach are generally all areas of the city east of the Florida East Coast railway, which were identified in the Indian River County 2030 Comprehensive Plan as lying within the "Hurricane Vulnerability Zone."

The estimated 2010 clearance times for Indian River County range from 12.5 hours for Category 1 hurricane to 27 hours for a Category 5 hurricane. The clearance time for a Category 3 hurricane is estimated at 13 hours. In the 2010 SRES, the estimated 2015 clearance time for a Category 3 hurricane increased to 15 hours.

Existing Objective 6 of the Comprehensive Plan establishes hurricane evacuation times for the CHHA of seven hours or less for a Category 1 or above storm (see discussion in next section) and for the entire City a maximum of 12 hours for a Category 3 or above storm. The definition of "evacuation time" is not defined.

The staff recommends that Objective 6 be revised to establish an "in-county" clearance time to be consistent with the Indian River County CEMP. Based on the City's evacuation zones and the SRES estimates, the clearance time level of service should be 14 or 15 hours for a Category 3 storm. A policy or policies should be included for the City to continue to work with the Treasure Coast Regional Planning Council and other local governments in evaluating recent evacuation results from hurricane Matthew and updating hurricane evacuation plans.

Hurricane Evacuation-CHHA. Section 163.3178 (8) F.S., requires that to be compliance with state coastal high-hazard provisions, any proposed comprehensive plan amendment in a CHHA must meet one of the following three provisions:

1. The adopted level of service for out-of-county hurricane evacuation is maintained for a Category 5 storm event; or

2. A 12-hour evacuation is maintained for a category 5 storm event and shelter space to reasonably accommodate residents of development contemplated by the proposed comprehensive plan amendment is available; or

3. Appropriate mitigation as prescribed in Section 163.3178(8)3., F.S. is provided to satisfy provisions of 1 or 2 above.

For local governments, such as the City of Vero Beach, that have not established a for out-of-county hurricane evacuation by July 1, 2008, the level of service shall be not greater than 16 hours for a category 5 storm event. Under the base scenario, the 2010 SRES estimated out-of-county clearance times of 28 hours in 2010 and 41 hours in 2015.

As Indian River County and the City of Vero are unlikely to ever meet this rigid standard, the potential for any proposed comprehensive plan amendment for any land within the CHHA to be approved for increased development is highly doubtful. Most of the CHHA is either designated Conservation or Environmentally Sensitive on the Future Land Use Map and public infrastructure and development in this area are constrained by existing policies of the Comprehensive Plan. Therefore, in the staff's opinion this restriction is not a concern.

These revisions to the CHHA should be incorporated in the update to the Comprehensive Plan.

## INFRASTRUCTURE

As the entire City of Vero Beach and areas outside the City served by City water and sewer service are within the designated coastal zone, all city-owned infrastructure is located within the coastal zone. The following is a brief description of major infrastructure in the coastal zone:[3]

- *Potable Water*: The City's two water treatment plants are located at the Vero Beach Regional Airport out the Hurricane Vulnerability Zone. Treated water is distributed throughout the city limits and to portions of the Town of Indian River Shores and unincorporated Indian River County including South Beach on the barrier island.

- *Sanitary Sewer*: The City's wastewater treatment plant is located along the Indian River Lagoon. The facility is located in a special flood hazard zone. Several improvements to protect it from flooding and storm surges have been made using walls and flood gates. Treated wastewater is transmitted to a deep well injection facility at the airport or to the City's reuse system. The wastewater system has a similar service area as the City's water system. The reuse system serves limited areas of the City and the Town of Indian River Shores. As estimated 1,500 private septic systems exist of which 2/3rds are on the barrier island.

- *Stormwater Management*: The City's stormwater system is located throughout the city limits. Significant improvements are proposed for the system to remove nutrients and other pollutants from entering the Indian River Lagoon and handling stormwater run-off.

- *Road Network:* Two bridges connect the barrier island to the mainland. Critical designated hurricane routes are shown in Figure 3-3. Further improvements to the four-laning of SR 60 west of I-95 to the Florida Turnpike and beyond will help maintain or improve evacuation time.

- *Non-Water Dependent Community Facilities*: City-owned community facilities are located through the city. Several of the facilities are at risk for flooding or storm surge from a Category 3 storm event including Bethel Creek House and River House. The Bethel House is located within the CHHA. Inland facilities in City parks located on the barrier island and along the Indian River Lagoon are also at similar risk from Category 3 event.

## SEA LEVEL RISE

Global warming has raised global sea level about eight inches since 1880, and the rate of increase is accelerating. Warming oceans and melting ice sheets and glaciers are increasing the probability of damaging floods from storm surges.

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[3] A full description of potable water, sanitary sewer, and stormwater management facilities and the specific policies and programs related to these utilities is presented in the Infrastructure Element. The road network is discussed more fully in the Transportation Element.

In a recent report prepared by the Sea Level Rise Work Group for the Southeast Florida Regional Climate Change Compact, it is projected that sea level rise is projected to be 6 to 10 inches by 2030 and 14 to 26 inches by 2060 above 1992 mean sea level.[4] In 2015, the National Aeronautics and Space Administration Jet Propulsion Laboratory report that the average global sea level has risen almost 3 inches between 1992 and 2015.

With sea level rise, the City of Vero Beach and other coastal Florida communities are more vulnerable to the following impacts:

- Increased flooding and drainage problems;
- Higher storm surges expanding evacuation areas and evacuation time;
- Increased shoreline erosion;
- Destruction of natural resource habitats, particularly estuarine wetlands;
- Saltwater intrusion into freshwater aquifers; and
- Damage or loss of infrastructure and existing development.

**State Requirements**

In responding to the evidence of sea level rise, the Florida Legislature passed legislation in 2015 that amended Section 163.3178(2)(f), F.S., to require local governments when drafting their comprehensive coastal management plans to:

- Include development and redevelopment principles, strategies, and engineering solutions that reduce the flood risk in the coastal zone which results from high-tide events, storm surge, flash floods, stormwater runoff, and the related impacts of sea-level rise.
- Encourage the use of best-practices development and redevelopment principles, strategies, and engineering solutions that will result in the removal of coastal real property from flood zone designations established by the Federal Emergency Management Agency.
- Identify site development techniques and best practices that may reduce losses due to flooding and claims made under flood insurance policies issued in this state.

**Projected Sea Level Rise in Vero Beach**

The Climate Change non-profit organization has prepared an application on the internet that allows users to examine various sea level rise scenarios impacts on specific geographic areas. The user is able to see in map form the changes in the rise of sea level over the local high tide line.

The staff applied the maximum projections of sea level rise for 2030 and 2060 prepared by the Sea Level Rise Work Group to Vero Beach rounding up the projections for 2030 to 1 foot and 2060 to 2 feet. A review of the maps for the two scenarios shows no significant existing areas of the City in danger of being under water based on the base case scenario.

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[4] *Unified Sea Level Rise Projection, Southeast Florida,* prepared by the Sea Level Rise Work Group for the Southeast Regional Compact Climate Change, October 2015.

## Local Approaches to Sea Level Rise

Unlike areas such as Miami Beach, which are already responding to the impacts of sea level rise, sea level rise is a difficult issue to address as its potential impacts on the city are most likely decades away. Therefore, it is hard for a local governing body to make decisions that may affect public investment in infrastructure or impact property rights in the immediate future based on projected impacts decades in the future.

The likelihood is that no significant portions of the City of Vero Beach will be underwater in the next 30 to 60 years based on the data cited above. However, any increase in sea level will impact flood and storm surge levels and the frequency of these events. Areas subject to 100-year flood event will expand and required base flood elevations to be adjusted.

Recognizing this fact, the staff recommends the consideration and evaluation of appropriate of actions under the following three main strategies to adapt to projected sea level rise:

1. Protection Strategies
   - Maintenance of existing seawalls and bulkheads
   - Re-nourishment of beaches
   - Protection of vegetated shorelines along the Indian River Lagoon and connecting waters, except where hardening is the most viable alternative.
   - Installation of back-flow preventers to the City's stormwater system

2. Accommodation Strategies
   - Floodproofing of new or existing buildings
   - Use of fill to raise elevation of new or existing buildings
   - Requirement of additional freeboard for new development
   - Limitation on the up-zoning (density and intensity) of property
   - Application of landscape buffers along the Indian River Lagoon and connecting waterways pursuant to Policy 4.9 of the Conservation Element
   - Increase in building setbacks from the Indian River Lagoon and connecting waterways.

3. Relocation and Avoidance Strategies
   - Use of transfer of development rights to limit or reduce development
   - Acquisition of development rights either fee simple or partial by the Indian River Land Trust or the City subject to available funding
   - Relocation of vulnerable utilities and public facilities
   - Prohibition on the locating of sensitive land uses such as congregate living facilities, nursing homes, elderly housing, education facilities, and hospitals

Restrictions on new public infrastructure and public investment The areas of the city subject to a storm surge from a Category 1 and 2 hurricane are to be considered Adaptation Action Areas. The set of maps in the Storm Tide Atlas, as may be amended from time to time, prepared by the Treasure Coast Regional Planning Council is the reference used to identify storm surge zones for this policy.

Based on current projections of sea level rise over the next 45 years, the sea level rise threat to the City of Vero Beach is low. At this time, it would be difficult to justify to the electorate decisions that involve major public expenditure decisions or impose restrictions on private property rights within the Adaptation Action Areas should be carefully evaluated and the more aggressive and pro-active strategies held in abeyance contingent upon the monitoring of sea level rise.

# CHAPTER 6
# INFRASTRUCTURE ELEMENT

## INTRODUCTION

This chapter presents data and analysis on the key infrastructure components that serve existing and future anticipated development while protecting the fragile natural surface water and groundwater resources of the region. These components or sub-elements of the Infrastructure Element include: (1) stormwater management; (2) solid waste; (3) sanitary sewer; (4) potable water; and (5) natural groundwater/aquifer recharge. These data and analysis provide the foundation and framework for the updating and revision of specific goals, objectives, and policies for each of these sub-elements of the Comprehensive Plan.

## STORMWATER MANAGEMENT SUB-ELEMENT

The purpose of the Stormwater Management Sub-element is to summarize the natural conditions that affect the quantity and quality of stormwater runoff, inventory and analyze existing stormwater management facilities to identify needed stormwater policy and implementation strategies, including needed improvements to stormwater management facilities over the next 10 or more years. The end result of this effort is to provide the framework for the consideration of specific amendments to the existing set of goals, objectives, and policies (GOPs) for stormwater management in the Comprehensive Plan update.

### Historical Background

In the early part of the last century, the Indian River Farms Water Control District was created by the Florida Legislature. The purpose of this special district was for the construction of drainage projects so that land could be used for the citrus and other crops. Using its taxing authority the Indian River Farms Water Control District constructed a network of drainage canals that altered the natural drainage patterns of the County. Basically, the strategy of "ditch it and drain it" was designed to protect development from flooding by modifying natural systems to convey stormwater runoff away from developed sites more rapidly.

This alternation of natural drainage patterns was not a major problem until significant growth occurred in Indian River County, including the City of Vero Beach. Development has further altered natural drainage patterns and with the amount of impervious surfaces, such as streets, parking lots, and buildings, has increased discharge rates.

Over the last several decades, increased growth has been met with more stringent and comprehensive federal, state, and local stormwater management regulations. These regulations have helped maintain the capacity of the County's and City's stormwater system capacity, other than periodic isolated local flooding in low lying areas and areas that drain poorly.

The past strategy of "ditch it and drain it" produced adverse impacts on water quality. Increased velocity and discharge of stormwater runoff disrupted natural drainage patterns and contributed

to sediment loading changes to the land surface resulting from urban development's increased pollutant loadings to the main receiving body, the Indian River Lagoon.

Through the City's development approval process, projects are required to control the quantity and quality of stormwater runoff. To be effective stormwater management requires the use of structural and non-structural facilities to ensure that the volume, rate, timing and pollutant loading of post-development stormwater runoff is similar to that which occurred prior to development.

Overall the objective is to utilize a combination of both techniques to provide adequate pollution removal and flood protection in the most cost-efficient manner. Although such techniques may be economically applied in most cases to development of vacant lands; their application is more difficult and costly in retrofitting existing lands that were developed prior to more stringent stormwater regulations. As most development in the City involves infill or redevelopment of properties, the application of the proper mix of management techniques in an economical and effective manner is a critical consideration in the development process.

## Regulatory Framework

A number of governmental agencies at all levels of government are involved in stormwater management in the City of Vero Beach. The following is a brief description of some of the roles of participating agencies.

### Federal Agencies.

*Federal Emergency Management Agency (FEMA)*: FEMA indirectly regulates stormwater management and flood protection through the National Flood Insurance Program. The flood insurance rate study prepared in 1988 by that agency based on stormwater computer models established the limits of coastal flood zones, and the 100-year flood and 500-year flood plain. This information along with aerial radar imaging resulted in an updating of Flood Insurance Rate Maps (FIRM) with an effective date of December 4, 2012. These maps are used in conjunction with the City's floodplain regulations to regulate any development within special flood hazard areas.

*Natural Resources Conservation Service (NRCS)*: As one of its principal responsibilities, this agency surveys and prepares detailed soil surveys for all counties throughout the nation. The latest survey for Indian River County was prepared in 1987. The soil survey for that portion of that portion of the County occupied by the City of Vero Beach is depicted in Figure 3. The drainage characteristics of various soils are an important consideration for stormwater management.

*Environmental Protection Agency (EPA)*: The EPA has a regulatory role through the review of dredge and fill permit applications under the U.S. Army Corps of Engineers (ACOE) permitting authority. Both agencies monitor and permit fill activity in wetlands along the Indian River Lagoon. Under the Clean Water Act (CWA) of 1987, the EPA is responsible for issuing National Pollutant Discharge Elimination System (NPDES) permits for point and non-point

sources discharges. The City has a NPDES permit required under the Clean Water Act for its municipal separate storm sewer system (MS4).

As part of the CWA of 1987, the National Estuary Program (NEP) was established. Under this program, the Indian River Lagoon was identified as being an estuary of national significance threatened by pollution, overuse, and development. The Indian River Lagoon National Estuary Program (IRLNEP) was established by EPA in 1991 and charged with developing a Comprehensive Conservation and Management Plan to ensure preservation of the IRL's ecosystem through consensus-driven decision making and problem solving.

In 2015, a regional council of local government and state representatives was established to sponsor and carryout the goals of the IRLNEP. The IRLNEP was established in that year as a special district of Florida. A staff was hired to support the council. A major responsibility of the regional council will be in the administration of state and federal grant funds to be available for eligible projects.

Subsequently to the establishment of the regional council, Indian River County opted out of membership. In response to ensure local participation in this multi-jurisdictional effort, the governing bodies of Vero Beach, Sebastian, and Fellsmere voted to join the regional council and were accepted by the regional council as a voting member. The Indian River County has since reconsidered it decision and has voted to join the regional council. While the City of Vero Beach will no longer be a voting member, the City will continue to participate in this multi-jurisdictional effort.

State Agencies.

*Florida Department of Environmental Protection (FDEP)*: Under the Florida Administrative Code, the FDEP review and permits stormwater discharge into State waters to ensure state water quality standards are not exceeded. In 1986, permit authority was delegated to the St. Johns River Water Management District. FDEP continues to administer the permitting of docks in waters of the state and establishes specific requirements to protect water quality and the water ecosystem.

FDEP administers the Total Maximum Daily Load (TMDL) program, which is a statewide watershed-based management approach to restore and protect water quality in Florida. As part of this program Basin Management Action Plans (BMAPs) have been or are being prepared throughout the state to address key elements required by the Florida Watershed Restoration Act. The Indian River Lagoon is covered by four BMAPs.[1]

The adopted BMAP (2013) for the Central Indian River Lagoon, which includes the City of Vero Beach, establishes specific reductions in the yearly discharge of nitrogen and phosphorus into the Indian River Lagoon.[2] Specific target reductions for individual jurisdictions have yet to

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[1] BMAPs must be adopted by Secretarial Order to be enforceable.

[2] *Basin Management Action Plan for the Indian River Lagoon Basin Central Indian River Lagoon,* developed by Central Indian River Lagoon stakeholders in cooperation with the FDEP, 2013.

be established; however, the City of Vero Beach has been actively addressing this reduction, which is discussed in the Analysis section.

*St. Johns Water Management District (SJRWMD)*: Under the provisions of the Florida Administrative Code, the SJRWMD regulates the management and storage of ground and surface waters within the St. Johns River Basin. The majority of the Indian River Lagoon is included within the SJRWMD jurisdiction.

*Florida Department of Transportation (FDOT)*: The FDOT owns and maintains numerous facilities which provide drainage for major roadways within the City of Vero Beach. Stormwater runoff from many of the older roadways, such as US 1, is conveyed through outfall ditches and canals. FDOT permits connections to stormwater management facilities within FDOT rights-of-way.

Local Agencies.

*City of Vero Beach:* The City has the authority to construct and maintain stormwater management facilities in City-owned easements, rights-of-way, and property. The City has enacted in Land Development Regulations specific authority for regulating stormwater management practices and stormwater standards, including erosion and sediment control and discharges to the City's municipal separate stormwater sewer system (MS4). The City Public Works Department is responsible for administering the stormwater management regulations.

As required under the National Pollutant Discharge Elimination System (NPDES), the City of Vero Beach, as an owner of a Municipal Separate Storm Sewer System (MS4), is responsible for the quality of stormwater discharge to receiving waters. Pursuant to its NPDES permit, the City of Vero has been working to maintain and retrofit its stormwater drainage system (MS4) to improve the quality of runoff discharges to receiving waters.

As a participant in the National Flood Insurance Program, the City has enacted floodplain regulations that place certain restrictions on development in special flood hazard zones. The Planning and Development Department is responsible for administering the floodplain regulations. A discussion of the City's floodplain regulations and specific issues that need to be addressed to further protect property during storm events and sea level rise are presented in the Coastal Management Element.

*Indian River County:* Within the City of Vero Beach, Indian River County has the primary jurisdiction over specific outfalls and stormwater facilities within county road rights-of-way.

*Indian Farms Water Control District (IFWCD)*: The IFWCD has the authority to construct and maintain primary drainage facilities within its special district boundaries.

*Private Systems*: Private developments within the City of Vero Beach, such as gated communities, own and maintain private stormwater management facilities.

**Existing Drainage System**

This section describes the existing drainage system and stormwater management system in the City of Vero Beach. Figure 7 of the Map Series depicts the three basins related to major drainage and outfalls. A description of the typography, soils, geology, and flood prone areas that affect the type and scope of flood protection measures and stormwater management facilities is presented in Chapter 2, Land Use Element. Wetlands, natural and conservation lands within these basins are not served by stormwater facilities and are not considered within the urban watershed served by the City municipal separate stormwater sewer system (MS4).

M-Series Drainage Basin. The M-Series Basin is contained within the IRFWCD jurisdiction. The district covers 49,915 acres with 320 miles of drainage canals, that provide primary drainage for over two-thirds of urbanized Indian River County. The primary drainage area of this basin is land west of the Atlantic Coastal Ridge that is overlain by the Florida East Coast Railroad and U.S. 1.

The sub-laterals and lateral drainage canals are shielded from outside inflow by a system of levees. Within the City of Vero Beach, the IRFWCD's system of sub-laterals and laterals are linked to the Main Relief Canal that empties to the Indian River Lagoon. Within the M-Series Basin, the City has responsibility for the maintenance and provision of secondary drainage swales, ditches and culverts that eventually led to IRFWCD laterals and drainage canals. The County has such responsibilities for County right-of-way and County-owned lands.

To prevent saltwater intrusion and control water levels, water control structures are located on the relief canal system. Recent modifications to the water control structures were made to reduce sediment passing through the structures. Overall, the District's approach has been to maintain discharge on a status quo basis.

The capacity of the IRCFWD Main Relief Canal is to handle a peak discharge capacity for a ten year/24 hour event (3.3 inches) is 2595 cubic feet per second (CFS). The IRCFWD standard for discharge to its drainage system is 2 inches for a 24 hour, 25-year storm event. Therefore, any new connections to the IRCFWD system must meet this standard.

In coordination with the IRCFWD, Indian River County constructed PC Main in 2008 in the Main Relief Canal. This facility removes floating and suspended material from the Main Relief Canal preventing these materials to enter the Indian River Lagoon. The materials removed include aquatic plants that if they reach the Lagoon, the plants will die and create muck deposits on the Lagoon's bottom and release unwanted nitrogen and phosphorous assimilated in their tissue.

R-Series Drainage Basin. This basin is located entirely within the City of Vero Beach east, north, and south of the IRFWCD (M-Series Basin) and west of the Indian River Lagoon. Except for the portion of the basin located north of the Main Relief Canal, which consists mainly of marsh and wetlands, this drainage basin is highly urbanized.

Stormwater management jurisdiction and operational responsibility lies with the City of Vero Beach for drainage facilities within the basin. Drainage flows through a system of ditches and pipes into the Indian River Lagoon. Indian River County has stormwater jurisdiction and responsibility for County right-of-way and on County-owned lands.

Beach Series Drainage Basin. The beach series basin is located entirely within incorporated area of the City of Vero Beach along the barrier island between the Indian River Lagoon and Atlantic Ocean. The barrier island is dominated by an old sand dune located approximately 300 from the Atlantic Ocean. The sand ridge soil types are excessively drained with high percolation rates that affect the amount of storm runoff that may drain directly into the Indian River Lagoon on the west.

**Analysis**

Over the years flood control became a high priority to protect development from flooding by modifications to the natural systems to convey stormwater runoff away from urbanized areas. Except for isolated cases, the existing network of drainage systems has provided this protection, but at the cost of increased adverse impacts to the water quality of the Indian River Lagoon.

Over the last 20 years, the primary emphasis of the City of Vero Beach has been to reduce pollutant loading from its stormwater system and the amount of stormwater discharging to the Indian River Lagoon. Almost all new development since the 1980's has been required to include on-site stormwater treatment facilities. Typically these stormwater treatment facilities are designed to limit both the volume and rates of stormwater discharge to receiving waters, as well as, very importantly, reducing the amount of pollutants in the discharge.

While the conveyance of stormwater is important in protection of development and public infrastructure, the most pressing issue for stormwater facing the City of Vero Beach, Indian River County, and other jurisdictions within the Indian River Lagoon basin is the quality of stormwater entering the Indian River Lagoon. The Indian River Lagoon is impaired for the nutrients total nitrogen (TN) and total phosphorous (TP) due primarily to these pollutants entering the lagoon through stormwater discharges from urban and agricultural sources; however, another significant source for nitrogen pollutants is from groundwater conveying these nutrients from septic systems.

The Indian River Lagoon is a valuable ecological and economic asset for the State of Florida and the numerous communities bordering the water body and its tributaries. The need to protect and enhance this valuable resource has become a major focus of the City of Vero Beach and other jurisdictions within the Lagoon's watershed. Therefore, this analysis focuses primarily on the topics and issues related to protecting and enhancing this significant resource through specific stormwater management strategies and capital improvements proposed by the Public Works Department over the next 10 years.

Basin Management Action Plan. Section 403.067(1), Florida Statutes, requires the development of a total maximum daily load (TMDL) program for state waters pursuant to Section 303(d) of the Clean Water Act, Pub. L. No. 92-500, 33 U.S.C. ss. 1251 et seq. The

TMDL program is a statewide management approach to restore and protect water quality in Florida. TMDLs are water quality targets, based on state water quality standards, for specific pollutants including nutrients such as nitrogen and phosphorous.

Development, allocation, and implementation of the TMDL is through a phased approach that includes the development of a Best Management Action Plan (BMAP) for each basin. Each BMAP contains a comprehensive set of strategies for restoring impaired waters by reducing pollutant loadings from point and non-point sources to meet the numerical standards established for specific pollutants.

BMAPs are broad-based plans developed in coordination with local stakeholders that rely on both local input and commitment for implementation. Each BMAP must address key elements required by the Florida Watershed Restoration Act. Across the State of Florida, 20 BMAPs have been adopted. Portions of the Indian River Lagoon are addressed in four adopted BMAPs including the BMAP for the Central Indian River Lagoon.

The implementation of each BMAP is through the application of appropriate Best Management Practices (BMPs) used to achieve satisfactory water quality at a minimum cost. Structural BMPs emphasize preservation and/or simulation of natural drainage features to promote infiltration, filtration, and reduced peak discharges. Examples include: retention/detention ponds, infiltration trenches/basins and grassed swales. Nonstructural BMPs include watershed management, facilities, maintenance, land use planning and public education.

The TMDLs enacted in each BMAP will go through three five-year iterations. If reductions are required from stakeholders, these reductions for point sources, both wastewater treatment facilities (WWTF) and municipal separate storm sewer systems (MS4s) will be enforced by the Florida Department of Environmental Protection (FDEP) through the National Pollutant Discharge Elimination System (NPDES) permits.

As recognized in the 2015 document, *Impediments of Implementation of the Indian River Lagoon Basin Management Action Plans,* water quality degradation is the single "most important issue impacting the lagoon."[3] This decline in water quality is "attributed to an increase in nutrient input, sedimentation, turbidity, atmospheric deposition, nutrient releases from legacy muck deposits, and changes in salinity due to freshwater discharges." This decline in water quality is visibly characterized by loss of seagrass coverage and depth, algal blooms, and decrease in the amount and diversity of wildlife.

The watershed of the Indian River Lagoon within the city limits of Vero Beach is contained in the Central Indian River Lagoon BMAP. The goal of the Central Indian River Lagoon is to both meet implementation schedule for load reductions in total nitrogen (TN) and total phosphorous (TP) and to recover deeper seagrass habitats.

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[3] *Impediments to Implementation of the Indian River Lagoon Basin Management Action Plans,* prepared by the East Central Florida Regional Planning Council and the Treasure Coast Regional Planning Council for the Florida Department of Economic Opportunity, May 27, 2015.

In the first five-year reiteration of the Central Indian River Lagoon BMAP (2013) it was determined based on FDEP evaluation of sea grass over five years, that median seagrass depth limit criteria were being met; therefore, although TMDLs were established for the basin, stakeholders (such as the City of Vero Beach) were not required to meet the TMDL target levels or make reductions in nutrient loadings and were not assigned allocations in this first reiteration.

Subsequently, evaluation of seagrass survey data has revealed that the seagrass depth limit criteria were not met in 2010 and 2011; therefore, it is anticipated that further reductions in nutrient loading will be required in the next reiteration of the BMAP scheduled for completion and adoption in 2018.

In May 2015, the FDEP prepared preliminary set of TMDL allocation and nutrient reduction target levels. Preliminary allocations by nutrient were established for the seven entities, including the City of Vero Beach, located within the Zone B watershed. The preliminary data document that total nitrogen (TN) is the major pollutant affecting water quality in the Indian River Lagoon. The preliminary allocation calls for a 58% reduction in TN and 52% reduction in total phosphorous (TP) for the City.

Table 6-1 presents the preliminary allocations prepared by the FDEP that was sent to various permitting entities in Zone B of the Central Indian River Lagoon:

Table 6-1. Preliminary TMDL Allocations, Zone B, Central Indian River Lagoon

| Entity | TP Loads (lbs/year) | Target TP Loads (lbs/year) | TN Loads (lbs/year) | Target TN Loads (lbs/year) |
|---|---|---|---|---|
| Agriculture | 44,647 | 22,981 | 186,836 | 107,965 |
| Vero Beach | 10,160 | 4,830 | 54,069 | 22,692 |
| FDOT | 3,066 | 882 | 10,123 | 4,142 |
| Indian River County | 11,185 | 5,030 | 54,703 | 23,631 |
| IRFWCD | 22,388 | 13,369 | 129,111 | 62,806 |
| Sebastian River ID | 48 | 25 | 266 | 117 |
| Indian River Shores | 2,160 | 1,466 | 12,479 | 6,887 |
| Totals | 93,654 | 48,583 | 447,587 | 228,240 |

Source: Florida Department of Environmental Protection, April, 2015

The preliminary pollutant loadings are currently being reviewed by the City of Vero Beach staff as the numbers in Table 6-1 are higher than those produced by the staff based on City land use data using FDEP methodology (Florida Simple Stormwater Annual Pollutant Loading Spreadsheet) in 2014.

The TMDL allocations shown in Table 6-1 are only preliminary subject to further review and negotiation by stakeholders and FDEP; however, it is evident that further reductions in the City's pollutant loadings will be necessary. The magnitude of these reductions or the time frame established to be meet these target levels has still to be determined especially recognizing that changes in criteria (i.e., seagrass depth) applied to set target levels may also be subject to future

changes. Furthermore, the success and effectiveness the proposed allocation system will require a comprehensive water quality monitoring program funded and administered by FDEP, as recommended by stakeholders in the report *Impediments to Implementation of the Indian River Lagoon Basin Management Action Plans.*

Stormwater Regulations. The majority of City of Vero Beach was developed prior to any effective stormwater management regulations requiring on-site retention and treatment. At the time of their development many of the subdivisions had little or no requirements for installation of stormwater management systems prior to development.

In an effort to partially address this existing problem (see discussion in next section), the City upgraded its stormwater regulations in 2010 for both new and existing development undergoing substantial improvements or significant increases in the amount of impervious area. These upgrades included requiring multiple-family and nonresidential development to meet on-site retention standards of the first 1.5 inches of rainfall in addition to providing storm drainage facilities that meet a 25 year/ 24 hour storm event.

In 2012, the City enacted a "Florida Friendly Fertilizer Ordinance" that strictly prohibits the application of fertilizers containing nitrogen and/or phosphorous during June 1 through September 30th. The ordinance establishes "fertilizer free" zones within 10 feet from any water body. This ordinance if enforced and properly followed will reduce nutrients entering into the stormwater runoff.

However, many of the older residential properties on canals, such as Vero Isles, have grass lawns that extend all the way to their seawalls. Therefore, nothing prevents runoff along with pollutants directly entering the canals and the lagoon.

To address this issue, the staff recommends consideration of policies to address this and other weltlands issues in the Conservation Element of the update to the Comprehensive Plan. Such regulations may include specific setback requirements, vegetative filter strips, and structural barriers to prevent or attenuate stormwater entering canals. Such regulations should address how they will be applied to both existing and new development.

Stormwater Outfall Program. In 2007-2008, the City Public Works Department instituted the Stormwater Outfall Retrofit Capital Improvement Program (CIP). This program provides a framework for the upgrading and retrofitting of the City's stormwater outfalls with pollution prevention/reduction facilities. This program anticipated probable mandated reductions in pollutants under the City's NPDES permit for its MS4.

In 2014, the engineering staff undertook a watershed study to indentify individual watersheds and identify those watersheds with the highest nutrient loading rates. Of the 128 identified watersheds, outfall pipes from 34 have been retrofitted with some type of pollution prevention/reduction measure.[4]

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[4] *Nutrient Loading –Task 3B,* technical memorandum prepared by the Vero Beach Public Works Department to City Manager O'Connor, dated March 7, 2014.

Based on this effort, the Stormwater Outfall Retrofit Capital Improvement Program (CIP) was revised to establish a new priority framework and schedule for stormwater nutrient reduction projects. The basic guiding principle was to focus on those measures that provided the greatest nutrient reductions possible on a dollar per pound of nutrients removed. As significant element of this updated and revised CIP was the recognition that the program must recognize the need for necessary repair, remediation, and replacement projects.

The primary focus of this CIP has been on End of Pipe (EOP) retrofits. As explained in a staff report to the Public Works Director, retention and/or detention of stormwater is very effective in preventing pollution of receiving waters, because pollutant laden stormwater only discharges to receiving waters during less frequent, more intense rainfall events.

Unfortunately, such systems require relatively large areas to implement (often 10-15% of the total area being served) and are most cost effective when implemented as part of a new stormwater system. Therefore, these improvements would be limited to new development or retrofitting of existing stormwater systems, the most cost-effective option for the City is the EOP retrofit approach.

The City has installed Type II Baffle Boxes at more than 20 of its outfalls, which capture floatables and suspended debris. These Type II Baffle Boxes with a filter cartridge provide reductions of up to 19% for TN and 15.5% for TP. However, they are limited as their effectiveness is significantly reduced when the outfall pipe elevation is lower than receiving water. Additionally, maintenance of these baffle boxes is not only labor intensive but requires relatively expensive equipment, filter cartridges. While effective in reducing pollutants, it is relatively expensive when evaluated on the dollar per pound of pollutant removed.

In further evaluating the results of the watershed study, the staff identified that nutrient loads from residential areas are almost double that of commercial and industrial areas. Based on a study conducted in Brevard County, the reason for this difference is most likely the high organic loads due to the presence of tree canopies, lawns, and landscaping in residential areas. This finding led to the conclusion that the most cost-effective pollutant reduction would be by trapping and collecting organic debris before it enters the stormwater system.

The Public Works' staff is working with new technologies involving permeable pavement inlet fillers to capitalize on this finding. Permeable pavement is any material structurally sound to carry vehicle traffic, while allowing stormwater runoff to drain through the pervious material and trap conveyed pollutants for eventual removal and disposal.

The benefits of this system include lower installation and maintenance costs than the Type II Baffle Box system. These permeable pavement inlets will be cleaned with street sweeping equipment. Collected debris through street sweeping will be disposed of at an approved disposal facility. It is anticipated that this technology will reduce TN, TP, TSS (Total Suspended Solids) and BOD (Biological Oxygen Demand) in stormwater runoff by over 80%.

Future Needed Capital Projects. The Public Works staff has identified 16 stormwater capital projects necessary to meet state nutrient reduction goals, local stormwater system

improvements needs, and repair and replacement of existing stormwater facilities. The projects are arranged in priority based on budgetary constraints and potential benefits (both flood prevention and pollution abatement). Table 6-2 provides a list of the 16 proposed projects, which are graphically shown by location or area in Figure 16 by their reference number.

Table 6-2. Proposed Stormwater Capital Projects

| **Project Name** | **Total Estimated Cost ($)** | **Pollution Control Cost ($)** | **Repair and Replacement Cost ($)** |
|---|---|---|---|
| 1. Vero Isles(outfall pipe replacement and inlet retrofits) | 200,000 | 100,000 | 100,000 |
| 2. 12th Avenue Interconnect | 125,000 | 25,500 | 100,000 |
| 3. Lateral E inlet retrofits | 1,500,000 | 1,500,000 | - |
| 4. Townside Pipe Rehab | 1,000,000 | - | 1,000,000 |
| 5. Tulip Lane outfall-inlet retrofits | 90,000 | 90,000 | - |
| 6. Royal Palm Place and Pointe | 1,000,000 | 330,000 | 670,000 |
| 7. McAnsh Park (inlet retrofit) | 285,000 | 285,000 | - |
| 8. Additional Repair/Replacement Projects - | | | |
| 16th Street Crossings | 90,000 | - | 90,000 |
| 27th Avenue Outfall Repair | 100,000 | - | 100,000 |
| 20th Avenue Crossings | 90,000 | - | 90,000 |
| Airport West Crossings | 60,000 | - | 60,000 |
| 9. Causeway Boulevard (inlet retrofit) | 47,500 | 47,500 | - |
| 10. Bay Drive SR A1A (inlet retrofit) | 195,000 | 195,000 | - |
| 11. Mockingbird Drive/Iris (inlet retrofit) | 215,000 | 215,000 | - |
| 12. Beachland Blvd/Bridge Plaza Road (inlet retrofit) | 142,500 | 142,500 | - |
| 13. Mango Road at Bethel Creek House (inlet retrofit) | 250,000 | 250.000 | - |
| 14. US 1 at Main Canal (inlet retrofit) | 110,000 | 110.000 | - |
| 15. Royal Palm Pointe (inlet retofit) | 110,000 | 110,000 | - |
| 16. Cove Drive Outfall (inlet retrofit) | 27,500 | 27,500 | - |
| Totals for All Recommended Projects | 5,637,500 | 3,427,500 | 2,210.000 |

Source: City of Vero Beach Public Works Department, memorandum to Director Monte Falls dated July 31, 2014.

Implementation of the first seven stormwater quality projects would further increase the treated portion of the urban watershed from 1,600 to 2,500 acres or almost 50% of the urban watershed identified for the City of Vero Beach by FDEP in the preliminary TMDL allocation data base.[5] Implementation of the remaining projects would increase the treated portion of the urban watershed from 2,500 acres to 3,000 acres. However, it would be difficult to expanded treated coverage beyond this acreage due to the isolated nature of many of the remaining drainage systems.

[5] The FDEP preliminary allocation data base lists 5,127 acres within the urban watershed for City of Vero Beach..

It is recommended by staff that policies be considered in the update to this Comprehensive Plan that provide guidance on the establishment of stormwater project priorities and BMPs and milestones for expanding coverage of treated portion of the urban watershed.

Funding. A critical constraint on the successful implementation of BMPs to improve water quality of the Indian River Lagoon is funding. Local funds are the main funding source for carrying out TMDL reduction strategies. Funding sources to augment and defray local costs include the Clean Water State Revolving Loan Fund, the TMDL Water Quality Grant Restoration Grant Program, the EPA Section 319(h) Grant program, and grant funding through the Indian River Lagoon National Estuary Program. However, these loans and grants are competitive and, for grants, may require local matching funds of 30% or more.

Over the last several years the amount of funding for stormwater improvements in the City's Five Year Capital Program has steadily decreased due to other competing priorities including debt service that must rely on General Fund Revenues (such as ad valorem taxes, gas taxes, sales taxes, and revenue sharing). The magnitude of the discrepancy between available revenues and project needs is very apparent when the total costs of the 16 stormwater capital projects are compared with annual General Fund Revenues allocated to such project. Based on the historical average of $300,000 allocated for new stormwater projects, it would take almost 20 years to complete the $5.6 million list of projects without taking into account increases in labor and materials costs.

Additionally, insufficient funding is available to maintain the existing system. It is estimated that over $500,000 per year is needed to repair, rehabilitate and maintain the existing storm drainage system. Over the next five fiscal years an average of only $150,000 is being programmed for maintenance and repairs.

To address this funding issue and provide better certainty in completing needed projects, the City investigated the establishment of a stormwater utility to fund capital stormwater projects. To initiate this investigation, the City hired an engineering consulting firm that prepared a preliminary report outlining the possible options for such a utility.[6]

Stormwater projects could be funded through the application of fees to the utilities bill or a non-ad valorem tax to properties. Such fees would be based on the benefit received by each individual property. Unlike the ad valorem tax, which is applied to property based on its appraised taxable value or taxes based on sales, utility fees are based on the use and benefits provided by the stormwater system. The burden or impact that a property has on the City's stormwater system is related to such factors as:

- The peak rate of runoff from the property;
- The volume of runoff from the property; and
- The pollutants in the runoff from the property.

[6] *Preliminary Report, Stormwater Utility Study,* prepared by Collective Water Resources Team, January 22, 2016.

After reviewing the draft reports and recommendations of the engineering consultant the City Council decided not to move forward with the establishment of a stormwater utility at this time due to financial and other considerations. The elimination of this financial option does preclude the need to explore other financial options. Any such program should identify specific milestones related to expanding the City's urban watershed to provide a benchmark for evaluating progress in improving the water quality of the Indian River Lagoon.

Major Capital Improvements. The major stormwater projects to be funded over a five-year period are provided in Chapter 11, Capital Improvements Schedule (CIS) of the Capital Improvements Element in the Policy Document. The CIS, which identifies capital projects to be funded over the next five years, is required to be updated annually as an element of the Capital Improvements Element. As projects are completed, they will be dropped from the list of capital improvements and new projects will be added as needed.

## SOLID WASTE SUB-ELEMENT

The purpose of the Solid Waste Sub-element is to identify and analyze the City's existing solid waste and hazardous waste management services and facilities, project future waste generation levels, assess the adequacy of current facilities. This analysis is intended to provide the framework for updating and revising goals, objectives and policies for solid waste in the Comprehensive Plan.

### Existing Services and Facilities

The following is a description of solid waste services provided within the City of Vero Beach:

Garbage Collection. The City of Vero Beach's Solid Waste Division is the sole provider of garbage collection services to residential and commercial customers within its city limits. The City's garbage collection and yard waste collection services are funded through fees applied in the City's utility bills. The monthly fee for single family and duplex residences is $ 14.62 per month (2016).

Residential garbage service is provided door-to-door, twice a week. For commercial and multiple-family customers, non-dumpster garbage pickup is provided five times a week. Dumpster garbage pick-up varies from two to six days a week depending on the customer's needs. The City also manages roll-off container franchise agreements with private haulers for collection of commercial waste.

The City has 7,121 residential and 1,650 commercial accounts. The City provides garbage pick-up services to 653 dumpsters serving commercial and multi-family properties. The yearly annual tonnage is 7,770 tons of residential garbage (includes yard waste) and 10,540 tons of commercial garbage for a total yearly tonnage of 18,310 tons.

Based on the estimated permanent and seasonal population, this tonnage results in a figure of an average of 4.63 lbs of garbage (excludes yard waste) generated per person per day.

This daily per capita figure is based on dividing the permanent and seasonal population by total garbage tonnage collected, both from residential and commercial sources.

The City's Solid Waste Division, staffed by 23 employees, has 5 front-loading trucks for commercial service and 8 rear-loading trucks for residential service, along with 6 trucks for specialty pickups.

Yard Waste Collection. The City of Vero Beach provides once-a-week curb-side collection of residential yard waste. For an additional fee, special pickup of yard waste may be provided by the City. The amount of residential yard waste collected in FY 2013-14 was 2,170 tons. Yard waste collected by the City is collected and hauled to the INEOS waste-to-energy plant, which has an agreement with the SWDD. [The INEOS plant has since closed down.]

Yard waste not produced by the resident or property owner that is created by a landscaping, lawn maintenance of tree service firm must be removed by that firm and disposed at the County landfill. Such yard waste is not eligible for collection by the City in its residential yard waste collection program.

Special Waste Collection. Special waste is construction and demolition debris, white goods, and waste tires. For an additional fee, the City collects white goods and other bulky waste items. The collection of construction and demolition debris and waste tires for disposal at the County Land fill operated by the Indian River Solid Waste Disposal District (SWDD) is the responsibility of the waste generators.

Hazardous Waste Collection. Indian River County SWDD has established storage facilities for hazardous waste at the County's landfill. This facility only accepts residentially generated hazardous waste. Small quantity commercial or industrial generators, including medical waste, must contract individually with license hazardous waste haulers for disposal of their hazardous waste materials.

Recycling Collection. Collection of recyclable materials is provided once-a-week to single family and duplex residences by a private hauler under a franchise agreement with the SWDD. The collection was recently changed at the end of 2015 from a multi-stream to a single-stream collection process that is intended to increase the recycling participation rate.

Customers are assessed for recycling and land disposal programs of the SWDD through an annual non-ad valorem assessment on the basis of a WGU (waste generated per unit). WGU is defined as a basic unit of waste generation equivalent to 1 ton per year. The assessment for single family residences (1.6 WGU) was $102.61 in 2015.

The 1988 Florida Solid Waste Management Act provided the catalyst for the creation of the Indian River county SWDD that serves both incorporated and unincorporated Indian River County. Subsequent action by the Florida Legislature established a recycling goal of 50 percent by 2015 and 75 percent by 2020 for Florida counties. In 2014, the SWDD reported that it was recycling at a rate of 37%. Should the County be unable to achieve the legislative recycling goals, the Florida Department of Environmental Protection may require mandatory recycling for

multi-family and commercial waste generators. The amount of tons recycled in 2014 was approximately 77,000 tons.

The Indian River County 2030 Comprehensive Plan established as a recycling objective of 30% of the total solid waste stream. However, with the passage of the new legislation, this objective will need to be revised to reflect the legislative mandates.

The Indian River 2014 Sold Waste Management Plan adopted by the SWDD in September, 2014, recommended a phased approach to meeting the recycling goals. One of the major findings in a waste composition study completed was that 46.5 percent of recyclable materials can be diverted from disposal in the County landfill. This phased approach is intended to increase the rate of recycling, decrease material entering the landfill, and extend the landfill capacity and useful life through 2068 (assuming a 50 percent recycling rate) or through 2101 (assuming a 75 percent recycling rate). At the current rate of 37%, the landfill capacity (Segment III covering 76.3 acres) will be depleted by 2058.

Solid Waste Disposal. Solid waste from the City of Vero Beach is disposed at the Indian River County landfill located in the southern portion of the county, except for non-residential hazardous waste and residual sludge from the City's Wastewater Treatment Plant (WWTP). Sludge is processed and is currently disposed of in the Okechobee County landfill; the City is studying the composting of this residual waste to eliminate its landfill disposal.

The County landfill site occupies approximately 600 acres. Solid waste operations at the landfill facility include Class I waste (municipal waste) disposal, construction and debris (C&D) disposal, recyclable materials processing and transfer operations, temporary storage of household hazardous wastes, waste tire processing, and ancillary operations.

Construction and demolition (C&D) waste is now comingled with Class 1 (organic) waste, which is disposed in land fill cells lined to prevent the accidental release of contaminated leachate into the groundwater. It was determined that this co-mingling of waste and other reduction and compacting techniques have reduced the required solid waste disposal airspace for Class 1 and C&D waste.

The new Segment 3 Class 1 and C&D waste disposal area has an estimated capacity of 13.5 million cubic yards (CY). When eventually completed Segment3 will cover 79 acres with 8 cell disposal areas. The first of eight cells covering 10.4 acres is currently operational. The remaining seven cells are to be constructed in accordance with a phasing schedule with the second cell anticipated to be constructed by 2020.

Adjacent to the landfill site is the former INEOUS waste-to-energy (WTE) plant, which closed in early 2016 due to operational and financial problems. Under an agreement with the SWDD, the facility was utilizing yard and other vegetative waste to produce 8 million gallons of year of ethanol. In calendar year 2013, the WTE plant processed over 56,000 tons for use as landfill cover and to produce renewable energy using gasification and fermentation technologies.

**Analysis**

In evaluating the City of Vero Beach's solid waste system, three key components should be considered. These components include: (1) solid waste generation and future demand; (2) solid waste collection; and (3) landfill capacity. This analysis concludes with a brief discussion related to major capital improvements.

Solid Waste Generation and Future Demand. In evaluating and projecting solid waste generation, the 1992 Comprehensive Plan used a standard of pounds per day per capita based on historical data on residential and commercial garbage collected by the City's Solid Waste Division. This standard did not include yard waste, C&D waste, land clearing debris, and residential hazardous waste. It was used as a level of service standard for solid waste in the 1992 Comprehensive Plan.

The Indian River County's 2030 Comprehensive Plan adopted a level of service for solid waste generation based on two components, which was based on information provided by the SWDD. The first component standard is based on the estimate of all waste (Class 1 and C&D waste) generated by tonnage per person per year. The second component is based on utilization of landfill space, which is based on the per capita landfill utilization rate measure in cubic yards per year.

After careful review it was the decision of the staff to revise the level of service standard by recommending adoption of the two component standard as adopted by Indian River County based on the latest SWDD Solid Waste Master Plan. This approach more accurately addresses the most critical factor related to solid waste management, which is land fill capacity.

*Class I and C&D Waste Generation:* Based on Solid Waste Division's data and estimates of the City's permanent and seasonal population in Chapter 1, the daily garbage generated per day per person is approximately 4.6 pounds based on the residential and commercial garbage collected.[7] This figure converts to 0.83 tons per capita per year or 1.12 cubic yards per capita per year using the assumptions in the 2014 SWDD Solid Waste Management Plan (see next section).

Although no figures are available for C&D waste for the City of Vero Beach, the SWDD 2014 Solid Waste Management Plan uses a per year figure of .6 tons per capita or 0.42 cubic yards per capita. Adding the figures for C&D waste to the above figures for Class I waste, the total combined figures are 1.43 tons per capita per year or 1.54 cubic yards per capita per year. The standards for solid waste in the update Comprehensive Plan should be revised to adopt this two-component level of service standard.

Except for employment growth over the next 20 years, the City is not expected to experience any appreciable increase in population, assuming no unforeseen large scale development or annexation occurs. Therefore, the amount of garbage generated is only expected

[7] It should be noted that total tonnage of garbage collection has been fairly stable since 1986.

to increase slightly, tempered by increased efforts to reduce waste through recycling and other waste diversion measures. In updating the Solid Waste GOPs, special attention should be given to waste reduction and diversion in support of the SWDD's efforts.

The City's Solid Waste Division has sufficient existing staffing and equipment to handle any reasonable increase in garbage demand during the 20-year planning period based on the growth projections in Chapter 1. However, any significant increases due to unforeseen large scale development or annexation would require re-evaluation of existing resources to adequately handle projected demand.

*Solid Waste for Land Fill Disposal:* The County's 2030 Comprehensive Plan adopted a per capita standard of 2.4 tons per permanent population plus weighted seasonal population per year or 4 cubic yards per capita plus weighted seasonal population per year in Policy 1.3 of the Solid Waste Sub-Element. The 4 cubic yards per capita standard is a landfill capacity utilization rate use for determining amount of waste volume in cubic yards per year for disposal in the land fill. This standard applies to the entire population of the County including municipalities.

With the adoption of the 2014 Solid Waste Management Plan by the Indian River SWDD on September 23, 2015, the land fill utilization standard of 4 cubic yards (CY) per year will be revised in an amendment to the County's Comprehensive Plan to 1.70 CY per capita per year based on the current recycling rate of 37%. This revised standard of 1.28 CY per capita per year for Class I waste and 0.42 for C&D waste is based on a 37% recycling rate, co-mingling of Class 1 and C&D waste, and a reduction in materials entering the landfill

Using the updated population projections since the adoption of the 2030 Comprehensive Plan, it is projected that an additional 13.5 million CY of waste will need to be disposed through 2058. Segment 3 landfill disposal area will have sufficient capacity to accommodate this level of landfill disposal demand. Should the recycling rate be increased to bring the County into line with the recycling goals established by the Florida Legislature, the life span of Segment 3 landfill disposal area may be extended through the year 2068 with a 50% recycling rate and through the year 2101 with a recycling rate of 75%.

Policy 1.2 of the Solid Waste Sub-Element of the 2030 Indian River County Comprehensive Plan establishes a concurrency standard that "if the active segment of the landfill is at 90% of its capacity and a new segment is not ready, additional development shall not be permitted." This concurrency standard needs to be considered in the City Comprehensive Plan update.

The Solid Waste Sub-Element GOPs of the 2030 Indian River County Comprehensive Plan and the 2014 Solid Waste Management Plan need to be reviewed and, where appropriate, specific GOPs incorporated in the update of the Vero Beach Comprehensive Plan.

Major Capital Improvements. Capital projects related to solid waste management are generally tied to new or replacement garbage and waste collection vehicles. These projects may include projects to be funded by the SWDD for needed improvements to its landfill site.

The major capital projects for solid waste management to be funded over a five-year period are provided in the Capital Improvements Schedule (CIS) of the Capital Improvements Element in the policy document. The CIS, which identifies capital projects to be funded over the next five years, is required to be updated annually as an element of the Capital Improvements Element. As projects are completed, they will be dropped from the list of capital improvements and new projects will be added as needed.

## SANITARY SEWER SUB-ELEMENT

The purpose of the Sanitary Sewer Sub-element is to:

- Identify and analyze existing and projected demand and need for sanitary sewer facilities based on the service population, existing and future land use, capacity of existing facilities (sewage collection, treatment, and disposal) and any future changes to these facilities.

- Identify and analyze specific operational, regulatory, and funding issues related to provision of existing and future service including septic systems.

The analysis of the sanitary sewer system serves as the basis for identifying wastewater policy and implementation strategies including needed improvements to existing facilities over the next 10 or more years and the expansion of central sewerage to replace existing septic systems. The end result is to provide the framework for consideration of specific amendments to the existing set of goals, objectives, and policies (GOPs) for wastewater in the Comprehensive Plan update.

### Historical Background

The City of Vero Beach has had a central sewer system that began in the 1920's. This system served the most densely developed and developed urban areas of Indian River County. Until the late 1970's, outside the central sewer area served by the City, unincorporated Indian River County had no access to central sewer service.

The alternatives to central sewer service have historically been privately owned sewer facilities. These facilities were either package systems to individual projects or subdivisions or on-site septic systems for individual lots. In the 1970's, state regulations were becoming more stringent with the intent to discourage use of individual septic system and small package systems.

In 1985, the City of Vero Beach purchased privately-owned central sewer system owned by Hutchinson Island Utilities serving the Moorings on the barrier island south of the City limits. Subsequently, the City was granted a 30-year franchise agreement by the County to provide sewer service to the south barrier island area. This agreement was followed with a series of territorial and franchise agreements with Indian River County and eventually Town of Indian River Shores to provide central sewer outside the City limits, including reuse water to the town.

In the last few years, Indian River County Commission expressed its desire to acquire the City's water and sewer system. This proposal has not advanced any further due to financial and other issues of concern to the City of Vero Beach.

A dispute with Indian River County has arisen over the provision of water and sewer services by the City to South Beach and other portions of unincorporated Indian River County beyond the expiration of the franchise agreement in 2017. It's the City's firm contention that a May 1989 territorial agreement with the County established the permanent allocation and delineation of service territories. Therefore, the City has the right to continue to provide such services unless the City and Indian River County would enter into a new agreement that would include buy-out provisions.

**Regulatory Framework**

Wastewater collection, treatment, and disposal is regulated by various agencies at all levels of government. The roles and responsibilities of each level are described in the following sections:

Federal. The Federal Water Pollution Control Act of 1972 (PL 92-500) and its amendments through the Clean Water Acts of 1977 and 1981 are the basis for pollution control regulation in the nation. The goal of these acts is the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters.

The act established a national policy to implement wastewater treatment and management programs to achieve the goal established in the federal legislative acts. Federal grants are made available to local governments directly or through the state to construct facilities to treat "point sources" of pollution. The U.S. Environmental Protection Agency is responsible for implementing the acts.

State. The Florida Department of Environmental Protection (DEP) is the agency responsible for ensuring that Florida carries out the requirements of PL 92-500. DEP has adopted in the Florida Administrative Code rules for regulating wastewater facilities that treat flows exceeding 10,000 gallons per day (GPD).

The Florida Department of Health (DOH) regulates septic tanks and drainfield installations through its local county offices. Regulations for septic tanks have been adopted by rule in Chapter 64E-6, Florida Administrative Code (FAC). Chapter 64E-6 does not set criteria for septic tank effluent quality, but it does set installation standards based on soil, water table, and setbacks from wells and surface water. It requires septic tanks and drain fields to be installed in such a manner that with reasonable maintenance, they will not create a health hazard or endanger the safety of any domestic water supply.

Section 381.0065, Florida Statutes, and Chapter 64-E, F.A.C., also establishes criteria for mandatory connections to wastewater and potable water systems. An onsite wastewater treatment system must connect to a central system within 365 days after written notification that the system is "available" for connection or 90 days if the onsite treatment and disposal systems

needs repair or modification to function in a sanitary manner or to comply with the statutory requirements or administrative rules.

Local. The regulations governing wastewater treatment, distribution, and collection facilities within the city limits are established in Chapter 78 of the City Code of Ordinances. Section 78-64 of the Code requires that connection with the central sanitary sewer system is mandatory for any lot or parcel or combination, the use of which:

- Produces an estimated wastewater flow of 600 gallons or less per day, if a gravity line, force main, lift station, or a low pressure sewage collection system exists in a public easement or right of way the abuts the property;

- Produces more than an estimated wastewater flow of 600 gallons per day, if a sewer line, force main, lift station, or low pressure sewage collection system exists in a public easement or right-of-way which abuts the property or is within 100 feet of the property; or

- Requires development approval.

Notwithstanding the above, a parcel or lot with an existing, functioning and permitted on-site wastewater treatment system (septic system) is not required to connect to the central gravity system even if sanitary sewer is available. The only exception is if the on-site system should fail an inspection conducted by a licensed septic tank contractor in conjunction with the required pump out to be done at least every five years. If system fails the inspection and central sewer is available, the DOH requires hook-up to the central system.

Recently, the City of Vero Beach enacted regulations to establish a septic tank effluent pump (STEP) program. This program, which is discussed under the Analysis section, is an innovative and less costly approach than reliance on the traditional gravity sewer to collect and transmit wastewater to the wastewater treatment plant.

The Water and Sewer Department administers and enforces provisions of Chapter 78, Article III, Sanitary Sewer System, of the City of Vero Beach Code that establishes uniform requirements for users of the central sewer system. As part of these regulations are requirements to prevent introduction of pollutants into the system that interferes with the wastewater treatment plant's operations or allow pollutants that will pass through the facility with little or no treatment.

**Existing Public Wastewater Facilities**

The City of Vero Beach Water and Sewer Department is the agency of the City that operates the City's central wastewater treatment system. The City's central wastewater treatment system provides service within the corporate limits and to the Town of Indian River Shores and portions of unincorporated Indian River County including South Beach on the barrier island as shown in Figure 4 of the Map Series.

The only remaining private wastewater treatment systems within the city limits are individual septic systems. More than 1,500 such systems exist in the city.

Collection/Transmission System. The City's wastewater collection/transmission systems consists of gravity sewer mains (132 miles), manholes (2,700) , force mains (65 miles), lift stations (127), and other associated facilities. The gravity lines collect and convey wastewater to the lift stations and the lift stations pump the collected wastewater to the wastewater treatment plant (WWTP) by force mains. The estimated population served is 30,850.

Treatment. After collection wastewater is processed at the City of Vero Beach wastewater treatment plant (WWTP) located along the Indian River Lagoon. The design and permitted capacity is 4.5 million gallons per day (MGD) annual average daily flow (AADF). In 2014, the AADF was 3.54 MGD with a three month average daily peak flow of 3.844 MGD. The AADF ranged from 2.754 MGD in 2009 to 3.284 MGD in 2012, and 3.028 MGD in 2013. These numbers are influenced by major rainfall events.

The estimated average daily flows into the City of Vero Beach WWTP on a jurisdictional basis are:[8]

- City of Vero Beach - ~2.14 MGD
- Unincorporated Indian River County - ~0.86 MGD
- Town of Indian River Shores - ~0.54 MGD

The City of Vero Beach WWTP is a complete-mix activated sludge, tertiary treatment facility consisting of influent screening, grit removal, biological nutrient removal, clarification, tertiary filtration and disinfection by gas chlorination. Influent wastewater is treated to meet reclaimed water standards for use as irrigation water for recreation areas, residential lawns, golf courses, urban landscapes, and road medians.

By-Product Disposal. The treated effluent is distributed to the reuse system. Substandard reuse water and excess quantities of reclaimed water that can't be stored produced during periods of decreased customer demand are disposed of in the deep well injection system with a capacity of 9.72 MGD.

The reuse system which distributes reclaimed water through pumping system has a permitted capacity of 4.5 MGD. The average daily consumption of reclaimed water is 2.34 MGD. The reuse system has three reuse storage tanks. A 5.0 million gallon (MG) and 3.0 MG storage tank is located at the WWTP site and a 1.0 MG storage tank is located in the Town of Indian River Shores.

The City has a permit from the St. Johns River Water Management District (SJRWMD) to withdraw 365 million gallons per year (1 MGD annual average) of stormwater from the Main Relief Canal for purposes of supplementing its reclaimed water system when it is available. Additionally, the City has a consumptive use permit issued by the SJRWMD that allocates a

[8] The distribution of sewage treated by jurisdiction is based on estimates provided by the Vero Beach Water and Sewer Department and modified by the Planning and Development Department based on 2014 total AADF of 3.54 MGD.

back-up groundwater allocation of 40 million gallons per year (MGY) from the Floridan aquifer to augment the reuse system during periods of high demand. These supplemental sources are used during periods of low rainfall when the supply of reclaimed water is insufficient to meet increased customer demands for irrigation water.

Sludge, which is the solid by-product of wastewater treatment, has been processed through two rotating drum thickeners and two aerobic digesters for sludge management. Twice-a-year the City contracts with a sludge handler to bring in a dewatering trailer to dewater and haul the sludge to the Okechobee County landfill.

The City recently invested $1.5 million to modernize its sludge management operations by adding a sludge recycling facility. The proposed system disinfects, eliminates odor and enhances dewatering of secondary sludge without the need for aerobic digestion, odor-control systems. It will increase by five percent or more in the amount of total cake solids, which will allow the resultant dewatered material access to a greater number of disposal outlets and beneficial use strategies. These options will allow the City to investigate the composting of sludge with yard waste rather than landfill disposal.

Funding. The City sanitary sewer system is operated as a proprietary function, which is financed by user fees, impact fees, tap and lateral connection fees, grants, low-interest loans, and various miscellaneous charges. A portion (approximately 6%) of the annual revenues is returned to the City's General Fund as a return on investment.

In 2011, the City hired an engineering consulting firm to conduct a system and financial optimization study of both the water and sanitary sewer system.[9] The City Water and Sewer Department is implementing many of the study's recommendations that have led to implementing specific optimization measures in terms of operational and cost efficiencies and changes in user fees and charges.

**Existing Septic Systems**

The City has approximately 1,500 privately-owned individual on-site septic systems that generally serve one individual residence. Approximately 2/3 of these systems are located on the barrier island.

A septic tank system consists of two components. One is the septic tank that receives the sewage and provides a period of settling, during which time a significant portion of the solids settle out. The treatment process is done by bacteria which gradually decompose the solids which have settled to the bottom of the septic tank.

The other component of the septic tank system is the drain field. The remaining liquids from the septic tank are discharged through underground pipes into the drain field and percolate into the soil. Once in the soil the microorganisms and filtration process purify the liquids. Every three to

[9] *Water, Wastewater, and Reuse System Operational and Financial Optimization Report,* prepared by GAI Consultants, Inc., for the City of Vero Beach, August, 2011.

five years the solids must be removed from the septic tank and transported to the county landfill for disposal.

A problem with the proper functioning of septic tanks in the City of Vero Beach is hindered by the high water table on the barrier island that reduces filtration of the effluent. Furthermore, the density of development with septic tank systems install on lots of 15,000 square feet or less increases the possibility of groundwater contamination that leads to the transmission of these contaminates to the Indian River Lagoon.

In particular, recent water quality monitoring and studies conducted for the Indian River Lagoon and interconnected canals have shown a high concentration of nutrient and phosphate entering through groundwater in areas with a high concentration of septic systems.[10] Therefore the eventual elimination of these septic systems and the connection of residences to the central sewer would be a significant benefit to the health and well being of the Indian River Lagoon.

**Analysis**

The analysis of the Sanitary Sewer Sub-Element focuses on the following: collection/transmission system, septic tanks, treatment facilities, and disposal. The analysis concludes with a proposed list of major sanitary sewer projects anticipated to be funded and constructed over the next 5 years.

Collection/Transmission System. The collection/transmission system has been expanded as the City grew. Older portions of the gravity mains contain vitrified clay pipe (VCP), which under on-going repair and replacement. The new portions of the system are constructed with polyvinyl chloride (PVC) and ductile iron pipe. The new materials are used in the replacement of older, obsolete VCP pipe.

The City has an agreement with the County on the water and sewer service area. Other than minor amendments to the service area boundaries, it is unlikely that the City sewer will expand beyond its current services area as shown in Figure 4. Although, Indian River County has made proposals to purchase the City's sewer system, the City has not found it in its best interest or the interests of its utility customers to do so, especially as the County system has significantly more capacity than required to serve both its existing and anticipated future development.

Other than the on-going replacement of obsolete and damaged lines and efforts to optimize the collection/transmission system, the other focus of the City is to continue to expand central sewer within its existing service and developed areas. This effort is in coordination with the STEP program to eliminate septic systems.

It is the intent of the City to eventually connect all wastewater discharges to central sewer. A central system is more reliable and regulated than private on-site treatment and

[10] *The Effects of On-site Sewage Treatment and Disposal Systems on the Relief Canals of Indian River County, the St. Sebastian River, and the Central Indian River Lagoon,* prepared by Marie E. Tarnosowski, as a thesis for partial fulfillment of the requirements for the Degree of Master of Science (Florida Atlantic University), December, 2014.

disposal systems and allows for a higher level of treatment including reuse of treated effluent. It is estimated that more than 99% of the nitrogen and phosphorous rich septic system effluent that is now being discharged to ground water would be eliminated with connection to the central sewer system.

Recognizing that the costs to retrofit permitted on-site waste disposal and treatment systems to individual property owners and the costs to the City to install gravity lines to serve these properties are expensive, the City has primarily pursued incentive approaches to obtaining connections to the City's central sewer system including financial assistance,

Septic Systems. Septic systems have been identified as a significant source of groundwater contamination, especially in areas of the City with a high water table and dense concentration of septic tanks. The contaminated groundwater conveys nitrogen, phosphate, and other pollutants to the Indian River Lagoon that contribute the degradation of this significant estuary.

As mentioned previously, recent changes in the City's regulations require that all septic systems be inspected and pumped-out at least every five years. Where such systems fail and can't be repaired or replaced as determined by the Department of Health, these on-site systems must be connected to the City's central sewer system.

In addressing the problem of the presence of at least 1,500 septic tanks within the city limits, the City Water and Sewer Department came forth with an innovative program to reduce the costs of connection to both property owners and the City. This innovative program is called the Hybrid Septic Tank Effluent Pump [STEP] System.[11] The jump-start of the program was aided by grant funds from the SJRWMD that help fund the program including financial incentives for property owner participation.

The total cost, including availability and connection of the STEP System is approximately 1/2 the price of a conventional gravity sewer or vacuum style sewer system. The availability cost of the STEP system, such as installation of mains, valves, etc., in City ROW is less than 10 percent of the cost of a conventional gravity sewer or a vacuum style system. This lower cost provides the opportunity for the City to make central sewer available to more residents more quickly and at much lower costs.

Effluent is conveyed by gravity to the septic tank through the plumbing line from the residence. Liquid waste is pumped under pressure to the central sewer system. Solids remain in the septic tank where it naturally decomposes and is eventually pumped out by the City every eight years if needed.

The STEP system on an individual's property is owned by the City of Vero Beach. An easement is put in place to allow City Water and Sewer Department access to perform maintenance and repairs.

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[11] *Talking Points of a Hybrid Septic Tank Effluent Pump (STEP) System,* prepared by the Vero Beach Water and Sewer Department as a public information handout, 2015.

The costs to provide collection and transmission of effluent from STEP System properties is dramatically lower than conventional gravity sewer due to the use of small-diameter mainlines laid at a constant depth to follow the contour of the land. These small diameter lines may be installed through boring without tearing up the roads to install 8-inch diameter sewer mains in conjunction with manholes and service laterals to the property.

In 2015, the estimated cost to install a gravity system to connect the 1,500 residences with septic systems to central sewer was $22.5 million. Figure 17 of the Map Series shows the location of the 1,500 septic tank systems grouped by priority areas for implementation numbered from 1 to 7.

It should be noted Section 71.14 of the Land Development Regulations prohibits the installation of utilities along, on, or under sand and shell roads to protect the existing Live Oaks located in area number 3. The horizontal boring system and piping size used in the STEP eliminates this concern. Therefore, the Water and Sewer Department has prepared an amendment to regulations governing City right-of-way to allow the STEP system to be implemented for properties accessed by these roads.

The availability cost to make mains available to residences for connections was estimated at $18.5 million of the total $22.5 million.[12] The estimated cost for the STEP System to serve these same residents is $11.0 million with an availability cost of less than $1.0 million.

Specific GOPs should be considered in the update of the Comprehensive Plan. These GOPs should consider numerical target(s) and date(s) for elimination of existing septic systems and connection to the central sewer system.

Treatment Facilities. The evaluation of the significant issues related to the WWTP and its future operation are discussed below:

*Projected Demand:* In making a projection of future demands on the City's WWTP capacity, it is assumed that the City of Vero Beach's sewer system will continue to serve customers within its corporate limits and the City's sewer services areas within the Town of Indian River Shores and unincorporated Indian River County during the 20-year period of this Comprehensive Plan. However, this assumption does not preclude the exploring of other intergovernmental options to supply potable water during the planning period.

Using this information, the average gallons per capita per day (gpcd) usage is approximately 114 based on a 3.54 MGD average annual daily flow (ADF). This figure is not consistent with the current Level of Service Standard of 99 gpcd in the Comprehensive Plan. This LOS standard, based on the number of gallons per capita per day, is not germane to projecting demand and evaluating system capacity.

A more appropriate Level of Service Standard is 250 gallons per day (GPD) per ERC figure based the GAI consulting group's optimization study and industry standards.[13] This figure

[12] Availability cost is defined by the City Water and Sewer Department as the cost of making sewer available to all residents by installing just the main lines and components (excluding the on-lot portion of the system.)

represents the basic volume of wastewater conveyed from a single-family residence. This planning LOS tool used in conjunction with the treatment capacity of the City's wastewater treatment plant serves as much better standard for measuring level of service.[14]

In making its demand projections, the staff took into account the potential impact of the STEP program, development projects under review, and the projected nonresidential development forecast in the Land Use Element. The demand projections are consistent with the forecasts of population, employment, land use, dwelling units and nonresidential floor space provided in Introductory and Land Use Elements.

Table 6-3 on the next page presents the projected total wastewater demand for the planning horizon year of 2035.

*Capacity Analysis:* The projected total average daily demand of 4.26 MGD would be slightly more than 94% of the capacity of the existing wastewater treatment plant if this demand were to materialize.

Table 6-3. Projected Wastewater Demand for 2035

| Description | ERC[1] | Demand (MGD) |
|---|---|---|
| 1,500 STEP Connections to Service[2] | 1,500 | 0.375 |
| **Description** | **ERC[1]** | **Demand (MGD)** |
| 600 Dwelling Units[3] | 600 | 0.150 |
| Non-residential Development[4] | 774 | 0.194 |
| Existing Wastewater Demand (2014) | 14,160[5] | 3.540 |
| Total Demand | 17,034 | 4.260 |

Source: City of Vero Beach Planning and Development Department, 2016

Notes:

1. Each ERC is 250 GPD.
2. Assumes that all 1,500 residences eligible properties for the STEP program will be connected to central sewer by 2035, based on information provided by the City Water and Sewer Department. The assumption is that 750 residences will connected every 10 years of the planning program. The ERC applied overestimates actual demand as unlike typical residences connected to the central sewer system, the STEP connections will only provide liquid wastes as solids will be contained in the original or new septic tank.
3. Assumes some partial development of the 333-acre vacant tract in the western sections of the City and other smaller miscellaneous projects under development review in 2016 including development outside the City's corporate limits in unincorporated Indian River County and Town of Indian River Shores.
4. Assumes increase in non-residential development based on employment growth through 2035. This assumption is based on a projected 2.6 million square feet increase in nonresidential floor space (see

[13] In the GAI optimization study, a 250 GPD per ERC (amount of sewer flow from a typical single family household) was used to estimate wastewater demand based on a review of utility billing records. This standard is also used by Indian River County's Comprehensive Plan.

[14] It should be noted that the City Water and Sewer Department uses both ERC and gallons per capita per day in projecting and evaluating capacity; however, the projections prepared in this document are generally consistent with the methodology applied by the department.

Chapter 2) and a generic (commercial office) ERC of 0.3 applied per 1,000 square feet of nonresidential floor space. It does not take into account differing uses that have widely varying water usage rates.
5. ADF of 3.54 MG divided by 250 gallons.

While this projected potential future demand is unlikely and growth in demand on the system has historically been slow, it does point out some value of having a general policy in place that would trigger follow-on procedures to evaluate the need for increase plant capacity and necessary planning, design, financial, and permitting implementation steps.[15] Such a policy could be triggered when a specific percentage of the plant's capacity is utilized.[16]

Any future decision to potentially have to increase the treatment capacity of the WWTP is complicated by the current location and vulnerability of the plant. A discussion of the plant relocation is addressed in the following section.

*Wastewater Treatment Plant Vulnerability to Flooding and Its Relocation:* The existing WWTP was built in 1958 and has been expanded and improved on various occasions over the years. The WWTP's benefited from its location to the Indian River Lagoon, as this water body served as the discharge destination for treated wastewater effluent.

However, with changes in water quality laws and regulations, discharges from the WWTP are either transmitted to the reuse system or to groundwater injection at the Vero Beach Regional Airport. Therefore, the location of the WWTP is no longer dependent upon its adjacency to the Indian River Lagoon.

A major issue with the current plant site is that the WWTP is located with the AE-5, Special Flood Hazard Zone. Most of the treatment plant facilities are a half a foot or more below the base flood elevation. As a category III structure pursuant to ASCE 24-05, the WWTP is required to have any finished floors and all electrical and mechanical equipment protected up to one foot above base flood elevation.

The flood waters from the two 2004 hurricanes caused several failures to key systems. Subsequently, flood protection panels were installed above the flood elevation and installed flood proof doors at the entrances to the electrical and control rooms. Two fully enclosed emergency generators provide backup power to operate the WWTP.

With no longer a need to discharge to the Indian River Lagoon and concerns about the aesthetics of the plant along the waterfront and its vulnerability to floodwaters, the community has been discussing the possible relocation of the WWTP to the airport where the deep injection well is located.

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[15] It should be noted that as part of the WWTP permitting process the City has requirements to plan for needed upgrades to treatment capacity. A general policy for incorporation in the Comprehensive Plan to address this issue would still have some merit as it makes such decisions more transparent for the general public.
[16] As requirement of its FDEP permit, the City Water and Sewer Department prepares a capacity analysis of its plant every five years during the permit renewal process.

A cost estimate prepared for the City Water and Sewer Department in February, 2016, was $35 million to demolish and build a new plant at a site near the Vero Beach Regional Airport. It would take an estimated six years from concept and design to completion.

As this project would have to be paid primarily by utility users, even if financially supplemented by grants, State Revolving Loan Fund, or revenue bonds, it is highly unlikely any major decision would be made on any decision to relocate the WWTP until the debt on the plant is retired. If it were determined that the treatment capacity of the plant is needed to be increased such a decision may drive a decision to relocate the plant to the airport location. A policy may be considered for inclusion in the Comprehensive Plan that calls for continued evaluation of this possible relocation.

Treated Wastewater Disposal/Reuse. The reuse system has a capacity of 4.5 MGD. Annually consumption is approximately 2.388 MGD (2014). As discussed previously, treated wastewater effluent that is acceptable for reuse is transmitted to the two on-site storage tanks of 8 MGD and one storage tank in Indian River Shores of 1 MGD for future transmission to the reuse system. All the remaining treated wastewater is transmitted to the deep injunction well for disposal.

The recent optimization study conducted by GAI Consultants recommended specific measures to more fully utilize and upgrade the system and increase the number of customers. Specific policy or policies should be considered in the Comprehensive Plan related to expanding customer base and system coverage.

Sludge Disposal. As mentioned previously, the City has installed a new sludge handling equipment, which will result in a more cost effective process. The resulting product is nutrient rich and safe for land application or composting. A policy should be considered to utilize the sludge for either land application or composting to reduce disposal into the landfill.

Major Capital Improvements. Over the next five years starting in 2015, the Water and Sewer Department has identified $5.9 million of projects in the City's Five Year Capital Program for Fiscal Years Ending 2016-2020 for upgrades and replacement of components to the collection system, treatment plant, and reuse system. These upgrades include $2.45 million for the STEP system and $1.5 million for sludge handling modifications.

A list of the sanitary sewer capital improvements to be funded over a five-year period is provided in the Capital Improvements Schedule (CIS) of the policy document to this Comprehensive Plan. The City's CIS as an element of the Capital Improvements Element must be updated annually. As projects are completed, they will be dropped from the list of capital improvements and new projects will be added as needed.

**POTABLE WATER SUB-ELEMENT**

The purpose of the Potable Water Sub-element is to:

- Identify and analyze existing and projected demand and need for potable water facilities based on the service population, existing and future land use, capacity of existing facilities (potable water production wells, treatment, and transmission lines) and any further changes to these facilities.

- Identify and analyze specific operational, regulatory, and funding issues related to the provision of existing and future service.

The analysis of the potable water system serves as the basis for identifying potable water policy and implementation strategies including needed improvements to existing facilities over the next 10 or more years. The end product is to provide the framework for consideration of amendments to the goals, objectives and policies (GOPs) for potable water in the Comprehensive Plan update.

**Historical Background**

The City of Vero Beach has had a central water system since the early part of the last century. This system served the most densely developed and intensively developed urban areas. Outside the central water area served by the City, unincorporated Indian River County had no access to central water service until the late 1960's.

The alternatives to public central water service have historically been private individual wells or central privately-owned and operated central water systems drawing from the surficial aquifer. As demands on the shallow aquifer increased over time due to the new development, access to central public water systems became the more economical and practical alternative.

In the late 1960's, the Moorings development on the barrier island south of the City limits, entered into agreement with the City of Vero Beach that the Moorings would construct a water distribution from the South City boundary to the Moorings and upon completion the facilities would be transferred to the City which would provide water service. This agreement was followed with a series of territorial and franchise agreements beginning in the 1970s with Indian River County and eventually the Town of Indian River Shores to provide central water service to portions of unincorporated Indian River County and Town of Indian River Shores. [The disagreement with the Indian River County is briefly discussed under the Sanitary Sewer Sub-Element.]

**Regulatory Framework**

Potable water is regulated by various agencies at all levels of government. The roles and responsibilities of each level are described in the following sections:

Federal. Minimum potable water quality standards are set by the federal government, which include regulations governing operating standards and quality controls. These regulations are incorporated in the Safe Water Drinking Water Act, Public Law 93-253.

The U.S. Environmental Protection Agency (EPA) is the agency designated by this law to establish minimum drinking water standards. These standards are divided into "primary" and

"secondary" standards. "Primary" standards relate to the health quality of the water, while "secondary" standards concern the aesthetic quality of the water.

State Agencies.

*Florida Department of Environmental Protection:* Pursuant to federal government standards, the Florida Legislature adopted the Safe Florida Drinking Water Act, Sections 403.850-403.864, Florida Statutes (F.S.). The Florida Department of Environmental Protection (FDEP) is the agency response for promulgating rules classifying and regulating public water systems, which are incorporated within Chapter 62-550, FAC. The "primary" and "secondary" standards of the Federal Safe Water Drinking Water Act are mandatory in Florida.

*St. Johns River Water Management District:* The St. Johns River Water Management District (SJRWMD) is responsible for managing water sources to ensure existing and future demand can be met. The SJWMD allocates and manages consumptive use of water resources through its consumptive use permitting system. It issues well construction permits and reviews the construction of all wells, including public water systems.

Section 373.709, F.S., requires that each water management district prepare regional water supply plans based on a 20-year period. Such plans are required to quantify the water supply component for each water supply planning region identified by the district that quantifies the water supply needs for all existing and future reasonable-beneficial uses; water supply options both traditional and alternative; a water resource development; and recovery and prevention strategy; and specific technical data surface and groundwater resources.

Sections 373.709, and 163.3177(6)(c)3, F.S., require that local governments water supply and work plan be updated within 18 months after a water management district's governing board approves an updated regional water supply plan. The purpose of the update is to reflect any changes in the regional plan that affect the local water supply and work plan.

The SJRWMD's 2005 District Water Supply Plan designated 39% of the district as a Priority Water Resource Caution Area (PWRCA). Indian River County is not designated with a PWCRA, which means that existing water supply sources and water supply development plans are considered reasonably adequate to meet projected needs while sustaining water quality and protecting wetland and aquatic systems.

The SJRWMD is currently preparing three separate water supply plans, encompassing the entire district. The water supply plan for the region in which the City is located is the Central Springs East Coast Water Supply Plan.[17] The City is participating with other stakeholders in the development of this plan and its eventual maintenance and updating.

Therefore, the City is not required to prepare a ten-year water supply facilities plan at this time; however, this element does evaluate projected demand and needed improvements to the potable water system over a multi-year period, as discussed under "Analysis" section.

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[17] *Regional Water Supply Planning-2015 Annual Report* prepared by the Florida Department of Environmental Protection.

*Florida Department of Health:* The Florida Department of Health (DOH) through its local county offices regulates all water systems not subject by the Florida State Drinking Water Act. The DOH regulations are contained in the Florida Administrative Code. This agency investigates drinking water complaints.

Local. The City Water and Sewer Department is responsible for providing centralized potable water service within the City of Vero Beach and portions of unincorporated Indian River County and the Town of Indian River Shores. The Water and Sewer Department is responsible for planning upgrading and expansion of existing water treatment and transmission facilities; operating and maintaining the existing treatment and transmission facilities; establishing design and construction standards for connections to the system; and administering and enforcing provisions of Chapter 78, Article IV, Water System that requires connection to the City centralized potable water system and establishes specific rules and procedures governing the system and connections to the system.

**Existing Public Potable Water Facilities**

The City of Vero Beach Water and Sewer Department is the agency of the City that operates and maintains the City's central water system. The City's central water system provides service within its corporate limits and to the Town of Indian River Shores and portions of unincorporated Indian River County including South Beach on the barrier island as shown in Figure 4 of the Map Series. The area immediately outside the City's service territory is served by Indian River County's central water system.

Water Treatment Plants. The City of Vero Beach has two separate water treatment plants (WTP) on the same site, a Lime Softening WTP and a Reverse Osmosis (RO) WTP. The treated water from the two WTPs is blended prior to storage and transmission to the High Service Pumps (HSPs). The blending of water from the Lime Softening and RO WTPs is a dynamic process, which is dependent upon the variable changes in potable water demand.

*RO WTP*: The RO WTP is designed and permitted at a capacity of 3.3 MGD. The plant is operated on a daily basis to produce 2.0 MGD of treated water from 2.35 MGD of raw (untreated) water. The plant utilizes a reverse osmosis treatment process and chloramination to treat water from the three Floridan aquifer wells.

The water from the Floridan aquifer production wells is of lesser quality than water withdrawn from the surficial aquifer. The reverse osmosis process effectively removes these chlorides and other impurities from the well water to produce high quality potable water. Particulate matter and other substandard reuse water is disposed of in the deep injection well used for discharge of treated effluent from the WWTP.

*Lime Softening WTP*: The lime softening WTP has a rated and permitted capacity of 12.99 MGD. The plant produces approximately 3.57 MGD of treated water. The WTP uses a combination of lime softening, coagulation, filtration, recarbonation and chloramination to treat water primarily withdrawn from the surficial aquifer. The treatment processes remove naturally

occurring color compounds from the raw water, reduce the hardness, and stabilize the waste byproduct and disinfect it. Ten of the surficial aquifer production wells have been identified with water that has high limits of Volatile Organic Compounds (VOCs) and are treated by two offsite air-stripping towers prior to transmission to the WTP.

*Potable Water Distributed:* Waters from both the RO WTP and lime softening WTP are blended together to produce the potable water sent to City customers. Supplemental fluoride is added to that naturally occurring in the water to increase the level of this element to the optimum concentration recommended by health authorities to promote dental health. The WTPs utilize nine High Service Pumps for distribution of potable water throughout the service area.

The average daily flow (ADF) for the potable water system was 5.573 MGD in 2014 with a daily peak flow of 8.09 MGD. The estimated average daily flows of potable water distributed on a jurisdictional basis are as follows:[18]

- City of Vero Beach - ~3.36 MGD ADF
- Unincorporated Indian River County - ~1.38 MGD ADF
- Town of Indian River Shores - ~0.83 MGD ADF

Production Wells. The City of Vero Beach draws on groundwater from the Upper Floridan aquifer (referred simply as the "Floridan aquifer") and surficial aquifer for treatment in its central potable water system. The maximum daily amount of water than may be withdrawn is based on the consumptive use permit issued by SJRWMD. [Note: The reader is referred to the next section, Natural Groundwater/Aquifer Recharge Sub-Element and Conservation Element for a detailed description of the Floridan and surficial aquifers as to both water quality and quantity parameters and issues.]

According to the report prepared by the SJRWMD staff in review of the City's Consumptive Use Permit Application in 2014, the City's use of groundwater has significantly declined from historic levels due to water conservation and enhanced reuse.[19] During the period 2000-2013 potable water consumption decreased by 24 percent.

The use and reliance on the surficial aquifer has significantly declined with a decrease from 8.4 MGD before 1992 (the year the RO WTP was constructed) to approximately 4 to 4.5 MGD in recent years. It anticipated that this decrease will continue, especially as the City Water and Sewer Department expands the RO WTP. Reducing reliance on the surficial aquifer further improves the resilience of the potable water system in drought periods.

*Floridan Aquifer Production Wells:* Seven production wells access to the Floridan aquifer of which three of the wells supply the reverse osmosis water treatment plant on a daily basis. The remaining four production wells are backup wells used infrequently to supplement

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[18] The distribution of potable water by jurisdiction is based on estimates provided by the Vero Beach Water and Sewer Department and modified by the Planning and Development Department based on 2014 total ADF of 5.573 MGD.

[19] "*Consumptive Use Technical Staff Report, Application #2-061-10705-7*, prepared by the SJWMD staff dated July 9, 2014.

the surficial aquifer water, which is the main source of supply for the lime softening plant. Withdrawals from the Floridan aquifer averaged 2.08 million gallons per day (MGD) in 2014.

*Surficial Aquifer Production Wells:* Twenty-five production wells withdraw water from the surficial aquifer. These wells produce a daily average of 3.80 MGD raw water for the lime softening treatment.

*Consumptive Use Permit*: The City was issued a 20-year consumptive use permit (CUP) in 2014 by SJRWMD. The permit establishes the maximum amount of groundwater that may be withdrawn by the City from the surficial and Floridan aquifers during each year of the 20-year permit period for potable water use. This limit was set at 2,648.92 million gallons per year (MGY) in 2014, which translates to an average daily flow of approximately 7.358 MGD. This limit will annually increase to 2,717.90 MGY by 2025 and 2,763.46 MGY by 2034. The 2014 limit on average daily withdrawal is significantly above the average daily withdrawal from both aquifers of approximately 5.88 MGD.

In addition to other requirements to obtain the CUP, the City had to demonstrate that it met the District conservation requirements. These conservation efforts are detailed in the Natural Groundwater/Aquifer Recharge Sub-Element of this chapter.

Water Storage Facilities. The water system has five storage tanks. All are above ground tanks. Three tanks of 2 million gallons (MG), 1 MG, and 1MG are located at the water treatment plant site. Two other tanks of 1 MG and 2 MG capacity respectively, are located in the water system service territory. Total tank storage capacity is 5.75 MG.

Water Transmission/Distribution System. The water transmission/distribution system includes two ground storage tanks (see above under Water Storage Facilities) and pump stations. These facilities increase the City's capability to maintain minimum system pressure of 40 pounds per square inch (psi) and provide reliable service to customers through the service territory.

The City's existing transmission/distribution system consists of approximately 290-miles of pipe ranging in diameter from 2 to 30-inches. Older portions of the water mains are mainly asbestos concrete and cast iron pipe. New water mains are mainly PVC, high density polyethylene (HDPE), and ductile iron pipe. The City's water system has approximately 1,160 fire hydrants and 77 pressure reduction backflow preventers.

Funding. The City water system is operated as a proprietary function, which is financed by user fees, impact fees, tap and connection fees, grants, low-interest loans, and various miscellaneous charges. A portion (approximately 6%) of the annual revenues is returned to the City's General Fund as a return on investment.

As noted in the Sanitary Sewer Sub-Element, the City hired GAI Consultants, Inc. to conduct a system and financial optimization study of both the water and sanitary sewer system. The City Water and Sewer Department is implementing many of the study's recommendations that have led to implementing specific optimization measures in terms of operational and cost efficiencies and changes in user fees and charges.

## Analysis

The analysis of the Potable Water Sub-Element focuses on the following: water treatment facilities; production wells; transmission/distribution lines; and storage facilities; and water treatment facilities and production wells. The analysis concludes with a list of major water system projects programmed for implementation through FY 2020.

Water Treatment Facilities. The evaluation of the significant issues related to the WTPs and future operation are discussed below:

*Projected Demand:* In making a projection of future demands on the City's WTP capacity, it is assumed that the City of Vero Beach's water system will continue to serve customers within its corporate limits and the existing water service areas within the Town of Indian River Shores and unincorporated Indian River County during the 20-year planning horizon. However, this assumption does not preclude the exploration of other intergovernmental options during this planning period.

Based on an estimated population served of 38,000, the average gallons per capita per day (gpcd) usage is approximately 146 gpcd based on a 5.573 MGD average annual daily flow. This figure is not consistent with the existing level of service (LOS) standard of 181 gpcd in the Comprehensive Plan. This LOS standard, based on the average number of gallons per capita per day, is not germane to projecting demand and evaluating system capacity.

A more appropriate level of service standard is the use of 275 GPD per ERC figure based the GAI consulting group's optimization study and industry standards.[20] This figure represents the basic volume of water used by a single-family residence. This planning LOS tool used in conjunction with the total treatment capacity of the City's WTPs serves as a much better standard for measuring level of service.[21]

Table 6-4 presents the projected total demand for potable water by the planning horizon year of 2035.

Table 6-4, Projected Potable Water Demand for 2035

| Description | ERC[1] | Demand (MGD) |
|---|---|---|
| 600 Dwelling Units[2] | 600 | 0.165 |
| Non-residential Development[3] | 850 | 0.234 |
| Existing Water Demand (2014)[4] | 20,265 | 5.573 |
| Total Demand | 21,715[5] | 5.972[6] |

Source: City of Vero Beach Planning and Development Department, 2016

[20] In the GAI optimization study, a figure of 275 gallons per day per ERC (amount of water a typical single family household uses each day) was used to determine water demand. This standard is also used by Indian River County's Comprehensive Plan.

[21] It should be noted that the City Water and Sewer Department uses both ERC and gallons per capita per day in projecting and evaluating capacity; however, the projections prepared in this document are generally consistent with the methodology applied by the department.

Notes:

1. Each ERC is 275 GPD.
2. Assumes some partial development of the 333-acre vacant tract in the western sections of the City and other smaller miscellaneous projects under development review in 2016 including development outside the City's corporate limits in unincorporated Indian River County and Town of Indian River Shores.
3. Assumes increase in non-residential development based on employment growth through 2035. This assumption is based on a projected 2.6 million square feet increase in nonresidential floor space (see Chapter 2, Land Use Element) and a generic (commercial office) ERC of 0.33 (110% of sewer ERC) applied per 1,000 square feet of nonresidential floor space. It does not take into account differing uses that have widely varying water usage rates.
5. ADF of 5.972 MG divided by 275 gallons.
6. Increased expansion of the City's reuse system may further dampen potable water demand.

*Raw Water Availability (CUP):* The City's water system is operating under a 20-year Consumption Use Permit that will gradually expand the average daily amount of water that may be daily withdrawn from both the surficial and Florida aquifers from 7.26 MGD in 2014 to 7.57 MGD in 2034. In 2014, the average daily amount of raw water to produce 5.573 MG of potable water was 5.88 MG.

The Water and Sewer Department intends to reduce the amount of water to be withdrawn from the surficial aquifer and increase the amount from the Floridan aquifer over the next 20 years. The increase withdrawal of water from the Floridan aquifer will necessitate an increase in the withdrawal of groundwater to produce the final potable water product due to the presence of minerals, chlorides, and other impurities. [22]

Using data provided in the staff report prepared by the SJRWMD for the City's consumptive use permit (CUP), it is anticipated that 2.15 MGD of water will eventually be withdrawn from surficial aquifer compared to 3.57 MGD in 2014 and the remainder will be from the Floridan aquifer. The expansion of the use of Floridan aquifer water will require an expansion to the RO WTP.

Based on the project potable water demand from Table 6-3, the total potable water demand by 2035 will be 5.972 MGD. Using the assumption that 2.15 MGD of water will be withdrawn from the surficial aquifer, the remaining 3.8 MGD will be from the Floridan aquifer.

Assuming that the only 85 percent of the water withdrawn from the Floridan aquifer will result in a finished product, it is estimated that 4.47 MGD will need to be withdrawn to produce 3.8 MGD of potable water. Adding 4.47 MGD to the 2.15 MGD (water withdrawn from surficial aquifer) results in a total average daily water withdrawal by 2035 of 6.62 MGD. This figure is significantly below the 2034 CUP average daily flow withdrawal of approximately 7.257 MGD.

*Capacity Analysis:* The RO WTP is currently undergoing an expansion of its treatment capacity to 4.5 MGD of finished product requiring 5.29 MGD of raw water. This $4.1 million expansion is anticipated to be completed by 2017. As part of a $550,000 expansion of the odor control facilities has been completed including other upgrading and replacement of aging facilities.

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[22] Approximately 85% of the water drawn from the Floridan aquifer results in a final product for transmission in the water system due to minerals, chlorides, and other impurities.

This expansion of the RO WTP treatment capacity will provide sufficient capacity to treat water drawn from the Floridan Aquifer during the 20-year planning period. The treatment capacity of the Lime Softening WTP will remain at 12.99 MGD, although only a portion of this capacity will be needed on a daily basis.

Production Wells. With the expansion of the RO WTP, two existing Florida Aquifer production wells are to be re-piped ($675,000) by 2017 to supply the plant. Additionally, a new Floridan production well ($800,000) is required with the RO WTP expansion based on a hydraulic model that confirmed the need for an additional production well for redundancy as required by the FDEP permitting requirements.

Transmission/Distribution Lines. The transmission/distribution system expanded as the City grew. The water mains of the older portions of the system made of asbestos concrete and cast iron pipe are being replaced with PVC, HDPE, and ductile iron pipe. The Water and Sewer Department expends an average of $250,000 per year as part of a water service line replacement program. This figure is proposed to be expanded to $400,000 per year by Fiscal Year 2018-2019.

As discussed previously under the Sanitary Sewer Sub-Element, the City has a territorial agreement with the County and Town of Indian River Shores on both water and sewer service areas. It is unlikely, that the City will expand beyond its current service areas as shown in Figure 4. Although Indian River County made proposals to purchase the City's water system, the City has not found it in its best interest or the interests of its utility customers to do so.

Major Capital Improvements. Over the next five years starting in 2015, the Water and Sewer Department has identified $8.4 million of major projects in the City's Five Year Capital Program for Fiscal Years Ending 2016-2020 for expansion of the RO WTP, new Floridan aquifer production well and upgrades and replacement of components to the treatment plant, production wells and transmission and distribution system.

A list of the sanitary sewer capital improvements to be funded over a five-year period is provided in the Capital Improvements Schedule (CIS) of the policy document to this Comprehensive Plan. The City's CIS as an element of the Capital Improvements Element must be updated annually. As projects are completed, they will be dropped from the list of capital improvements and new projects will be added as needed.

## NATURAL GROUNDWATER/AQUIFER RECHARGE SUB-ELEMENT

The surficial and Floridan aquifers underlying Indian River County and City of Vero Beach, comprise the primary water supply sources for the city and Indian River County. The aquifers are generally recharged as precipitation percolates downward through surface soils and underlying layers. The rate of aquifer recharge varies from location to location due to the variable permeability of different soils. Those areas with the greatest permeability have the highest recharge rates and constitute the prime "recharge areas." The presence of underlying confining geological layers also determines the location and effectiveness of these recharge areas.

These aquifers are essential for sustaining urban development. However, these resources are threatened by development such as the creation of imperious surfaces, reducing the area available for rainfall percolation and altering the total rate and volume of recharge. Furthermore, these groundwater resources are also affected by saltwater intrusion and disposal of chemical waste and pollutants that can affect the quality of groundwater.

The purpose of the Natural Groundwater/Aquifer Recharge Sub-Element is to identify and analyze the functions and policy issues related to natural groundwater resources that serve as the City's sole source of potable water including natural features, groundwater recharge areas, and groundwater water use and quality. The analysis of the natural groundwater/aquifer recharge provides the framework for consideration of the amendments to the goal, objectives and policies (GOPs) for this element, which due to the reasons stated in the previous paragraph, are closely related to and coordinated with the GOPs of the Land Use and Conservation Elements of the Comprehensive Plan.

**Natural Features, Stratigraphy, and Aquifer Recharge**

This section describes the physiographic features, stratigraphy, and aquifers which establishment the dynamic framework for groundwater resources in Indian River County and City of Vero Beach.

Natural Features. The typography of the City of Vero Beach is generally flat; however, running parallel to the coastline is a sand ridge. This ridge is the historic coastline that serves as an important aquifer recharge area. Known as the Atlantic Coastal Ridge, the ridge is located approximately one-half mile west of the Indian River Lagoon generally paralleling US Highway 1. Over the years, the ridge has been reduced in elevation from its historical height of over 50 feet due to excavation associated with sand mining and development.

Between the Atlantic Coastal Ridge and as second ridge, known as the Ten Mile Ridge located roughly along I-95 is a flat shallow depression referred to as the inter-ridge basin. It is currently traversed by a network of drainage canals.

Stratigraphy. Within Indian River County and the City of Vero Beach are three important sub-surface strata. The first strata, extending from the surface to approximately 200 feet below ground, contain Pleistocene sands situated above confining strata. The Pleistocene sands contain the surficial aquifer.

The second strata, known as the Hawthorn Formation, consist of a low permeability confining unit that separates the surficial aquifer from the Floridan aquifer. The confining strata range in thickness from 150 to 200 feet.

The third strata, containing the Floridan aquifer, extend from several hundred feet to 3,000 feet below the surface. These strata consist of the Oldsmar, Lake City and Avon Park limestone formations, the Ocala Group, and the Undifferentiated Oligocene Rock layer.

Aquifer Recharge. Of the two aquifers, only the surficial aquifer is recharged within the corporate limits of Vero Beach. The primary source of recharge is percolation of rainfall along the Atlantic Coastal Sand Ridge. In the inter-ridge basin, wetlands contribute to the surficial aquifer recharge.

The Floridan aquifer is recharged by rainfall occurring primarily west and northwest of Indian River County. Within Indian River County, the primary recharge area for the aquifer is west of Blue Cypress Lake. The top of the Floridan aquifer is oriented towards the southeast and consists of a limestone strata of low permeability, water moves eastward through aquifer and eventually discharges into the Atlantic Ocean.

**Existing Conditions**

In this section the existing conditions affecting natural groundwater recharge areas, water use, and water quality are described.

Groundwater Aquifer Recharge Areas. The surficial aquifer ranges in a depth from several feet to approximately 150 feet below the surface. The high percolation rate of the Atlantic Coastal Ridge identifies it as an important recharge area for the surficial aquifer. The probable primary recharge areas for the surficial aquifer are shown in Figure 3.[23] In 2006, the surficial aquifer had an annual recharge rate of 16 inches. In addition to these recharge areas, wetlands and seepage from drainage canals, and water percolation from the Floridan aquifer contribute to the recharge of the surficial aquifer.

The upper zone of the Floridan aquifer ranges in depth from approximately 350 to 600 feet below the surface. The lower zone of the aquifer descends to a depth of approximately 2,000 feet or more. The recharge of rate is estimated to be 0 to 4 inches annually. The recharge principally occurs outside of the boundaries of Indian River County.

Water Use. The predominate source of water used for potable water and other uses is derived from groundwater. According the 2015 annual survey of water conducted by the SJRWMD, the average daily water use in Indian River County was 81.39 MGD including reuse.[24] Water used for public water and domestic self-supply accounted for a little of 20 percent of this total while water used for agricultural self-supply accounted for almost 50 percent.

Prior to 1992, the City's water production was almost entirely from the surficial aquifer. With the construction of the RO WTP in 1992, reliance on the surficial aquifer decreased from 8.4 MGD to approximately 4 to 4.5 MGD. During the last 10 years, the City's average daily potable water use decreased from 8.19 MGD in 2004 to 5.88 MGD in 2014 due to conservation measures and the expansion of the City's reclaimed (reuse) water system.

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[23] The primary recharge areas that are already fully developed or under development are not designated as recharge areas in Figure 2-3.

[24] *2015 Survey of Estimated Annual Water Use for St. Johns Water Management District*, Technical Fact Sheet SJ2016-FS3, St. Johns Water Management District.

Priority Water Resource Caution Areas. As discussed previously, Priority Water Resource Caution Areas (PWRCAs) are areas designated by the SJRWMD where existing and anticipated water supply may not meet projected future demand without unacceptable adverse impacts on water resources. Based on the most recent groundwater model runs, it has been determined that the Floridan aquifer in Indian River County can sustain development in Indian River County into the 2030s. Therefore, the SJRWMD does not anticipate that Indian River County and, therefore, the City of Vero Beach, will be designated within a PWRCA in the next five to ten years. The issuance of a consumptive use permit in 2014 to the City of Vero Beach for withdrawing groundwater through the year 2034 reflects this determination.

The SJRWMD has established specific regulations related to prohibiting the irrigation of lawns and landscapes. Watering restrictions limit lawn and landscape irrigation to 2 days a week during rainy season and once a week during dry (winter) season. Enforcement of these restrictions is the responsibility of SJRWMD.

Additionally, as a requirement of its consumptive use permitting process, SJRWMD require that applications for permits satisfy conservation requirements. As part of the application the applicant must submit a water conservation plan, providing measures to reduce water use and preserve water resources for other beneficial uses.

Water Quality. Water quality in the surficial aquifer is generally potable; however, it contains high concentrations of minerals which require treatment to meet drinking water standards and acceptability. The surficial aquifer is susceptible to horizontal salt water intrusion from the Indian River Lagoon and from infiltration of pesticides, fertilizer, and seepage from septic drainage fields. Increased loss of pressure due to over-pumping may lead to vertical saltwater intrusion from the Floridan aquifer depending upon intervening confining strata.

Water quality in the Florida aquifer is not generally suitable for drinking water without treatment as it contains various minerals and chlorides. Salt water is present everywhere in Floridan aquifer below the freshwater. Saltwater intrusion in the Floridan aquifer occurs when wells are drilled too deep or when too much freshwater is pumped from the aquifer, allowing salt water to replace freshwater. As it is less susceptible to contamination than the surficial aquifer, the Floridan aquifer is the preferred source for water.

**Analysis**

In this section the policy and regulatory issues affecting natural groundwater recharge areas, water use, and water quality are analyzed. The section concludes with a discussion of major capital improvements proposed in the next five years.

Groundwater Aquifer Recharge Areas. As noted previously, the Atlantic Coastal Sand Ridge is the primary recharge area for the Surficial Aquifer. No recharge areas for the Floridan aquifer are located within or in the vicinity of the corporate limits.

Development along the Atlantic Coastal Ridge has compromised the functions of the aquifer recharge by disrupting the natural percolation process with the expansion of impervious

surfaces and by allowing contaminants to enter the groundwater. To limit future impacts, the City should continue to enforce its well field regulations and protection of aquifer recharge areas through its land use planning and Land Development Regulations.

The primary surficial aquifer recharge areas are located on publicly-owned lands that are designated Conservation on the Future Land Use Map. Several well fields are located in these areas, which also contain the critical habitat for the Florida Scrub Jay. The remainder of the areas is either designated for airport operations with resource protection zones that prohibit development or industrial lands containing the City's WTP, and ancillary structures for the City's water and sewer operations.

Potential recharge areas located outside City-owned property are not designated as recharge areas in Figure 3 as these areas are already compromised by development patterns. The City has yet to adopt specific regulations governing aquifer recharge areas for private lands, but does take into consideration protection of these recharge areas in any development proposed on public lands.

The Water and Sewer Department has implemented the "Wellhead Protection" measures of Chapter 62-651, F.A.C. Wellhead Protection Areas of 500 foot radius have been established around the City's production wells. Figure 18 depicts the location of these Wellhead Protection Areas.[25] Any development in these Wellhead Protection Areas is required to meet the standards of Section 62.521.400, F.A.C., as part of the development review and approval process in the City's Land Development Regulations.

Water Use. As documented in the SJRWMD staff report on the City of Vero Beach's CUP application, the average daily water use has decreased from 8.19 MGD in 2004 to 5.99 MGD in 2013 due to an aggressive water conservation program and expansion of the City's reclaimed water system. The per capita water use has declined to approximately 146.6 gpcd, based on an estimated population served in 2015 of 38,000, compared to the estimated 288 gpcd in the 1992 Comprehensive Plan and 181 gpcd in 2006.

The City of Vero Beach has instituted the following water conservation measures to meet the conservation requirements set forth by SJRWMD of CUP applicants:

- Performance of annual system-wide audits and calibration of water meters to address and monitor unaccounted-for water loss;
- Provision of an educational outreach program and distribution of water conservation information to customers via newsletter and utility billings;
- Implementation of a water service line replacement program;
- Meeting and accurate tracking of water utility type usage;
- Adoption and implementation of requirements in City's Land Development Regulations for requiring drought-tolerant and native

[25] These Wellhead Protection Areas have been designated administratively by the Water and Sewer Department, but are not officially designated by the Florida Department of Environmental Protection.

species for all non-single family development and a Tree Protection Ordinance;

- Implementation and expansion of reclaimed water system that has significantly reduced potable water usage for irrigation purposes; and
- Adoption of tiered water conservation rate structure with inclining rates to encourage efficient water use.

The most recent update of the SJRWMD groundwater model indicates that no significant reduction in the quantity or quality of water available in Florida aquifer is anticipated through 2030 and beyond. The CUP issued to the City in 2014 allows for the withdrawal of 7.57 MGD by 2034, which is almost 2 MGD greater than the average daily use by the City in 2015. As noted in the Potable Water Sub-Element, the projected water withdrawal to meet projected 2035 potable water demand is well below this figure.

The City Water and Sewer Department will continue to closely monitor water supply data and take action as necessary should the projected need for water withdrawal exceed CUP limits or if water quantity or quality of the aquifers significantly changes. Should the water quantity and supply conditions adversely change for the aquifers, City water system, the City should explore other water supply alternatives with Indian River County and other localities along with a more aggressive expansion of its reclaimed water system.

As noted in the previous section, the SJRWMD has adopted additional restrictions on the number of times per week during wet and dry season and on the hours for irrigation of lawns and landscapes. The City has followed the County's position in not enforcing the SJRWMD's watering restrictions due to personnel shortages. The City has instead relied upon promoting public education on water conservation measures, its tiered water conservation rate structure, expansion of its reclaimed water system, and requiring native, drought tolerate species for new non-single family development.

Water Quality. All potable water produced and transmitted from the City's WTP meets or exceeds all federal and state standards for safe drinking water. However, saltwater intrusion is a concern for both the surficial and Floridan aquifers, although it is more of a concern for the City wells drawing from the later aquifer.[26] Most of the water drawn from the Floridan aquifer exceeds federal and state chloride level standard, which must be removed through the reverse osmosis treatment at the City's WTP to bring the chloride levels well within these maximum standards.

[26] Most of the water from the surficial aquifer contains less than the federal and state chloride level standard of 250 milligrams per liter.

# CHAPTER 7
# RECREATION AND OPEN SPACE ELEMENT

## INTRODUCTION

Recreation and open space are important components that make the City of Vero Beach a desirable place to live, work, play, and visit. Besides their intrinsic functional value for leisure time pursuits or passive enjoyment, recreation and open space provide opportunities to improve the health and fitness of residents and may perform other functions such as resource protection, development management, and aesthetic enhancement. For instance, the acquisition of sites to meet objectives such as habitat protection and stormwater management also can be utilized to provide for passive or compatible active recreation uses.

Recreation and Open Space consists of two basic components. Both components produce different benefits and meet different needs. The recreation component relates to recreation sites and facilities to meet the recreation needs of the City's permanent and seasonal population. While the open space component is oriented to meeting quality of life issues and aesthetic desires.

With the elimination of the mandatory requirements for park and open space concurrency in Chapter 163, F.S., the City has opted to eliminate specific level of service (LOS) standards for parks and open space which are currently in the existing Comprehensive Plan. The City has significantly more facilities and open space than required under its current LOS standards.

This chapter provides an inventory of existing recreation and open sites and facilities, identifies applicable standards and guidelines, and assesses current and project needs for recreation and open space. The data and analysis provide the framework for identifying establishing specific goal, objectives, and policies to ensure that an adequate system of parks, recreational facilities, and open space is available for City residents and visitors both now and in the future.

## EXISTING CONDITIONS

This section contains an inventory of the City's existing recreation and open space sites and facilities that provides the basis for analysis and needs assessment of the City's recreation and open space system. These sites and facilities are classified according to type and function.

### Classification of Park and Recreational Facilities

The public park and recreation facilities within the City of Vero Beach include five major park classifications:

1. *Community Parks* – a community park serves as a focus for several neighborhood units. A community park may supplement neighborhood parks, or in cases where neighborhood

parks do not exist, it may function as both. Such parks may serve a large segment of the population. Community parks may serve a population of 25,000 or more.

2. *Neighborhood Parks* – a neighborhood park functions as the focus for a neighborhood unit. Neighborhood parks may serve a population of up to 5,000.

3. *Special Facility Parks* – a special facility park is a facility which serves a specific need or purpose (i.e., such as swimming, baseball, etc.) of a large segment of the population. These recreation areas should be located near or have access to arterial and collector routes. Although beach parks are considered a specialty facility park they are group under a separate classification.

4. *Beach Parks and Beach Access* – beach parks and access areas are natural-resource based or open space lands. These are lands that are valuable to the community for a number of reasons, all of which should be used as criteria in the evaluation of potential beach access areas.

5. *Open Space Parks* – similar to beach access parks, open space parks are natural-resource based and have no active recreation facilities. These are lands that are valuable to the community for a number of reasons, all of which should be used as criteria in the evaluation of potential open space park areas.

Not classified as park, lands owned and maintained by the Indian River County School District are still considered as part of the City park and open space system. School lands contain baseball, soccer, and football fields, tennis courts, and indoor recreation facilities that are or may be available by the public.

**Inventory of Public Recreation and Open Space Parks**

The following inventory lists all of City and County-owned recreation and open space parks and Indian River School District lands in Vero Beach. These facilities are grouped according to one of the aforementioned six major classifications.

Table 7-1 Inventory of Public Parks and Recreational Facilities

| PARKS | ACRES |
|---|---|
| *Community Parks* | |
| | |
| Riverside Park Complex | 69.40 |
| Total | 69.40 |
| | |
| *Neighborhood Parks* | |
| | |
| Young Park | 5.00 |
| Pocahontas Park | 5.61 |
| Charles Park | 14.45 |

| PARKS | ACRES |
|---|---|
| Troy Moody Park | 2.19 |
| Jacoby Park | .79 |
| Van Busch Park | 1.10 |
| Piece of Pie Park | 0.40 |
| Total | 29.54 |
| | |
| *Special Activity Parks and Facilities* | |
| | |
| Leisure Square | 9.53 |
| Babe Ruth Field (County) | 11.76 |
| Michael Field | 6.43 |
| Mac William Park | 4.80 |
| Mac William Boat Basin Park | 8.00 |
| Bob Summers Baseball Field and Dog Park | 9.20 |
| Historic Dodgertown Complex (County) | 72.20 |
| Memorial Island | 6.20 |
| Bethel Creek House | 2.16 |
| Royal Palm Pointe Park | 9.57 |
| Vero Beach Marina | 7.53 |
| Total | 147.38 |
| | |
| *Beach Parks and Beach Access* | |
| | |
| Sexton Plaza | 1.27 |
| Riomar Drive Park | 0.28 |
| Jaycee Beach Park | 8.62 |
| Humiston Park | 5.34 |
| South Beach Park | 12.60 |
| Conn Beach Park | 2.60 |
| Flamevine Lane Beach Access | .41 |
| Gayfeather Lane Beach Access | .19 |
| Lady Bug Lane Beach Access | .10 |
| Sandpiper Lane Beach Access | .10 |
| Jasmine Lane Beach Access | .10 |
| Coquina Lane Beach Access | .10 |
| Pirate Cove Lane Beach Access | .10 |
| Turtle Cove Lane Beach Access | .10 |
| Total | 31.91 |
| | |
| *Open Space Parks* | |
| | |

| PARKS | ACRES |
|---|---|
| Lake Rose Park | 1.70 |
| | |
| Block Manor Park (1) | .24 |
| Block Manor Park (2 | .21 |
| Edgewood Park | .20 |
| Pine Terrace Park | .72 |
| Royal Park | .35 |
| Total | 3.42 |
| **Total Park Acreage** | 281.65 |
| | |
| *School District Lands* | |
| | |
| Citrus Bowl | 13.80 |
| Beachland School | 24.97 |
| Rosewood School | 20.75 |
| Freshman Learning Center | 13.60 |
| Vero Beach Senior | 40.00 |
| Total | 113.12 |

Source: City of Vero Beach Planning and Development and Public Works Departments

**Criteria for Public Parks and Recreation Facilities**

The development of standards for recreation facilities is necessary in evaluating existing parks and recreation facilities and identifying deficiencies. It is also necessary for planning the development of new facilities. A number of different standards and criteria are available to guide in the planning and design of recreation facilities.

However, needs vary with geographic location, community population makeup, and community attitude. It is for this reason that a set of criteria and standards have been developed specifically for the City of Vero Beach. The criteria and standards for parks and recreation facilities are typically based on the number of year-round and seasonal residents of Vero Beach.

Table 7-2. Summary of Public Parks and Recreation Facilities Criteria

| Recreation Facility Category | Location | Service Area / Population Served | Acreage | Facilities |
|---|---|---|---|---|
| Special Facilities | In easily accessible area in urban area or on periphery. Access to arterial or major | Central to "identified" need area. | Varies, depending on activity. | Primary purpose parks characterized typically by active recreation uses. |

| | | | | |
|---|---|---|---|---|
| | collector street | | | |
| Community Parks | Central to several neighborhoods. Access to arterial or major collector. | Three-mile radius. Near 25,000 population. | Twenty acres desired. | Neighborhood park facilities and total family facilities: pool, softball, tennis, passive areas and a building. May also contain special facilities. |
| Neighborhood Parks | "Walk-to" park. Located central to neighborhood. Near minor collector. | One-half mile radius. Several neighborhoods. | Five acres desired. | Play equipment, picnic, parking, comfort stations, shelter, sports fields, multi-use courts. |
| Beach Parks and Access & Open Space Parks | Sensitive or valuable resource areas or access to the ocean and lagoon. | Varies, depending on the resource. | Five acres desired (may be less in heavily urbanized areas) | Shelters, nature trails, picnicking, boardwalks, dune crossovers, comfort stations. |

Source: City of Vero Beach Recreation Department

**Special Facility Park Standards**

The special facility park is a facility which serves the special needs of a large segment of the population. Examples of this type of facility are the Vero Beach Marina, Bob Summers Field and MacMillan Boat Basin Park. The size of these facilities will depend on the activities they contain.

Location Criteria. A special facility park should be:

- Central to the area in which a need for a special facility activity is demonstrated.
- A "ride-to facility," but accessible by bicyclists or pedestrians where possible.
- Accessible from arterials and major collector streets.

Development Criteria. A special facility park should contain:

- A specified amount of land based on space requirements needed for the activities it contains.
- Facilities in numbers determined by the population of the desired service area divided by the recommended number of persons to be served by each facility.

- Parking Facilities

Recommended Facilities. The special facility park should contain specialized activities which would not normally be located in one of the other parks due to factors such as location and needed acreage to accommodate activities.

**Community Park Standards**

A community park serves as a focus for several neighborhood units or a larger area if it contains special facilities. It may supplement neighborhood parks, or in cases where neighborhood parks do not exist, it may function as both. This facility can serve up to 25,000 or more people.

Location Criteria. A community park should be:

- Central to several constituent neighborhoods.
- A "ride-to facility," but accessible by bicyclists or pedestrians where possible.
- Accessible from arterial or major collector streets.
- A service facility for the community.

Development Criteria. A community park may contain:

- Minimum of 15 acres (desired).
- Facilities in numbers determined by comparing service area population with the City of Vero Beach activities standards presented earlier in this section.
- "Whole family" activities not found in neighborhood centers (e.g. swimming pool, arts and crafts, museums, performing arts, etc.).
- May contain specialized activities typically found in a specialty facility park.

Recommended Facilities. A community park may contain a wide-range of recreational activities including, but not limited, facilities for the following activities:

- Tennis and Raquetball Courts
- Playgrounds
- Senior Citizens' Activities
- Picnic/Passive Areas
- Sports Fields
- Parcourse
- Multi-Purpose Courts
- Swimming Pools
- Indoor Sports Facilities
- Parking Facilities

## Neighborhood Park Standards

A neighborhood park functions as the focus for a neighborhood unit. Such facility can serve a population up to 5,000. Examples of neighborhood parks are Charles Park and Troy Moody Park.

*Location Criteria.* A neighborhood park should be:

- Centralized in the area it serves.
- Accessible by pedestrian and bicycle routes.
- Accessible from minor collector streets. depending upon size.
- A service facility for an approximate one-mile radius area or less for small parks of less than five acres.

*Development Criteria.* A neighborhood park should contain:

- Five acres (desired).
- Facilities in numbers determined by comparing service area population with the City of Vero Beach activities standards presented earlier in this section.

*Recommended Facilities.* The facilities to be provided in a neighborhood park are dependent upon size of park and service, but may contain, but not be limited to any of the following:

- Shelter/Comfort Station/Recreation Building
- Sports Field(s)
- Picnic/Passive Areas
- Playground Area
- Playground Apparatus
- Multi-Purpose Courts
- Parking Facilities (except parks of less than one-acre)

## Beach Access and Open Space and Open Space Park Standards

Beach access and open space park areas are natural-resource based or open space lands. These are lands which are valuable to the community for a number of reasons, all of which should be used as criteria in the evaluation of potential beach access and open space park areas. These criteria are as follows.

*Acquisition Criteria.* Acquisition of potential park land for open space should accomplish one or more of the following:

- Protect lands which are classified as being sensitive, a valuable resource, or posing a potential threat to public safety if developed (e.g. special treatment areas).

- Provide open space in neighborhoods where open space and parks are non-existent or scarce.

*Location and Development Criteria.* Beach and open space park land should be:

- Five acres (desirable – may be less for beach access parks where larger tracts are not available or are too expensive).
- Accessible by car, bicycle, and pedestrians. (Because of the nature of this resource, it may not necessarily be central to residential neighborhoods.)
- Acquired according to its potential for development – top priority should be given to the acquisition of those properties in imminent danger of development.

*Recommended Facilities (where appropriate)*

- Picnic Areas
- Shelters
- Nature Trails
- Dune Crossovers
- Boardwalks
- Accessory Concessions
- Parking Facilities (except open space parks)

**Guidelines for Facilities**

Table 7-3 represents planning guidelines for typical recreation activities located in area parks and recreation facilities. These guidelines may be used to determine space and special requirements needed to accommodate these activities.

Table 7-3. Guidelines for Recreation Facilities

| Activity | Units | Space Required | Special Requirements |
|---|---|---|---|
| Archery | 3 Targets | .5 Acre | Earth Berm |
| Baseball | 1 Diamond | 2.8 Acre | Fencing, Backstop, Bleachers |
| Basketball | 1 Court | .14 Acre | |
| Boat Launch | 1 Ramp (2 Lanes) | 1.0 Acre | Parking, Turn Around |
| Camping | 1 Site | 1.0 Acre | Restroom, Water, Fire Pit |
| Football | 1 Field | 1.83 Acres | Level Area |
| Golf Course | 9 Holes | 80.00 Acres | Visual Interest Area |
| Golf Course | 18 Holes | 160.00 Acres | |

| Activity | Units | Space Required | Special Requirements |
|---|---|---|---|
| Gymnasium* | 1 Court | 1.3 Acres | |
| Multi-Use Courts | 1 Court | 1.3 Acres<br>Varies: Min. 2,500 Sq Ft/.06 Acre | Level Area |
| Parcourse | 10 Stations | Varies: 10 Acres | |
| Passive Area | 1 Park | 1.5 Acres | Wooded |
| Picnic | 3-4 Tables | .5 Acre | Shade Trees |
| Playfield | 1 Field | 1.5 Acres | |
| Playground | 1 Playground | 1.0 Acre | |
| Racquetball | 2 Courts | .25 Acre | |
| Restrooms | 1 Each | 400 Sq Ft | |
| Shelters | 1 Shelter | 400 Sq Ft | |
| Shuffleboard | 2 Courts | 1,200 Sq Ft | |
| Soccer | 1 Field | 2.0 Acres | Level Area |
| Softball | 1 Field | 1.7 Acres | Fencing, Backstop, Bleachers |
| Swimming Pool | 1 | .11 Acre | Fencing |
| Tennis | 1 Court | .14 Acre | Fencing |
| Track 6 Lane | 400 meter oval | 4.0 Acres | |

*Gymnasiums are usually included in a community center building. Square footage represented in this category reflects this.

**Guidelines for Activities**

Table 7-4 represents guidelines for activities which may be located in area parks and recreation facilities. These standards may be used to determine space and special requirements needed to accommodate these activities. The purpose of these guidelines is to present park and recreation space standards that are applicable nationwide for planning, acquiring and developing park and recreation facilities.

These guidelines should be considered according to the particular situation to which they are applied and specific local needs. It should be understood that such guidelines don't cover the wide ranging type of activities not listed that may be in current and future demand in a specific community such skate board rinks.

Table 7-4. Guidelines for Recreation Activities

| Facility | Existing Number[1] | FORP[2] Guidelines | City of Vero Beach Existing Ratio |
|---|---|---|---|
| Baseball | 5 | 1/5,000 | 1/3,540 |
| Basketball (Full Court) | 12 | 1/5,000 | 1/1,475 |

| Facility | Existing Number[1] | FORP[2] Guidelines | City of Vero Beach Existing Ratio |
|---|---|---|---|
| Boat Ramps (Lanes) | 8 | 1/5,000 | 1/2,212 |
| Gymnasium | 4 | -- | 1/4,425 |
| Parcourse | 3 | 1/15,000 | 1/5,900 |
| Picnic | 10 | 1/4,166 | 1/1,770 |
| General Play | 15 | 1/3,500 | 1/1,180 |
| Football/ Soccer | 3 | 1/6,000 | 1/5,900 |
| 18 Hole Golf Course | 2 | 1/50,000 | 1/8,885 |
| Playground | 14 | 1/5,000 | 1/1,475 |
| Racquetball | 3 | 1/10,000 | 1/5,900 |
| Shuffleboard | 10 | 1/6,000 | 1/1,770 |
| Softball | 3 | 1/6,000 | 1/5,900 |
| Swimming Pools | 1 | 1/25,000 | 1/17,700 |
| Tennis Courts | 20 | 1/2,000 | 1/885 |
| Volleyball | 6 | 1/5,000 | 1/2,961 |

Notes:

1. Existing facilities contain private golf courses and facilities on School District grounds.
2. Florida Outdoor Recreation Plan (February 2002; Florida Department of Natural Resources).

**City Recreation Department and Funding**

The City of Vero Beach Recreation Department is responsible for providing recreational services and programs and operating City and recreational facilities. The City of Vero Beach funds parks and recreation through the General Fund, private donations, and grants. Funds from the General Fund include recreation concessions and rentals, rentals of recreation facilities, and one-cent sales tax. In FY 2015-2016, the Vero Beach Department had a personnel and operating budget of approximately $2,146,000 and employed 19 full-time employees and 10 part-time employees.

Not-for-Profit organizations provide a number of facilities in City parks or other City-owned property to help meet the recreational needs of the City, including:

- Dog Park located at Bob Summers Park;
- Shade Structures for two City playgrounds;
- Fishing Pier located near Memorial Island;
- Youth Sailing facilities located at the City's Wastewater Treatment Plant;
- Rowing facility at MacWilliam Boat Basin Park;
- Proposed ball fields at Michael Field; and
- Proposed skateboard facility to be located at Leisure Square.

Land for these facilities is typically leased from the City of Vero Beach. The leasing organization operates and maintains the facilities.

## Public Schools

School recreation facilities are considered differently from other public recreation facilities, because the primary purpose of these facilities is to serve students at the school, not the general public. School recreation facilities often restrict use by the general public and in some cases such facilities are not available at all. When recreation facilities are open to the public, they serve to supplement other publically owned recreation facilities.

## Regional Public Park and Recreation Facilities

Outside the City limits, Indian River County operates and maintains a significant amount of park and recreation facilities, many of which are accessible and available to City of Vero Beach residents. The County has 27 parks occupying 1,528 acres. Nineteen of the parks are classified as regional/specialty parks including a 36-hole golf course.

## Private Park and Recreation Facilities

The private sector is a participant in the provision of recreation facilities in the City of Vero Beach. The following facilities are available within the corporate limits of Vero Beach, to the general public primarily through membership programs:

- Vero Beach Country Club – Private club with membership open to the public. Includes an 18-hole golf course, driving range, and pro shop.
- Riomar Country Club – Private club with membership open to the public. Includes an 18-hole golf course and driving range.
- Several health and fitness clubs with membership open to the public on a monthly fee basis.
- Vero Beach Yacht Club –Private not-for-profit club with membership open to the public.
- Jack's Marina and Vero Marine Center –Private marinas with wet slips for rent to the public.

## Open Space

Generally, open space can be broadly defined as any areas which are not occupied by buildings, structures, or improved surfaces, such as parking lots and sidewalks. Open space includes landscaped areas in road right-of-way and on private property, conservation areas and wetlands among other things.

However, in the Vero Beach Comprehensive Plan, all recreation and park land has been considered as "recreation and open space," primarily because it eliminated discretion in determining what constituted "open space" and a much easier figure to quantify in establishing a baseline level of service standard formerly required under Chapter 163, F.S. Based on this definition the amount of "recreation and open space" in the City of Vero Beach is 282 acres.

However, this figure fails to account for the hundreds of acres designated as Conservation on the Future Land Use and Zoning Maps and lands held in public ownership for conservation purposes due to presence of wetlands, aquifer recharge areas, spoil and lagoon islands, or significant habitat for endangered or threatened species. The acreage by ownership for these "open space" lands are presented in Table 7-5:

Table 7-5. Non-Park Land "Open Space"

| Property Owner | Location | Acres |
|---|---|---|
| Indian River Land Trust | Mainland | 190.7 |
| Indian River County | Mainland | 125.7 |
| Indian River County | Lagoon Islands | 198.5 |
| City of Vero Beach | Airport | 310.7 |
| Florida Inland Navigation District | Lagoon Islands | 24.55 |
| State of Florida | Spoil Islands | 35.99 |
| Total Acreage | | 886.14 |

Source: Indian River County Property Appraiser Records

**Arts and Cultural Programs**

Arts and culture are vital to citizens and their quality of life and are key ingredients in making Vero Beach a desirable place for residents, snowbirds and visitors. In a 2006 survey conducted by the Cultural Council of Indian River County, 60 percent of survey respondents indicated that they attend at least one cultural event a year, compared to a national average of 35%

Furthermore, arts and culture programs have a significant impact on the region's economy. In a recent report prepared for the Cultural Council of Indian River County (CCIRC), it was determined that total effect (direct, indirect, and induced effects) of arts and cultural organization and event operations, organizational capital expenditures, economic contribution from arts and cultural audience participation expenditures, and arts and cultural tourism resulted in to just under $43.6 million in terms of sales and output in 2015.[1]

In 1995, the CCIRC was incorporated in the State of Florida as a 501(c)(3) not-for-profit organization and designated by Indian River County Commission as the Local Arts Agency for Indian River County. The organization is funded through Arts License Plates, tourist tax funds through the Indian River County Commission, private donations, fund raising events, and grant funds.

Within Indian River County and the City of Vero Beach are numerous for-profit and not-for-profit groups that provide many arts and cultural program. These are overseen by the Cultural Council of Indian River County (CCIRC).

[1] *Indian River County Arts and Culture, Economic Contribution Estimates 2015,* Indian River Cultural Council, May 2015.

## ANALYSIS

This section evaluates the need for park and recreation facilities including a review of the existing level of service (LOS) standards for recreation and open space. The section concludes with a discussion of funding issues related to recreation capital improvements and funding.

### Projected Functional Population

It should be noted that the existing 1992 Comprehensive Plan bases recreation and open space demand on "permanent resident" population. However, Chapter 163, F.S. requires that recreation and open space demand and needs be based on the functional population.

Therefore, in this Comprehensive Plan update, the need for recreation and open space is based upon the estimated and projected functional population. As discussed in Chapter 1, Introduction, functional population is the sum of the permanent resident population and seasonal population that includes the number of people in hotel/motel rooms, lodging with family, friends, and relatives, and part-time residents ("snowbirds"). In 2015 the estimated functional population was 19,351. The functional population is projected to be 21,337 by 2035. [The methodology used in making this estimate and projection is fully explained in Chapter 1.]

### Recreation and Open Space Needs

The Comprehensive Plan establishes three levels of service (LOS) standards that are intended to be the benchmarks for determining recreation and open space needs:

Community and Neighborhood Parks. The adopted LOS for community parks in the City of Vero Beach is one community park for every 25,000 people. The service area for these parks is the entire City of Vero Beach. Based on this level of service and the projected functional population of 21,337 in the year 2035, the current Riverside Park Complex is sufficient to meet the projected needs. Hence, no additional community additional community parks are required during the planning period based on this LOS.

Due to the size of the City of Vero Beach, both geographically and in terms of population, the accepted service area for neighborhood parks is also the entire City. The adopted LOS for these smaller parks is one neighborhood park per 5,000 people. Based on this level of service and the year 2035 functional population projection, there is no need for additional neighborhood parks. There are currently seven neighborhood parks in Vero Beach.[2]

In addition to the supply of community and neighborhood parks, the City also has a number of special facilities and beach parks as indicated in previous sections. While considered special facilities due to their single purpose use, many of these facilities and beach parks contain facilities which could otherwise be found in either community or neighborhood parks.

[2] The number of parks classified as neighborhood is different than in the existing 1992 Comprehensive Plan as beach parks are classified as "neighborhood parks" in the 1992 plan are classified as "beach parks" in this update. Jacoby Park and Piece of Pie Park are now classified as "neighborhood" parks.

Pedestrian access points to the beach are provided at each major intersection, many containing boardwalks and public parking areas. Public boat ramps at Riverside Park and MacWilliams Park, as well as the municipal marina, provide access to the Intracoastal Waterway.

Recreation and Open Space. The third LOS considers the number of acres per 1,000 population of land in recreation and open space. The adopted standard is 15 acres per 1,000 population. The 1992 Plan used the total acreage for public park lands and Indian River County School District lands. If the same methodology were followed the amount of acres would be approximately 395 acres, which does not consider the almost 900 acres in non-park open space.

This total of 395 acres results in a figure of 19.9 acres per 1,000 functional population in 2015 and 18.1 per 1,000 based on the 2035 projected functional population. Therefore, no additional acreage is required to meet this projected need based on the current LOS through the planning horizon year of 2035.

**Recreation and Open Space LOS**

With little growth anticipated in the City's functional population over the next 20 years, the three LOS standards for recreation and open space will easily be met due to the City's extensive park and recreation facilities. Based on discussions with the Parks and Recreation Director, no real need or support exists to expand existing park facilities due to the needs already meet by existing facilities and the constraints on funding to acquire, construct, and maintain new facilities.

Therefore, it is the staff's belief that these standards have little value as applied to the City of Vero Beach in determining recreation and open space needs. Further study would be needed to produce more appropriate standards particularly for the recreation and open space standard; however, it is problematic whether such an effort would result in worthwhile or meaningful standards that could be applied in the City's especially considering the lack of any significant growth in the functional population.

There the staff proposes that LOS standards be eliminated in the update to the Comprehensive Plan. The elimination of the LOS standards removes recreation and open space concurrency requirements as permitted under Chapter 163, F.S. Removing parks and recreation from concurrency requirements also eliminates the need to include parks and recreation capital improvement projects in the annual Capital Improvements Schedule of the Comprehensive Plan.

It is recommended policies for consideration in the update of the Comprehensive Plan should include references to the facility and activity guidelines to assist the City and Parks and Recreation Department in determining needs for specific facilities and activities. However, even these guidelines fail to address all recreational activities such demand from the community for new types of recreation such as "pickle ball" or skateboard facilities. Therefore, the staff should continue its practice of evaluating and responding to changing community recreation needs as appropriate to determine the changing recreation needs of its residents and visitors.

## Funding Recreation Buildings and Facilities

The most pressing needs for recreation is the maintenance of existing facilities, particularly the repair and upgrading many of the City's recreation facilities. In the City's FY 2017/18 through FY 2021/2022 Capital Program contained capital improvement projects to repair and upgrade various facilities totaling $1,51 million. Almost all these projects involved repairs, rehabilitation, or replacement of various elements in City parks and recreation buildings. As recreation is not considered an essential governmental service, it is important that the City continue to pursue measures to reduce maintenance costs and find ways to fund various recreation services through user fees.

As noted under Existing Conditions, not-for-profit organizations are very involved in funding and, in some cases, providing recreational services. Although such participation and funding by these organization has had a very positive overall impact on the community, it has created an issue over the use of public lands for these recreational facilities.

Concerns have been raised over the City entering into piecemeal lease agreements with not-for-profit organizations for use of park land along the Indian River Lagoon without due consideration of the appropriateness or desirability of such uses in various park locations or the consequences for the long term development and use of public park land including possible loss of open space.

The staff is recommending that a master plan be prepared to address these concerns. Such a plan would enable the City Council and staff to respond in more comprehensive manner to requests from these organizations and enable more pro-active planning in future uses and development of the park lands.

## Arts and Cultural Programs

The City should continue to support and work with the Cultural Council of Indian River County which serves as the umbrella organization for cultural and arts organizations and individuals in Indian River County. Additionally, a policy should be included in this element related to the creation of the Vero Beach Arts Village sponsored by the Cultural Council by referencing the objective and policies for the village in the Land Use Element.

# CHAPTER 8
# CONSERVATION ELEMENT

## INTRODUCTION

The purpose of the Conservation Element is to promote the responsible use, protection, and restoration of the City's natural resources. The protection and conservation of natural resources is of paramount importance in maintaining and improving the high quality of life that City residents demand.

The Conservation Element focuses on natural resources and contains policies necessary for, or related to, the protection and preservation of such resources. The data and analysis prepared in this chapter provide the basis for making specific amendments to the existing set of goals, objectives, and policies for the Conservation Element of the Comprehensive Plan.

## ABIOTIC FEATURES

Abiotic features are the non-living chemical and physical parts of the environment. For the purposes of this Comprehensive Plan these features include the following: geology; soils and soil erosion; shoreline erosion; and minerals.

### Geology

The land surface of the City of Vero Beach is underlain by approximately 10,000 feet of sedimentary rock (carbonates, clay, and sands), which overlay a complex of igneous and metamorphic rocks. The upper 1,000 feet the sediments consist of limestone, dolomite, sand, clay, and shell. This area is known as the Tamiami or the Fort Thompson formation. However, most of the City of Vero Beach east of US Highway 1 is underlain by the Anastasia formation which consists of quartz sand and shell material (Coquina).

The surficial aquifer system lies within 200 feet of the surface with overlying sediments predominately composed of sand and clay. Below the surficial aquifer lies the Hawthorne formation, consisting of dolomite, sand, and clay. This formation is approximately 250 feet thick and acts as a confining layer between the Floridan and surficial aquifers.

The Floridan aquifer system includes the Oldmar, Lake City, and Avon Park limestone formation, the Ocala Group, and the Undifferentiated Oligocene Rock layer. The Lake City and Oldsmar limestone formations are found over 1,000 feet deep from the surface, while the Avon Park formation consisting of limestone and dolomite and overlaying the Lake City formation reaches a thickness of up to 250 feet. Immediately overlaying the Avon Park formation is the Ocala Groups containing various limestone formations.

## Soils and Soil Erosion

The United States Soil Conservation Service has identified 40 different soil types in the City of Vero Beach, which are depicted in Figure 3 of the Map Series. These soil types are further classified into 13 generalized soil types distributed under the four following physiographic areas: sand ridges; coastal islands and tidal marshes; flatwoods, low knolls and ridges; and sloughs and poorly defined drainage ways and hammocks. A detailed description of these general soil types may be found in Figure 2.18 of the Future Land Use Element of the 2030 Indian River County Comprehensive Plan.

Except for the shallow aquifer recharge area as discussed in the Natural Groundwater/Aquifer Recharge Sub-Element, the wet soils and highly permeable sandy soils, soils provide few constraints for development in Vero Beach. The impacts of these types of soils on surface and groundwater resources and septic systems are discussed in more detail in the Infrastructure and Land Use Elements.

Soil erosion has not been a problem in the City of Vero Beach. The City has instituted Erosion and Sediment Control regulations to address potential soil erosion resulting from development activities.

## Shoreline Erosion

Shoreline erosion occurs as a result of the natural processes of the Atlantic Ocean on the shoreline beaches and dunes. This erosion is exacerbated by hurricanes and other storm events.

The Florida Department of Environmental Protection has designated "Areas of Critical Beach Erosion" in Indian River County that cover a linear distance of 15.7miles. In 2014, FDEP estimated that 15.7 miles of beach in Indian River County was critically eroded.

One of these critical erosion areas is a 3.1 mile segment along the City's central beach area. This area, designated as Sector 5 by Indian River County, runs from the Tracking Station just north of the city limits on the barrier island to the Riomar Beach Club. This area contains the principal public beaches including Jaycee Park, Sexton Plaza, and Humiston Park and the beaches fronting the City oceanfront hotels and other tourist businesses.

There have been numerous attempts to protect upland property within the City of Vero Beach as the beach erodes. These efforts have involved construction of seawalls, placement of fill material, re-vegetating the dunes, and placement of riprap or sandbags. These isolated efforts have not uniformly reduced or halted the natural erosion process.

Under existing programs, the City of Vero Beach nourishes the dunes around Conn Beach, Jaycee Beach and Humiston Park on an annual basis and where necessary due to storm events on a limited basis. The amount of sand varies at each location each year, depending on the amount of sand lost. The sections of beach which continue to erode are being evaluated by the City for restoration and/or re-nourishment projects. Currently, no state- or federally-funded programs for beach re-nourishment are being implemented in the City.

The County manages all non-crisis beach nourishment because the in 1989, the City voters adopted a charter amendment that bars the City from placing any sand on beaches "except in the amount necessary to protect life or property during storms or other natural disasters." This precludes the City to use its tax dollars to fund any beach re-nourishment without a referendum.

For Sector 5, funding for beach re-nourishment would be through the 4% tax on tourism called the "bed tax," federal, and state funding sources. The distribution of funds from the "bed tax" for projects is administered by Indian River County.[1]

The Indian River County Beach Preservation Plan prepared in 2015, provides specific recommendations for beach preservation. The plan determined that the annual coast for implementation of beach management projects for the eight sectors in Indian River County would be $8.176 million per year. If no action is taken the ultimate costs to the County would be over $29 million per year (including loss of land, property, taxes, and recreational value).

The management plan for Sector 5, which is recognized as the most heavily "armored" section of beach in Indian River County, calls for beach re-nourishment (includes dune restoration) every four years at a annual cost of $637,100 (current dollars). The projected annual costs of no action are $11.7 million per year.

It is clear from reading the background data and analysis presented in the *Beach Preservation Plan* that continued measures must be taken to preserve the beaches in Sector 5. A policy should be considered in this element that emphasizes the need for the City to work with Indian River County in securing state and "bed tax" funding to implement the recommendations of the Beach Preservation Plan.

**Minerals**

No known sources of commercially valuable minerals within Vero Beach. Historically some sand and gravel operations took place along the Atlantic Coastal Ridge; however, these resources have been depleted and such operations are located to the west of the City.[2]

## AIR QUALITY

The Florida Department of Environmental Protection (FDEP) is responsible for monitoring air quality conditions throughout Florida. Data collected from monitoring between 1983 and 1986 by the agency at three locations in Indian County for total suspended particulates (TSP), and sulfur dioxide ($SO_2$) indicated that these pollutants were well below the National Ambient Air Quality Standards. Air quality was determined not to be a significant problem. Therefore, the FDEP terminated air quality monitoring in Indian River County in 1986.

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[1] The City of Vero Beach generates over 52% of the bed tax revenues, but directly receives very little if any of these revenues for projects within the its corporate limits.

[2] The Atlantic Coastal Ridge is located on the mainland and is parallel to and just west of US Highway 1. It is a remnant of an ancient offshore sand bar.

The City prohibits any outdoor burning except as authorized. However, localized problems may occur due to construction or land clearing where dust and other particulate matter are airborne. These incidents are handled through enforcement of the building code and City's nuisance regulations.

Portions of Indian River County and the City of Vero Beach have been identified as having "elevated radon potential." The U.S. Environmental Protection has established a radon limit of 4pCi/L (picocuries per liter). The Florida Department of Health recommends active radon mitigation systems for a small portion of the City of Vero Beach and a larger area for passive radon mitigation systems. These areas of Vero Beach are generally located west of U.S. Highway 1. Areas east of U.S. Highway 1 and on the barrier island are not included.

## SURFACE WATER RESOURCES

The most significant surface water resources are the Atlantic Ocean, Indian River Lagoon and wetlands and seagrass.

### Atlantic Ocean-Near Shore

Two main components comprise the near shore system of the Atlantic Ocean: the sub-tidal zone and the surf zone. The surf zone extends from depths of nine feet below mean low water line (MLWL), while the sub-tidal zone extends from depths of approximately nine feet to twenty-five feet below the MLWL.

Off shore of the City of Vero Beach, two zones are characterized by rock/reef development that stabilize the barrier island shoreline by moderating wave action and providing a hard bottom for marine plants and animals. These rock and reef areas have an abundance of marine life with many types of invertebrates that serve as feeding grounds for sea turtles and the many 255 species of fish. More than 75 percent of these fish are Caribbean reef fish. Also found are fish with commercial and sport fish value such as snappers and groupers.[3]

### Indian River Lagoon

The Indian River Lagoon is a 156-mile long estuary that traverses Brevard, Indian River, St. Lucie, and Martin counties. The Lagoon separates the Vero Beach's barrier island from the mainland portion of the city. It traverses the City for approximately 3.3 miles and ranges in width from several hundred feet to almost ¾ of a mile.

The Indian River estuarine community is considered to be one of the richest in the United States in terms of productivity and the numbers of existing plant and animal species. It derives its estuarine character from the mixing of fresh and salt waters.

It is one of the most biologically diverse estuaries in the country. One of the 28 estuaries in the country in the Environmental Protection Agency's National Estuary Program, the Indian River Lagoon is the only estuary on the east coast of Florida. The Lagoon supports seagrass beds,

[3] Indian River County 2030 Comprehensive Plan, Conservation Element, October 12, 2010.

mangroves, drift algae, salt marshes, oyster bars, tidal flats, and spoil islands that serve as important spawning and/or nursery grounds for commercially important species including shrimp, grouper, snapper, and drum. It is an important recreational and commercial resource for the community.

The Lagoon's freshwater sources are rainfall, groundwater from both the surficial and Floridan aquifers, small amounts of overland sheet flow, discharges from drainage canals, and Sebastian and St. Lucie Rivers. Five inlets to the ocean allow for mixing of saline and fresh waters. These five connections are the Ponce Inlet, Port Canaveral Inlet, Sebastian Inlet, Ft. Pierce Inlet and the St. Lucie Inlet. The Sebastian and Ft. Pierce Inlets exert the greatest tidal influences over the lagoon. However, flushing currents which are strong near the inlets are greatly reduced by the narrow configuration of the lagoon and the constrictions created by the causeways which span the river.

As part of the Clean Water Act of 1987, the National Estuary Program (NEP) was established. Under this program, the Indian River Lagoon was identified as being an estuary of national significance threatened by pollution, overuse, and development. The Indian River Lagoon National Estuary Program (IRLNEP) was established by EPA in 1991 and charged with developing a Comprehensive Conservation and Management Plan to ensure preservation of the IRL's ecosystem through consensus-driven decision making and problem solving.

In 2015, a regional council of local government and state representatives was established to sponsor and carryout the goals of the IRLNEP. The IRLNEP was established in that year as a special district of Florida. A staff was hired to support the council. A major responsibility of the regional council will be in the administration of state and federal grant funds to be available for eligible projects.

Subsequent to the establishment of the regional council, Indian River County opted out of membership. In response to ensure local participation in this multi-jurisdictional effort, the governing bodies of Vero Beach, Sebastian, and Fellsmere voted to join the regional council and were accepted by the regional council as a voting member. However, the Indian River County Commission has reconsidered its decision and voted to join regional council, which ends the three local governments participation as a voting member.

Water Quality. The Lagoon system within the City of Vero Beach is classified by the Florida Department of Environmental Protection as Class III waters designated for "fish consumption, recreation, propagation and maintenance of a health, well-balanced population of fish and wildlife." Portions of the Lagoon outside the city limits are designated Class II, that is designated for "shellfish propagation and harvesting" and requires a higher level of protection than Class III. These areas include the Malabar-Vero Beach Aquatic Reserve located north of the city limits and the Vero Beach-Ft. Pierce Aquatic Reserve located south of the city limits.

It is important to note here the quality and resource values of the Lagoon as they relate to conservation efforts. Because it is in an urban area, the Lagoon is subject to impacts from urban stormwater runoff. However, it is also subject to significant impacts of runoff from the agricultural lands in the interior of the County. These types of runoff are the major sources of

water quality degradation in the Lagoon, and because of its shallow, narrow configuration with limited flushing characteristics, the Lagoon is vulnerable to nutrient eutrophication. High nutrient inputs to the waters of the Indian River Lagoon ecosystem also result, in part, from seeping septic and drain field wastewater disposal systems. Additionally, legacy nutrient loading from "muck" may be contributing to the severity of recent algal blooms.

To address these problems, the FDEP has established and administers the Total Maximum Daily Load (TMDL) program, which is a statewide watershed-based management approach to restore and protect water quality in Florida. As part of this program Basin Management Action Plans (BMAPs) have been or are being prepared throughout the state to address key elements required by the Florida Watershed Restoration Act. The Indian River Lagoon is covered by four BMAPs.[4]

The adopted BMAP (2013) for the Central Indian River Lagoon, which includes the City of Vero Beach, establishes specific reductions in the yearly discharge of nitrogen and phosphorus into the Indian River Lagoon.[5] Specific target reductions for individual jurisdictions have yet to be established.

A detailed discussion of this and related programs to protect and improve the water quality of the Indian River Lagoon is presented in the Stormwater Management Sub-Element.

Vegetative Communities. Within the lagoon waters are two important vegetative communities: seagrass meadows and drift algae. Seagrass meadows form the most important lagoon biotope. Seagrass Ecosystems Analysts mapped the seagrasses of the Indian River Lagoon from Sebastian Inlet to St. Lucie Inlet in 1986. Seven seagrass species were found; all species occur throughout the lagoon but not in a uniform pattern over all areas. The worst water quality and seagrass conditions were found near the Vero Beach area. Water there is almost always turbid, and only scattered patches of seagrass are found around the spoil islands. In approximate order of decreasing abundance, the following species of seagrass were found: manatee grass (*Syringodium filiforme*); shoal grass (*Halodule wrightii*); Johnson's seagrass (*Halophila johnsonii*); turtle grass (*Thalassia testudinum*); paddle grass (*Halophila decipiens*); star grass (*Halophila englemanni*); and widgeon grass (*Ruppia maritima*).

Drift algae communities are intermediate between exposed bottoms and rooted seagrass meadows. These are formed of unattached, free drifting algae which aggregate in response to prevailing winds, water currents and bottom topography. Particularly large and persistent aggregations occur south of Sebastian Inlet and north of Vero Beach; the dominant genera include *Gracilaria, Acanthophora, Hypnea,* and *Dictyota*. The importance of this community to the Lagoon ecology has only recently been recognized. It is apparent that this biotope contributes to primary productivity and the overall diversity and stability of the Indian River.

*Karenia brevis* algal blooms, commonly known as red tides, occur when phytoplankton accumulate in dense clusters near the water's surface, sometimes causing the water to appear

[4] BMAPs must be adopted by Secretarial Order to be enforceable.

[5] Basin Management Action Plan for the Indian River Lagoon Basin Central Indian River Lagoon, developed by Central Indian River Lagoon stakeholders in cooperation with the FDEP, 2013.

discolored or murky. Sometimes these algal blooms are harmful, primarily due to depleted dissolved oxygen, causing harmful effects to marine mammals, fish, birds and other living things. A main cause of algae blooms in the Indian River Lagoon is nutrient runoff from farming operations in the interior, which flow into Lake Okeechobee or into more direct tributaries to the Lagoon. Monitoring information provided by the Florida Fish and Wildlife Conservation Commission found that between 2007 and October 2014 showed two significant instances of algae bloom in the Indian River Lagoon within the city limits in 2007, but none since that time.

Blue Green (Cyanobacteria) blooms are common in Florida lakes, rivers, streams, and ponds. Approximately 20 Cyanobacteria species in Florida's waters are capable of producing toxins, including bloom forming species of *Microcystis, Cylindrospermopsis, Anabaena, Aphanizomenon, Lyngbya,* and *Planktothrix.*

Policy Considerations. In the update of the Comprehensive Plan, the policy areas should be considered to protect and improve the water quality of the Indian River Lagoon in this element and the Stormwater Management Sub-Element and the Coastal Management Element:

- Addressing improvements in stormwater management system and structures to remove TN, TP, and other pollutants entering the Lagoon;
- Continuing to administer its stormwater managements regulations the development approval process and to make amendments to the existing regulations to require buffering requirements along the Indian River Lagoon and connected surface water bodies to reduce pollutants entering the Lagoon;
- Continuing enforcement of the provisions of its "Florida Friendly Fertilizer Ordinance;"
- Continue to enforce provisions of its Sediment and Control ordinance; and
- Participating in the BMAP for the Central Indian River Lagoon and development and implementation of a TMDL budget.

**Wetland and Seagrass Resources**

Wetlands and seagrass are significant resources. Wetlands provide essential habitat and breeding grounds for a variety of terrestrial and marine species; serve to filter many pollutants that may enter the Lagoon; and help absorb floodwaters and protect adjacent lands from flooding and storm surges. Seagrass in the Lagoon's provides the primary breeding grounds and nursery for marine life and is an indicator of the health of the Lagoon. Wetlands and sea grass locations are shown in Figure 5 of the Map Series.

Wetlands Regulations. Wetlands are regulated at the federal, state, and local levels as follows:

*Federal Regulations*: The federal government implements wetland regulations through section 404 of the Clean Water Act. The Corps of Engineers (COE) and the Environmental Protection Agency (EPA) both have active roles in implementing the Clean Water Act.

Section 404 of the Clean Water Act regulates the discharge of dredged or fill material into waters of the United States. The goal of this section is to "restore and maintain the chemical, physical, and biological integrity of the nation's waters", which includes all rivers, streams, lakes, wetlands, and coastal waters. Before conducting any activity that will result in discharge of dredged or fill material, a Section 404 Permit usually must be obtained from the U.S. Army Corps of Engineers prior to beginning the activity.

*State Regulations*: The Florida Department of Environmental Protection (FDEP) regulates wetlands under its Environmental Resource Permit (ERP) Program. Part IV of Chapter 373 of the applicable state statute covers the State's surface water regulatory program. In Indian River County, these regulations are jointly implemented by FDEP and the St. Johns River Water Management District (SJRWMD) using a mixture of rules adopted by FDEP and SJRWMD.

The FDEP performs inspections, delineates jurisdictional wetland boundaries, and enforces state wetland regulations on parcels of land less than five acres in area. For parcels larger than five acres, wetland delineations, inspections, and enforcement responsibility has been delegated by the FDEP to the SJRWMD.

The FDEP has adopted Uniform Mitigation Assessment Method (UMAM). The UMAM is used to determine the amount of mitigation needed to offset the adverse impacts to wetlands and other surface waters.

*Local Regulations:* The City of Vero Beach has requirements for development review of projects impacting wetlands in its Land Development Regulations. However, no specific wetland regulations have been adopted in its Land Development Regulations as called for in amendments to the Comprehensive Plan in 2008 to bring the plan into compliance with Florida Statutes. The staff has relied on wetland policies in the Comprehensive Plan and state wetlands regulations in addressing proposed development on parcels containing wetlands.[6] Additionally, where mitigation is required, the City defers to state and federal agencies in determining mitigation for wetlands.

The staff proposes that a policy with a reasonable time frame to adopt wetland regulations in the Land Development Regulations be incorporated in the update to this Comprehensive Plan. The wetland regulations should be based on the wetland policies established in this Comprehensive Plan.

Wetlands. Though wetlands are most often associated with waterfowl and bird species, they provide essential habitat for a wide variety of species—birds, mammals, reptiles, amphibians, fish, and insects—up to 45% of which are rare and endangered. The high rate of wetland loss has contributed to the endangered status of many species. Some species, such as the

[6] It should be noted that the City Planning and Development Department has reviewed only a couple of projects involving any amount of wetlands since 2006. These projects all involved small, marginal wetlands.

wood duck and muskrat, spend most of their life within wetlands, while others—striped bass, peregrine falcon and deer—occasionally visit wetlands for food, water, or shelter.

As shown in the Table 8-1, most wetlands located within the City of Vero Beach are associated with the Lagoon ecosystem which, along with the Lagoon itself, supports a very large variety of fish, plants and animals. Isolated freshwater wetlands also exist in the interior of the City, particularly on and near the City's airport property. Very few freshwater wetland resources exist on lands that are available for development.

Table 8-1. Acres of Wetlands by Type

| Wetlands Type | Number of Acres | % of Total |
|---|---|---|
| Estuarine and Marine Deepwater | 1,312 | 72.6 |
| Estuarine and Marine Wetland | 343 | 19.0 |
| Freshwater Pond, Riverine, Emergent | 55 | 3.1 |
| Freshwater Forested/Shrub Wetland | 96 | 5.3 |
| Total | 1,806 | 100.0 |

Source: St. Johns River Water Management District; 2015

Seagrass. Seagrass is the Lagoon's prime nursery for fish and other marine life. It provides substrate, habitat, and protection from predators for fish and invertebrates. It provides food for herbivores and the detritus food web. It is also important in nutrient cycles and helps to stabilize sediments. The estimated economic value of seagrass is $16,594 per acre per year (Florida Fish and Wildlife Conservation Commission, 2009).

According to the Indian River Lagoon National Estuary Program, most areas with good seagrass coverage tend to be adjacent to undeveloped lands or close to inlets, with sparse coverage located adjacent to developed areas, tributaries and major drainage systems. Consistent with this finding, seagrass coverage in Indian River County is sparsest in the Vero Beach narrows of the Lagoon. Overall, the amount of seagrass in the Indian River Lagoon Basin has decreased over the years due to changes in water quality conditions.

Seagrass needs sunlight to grow. Although regulations are in place governing installation of docks and other structures over submerged lands to allow for sunlight for underlying seagrass, high concentrations of nutrients entering the Lagoon act as fertilizer on algae causing algae growth to increase. The algae form mats or blooms on the surface of the water that prevent sunlight from reaching the seagrass on the lagoon bottom. Polluted runoff contributes to darker and less transparent water preventing sunlight from reaching the deeper seagrass beds.

The major goal of the Central Indian River Lagoon BMAP is to reduce TP (total phosphorus) and TN (total nitrogen) through the establishment of TMDLs as discussed previously. The implementation of the TMDL "budget" for dischargers to the Central Indian River Lagoon is intended to have a positive impact on the water quality of the Indian River

Lagoon with the ultimate restoration goal of returning seagrass coverage to 90% of the historical seagrass coverage.[7]

## GROUNDWATER RESOURCES

Groundwater resources include two major aquifers both of which serve as sources for potable water. The surficial aquifer extends from the surface to approximately 200 feet below ground. The Floridan aquifer, which is separated from the strata containing the surficial aquifer by the low permeability Hawthorne Formation, is located several hundred feet to 3,000 feet below the surface.

The major source of the City's raw water supply is the surficial aquifer which is located in the top stratum of soil. The quality of this groundwater resource is generally considered good; however, it does contain a number of ingredients that tend to produce "hard" water. Twenty seven of the City's 34 wells draw water from the surficial aquifer. City production wells are shown in Figures 4 of the Map Series.

The deeper Floridan aquifer is the secondary source of groundwater for the City. The Floridan aquifer water has relatively high chloride content, raising the cost of treating it to make it suitable for human consumption. The City has seven wells withdrawing water from the Floridan aquifer.

Saltwater intrusion is a concern for Vero Beach's groundwater resources; however, chloride levels in the area have been decreasing in recent years, and saltwater intrusion is not expected to be a major threat to drinking water supplies for the City for the foreseeable future.

A full discussion of groundwater resources, water demand, and conservation is presented in the Potable Water and Natural Groundwater/Aquifer Recharge Sub-Elements; however, the following is a summary of data and findings from that element:

- The 2014 Consumptive Use Permit issued by SJRWMD to the City is sufficient to meet anticipated water demand through 2034 and beyond without any adverse impact on groundwater resources and other consumptive use permit holders.

- The City is actively making improvements to increase treatment capacity at its Reverse Osmosis Plant to increase use of water from the Floridan aquifer and to reduce the quantity of water withdrawn from and reliance on the more vulnerable surficial aquifer.

- The City will continue to maintain and expand its reclaimed water system for landscape irrigation that will further reduce per capita water consumption.

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[7] *Indian River Lagoon (IRL) Basin Management Actions Plans (BMAPs) Fact Sheet; Improving Water Quality and Seagrass Bed Coverage in the Lagoon,* Florida Department of Environmental Protection, July 2009.

- The City has established 500 foot wellhead protection areas around its production wells to protect public wells from contamination (see Figure 18 of the Map Series).

- The City will continue to pursue water conservation strategies including replacing old water service lines, applying a tiered water conservation rate structure, and performing annual system-wide audits and calibration of master water meters to reduce unaccounted-for water loss.

## ECOLOGICAL COMMUNITIES

Indian River County is enriched by a diversity of upland and wetlands ecological communities that vary in composition extending from the Atlantic Ocean and Indian River Lagoon westward to the western city limits. These ecological communities include the: South Florida Coastal Strand; tropical/coastal hammocks; sand pine scrub/xeric scrub; South Florida Flatwoods; Indian River Lagoon and associated estuarine wetlands; and freshwater wetlands.[8]

### South Florida Coastal Strand

The South Florida Coastal Strand community occurs along the Atlantic Ocean. This community generally encompasses the area affected by ocean spray. Therefore, plants associated with the community are adapted to salt, intense sunlight, and strong winds.

Coastal strand vegetation is usually dominated by saw palmetto, with other important species including sand live oak, wax myrtle, beach bean, Spanish bayonet, seagrape, and sea oats. Remnants of this vegetative community are interspersed in developed areas because Vero Beach requires maintenance and protection of indigenous species as part of its Land Development Regulations.

The coastal strand community provides nesting sites and an abundant food supply. It is utilized by a variety of wildlife including small mammals, birds, amphibians, reptiles. Species of sea turtles, including the Atlantic loggerhead, the Florida green turtle, and the Atlantic leatherback turtle.

Most of the land along the coastal strand consists of single family residences in the Riomar and Castaway Cove neighborhoods with multiple-family and hotel development north of the Riomar neighborhood and south of that neighborhood along South Beach. Public beach parks are interspersed among the developed areas in the coastal strand.

### Tropical Coastal Hammocks

Coastal strand associations succeed to a coastal hammock community, often via a transitional hammock or coastal scrub stage. The coastal hammock can vary from a mature canopy of live oaks (*Quercus virginiana*) and cabbage palms with a sparse understory of wild coffee and

[8] A significant amount of the background data gathered from this section comes from the Conservation Element of the Indian River 2030 Comprehensive Plan.

stoppers, and a dense ground cover of ferns and vines, to a jungle-like community of tropical hardwoods, vines, and shrubs, with a fairly open canopy of oaks and cabbage palms.

Mature coastal hammocks that would typically be found within the study area are dominated by large live oaks. Significantly, laurel oaks (*Quercus laurifolia*) and scrub oaks (*Quercus chapmanii*) are rare, although these species are abundant west of the Indian River and north of the study area on the barrier islands. This may be due to recent development in the study area's coastal hammocks, and the relatively immature alkaline soils.

Cabbage palms are co-dominant in many hammocks, and important canopy or understory plants include paradise tree, gumbo limbo, wild lime, Hercules club, wild mastic, myrsine, white stopper, Spanish stopper, twinberry, shore bay, tough buckthorn, shining sumac, wild coffee, snowberry, poison ivy, greenbrier, wild grapes, gopher apple, tread softly, ferns, and various grasses. Green pine, cypress rose pine, ball moss, golden polypody, shoestring fern, resurrection fern, and wild orchids are often found within the live oak and cabbage palm canopy. Brazilian pepper and Australian pine are commonly encountered in or adjacent to these hammocks, with Brazilian pepper often totally displacing the native understory.

The City is considering regulations to require removal of Category I invasive plant species as listed by the Florida Exotic Pest Plant Council whenever a permit application is filed for any tree removal or relocation. The Council defines a Category I invasive plant species as those species that "are altering native plant communities, displacing native species, changing community structures, or ecological functions, or hybridizing with natives."

In Vero Beach, both coastal hammock communities have been severely modified and in many cases removed by urban development. The island and mainland are almost completely urbanized in locations were the coastal hammock communities existed. Isolated remnants of coastal hammocks remain within developments on the south end of the barrier island.

**Sand Pine Scrub/Xeric Scrub**

The Sand Pine Scrub ecological community is almost exclusively found on well-drained and infertile sands of relict dunes and sand bars, such as the Atlantic Coastal Ridge. It is essentially a fire-maintained community that requires periodic fires for healthy growth.

Within the City of Vero Beach, the xeric scrub communities are typically found in the Astatula-St.Lucie-Archbold soil association. These scrub communities are found along the Atlantic Coastal Ridge west of US. Highway 1 in the northwest corner of the Vero Beach Regional Airport.

Generally, vegetation in the sand pine scrub community consists of sand pines occupying the canopy, and scrubby oaks and other shrubs, vines, and lichens comprising the understory. Many of the understory scrub plant species are considered "Potentially Endangered" by the state or federal agencies.

The fauna of these habitats is diverse and varies greatly depending upon site characteristics and the nature of adjoining communities. A significant number of scrub species are officially listed as Threatened or of Special Concern. These scrub species include the Florida mouse, Florida scrub jay (*Aphelocaoma coerulescens*), gopher tortoise (*Gopherus poluphemus*), Eastern indigo snake (*Drymarchon corais*), Florida pine snake (*Pituophis melanoleucus*), and gopher frog.

This area of xeric scrub within the boundary of the airport is designated as Conservation on the Future Land Use Map. The xeric scrub area within the City's airport has four production water wells. A draft Habitat Conservation Plan has been prepared to address the scrub jay and other listed endangered and threatened species. The draft plan has identified 174 acres in the northeast portion of the airport for protection.

**South Florida Flatwoods**

South Florida flatwoods occur throughout south and central Florida. Although it historically covered a good portion of mainland Vero Beach, only fragments remain. The major remnants include areas on both sides of US Highway 1 north of the Main Relief Canal and areas of a large 333-acre vacant property formerly occupied by the Dodger Pines Golf Course. These areas contain primarily longleaf-slash pine forest and range in width from 2.5 to 3 miles wide.

The natural vegetation of the South Florida flatwoods is scattered pine trees with an understudy of saw palmetto and grasses. Trees and shrubs include slash pine, longleaf pine, live oak, dwarf huckleberry, gallberry, saw palmetto, tarflower, shining sumac, and wax myrtle.

The South Florida flatwoods community is host to a diverse wildlife population. Species typically found in this community include the white-tailed deer, bobcat, raccoon, opossum, nine-branded armadillo, gray fox, gray squirrel, cotton rat, and many other species of mammals, reptiles, and amphibians. Introduced feral hogs and turkey have been observed on the 333-acre vacant property discussed in the first paragraph.

Any large development project of five acres of more in proposed in areas with significant South Florida flatwoods will be required to address preservation and reduction of impact on these areas during the development review and approval process.

**Indian River Lagoon and Associated Estuarine Wetlands**

The Indian River Lagoon and associated wetlands support hundreds of species of fish, plants, and animals. It has more species of fish, plants, and animals than any other estuary in the nation. Thirty-seven rare and endanger species may be found in this ecological system. Estuarine wetlands associated with the Indian River Lagoon account for over 90 percent of the wetlands in the city. Figure 5 of the Map Series depicts the general location of estuarine wetlands.

The natural ecological communities that comprise the Indian River Lagoon are high salt marshes, mangrove swamps, open water, exposed sand-shell bottoms, drift algae, spoil islands and submerged vegetation. Mosquito impoundments and spoil islands are the man-made features present in the Indian River Lagoon. A full discussion of each of these systems and their

functions and ecological importance is provided in the Conservation Element of the Indian River County 2030 Comprehensive Plan.

Wetlands in the Lagoon along the barrier island serve as a transition zone between the barrier island uplands and the river. Usually, these are wetland systems that provide vital habitat for diverse communities of fish and wildlife in addition to their other environmental contributions. However, in Vero Beach, development along the shorelines has left only isolated vestiges of these ecosystems.

Based on the U.S. Department of Interior National Wetlands Inventory, one intertidal mangrove system remains along the mainland shoreline north of the Merrill Barber Bridge. The quality and extent of the wetlands in this area have not been confirmed.

The remaining wetland areas are associated with Fritz Island, Prang Island and the spoil islands in the river. The vegetation usually is dominated by red mangroves with occasional black or white mangroves. In some areas it consists of sea rocket, saltwort, perennial glasswort, seashore saltgrass and seashore pespalum. Patches of smooth cordgrass are sometimes found at the water-ward edges. The spoil islands have value to the natural environment by providing relatively remote bird rookery sites. A major rookery site is located on Riomar Island, located just north of the 17th Street Bridge.

It should be noted that vast majority of estuarine wetlands and spoil islands associated with the Indian River Lagoon are under the ownership of Indian River County, State of Florida or the Indian River Land Trust. Remaining lands still in private ownership are designated Conservation or Environmentally Sensitive on the Future Land Use Map. These designations and environmental assessment requirements for proposed development in these areas significantly limit development and any potential impacts on sensitive wetlands.

**Freshwater Wetlands**

Freshwater forested/shrub and freshwater pond wetlands account for approximately 150 acres. Figure 5 of the Map Series depicts the general location of these wetlands.

The forested/shrub wetlands are generally scattered throughout the Vero Beach Regional Airport property except for small pocket of wetlands located west of Indian River Boulevard near the Barber Bridge. A great majority of freshwater ponds are manmade stormwater retention facilities.

These freshwater wetlands provide habitat for a variety of wildlife in association with other ecological communities. On the airport property these wetlands are located within areas of sand pine scrub and pine flatwoods.

As noted previously, these freshwater wetlands at the airport are under ownership by the City and are designated Conservation on the Future Land Use Map. A small area of forested wetlands near Indian River Boulevard is under County ownership and private ownership as a golf course.

## RARE, THREATENED AND ENDANGERED SPECIES

Though information specific to the City of Vero Beach is not available, combined county-wide data available from the Florida Fish and Wildlife Conservation Commission (FFWC), Florida Department of Agriculture and Consumer Services and U.S. Fish and Wildlife Service allows identification of endangered and potentially endangered species in Indian River County. This information is shown for flora and fauna in Table 8-2 and Table 8-3, respectively, below.

Table 8-2. Status of Flora Species in Indian River County

| Scientific Name | Common Name | Designated Status | |
|---|---|---|---|
| | | DACS | USFWS |
| *Asclepias curtissii* | Curtiss (sandhill) milkweed | E | N/A |
| *Cureus eriophorus* | Indian River prickly apple | E | E |
| *Cereus gracilis* | West coast Prickly apple | E | N/A |
| *Decerandra immaculate* | Lakela's (Olga's) mint | E | E |
| *Ernodea littoralis* | Beach creeper | T | N/A |
| *Myrcianthes fragrans* | Simpson's stopper/ironwood | T | N/A |
| *Ophioglossum palmatum* | Hand adder's tongue ferm | E | N/A |
| *Scaevola plumieri* | Indberry | T | N/A |
| *Tillandsia balbisiana* | Inflated (reflexed) wild pine | T | N/A |
| *Tillandsia fasciculate* | Common (stiff-leaf) wild pine | E | N/A |
| *Tillandsia flexuosa* | Twisted/banded air plant | E | N/A |
| *Tillandsia utriculata* | Giant wild pine | E | N/A |
| *Warea carteri* | Carter's mustard | E | E |
| *Zamia integrifolio* | Florida arrowroot | C | N/A |
| *Selaginella arenicola* | Sand spikemoss | T | N/A |
| *Lechea cernua* | Nodding pinweed | T | N/A |
| *Conradina grandiflora* | Large-flowered-rosemary | E | N/A |
| *Haberaria odontopetala* | Rein Orchid | T | N/A |

DACS = Florida Department of Agriculture and Consumer Services; USFWS = United States Fish and Wildlife Service; T(S/A) = threatened due to similarity of appearance; SSC = Species of Special Concern; E = endangered; T = threatened

Table 8-3. Status of Fauna Species in Indian River County

| Scientific Name | Common Name | Designated Status | |
|---|---|---|---|
| | | FWC | USFWS |
| REPTILES AND AMPHIBIANS | | | |
| *Alligator missippippisensus* | American alligator | SSC | T(S/A) |
| *Caretta caretta* | Atlantic loggerhead turtle | T | T |
| *Chelonia mydas mydas* | Atlantic green turtle | E | E |

| **Scientific Name** | Common Name | Designated Status | |
|---|---|---|---|
| | | **FWC** | **USFWS** |
| | | | |
| *Dermochelys coriacea* | Atlantic leatherback turtle | E | E |
| *Drymarchon corais* | Easter indigo snake | T | T |
| *Eretmocheyl imbricate* | Atlantic hawksbill turtle | E | E |
| *Gepherus poluphemus* | Gopher tortoise | T | T |
| *Lepidochelys ekmpi* | Atlantic Ridley turtle | E | E |
| *Neoseps reynoldsi* | Sand skink | T | T |
| *Nerodia fasiate taeniate* | Atlantic salt marsh snake | T | T |
| *Pituphis melanoleucus* | Florida pine snake | SSC | N/A |
| BIRDS | | | |
| *Ajaia ajaia* | Roseate spoonbill | SSC | N/A |
| *Aphelocaoma coerulescens* | Florida scrub jay | T | T |
| *Aramus guarauna* | Limpkin | SSC | N/A |
| *Egretta caeruleau* | Little blue heron | SSC | N/A |
| *Egretta rufescens* | Reddish egret | SSC | N/A |
| *Egretta thula* | Snowy egret | SSC | N/A |
| *Egretta tricolor* | Tricolored (Louisiana) heron | SSC | N/A |
| *Falco pergrinus tundrius* | Arctic peregrine falcon | E | N/A |
| *Falco sparverius Paulus* | Southeast American kestrel | T | N/A |
| *Grus Canadensis pratensis* | Florida sandhill crane | T | N/A |
| *Haematopus palliates* | American oystercatcher | SSC | N/A |
| *Haliaetus leucocephalus* | Bald eagle | T | T |
| *Mycteria Americana* | Wood stork | E | E |
| *Pelecanus occidentalis* | Brown pelican | SSC | N/A |
| *Piciodes borealis* | Red-cockaded woodpecker | T | E |
| *Polyborus plancus* | Audubon's crested caracara | T | T |
| *Seotyto Cunicularia* | Burrowing owl | SSC | N/A |
| *Sterna antillarum* | Least tern | T | N/A |
| FISH | | | |
| *Acipenser oxyrhynchus* | Atlantic sturgeon | SSC | T |
| *Centropomus undecimalis* | Common snook | SSC | N/A |
| *Rivulus marmoratus* | Mangrove rivulus | SSC | N/A |
| MAMMALS | | | |
| *Balaena glacialis* | Right whale | E | E |
| *Bahaenoptera borealis* | Sei whale | E | E |
| *Bahaenoptera physalus* | Finback whale | E | E |
| *Fells concolor coryi* | Florida panther | E | E |
| *Megapter novaeangliae* | Humpback whale | E | E |

| Scientific Name | Common Name | Designated Status | |
|---|---|---|---|
| | | **FWC** | **USFWS** |
| | | | |
| *Peromyscus polionontus niveiventris* | Southern beach mouse | T | T |
| *Physter catadon* | Sperm whale; cachalot | E | E |
| *Trichechus mantus* | West Indian(Florida) manatee | E | N/A |
| *Ursus americanus* | Black bear | T | N/A |

FWC = Florida Fish and Wildlife Conservation Commission; USFWS = United States Fish and Wildlife Service; T(S/A) = threatened due to similarity of appearance; SSC = Species of Special Concern; E = endangered; T = threatened

As part of its development review and approval process, the City requires that any existing or potential habitat of an endangered or threatened species or species of special concern must be identified and any adverse impacts addressed.

**Florida Scrub-Jay Habitat Conservation Plan**

In 2000, Indian River County adopted the Sebastian Area-Wide Scrub Jay Habitat Protection Plan (HCP). Since that time, the number of documented scrub jay families has remained constant. Prior to the scrub jay HCP adoption, a drastic decline in the number of scrub jay families occurred from 1991 to 1998, resulting in a 50% decrease in the number of scrub jays. Since HCP adoption, the number of scrub jay families has fluctuated by less than 10%.

The City of Vero Beach was not a party to the HCP; however, a suitable habitat for the scrub jay outside the scope of that HCP is located on the City of Vero Beach Regional Airport on the northeast corner of that facility. This area is currnently designated Conservation on the Future Land Use Map.

As discussed in the Land Use Element, the Vero Beach Regional Airport is going through a master planning process. As part of this process, a draft Habitat Conservation Plan (HCP) for the scrub jay and other endangered and threatened species on airport property has been prepared and submitted to U.S. Fish and Wildlife Service. The draft HCP calls for 174 acres in the northeast corner of the airport to be protected. Once approved by the U.S. Fish and Wildlife Service, the City amendments will be made to the Future Land Use Map and Comprehensive Plan.

**Manatee Protection**

In 2000, Indian River County adopted a Manatee Protection and Boating Safety Comprehensive Management Plan (MPP). Currently, county staff works with the FWC in implementing the plan. In 2005, the Coastal Management Element of the County Comprehensive Plan was revised to include the objectives and policies of the MPP. Overall, collisions with watercraft account for the largest portion of manatee deaths. Since MPP adoption, the percentage of manatee deaths caused by watercraft collisions has decreased from 29.6% to 23% in Indian River County. The actual number of overall collision deaths, however, increased from an average of one per year pre-MPP adoption to two per year post-MPP adoption. This average annual increase may be due to the fact

that there were more years to average pre-MPP adoption compared to post-MPP adoption and, therefore, it is too early to tell if the MPP will have a positive effect in the long term. Similarly, other aspects of the plan, such as habitat protection and marina siting, may have visible positive effects only after sufficient time has passed.

In Vero Beach, manatees are protected in the Indian River Lagoon via boating restrictions—primarily speed limits: from the southern end of the City north to SR-60, and from the northern end of the City south to approximately 36th Street, there is a 30-miles-per-hour (MPH) speed limit in the Intracoastal Waterway channel and within 100 feet of the channel. Within the Channel and within 100 feet between those two zones, speed is further restricted to Slow Speed (i.e. "minimum wake"). All Lagoon waters east of the Intracoastal Channel, and those to the west other than finger canals penetrating into the mainland, are limited to Slow Speed. Most of the finger canals are limited to Idle Speed (i.e. "no wake"), except for one finger canal on the west side of Robalo Drive from 18th Street to Tarpon Drive, where no entry is permitted between November 15 and March 31 of each year.

**Sea Turtle Habitat Conservation Plan**

In 2004, Indian River County adopted a Sea Turtle Habitat Conservation Plan (HCP). The City of Vero Beach is a participant in implementation of the HCP. Adoption of the Sea Turtle HCP has led to the development of a complete and accurate sea turtle nesting data set, increased public awareness of the issues facing sea turtle nesting, and specifically identified threats to sea turtle nesting and survival.

The City of Vero Beach initially adopted a Marine Turtle Protection Ordinance in 1993. The ordinance was comprehensively revised in 2009 based on the State model marine turtle protection ordinance.

The provisions of the Ordinance are enforced through the building permitting process for new development. For existing development, the City Code Enforcement personnel with assistance from Indian River County monitor and enforce the strict lighting requirements of the Ordinance.

**Gopher Tortoise Protection**

In 2007, the FFWC's Gopher Tortoise Management Plan was revised. At that time, the gopher tortoise was upgraded from a species of special concern to a threatened species. This upgraded status, along with FWC's prohibition of gopher tortoise entombment on development sites, has heightened the importance of gopher tortoise habitat within the City.

According to the FFWC's revised gopher tortoise management plan, gopher tortoises must be relocated in all cases. At this time, the City has no established policies for gopher tortoise relocation beyond those established by the FWC; however, the City does require gopher tortoise habitat to be identified during the development review and approval process and compliance with the FFWC's Gopher Tortoise Management Plan.

## CONSERVATION, RECREATION AND COMMERCIAL USES OF NATURAL RESOURCES

Significant natural resources in the City of Vero Beach, most notably the Atlantic Ocean waterfront and the Indian River Lagoon and associated ecosystem, are most suitable for recreation, with commercial uses to some extent. The City of Vero Beach comprises 3,251 linear feet of ocean shoreline.

The Intracoastal Waterway which follows the Indian River through the study area is a major source of recreational and some commercial activities. There are two public boat ramps owned by the City, at Riverside Park and MacWilliams Park Boat Basin. There are five commercial marinas in Vero Beach, including the City's public marina.

Most of the areas with wetlands and mangroves on both sides of the Indian River Lagoon are designated for limited residential or conservation uses, including spoil islands. A good majority of these lands are either owned for conservation purposes by Indian River County, State of Florida, and the Indian River Land Trust. As noted previously, an area of the City of Vero Beach Regional Airport containing scrub jay habitat is owned by the City of Vero Beach and is designated for conservation purposes.

Beaches and dunes are not designated as conservation areas. However, these resources are protected by Florida Department of Environmental Protection and City ordinances.

As noted earlier, the coastal area is essentially built out; remaining future growth will not be of the intensity that would negatively impact the remaining natural resources. The Future Land Use and Zoning Maps and the administration of the Land Development Regulations restrict development of environmentally sensitive areas and lands adjacent to environmentally sensitive areas to minimize any adverse impacts on remaining natural resources.

Continued improvements to the City's stormwater system, removal of septic tank systems, and enforcement of the "Florida Friendly Fertilizer Ordinance" will help improve the water quality of the Indian River Lagoon. It should have a positive impact on the marine environment and species. This effort is to be augmented by improvements to the City's regulations for wetlands protection that will further improve the water quality and protect and improve vital marine and terrestrial species habitat.

## HAZARDOUS WASTES

The regulation, collection and disposal of hazardous waste are discussed in the Solid Waste Sub-Element. The following three sites within the City of Vero Beach have in the past created groundwater pollution problems with pollutants entering the groundwater:

- Piper Aircraft facility (Superfund site.)
- Closed County dump northwest of the airport.
- Closed former City Diesel Power Plant

Continued monitoring of groundwater is conducted by the City Water and Sewer Department as the first two properties have a potential to contaminate the City's well field. The third property has been sold to a private developer by the City for redevelopment. Monitoring is no longer required for the third site.

# CHAPTER 9
# INTERGOVERNMENTAL COORDINATION ELEMENT

## INTRODUCTION

The primary purpose of this element is to formulate improved coordination processes among local governments, and with local, regional, state and federal agencies that make direct or indirect decisions influencing land use decisions in the City of Vero Beach. The establishment, maintenance and utilization of channels of communication between governmental bodies, for information exchange and problem resolution is basic to the planning process. This element will establish the necessary relationships and provide principles and guidelines for use in effectively coordinating between the City of Vero Beach, and the governmental bodies with which the city shares common boundaries and/or common planning interests.

According to Section 163.3177(6)(h), Florida Statutes, the Intergovernmental Coordination Element must show relationships and provide guidelines to be used in coordinating the city's Comprehensive Plan with the comprehensive plans of adjacent municipalities and, the plans of school boards and other units of local government providing services but not having regulatory authority over the use of land, and the plans of regional agencies and the state.

## EXISTING CONDITIONS

The City of Vero Beach is governed by an elected council of five members and has an appointed city manager. The city is one of five independent municipalities within Indian River County; these are the City of Sebastian, the City of Fellsmere, the Town of Indian River Shores, and the Town of Orchid. The Town of Indian River Shores directly abuts the city limits on the barrier island and unincorporated Indian River County surrounds the city on the remaining sides, except for the Atlantic Ocean.

On a regular basis, the City of Vero Beach's elected and appointed officials interact and coordinate with the county and the municipalities regarding various issues of mutual concern. In addition, there are other governmental jurisdictions which interact with the city. Federal, state, regional, and local agencies have legislative authority to carry out various activities in the city. These agency functions may be regulatory, jurisdictional, or advisory. These agencies are involved at different levels and are divided into primary agencies and other agencies and jurisdictions. The focus of this element is on primary agencies.

### Primary Agencies Affecting the City

Primary agencies are those governmental bodies having jurisdiction and responsibilities within the city limits that provide services or permitting affecting land development or land dependent development. Table 9.1 lists the primary agencies affecting all or parts of the City of Vero Beach.

Table 9-1. Primary Agencies Affecting the City

| Primary Agencies |
|---|
| *Local Water Control District* |
| |
| • Indian River Farms Water Control District |
| |
| *Indian River County Dependent Special Districts* |
| |
| • Indian River County Emergency Management Services District |
| • Solid Waste Disposal District |
| • Land Acquisition Bond |
| |
| *School District of Indian River County* |
| |
| • School District of Indian River County |
| |
| *Indian River County* |
| |
| • Indian River County |
| |
| *Federal, State and Regional Agencies* |
| |
| • U.S. Army Corps of Engineers |
| • U.S. Fish and Wildlife Service |
| • Florida Department of Transportation |
| • Florida Department of Environmental Protection |
| • Florida Health Department – Indian River County |
| • Florida Fish and Wildlife Conservation Commission |
| • Florida Department of Children and Families |
| • St. Johns River Water Management District |
| • Indian River County Housing Authority |
| |
| *County Agencies (Independent Special Districts)* |
| |
| • Mosquito Control District |
| • Hospital Maintenance District |
| • Florida Inland Navigation District |
| • Indian River Soil and Water Conservation District |

Indian River Farms Water Control District. This is a special drainage district was established under Chapter 298 of Florida Statutes. The district has power to collect taxes for the

operation and maintenance of drainage facilities. Its jurisdiction only partially covers the corporate limits of Vero Beach. The Infrastructure Element discusses in more detail the functions of the drainage district and its relationship to the City.

Indian River County Emergency Services District. The Emergency Services District is a dependent district governed by the Indian River County Board of County Commissioners. This district is responsible for providing emergency services to the entire city area including fire protection. District provides fire protection services throughout the county except for the Town of Indian River Shores. It serves as the comprehensive emergency management organization for all of Indian River County coordinating hurricane evacuation and post-disaster response.

Solid Waste Disposal District. The county's solid waste disposal district is governed by the Indian River County Board of County Commissioners. The district is responsible for the disposal of solid waste throughout the county including land filling, recycling, and composting.

School District of Indian River County. The School District of Indian River County is responsible for public education throughout the county. To fulfill that responsibility, the School District must occasionally site and construct new schools or expand existing facilities in the City. The School District must comply with local comprehensive plans and local zoning regulations. Because school siting affects land use planning in the City, school location criteria are discussed in the Land Use Element.

Coordination with the school district is important as the city's decisions regarding land use and density have an effect on the number and location of schools. The state encourages public school planning between the county, municipalities, and school district and has outlined a formal coordination mechanism for school planning, site selection, and concurrency.

Residential development is a primary factor associated with the growth of the public school system. Due to the relationship between residential development and the provision of public schools, each local government's Public School Facilities Elements focuses on coordinated planning among the School District, County and local governments to accommodate future student growth needs in the public school system.

In 2006 and 2007, the county, municipalities and school board coordinated with each other to update a 2003 school planning inter-local agreement, to establish school concurrency procedures and level of service standards. An important element of this agreement was the requirement that the County and each municipality prepare a public school facilities element in their respective comprehensive plans.

Consistent with the adopted school inter-local agreement, the County and school board regularly share information regarding development patterns and the selection of school sites. Through established processes and committees pursuant to the inter-local agreement, local governments and the school district ensure that new schools or expansions to existing schools are compatible with surrounding uses and that school system has sufficient capacity to accommodate new development. As required by Florida Statutes, a school district member serves as an ex officio member of each local planning and zoning board or commission.

The City has decided that requiring it to adopt and maintain the same public school facilities element as the County and other municipalities is too cumbersome and redundant. Therefore, the City proposes to eliminate the Public School Facilities Element (PSFE) from its Comprehensive Plan and adopt by reference Indian River County's PSFE. Furthermore, an additional policy has been included in the Land Use Element and this element for the City to coordinate with other signatories to the inter-local agreement to reflect this change.

Indian River County. The Indian River County Building Division serves as the City's building department. As part of this relationship, the City is a participant in the County's road concurrency process with the County serving as the administrator of the process. All proposed projects that require a traffic impact study are submitted to the County for concurrency purposes.

The County maintains certain roads, drainage systems and rights-of-way under its jursidiction within the city limits. The County administration complex, courthouse, and library are located with the city. Additionally, the South Beach, jointly owned by the City and Indian River County, provides a venue for many beach recreational activities.

There are several existing committees that have representatives from the city, county, and the other municipalities. These include, but are not limited to the following: the Metropolitan Planning Organization, the Economic Development Council, the Beach and Shores Preservation Advisory Committee, the Affordable Housing Advisory Committee, the Indian River National Lagoon Estuary Program, the Local Mitigation Strategy Working Group, the School Planning Technical Advisory Committee, and the Transportation Disadvantaged Local Coordinating Board.

The City also provides membership to residents from unincorporated Indian River County and the Town of Indian River Shores located with its water, sewer, and electrical service areas to serve on the City's advisory Utilities Commission.

U.S. Army Corps of Engineers (COE). The COE is responsible for maintenance of the Intercoastal Waterway including regulating construction, dredging, and filling in navigable waters and alteration of estuarine wetlands.

U.S. Fish and Wildlife Service(USF&WS). The USF&WS along with the Florida Fish and Wildlife Conservation Commission are involved in the protection and preservation of wildlife and endangered species. Of importance to the city, this agency approves habitat conservation plans for marine turtles and Florida Scrub Jays and oversees the maintenance of these plans.

Florida Department of Transportation (FDOT). The city's transportation system is coordinated with Federal Department of Transportation, FDOT, County, and other municipalities through the Indian County Metropolitan Planning Organization (MPO). Countywide transportation planning is coordinated by the Indian River County MPO, which maintains agreements for transportation planning with FDOT, the county, and all municipalities in the county.

In addition to its responsibilities in the regional transportation planning process, FDOT maintains and constructs state roads and provides fiscal assistance in the construction of major road and airport facilities.

The FDOT also issues permits for drainage, median and driveway cuts, and sidewalks in FDOT rights-of-way. For development projects, those FDOT permits must be issued before a building permit is issued.

Florida Department of Environmental Protection (FDEP). The FDEP is responsible for regulating and issuing permits for development within the coastal construction control line, dredging and fill, construction of docks and other structures over sovereign state waters, air quality, wells, and wetlands under five acres in area, and beach stabilization/re-nourishment. The FDEP is the lead agency on the Central Indian River Lagoon Basin Management Action Plan that is addressing water quality in the lagoon.

Florida Health Department-Indian River County. The Indian River Health Department, an extension of the state health department, provides local environmental services including the permitting of on-site sewage disposal systems.

Florida Fish and Wildlife Conservation Commission. This commission is responsible for protecting the state's wildlife resources through issuance of hunting and fishing licenses and permits for protected and managed species such as the gopher tortoise, manatee, sea turtles, and other species.

Florida Department of Children and Families. This agency licenses group homes and drug abuse treatment and residential facilities.

St. Johns River Water Management District (SJRWMD). Within Indian River County, the SJRWMD regulates and permits drainage systems, wetlands over five acres in area, and issues consumptive use permits for water. As a regional agency, the SJRWMD is responsible for the management of the withdrawal, storage and use of surface water and groundwater in Indian River County for all or part of 18 other Florida counties within the St. Johns River watershed. The St. Johns River Water Management District regulates and administers consumptive use of water, management and storage of surface water, and public and non-public water supply wells within the city.

Historically, the SJRWMD prepared and adopted a single district-wide water supply plan. The district will now develop three separate water supply plans, encompassing the entire district. One these three plans is the Central Springs East Water Supply Planning Region, which includes the City of Vero Beach and Indian River County. The City will coordinate with the district and other stakeholders in the preparation of the regional water supply plan.

Indian River Housing Authority. This agency serves the entire county and oversees housing programs such as the SHIP program.

Other County Agencies – Special Districts. Each of the other county agencies has a specific function. For example, the Mosquito Control District is responsible for mosquito

control in the city and other areas of the county. The hospital maintenance district, the Florida Inland Navigation district, and the Indian River Soil and Water Conservation district provide service to the entire county.

**Secondary Agencies Affecting the City**

There are many other public and quasi-public agencies that may affect the use of land in the city in a less direct way than primary agencies. Those agencies include, but are not limited to, those identified in Table 9-2. Most of agencies are involved in land development activities in various capacities. The state agencies are generally pass-thru agencies and programs for the federal programs.

Table 9-2. Secondary Agencies Affecting the City

| Secondary Agencies |
|---|
| *Regional Organizations* |
| |
| • Treasure Coast Regional Planning Council |
| |
| *State Agencies* |
| |
| • Department of Economic Opportunity |
| • Department of Agriculture and Consumer Services |
| • Executive Office of the Governor |
| • State Legislature[1] |
| • Division of Emergency Management |
| • Division of Historical Resources |
| • Florida Marine Patrol |
| |
| *Federal Agencies* |
| |
| • U.S. Environmental Protection Agency |
| • U.S.D.A. Soil Conservation Service |
| • U.S. Army Corps of Engineers |
| • Federal Emergency Management Agency |
| • U.S. Fish and Wildlife Service |
| • Federal Aviation Administration |
| • U.S. Geological Service |
| • U.S. Department of Agriculture |
| • U.S. Department of Housing and Urban Development |

[1] Although not recognized as a "primary agency affecting the City," the continued actions of the Florida Legislature amount to direct impacts where the legislature pre-empts local zoning ordinances and other home rule powers.

## Services to the County and Town of Indian River Shores

Indian River County has five municipalities within its borders. The City provides water and sewer services to portions of unincorporated Indian River County and the Town of Indian River Shores. The City has franchise or territorial agreements that will continue to allow the City to provide water and sewer services to these areas, unless such documents are amended by the parties involved. This Plan calls for continued provided of City water and sewer services to these areas through the planning horizon.

## Agencies Involved with Land Development

At the local level, the City coordinates with several state agencies with respect to site plan review and permitting. Through the permitting process, an applicant must secure appropriate permits from applicable federal and state review agencies or obtain an exemption letter. As part of its natural resource protection regulations, the City closely coordinates with the following agencies: Florida Department of Environmental Protection (FDEP), Army Corps of Engineers (ACOE), St. Johns River Water Management District (SJRWMD), Florida Fish and Wildlife Conservation Commission, U.S. Fish and Wildlife Service, and others.

Many of these state and federal agencies have more technical expertise in their particular area of responsibility than the city, a factor resulting in coordination even when formal permitting is not required. Therefore, the City staff consults with these agencies in matters beyond its expertise as necessary in the development review process.

## Regional and State Planning Coordination

The responsibilities of the Treasure Coast Regional Planning Council are to ensure that future growth within the region occurs in a manner consistent with state and regional planning objectives and that a high quality of life be maintained. For implementation of plans and programs which address regional issues and problems, the council acts as an information clearinghouse and an intergovernmental data source, conducts research for the purpose of developing and maintaining regional goals, objectives, and policies, and assists in the implementation of local, state, and federal programs. To guide its policy decisions, the TCPRC developed a Strategic Regional Policy Plan. According to state laws, local comprehensive plans must be consistent with the goals, objectives and policies of the Regional Plan.

## Intergovernmental Coordination Agreements

The city has numerous inter-local coordination agreements with state, local and county agencies. Many of the agreements are with Indian River County including agreements for building permitting services, administration of impact fees, and concurrency management. While some of these agreements are related to the provision of water and sewer service, others include specific subject matter such as the use of utility poles. Additionally, the City has agreements with FDOT regarding maintenance of state roads and right-of-way.

## Dispute Resolution

Section 186.509, F.S. requires each local government's Intergovernmental Coordination Element provide for a dispute resolution process or bringing intergovernmental disputes to closure in a timely manner. Although the City has not had to use a formal dispute resolution process to resolve intergovernmental disputes in the past, the City has identified the use of any state certified mediator that conducts proceedings pursuant to the Florida Environmental and Land Use Dispute Resolution Act.

## ANALYSIS

This analysis focuses on intergovernmental coordination based on each of the elements of the comprehensive plan with Indian River County and Town of Indian River Shores, the school board, regional water supply plan, and state comprehensive plan; and specific intergovernmental issues and opportunities.

## Intergovernmental Relations and the Comprehensive Plan

The intergovernmental coordination relations between the City and the County, Town of Indian River Shores, and other governmental entities are described for each element of the comprehensive plan. Each description concludes with an evaluation of the existing coordination process and its

Land Use Element. The Future Land Use Map establishes basic land use patterns. These patterns may be modified by amendments to the Future Land Use Map, re-zonings, and development approvals. The land use decisions of the City may affect Indian River County and the Town of Indian River Shores and sometimes other municipalities. Annexations by the City may affect the county.

The extra-jurisdictional impact of these land use decisions may be adverse, beneficial, or in most cases neutral. These impacts include but are not limited to land use incompatibilities (allowing commercial or industrial use next to low density residential uses); facility impacts (increasing vehicle trips produced by a land use on roadways outside the jurisdiction); and natural resource impacts (land use in one jurisdiction affecting ecosystem either in a neighboring jurisdiction or shared between jurisdictions).

On an informal basis, the City and Indian River County have routinely provided applications on changes in land use or zoning and development projects within 500 feet of each government's jurisdictional boundaries. Any application for development within the City that meets the traffic impact analysis threshold is required to be evaluated by the County's Traffic Engineering Division. For large projects such as a proposed 333-acre residential development on the City's western boundary, the City has provided opportunity for County staff review and comment.

Over the last ten years, the City has had no projects or changes in land use or zoning that would affect the Town of Indian River Shores. During this period, the town has not provided the

City with any concerning development projects and land use and zoning decisions under consideration.

It is important to notify affected governments, identify expected impacts, and, where appropriate, develop measures to mitigate impacts and, if required to utilize the TCRPC mediation process to resolve any disputes.

Chapter 163.3177(6)(h) requires, at a minimum, that the City enter into formal interlocal agreement(s) with Indian River County and the Town of Indian River Shores. This agreement must address through coordination mechanisms the impacts of development proposed in the local comprehensive plan upon development in adjacent jurisdictions and "ensure coordination in establishing level of service standards with any state, regional or local entity having operational and maintenance responsibilities for such facilities."

It should be noted that any changes to future land use are already coordinated with FDOT, FDEP, Florida Department of Economic Opportunity, Treasure Coast Regional Planning Council, and all other municipalities in Indian River County through the formal state comprehensive plan amendment process.

Another intergovernmental land use issue relates to uses incompatible with airport operations located outside the jurisdictional boundaries of the City of Vero Beach. Pursuant to Chapter 333, Florida Statutes (F.S.), the City and Indian River County have adopted an intergovernmental agreement to administer and enforce a set of coordinated airport protection regulations.

The City has entered into a formal agreement with Indian River County School District, Indian River County, and other municipalities in the county related to the planning and siting of schools. As noted in the Land Use Element the City proposes to eliminate the Public School Facilities Element from its Comprehensive Plan and to adopt by reference the latest version of the Indian County's Public School Facilities Element.

Transportation. Land use amendments, re-zonings, and development approvals may have extra-jurisdictional impacts. Such impacts may include the level of traffic generated in one jurisdiction affecting the network of other jurisdictions.

Coordination among jurisdictions is essential to ensure that one jurisdiction does not increase traffic volumes in a manner that creates an unacceptable level of service and transportation concurrency issues. It is important that governments affected by the proposed projects and land use amendments in another jurisdiction be notified in advance of pending development decisions.

With any proposed land use amendment, zoning, or project, the amount of traffic generated and its distribution/assignment must be identified. This process is done through the County's transportation concurrency management process of which the City of Vero Beach is a participant.

The City is a member of the Indian River Metropolitan Transportation Organization (MPO) that develops and maintains the regional transportation plan and associated regional plans as fully described in the Transportation Element. Federal and state funding for transportation improvements for the county including the city is coordinated through the MPO process.

The preparation of the objectives and policies of the City's Transportation Element was coordinated with the Region's 2040 Long Range Transportation Plan. These policies should be implemented and coordinated with federal agencies as appropriate.

Housing Element. Housing is another area where the development decisions of the County and municipalities may impact each other. Commercial, industrial, and residential developments create a need for housing of workers. Although some portion of the housing needs of these workers can be accommodated by market rate housing, many very low, low, and moderate income households (as defined in the Housing Element) have difficulty finding affordable housing. If the local jurisdiction doesn't provide sufficient affordable housing for workers, they must find housing elsewhere.

The City should coordinate with Indian River County in identifying housing needs, determining how these needs may be met, and develop mechanisms to mitigate impacts should the County or City bear the burden of providing affordable housings. The City should coordinate its effort through the County's Indian River Affordable Housing Advisory Committee and the County staff in devising strategies to address affordable housing needs.

Coordination with state and federal agencies is a significant element in any strategy as these a major sources of tax credits and funding for affordable housing and supporting infrastructure projects.

Conservation and Coastal Management Elements. As discussed under the section on the Land Use Element, the land use decisions of the county and municipalities can impact the coastal and environmental resources of another jurisdiction or shared by many jurisdictions. Coordination is needed to mitigate, restore, and manage natural resources and to avoid land use and development decisions that may adversely affect these resources.

The land use decisions may produce extra-jurisdictional impacts such as natural resources impacts where land use activity in one jurisdiction affects environmentally sensitive lands, water quality, endangered species, and aquifer recharge areas in another jurisdiction. An excellent example is the Indian River Lagoon estuary system, a natural resource shared by the city, county, municipalities, and jurisdictions outside the county.

The City and other stakeholders are active participants in the development and implementation of Basin Management Plans for the Indian River Lagoon. The success of this program will rely heavily on the coordination of state agencies and numerous jurisdictions and private sector dischargers.

Another major area for intergovernmental coordination is emergency management. As detailed in the Coastal Management Element, City coordinates its emergency plans and

procedures with the County and other localities. Hurricane evacuation planning is coordinated with the Treasure Coast Regional Planning Council and other jurisdictions within the council's jurisdiction.

A detailed discussion of these and other issues related to conservation and coastal management intergovernmental coordination are addressed in the Conservation and Coastal Management Elements.

Infrastructure Element. The City's Infrastructure Element includes the following sub-elements: Stormwater Management; Solid Waste; Sanitary Sewer; Potable Water; and Natural Groundwater Aquifer Recharge. As the City provides sanitary sewer and potable water services to unincorporated Indian River County and Town of Indian River Shores, it has formal intergovernmental agreements with these entities. These agreements should be maintained.

Over the several years, issues have arisen over possible increases in utilities rates of and lack of representation in City utility matters. These concerns have been mostly addressed through optimization measures to its water and sewer utilities undertaken by the City, rate adjustments for the Town of Indian River Shores, and the appointment of representatives from Indian River Shores and unincorporated Indian River to the City's Utilities Commission.

The City has a consumption permit from St. Johns River Water Management District (SJRWMD) to withdraw ground and surface water through 2034 and is not located in a Priority Water Resource Protection Area; however, the City still needs to participant in the SJRWMD's regional water supply assessment and planning process for the preparation of the Central Springs East Coast Water Supply Plan. Although the City is able to meet its water demand for the foreseeable future, changes in demand of other localities and groundwater users may require revisions to the City's permit and preparation of a ten-year water supply plan.

Solid waste disposal and recycling is provided through a countywide solid waste disposal district. The City should continue to work with the County particularly in investigating recycling options.

Stormwater management is a significant intergovernmental concern as it directly relates to the health and vitality of the Indian River Lagoon. It is further complicated by the overlapping jurisdictions for storm drainage in Indian River County of the Indian River Farms Water Control District (IRFWCD), FDOT, and City of Vero Beach. The City should continue its participation along with other state and local governmental agencies in the Indian River National Estuary Program and the implementation of the Basin Management Plan for the Central Indian River Lagoon.

Land use decisions in one jurisdiction can produce impacts on the infrastructure components of another jurisdiction. Such impacts could include, but are not limited to: facility impacts where stormwater runoff from a project in one jurisdiction affects the canals in other or the IRFWCD's drainage capacity or level of service standard limiting the discharge rate for development projects in a jurisdiction; and aquifer area impacts where development in one

jurisdiction reduces aquifer recharge affecting the quantity and/or quantity of groundwater in another areas.

These types of impacts should be addressed through intergovernmental agreements or through Joint Planning Areas (JPAs). Historically the City has worked informally with the County, other municipalities, IRFWCD, and state agencies to address issues of mutual concern or extra-territorial impacts of proposed development or government actions.

Recreation and Open Space Element. The City, Indian River County, other municipalities, and state agencies can impact the recreation and open resources of each other through land use and zoning decisions and development approvals. Such impacts include adverse impacts on sensitive natural resources from a development project or increased demand on recreational facilities in an adjacent jurisdiction from a development project approved in another jurisdiction.

The City and Indian River County provide and share many recreational facilities and responsibilities. The City has agreements with the County for recreation facilities including, but not limited to, South Beach Park and Historic Dodgertown facility.

**Significant Intergovernmental Coordination Issues and Efforts**

The City coordinates with a number of governmental jurisdictions on a variety of issues. The following is a brief summary of the more significant intergovernmental coordination issues and efforts of the City:

Annexation. As stated in the 2030 Indian River County Comprehensive Plan, annexation "is one of the most important issues affecting the county and its municipalities." Two major issues identified in the county plan were: (1) developers circumventing county regulations through annexation; and (2) county service/facility provision plans undermined by annexation.

The county and municipalities tried to reach resolution on this matter by developing an Interlocal Service Boundary Agreement to address issues such as annexation, density, height, and other issues. This effort was disbanded after approximately two years for several practical and political reasons.

Unilaterally, the City adopted specific policies regarding annexation that have been incorporated into the Land Use Element of this Plan. These policies have been implemented by the City in its annexations.

The policies limit annexation to lands within the designated County urban service area and to areas served or available to be served by City water and sewer. Additionally, the policies require that the future land use and zoning designations of any annexed property be comparable to the designations of the property under County regulations. The policy strictly prohibits the City from negotiating annexation agreements with property owners to secure higher density or intensity as a quid pro quo for annexation.

Land Use Development Impacts. As stated previously, the City and County have an informally notified each other of proposed land use and zoning and development projects that may affect the other jurisdiction. At times, each jurisdiction has invited the other to review a proposed development project, but not a formal basis.

While extra-jurisdictional impacts of development projects on transportation network are handled very well through the established joint concurrency process of the City and County, other possible extra-jurisdictional impacts of development projects and land use and zoning changes need to be more formally addressed. The City should enter into intergovernmental agreement with the County and City of Indian River Shores to establish formal coordination mechanisms to address extra-jurisdictional impacts of development as stipulated in Section 163.3177, F.S.

Provision of Utilities. The City has agreements with the Town of Indian River Shores and Indian River County to provide utility services. The City reached agreement with the Town of Indian River Shores to charge its customers in the town the same rates as the County chargers its customers for water and sewer. This agreement resolved concerns regarding rates charged town residents. The City has also appointed a representative from the town to serve on the City's Utilities Commission that advises the City Council on rates. This Comprehensive Plan calls for maintaining the provision of utilities services to the town.

In the County's 2030 Comprehensive Plan, the County has a policy to maintain a dialogue with the City to initiate a study to assess the financial feasibility of consolidating utility services or terminating the City of Vero Beach service agreement by 2017. This effort has come to naught for financial, practical, and political reasons. At the time of this writing, the County and City are renegotiating the service agreement that will continue City utility services to unincorporated Indian River County. This Comprehensive Plan calls for maintaining the provision of utilities services to South Beach and existing services areas in other portions of unincorporated Indian River County.

Transportation Funding. The City is an active participant in the MPO transportation planning and funding process. Unfortunately, at least one high level project, Aviation Boulevard, was dropped from the Transportation Improvement Program in approximately 2010 despite having a source of funding and preliminary engineering and design. The 2040 Long Range Transportation listed this project for funding in 2026-2030.

The City should work with Indian River County and MPO officials to revise the scope that would expedite this project needed to serve the growing needs of the Vero Beach Regional Airport and commercial district as well as provide an alternative east-west route to the heavily travelled SR 60 corridor.

The City has a general concern that it does not receive its fair share of funding for projects. A specific policy should be included in this Comprehensive Plan calling for the City to coordinate with MPO and Indian River County in moving forward projects of importance to the City.

School District. The City is a signatory to the Interlocal Agreement for Coordinated Planning and School Concurrency ("Interlocal Agreement") along with the Indian River School District, Indian River County, City of Fellsmere, City of Sebastian, and Town of Indian River Shores. This agreement requires the City to adopt a Public School Facilities Element in its Comprehensive Plan and establishes specific procedures for planning, and siting of schools, and concurrency and level of service standards.

In this Comprehensive Plan, the Public School Facilities Element is to be eliminated. However, specific policies are included to mirror the requirements of the Interlocal Agreement. The Land Use Element of this Plan adopts by reference the latest Public School Facilities Element of the Indian River County Comprehensive Plan. After review of the existing Interlocal Agreement, it was determined that the agreement did not have to be amended to recognize the City's decision to adopt by reference the latest Public School Element of the Indian River County Comprehensive Plan.

Another issue that needs to be addressed is the School District's compliance with local Land Development Regulations. A good example is the major expansion to Beachland Elementary School. The School District did submit an application to the City for review for compliance with local regulations and eventual approval by the School Planning and Technical Advisory Committee (SPTAC); however, the School District went forward with construction without receiving any final review and formal development approval. In minor instances, the School has installed signs that don't comply with the City's sign regulations. The City should coordinate with the SPTAC and the School District to address these types of issues.

Beach Erosion Funds. The City has coordinated with the County on shoreline protection. Other than federal and state funds to address storm damage to dunes, the City has been unsuccessful in getting the County to allocate "bed tax" (4% tax on tourism) revenues for beach erosion and other shoreline projects within the city limits. The County generates over 52% of the bed tax for Indian River County, but receives little or no benefits from these revenues. A policy should be considered for inclusion in the Comprehensive Plan to address this issue.

# CHAPTER 10
# CAPITAL IMPROVEMENTS ELEMENT

## INTRODUCTION

The Capital Improvements Element (CIE) identifies capital improvements needed to implement the comprehensive plan and ensure that the adopted level of service (LOS) standards are achieved and maintained for concurrency related facilities and to implement specific objectives and policies of this Comprehensive Plan. As stated in Section 163.3177(3), F.S., the capital improvements element is intended "to consider the need for and location of public facilities in order to encourage the efficient use of such facilities." The data and analysis contained in this chapter provide the basis for specific amendments to the existing set of goals, objectives, and policies (GOPs) and the Capital Improvements Schedule (CIS) in this Comprehensive Plan update.

### Definition of Capital Improvements

A capital improvement, for purposes of this plan element, is any substantive capital outlay or acquisition of assets or phased expenditures over multiple years costing at least $100,000 that is required to ensure availability of public facilities and meet established acceptable levels of service or to implement specific objectives and policies of the Comprehensive Plan. Capital improvements include acquisition of land, construction of buildings and infrastructure, and purchase of major equipment, but do not include ongoing operating and personnel costs.

The capital projects identified in this element and included in the CIS differ from the capital projects in the City's Five Year Capital Program. Projects in the CIS are only those capital projects of $100,000 or more related to the requirements of the Florida Statutes for the Comprehensive Plan. These projects do not include the lease purchase of vehicles or equipment, although these capital outlays are included in the City's Five Year Capital Program.

### Required Updating of the Capital Improvements Element

In 2011, the Florida Legislature adopted the following major revisions to Chapter 163, F.S. regarding the CIE that were incorporated in this update to the Comprehensive Plan and this element:

- The required annual update of five-year CIS no longer must be adopted and transmitted to the Department of Economic Opportunity as a comprehensive plan amendment. It now may be accomplished by ordinance and not as a comprehensive plan amendment.

- The requirement that the CIS demonstrate financial feasibility has been eliminated; however, capital projects must still be listed in the CIS, projected revenue sources identified and projects listed as "funded" or "unfunded" and assigned with a level of priority for funding.

- Only sanitary sewer, solid waste, drainage (stormwater management facilities), and potable water are subject to statewide concurrency requirements. The City. along with Indian River County and other municipalities in the county, has opted to continue concurrency requirements for transportation and public schools.

**Element's Components**

The Capital Improvements Element contains the following components:

- A financial assessment that analyzes forecasted net revenues available over the next five years for capital improvements eligible for inclusion in the Capital Improvements Schedule and evaluates outstanding debt and policies affecting capital expenditures.

- A discussion and evaluation of local policies and practices related to capital improvements including level of service (LOS) standards and capital improvement budgeting process and its relationship to the Comprehensive Plan.

- A review and evaluation of the concurrency management system needed to ensure that the LOS standards are maintained.

- Identification of needed short-term (5 years) and long-term (more than 5 years) capital improvement projects to maintain LOS standards and implement specific Comprehensive Plan policies for stormwater, solid waste, sanitary sewer, potable water, and roads by cost, timeframe, revenue source, and priority.

The updated five-year CIS updated is presented in Exhibits C through F of the Policy Document to this Comprehensive Plan. The CIS includes the following capital improvement projects:

- Local projects for stormwater, solid waste, sanitary sewer, potable water, and roads;

- Road improvement projects contained in the MPO's adopted Transportation Improvements Program that are relied upon to maintain LOS standards within the city limits.

- Solid waste projects in the adopted Indian River County Capital Improvements Schedule for any significant improvements to the County landfill.

- Projects in the adopted School District of Indian River County's Five Year Work Program and Capital Improvements Program.

## FINANCIAL ASSESSMENT

In this section, forecasted revenue sources and revenues available to finance needed capital improvements are presented and examined. The forecasted revenues available for both General

Fund supported capital projects and individual Enterprise Funds are presented. Specific funds to fund non-CIS capital projects are deducted to provide the net revenues available over the next five year period (FY 2017/18- FY 2021/22).

This assessment concludes with a brief review of the City's outstanding debt and a re-examination of existing policies in the Capital Improvements Element related to debt.

**Revenue Sources for General Fund CIS Projects**

Capital improvements projects for stormwater and roads are financed under Fund 304, General Fund Capital and Construction. The following is a description of the revenue sources for this funding account:

Transfers from the General Fund. Funds transferred from the General Fund to Fund 304 (General Fund Capital and Construction) are generally very limited due to the fact that the General Fund is used to finance the operations of the City's general governmental activities, including city administration, legal services, public works, police, planning, recreation, and other non-enterprise government activities. Revenue sources for the $23.4 million General Fund (FY 2017/18) are as follows:

- *Ad Valorem* Taxes. Ad valorem taxes are calculated as a percentage of the value of non-exempt real or personal property as expressed in mills. The millage rate for FY 2017-18 was set at 2.5194 mills [~25.7% of General Fund revenue].

- *Other Taxes.* This category includes all other taxes such as those assessed on utilities and telecommunications services (tax rate of 5.12%), local option gas tax (6 cents per gallon sold), and taxes on businesses located within the City limits [~14.2% of General Fund revenue].

- *Charges for Services.* This category includes administrative support charges to Electric, Water and Sewer, Solid Waste, Airport, and Marina Funds, fees for development review services, and security services provided to the airport [~13% of General Fund revenue].

- *Permits, Licenses, and Fines.* This category includes revenues from sign permits, miscellaneous permits, licenses, fines, forfeitures, and seizures.

- *Intergovernmental Revenue.* This category includes revenues from the one-half cent sales tax, distributed to counties and municipalities based on a population weighting factor, State revenue sharing, and federal and state grants or reimbursement.

- *Miscellaneous Income.* This category includes interest and income received on investments made by the City, rental and lease income, and other income not defined in the previous categories.

- *Fund Transfers*. The General Fund receives contributions from the Electric, Water and Sewer, Solid Waste, and Marina Revenue Funds as a return on the City's investment in these proprietary activities [~28.8% of General Revenue Fund revenue].

- *Borrowed Funds*. These revenues are proceeds from loans, bond issues, or other short and long term instruments to raise revenues beyond available funding reserves, operating revenue, and other available revenue sources. Any long-term financing using bonds require a voter referendum if the pledge used to repay the bond is based on the full faith and credit of the municipality.

- *Fund Balance Carryover*. Carried over revenues from previous fiscal years.

Special Assessments. These are special assessments on private property owners to pay for public for improvements that benefit the property owner.

Transfers from Fund 311. Fund 311 receives the revenues from the one-cent sales tax and interest on monies in the fund. The local government infrastructure surtax, approved by the County Commission and renewed for 15 years by voter referendum in November 2016, provides a one percent sales surtax to all transactions subject to the state taxes. This money is disbursed to the City based on a population based formula. These funds generally may only be used to finance, plan, and construct public infrastructure; acquire land for public recreation or conservation or protection of natural resources; and to finance closure of local government-owned solid waste landfills. The funds transferred to Fund 304 are those funds remaining after debt service on revenue bonds.

Capital Lease Proceeds. This category includes the proceeds from the leasing of municipal vehicles.

Grants. This category includes federal and state and private grants or donations.

Fund Balance Carryover. Revenues carried over from previous fiscal years for capital improvements to be used for future capital improvements.

**Available Revenue for General Fund CIS Projects**

On the following page Table 10-1 presents the projected revenues and expenditures for Fund 311 from FY 2017/18 through FY 2021/22. Table 10-2 presents the projected revenues for Fund 304 for FY 2017/18 through FY 2021/22. In Table 10-3, the anticipated non-CIS capital expenditures for the years FY 2017/18 through FY 2021/22 are subtracted from the available projected revenues in Fund 304 to provide the amount of projected revenues available to pay for CIS capital improvements.

Table 10-1. Projections of Fund 311 Revenues/Expenditures, FY 2017/18-FY 2021/22 ($1,000)

| **Revenues/Expenditures** | **FY 17/18** | **FY 18/19** | **FY 19/20** | **FY 20/21** | **FY 21/22** |
|---|---|---|---|---|---|
| *Revenues* | | | | | |
| Balance Forward | $ 476 | $ 188 | $ 208 | $ 243 | $ 290 |
| One Cent Sales Tax | 2,300 | 2,313 | 2,328 | 2,342 | 2,356 |
| Interest | 5 | 2 | - | - | - |
| Total Revenue | $2,781 | $2,503 | $2,536 | $2,585 | $2,646 |
| *Expenditures* | | | | | |
| Debt Service | $ 774 | $ 777 | $ 775 | $ 777 | $ 775 |
| Transfer to Fund 304 | 1,819 | 1,518 | 1,518 | 1,518 | 1,518 |
| Total Expenditures | $2,593 | $2,295 | $2,294 | $2,295 | $2,293 |
| Balance | $ 188 | $ 308 | $ 243 | $ 290 | $ 355 |

Source: City of Vero Beach Fiscal Year 2017-2018 Annual Budget and Five Year Capital Program. Fiscal Years Ending 2018-2022,

Table 10-2. Projections of Fund 304 Revenues, FY 2017/18-FY 2021/22 ($1,000)

| **Revenues** | **FY 17/18** | **FY 18/19** | **FY 19/20** | **FY 20/21** | **FY 21/22** |
|---|---|---|---|---|---|
| Balance Forward | $ 1,216 | $ 288 | $ 469 | $ 506 | $ 584 |
| Interest Income | 1 | 1 | 1 | - | - |
| Special Assessments | 2 | - | - | - | - |
| Capital Lease Proceeds | 761 | 485 | 323 | 342 | 822 |
| General Fund Transfer | 118 | - | - | - | - |
| Grants/Donations/Public Contributions/Other | 328 | 40 | 104 | - | - |
| Fund 311 Transfer | 1,819 | 1,518 | 1,518 | 1,518 | 1,518 |
| Total Revenue | $5,170 | $2,332 | $2,415 | $2,366 | $2,924 |

Source: City of Vero Beach Fiscal Year 2016-2017 Annual Budget and Five Year Capital Program. Fiscal Years Ending 2017-2021,

Table 10-3. Projections of Available Revenues for General Fund CIS Projects, FY 2017/18-FY 2021/22 ($1,000) [Fund 304]

| **Revenue/Expenditures** | **FY 17/18** | **FY 18/19** | **FY 19/20** | **FY 20/21** | **FY 21/22** |
|---|---|---|---|---|---|
| Revenue: Fund 304 | $5,170 | $2,332 | $2,415 | $2,366 | $2,924 |
| Expenditures: Non-CIS Capital Projects | $3,301 | $1,527 | $1,183 | $ 919 | $1,484 |
| Available Revenues for CIS Capital Projects | $1,869 | $ 805 | $1,232 | $ 1,447 | $ 1,440 |

Source: City of Vero Beach Fiscal Year 2016-2017 Annual Budget and Five Year Capital Program. Fiscal Years Ending 2017-2021,

## Revenue Sources and Availability For CIS Water and Sewer Projects

Capital improvements for potable water and sanitary sewer are funded through Fund 423, Water and Sewer Renovation and Replacement. The significant sources of revenue for this fund are:[1]

- *Fund Balance Carryover.* Revenues carried from previous fiscal years.
- *Impact Fees.* Fees collected for connection to water and sanitary sewer systems.
- *Step System Prepayments.* Payments paid by property owners for STEP System.
- *Transfers from the Water and Sewer Fund.* The Water and Sewer Fund receives revenues from operation of the water, sewer, and reuse systems. including interest on investments, cash carryover from previous years, and other miscellaneous charges. The funds transferred to Fund 423 are the funds remaining after deduction of water and sewer operating expenses, debt service requirements, transfer to the General Fund, and capital additions.
- *Other.* The category is a catch all for miscellaneous revenue such as utility extensions, interest and penalty income, and special assessments.

Table 10-4 below provides projections on available revenues from Fund 423 for CIS water and sewer projects from FY 2017/18 through FY 2021/22.

Table 10-4. Projections of Available Revenues for Water and Sewer CIS Projects, FY 2017/18-FY 2021/22 ($1,000) [Fund 423]

| **Revenue/Expenditures** | **FY 17/18** | **FY 18/19** | **FY 19/20** | **FY 20/21** | **FY 21/22** |
|---|---|---|---|---|---|
| *Revenue* | | | | | |
| Balance Forward | $3,965 | $ 601 | $ 411 | $ 656 | $ 1,552 |
| Impact Fees | 260 | 260 | 260 | 260 | 260 |
| STEP Sys. Prepayments | 375 | 275 | 275 | 275 | 275 |
| Water and Sewer Rev. Fund | 1,700 | 2,100 | 2,100 | 2100 | 2,100 |
| Other | 255 | 15 | 20 | 23 | 25 |
| Total | $6,555 | $3,251 | $3,066 | $3,316 | $4,212 |
| *Expenditures* | | | | | |
| Non-CIS Capital Projects | $2,269 | $ 195 | $ 595 | $ 89 | $ 165 |
| *Available Revenues for CIS Capital Projects* | $4,286 | $3,056 | $2,471 | $3,227 | $4,147 |

Source: City of Vero Beach Fiscal Year 2017-2018 Annual Budget and Five Year Capital Program. Fiscal Years Ending 2018-2022.

[1] No revenue from bond or loan proceeds is anticipated during the period FY 2016/17 through FY 2020/21.

## Revenue Sources and Availability for Solid Waste CIS Projects

Capital improvement projects for Solid Waste are funded through Fund 461 (Solid Waste). The source of revenue for this fund is transfers from the Solid Waste Revenue Fund and the fund balance carryover. The Solid Waste Revenue Fund receives revenues from garbage collections fees, interest, and other miscellaneous sources. Revenue is transferred to Fund 461 for capital improvements after deduction of solid waste operating expenses, debt service requirements, and capital additions. The Solid Waste Fund has no outstanding debt.

Table 10-5 below provides projections on available revenues from Fund 461 for CIS solid waste projects from FY 2017/18 through FY 2021/22.

Table 10-5. Projections of Available Revenues for Solid Waste CIS Projects, FY 2017/18-FY2021/22 ($1,000) [Fund 461]

| **Revenue/Expenditure** | **FY 17/18** | **FY 18/19** | **FY 19/20** | **FY 20/21** | **FY 21/22** |
|---|---|---|---|---|---|
| *Revenue* | | | | | |
| Balance Forward | $ 996 | $ 661 | $ 536 | $ 565 | $ 619 |
| Net Cash | 152 | 300 | 300 | 300 | 300 |
| Capital Lease Proceeds | 24 | 26 | - | - | - |
| Total | $1,172 | $ 987 | $ 836 | $ 865 | $ 9191 |
| *Expenditures* | | | | | |
| Non-CIS Capital Projects | $ 36 | $ 46 | $ 21 | $ 21 | $ 11 |
| *Available Revenues for CIS Capital Projects* | $1,136 | $ 941 | $ 815 | $ 844 | $ 908 |

Source: City of Vero Beach Fiscal Year 2017-2018 Annual Budget and Five Year Capital Program. Fiscal Years Ending 2018-2022,

## Outstanding Debt and Debt Policies

Table 10-6 on the next page presents a detailed summary of the City of Vero Beach's existing long-term debt. The total outstanding debt for the year ending September 30, 2017, was approximately $47.121 million. The City has no general obligation debt.

Excluding short-term capital lease purchases (fleet vehicles), no further increase in debt is anticipated during the next five years of the CIS. Therefore, the City's long-term debt should continue to decrease with payment of principal and the retirement of two Capital Improvement Revenue Notes.

In consultation with the City Finance Director, the staff reviewed two existing policies in Capital Improvement Element. The City has no outstanding general obligation and no debt limitation in City ordinances; however existing Policy 4.3 requires that any general and special obligation bond be held to no more than 5 percent of the City's total exempt assessed property value.

Table 10-6 Existing Long-Term Debt for Fiscal Year Ending September 30, 2017 ($1,000)

| | Outstanding 9/30/17 | Interest Rate | Final Maturity | Pledge Source |
|---|---|---|---|---|
| **General Fund** | | | | |
| Capital Improvement Revenue Note, Series 2012A | $ 490 | 1.18% | 2017 | 1 Cent Sales Tax |
| Capital Improvement Revenue Note, Series 2012B | 890 | 1.06% | 2017 | 1 Cent Sales Tax |
| Capital Improvement Revenue Note, Series 2007B-2 | 5,000 | 3.98% | 2026 | 1 Cent Sales Tax |
| Total Outstanding | $6,380 | | | |
| **Electric Fund** | | | | |
| Electric Refunding Revenue Bonds, Series 2003A | $28,250 | 4.11% | 2022 | Fund Revenues |
| Total Outstanding | $28,250 | | | |
| **Water and Sewer Fund** | | | | |
| Water and Sewer System Revenue Loan Clean Water & State Revolving Fund | $146 | 2.43% | 2031 | Fund Revenues |
| Water and Sewer Revenue Loan Clean Water & State Revolving Fund | 8,878 | 2.26% | 2030 | Fund Revenues |
| Water and Sewer Revenue Loan Drinking Water State Revolving Fund | 243 | 2.82% | 2031 | Fund Revenues |
| Total Outstanding | $9,267 | | | |
| **Marina Fund** | | | | |
| Capital Improvement Revenue Note, Series 2007A | $ 3,224 | 4.01% | 2028 | Fund Revenues |
| Total Outstanding | $ 3,224 | | | |
| **Total Long-term Debt Outstanding** | $47,121 | | | |

Source: City of Vero Beach Fiscal Year 2016-2017Annual Budget.

It was the consensus of staff that policies in the Comprehensive Plan placing limitations on revenue bonds indebtedness, debt coverage ratio, and total general and special obligation indebtedness are not appropriate for inclusion in the Comprehensive Plan. Such provisions restrict the flexibility of local government in responding to capital improvement needs. Municipal finance professionals recommend that if such limitations are desired by a community they should be done through adoption of policies by the governing body rather than by ordinance.

By September 30, 2017, revenue bonds will constitute 80% of the City's total outstanding debt and the ratio of total debt obligations will be only 1.9% of the City's total nonexempt assessed property values. These figures are well within the 90% limit for revenue bonds and 5% limit on maximum ratio of debt to the total nonexempt assessed property value in existing Policy 4.3. The debt coverage for the City's total outstanding indebtedness and individual bond issues are and will be well over the minimum 125 percent debt coverage called for in the existing Policy 4.3.

Therefore, it is recommended that Policy 4.3 be deleted and not included in the update of the Comprehensive Plan.

## LOCAL POLICIES AND PRACTICES

This section describes and evaluates current local policies and practices that guide the timing and location of construction, extension or increases in capacity of each public facility. These policies and practices relate to the city's existing level of service standards and capital improvements planning and programming process.

### Level of Service Standards

Level of service (LOS) standards are indicators of the extent or degree of service provided by, or proposed to be provided by, a public facility based on and related to the operational characteristics of the facilities. In the special case of stormwater management, a LOS standard also applies to private stormwater management facilities that connect with the public stormwater management system.

LOS standards affect the timing and location of development by guiding development to areas where facilities have sufficient capacity and away from areas with insufficient capacity. The standards are administered through the concurrency management system discussed in the next section.

The City has established LOS standards for roads, sanitary sewer, potable water, solid waste, stormwater management, solid waste, recreation and open space, and schools. The LOS standard for recreation and open space is proposed for elimination in this update of the Comprehensive Plan as discussed in Chapter 7, Recreation and Open Space Element.

The following are the LOS standards for capital and on-site stormwater management facilities, including proposed revisions to certain LOS standards as noted:

- Roadways
  - Arterials and collectors –LOS "D" (Peak Hour/Peak Season/Peak Direction), except for the following:
    - * 27th Ave. from South City Limits to SR 60 (Peak Hour/Peak Season/Peak Direction)-"E" plus 20%

* A1A from SR 60 to North City Limits (Peak Hour/Peak Season/Peak Direction) - "D" plus 30%

* AIA from 17th Street to South City Limits (Peak Hour/Peak Season/Peak Direction) – "D" plus 30%

- All other roadways-LOS"E" (Peak Hour/Peak Season/Peak Direction)

❖ Sanitary Sewer [Note: Revised-see Chapter 6, Sanitary Sewer Sub-Element.]

- 250 gallons per day per equivalent residential unit

❖ Potable Water [Note: Revised-see Chapter 6, Potable Water Sub-Element.]

- 275 gallons per day per equivalent residential unit
- Minimum pressure of 40 pounds per square inch (psi)
- Minimum storage capacity of 5.75 million gallons

❖ Stormwater [Note: Revised-see Chapter 6, Stormwater Management Sub-Element]

- A minimum 25-year/24 hour storm event for drainage facilities for multi-family and nonresidential development and City's drainage system.
- A minimum on-site retention/detention of the first one inch of rainfall with no direct discharge into the Indian River Lagoon or connected waters for single family and duplex dwellings
- A minimum on-site retention/detention of the first one and one-half inches of rainfall with no direct discharge to the Indian River Lagoon or connected surface waters for multi-family and nonresidential development

❖ Solid Waste [Note: Revised-see Chapter 6, Solid Waste Sub-Element]

❖ 1.43 tons per capita for permanent plus weighted seasonal population or 1.54 cubic yards per capita for permanent plus weighted seasonal population

❖ Schools [In the Policy Document to this Comprehensive Plan the lasted adopted Public School Element of the Indian River County Comprehensive Plan is adopted by reference.]

❖ 100 percent of the Florida Inventory of School Houses (FISH) capacity for each public school type (elementary, middle, and high)

## Capital Improvements Budgeting Process

The City of Vero Beach's Capital Improvements Program, called the "Five Year Capital Program" identifies and lists capital projects; estimates capital costs of the projects including any additional operating and personnel costs that may result from the projects; identifies revenue sources for financing projects; and schedules the projects over a five year period based on available funding and need for the project. The first year of the Five Year Plan is the capital budget.

The Capital Improvements Schedule (CIS) differs from the City's annual Five Year Capital Program, in that it only includes those capital improvements required to meet or maintain adopted LOS standards or implement the objectives, and policies of the comprehensive plan over a five-year time period.

The annual City's capital improvements budgeting process that produces the annual Five Year Capital Program includes all capital projects, both CIS and non-CIS projects. Capital projects are any improvements that result in the acquisition of or addition to fixed assets and the acquisition of vehicles and equipment.

The City's budgeting process begins in February and March where the City Council in consultation with the City Manager establish service level goals and broad citywide objectives for the upcoming budget year. These goals and objectives are reviewed and discussed with Department heads, who then prepare capital budget request forms for each proposed capital project that are submitted to Finance director for editing and compilation of the preliminary budget document.

The request form describes the type of expense, project description and location, justification, proposed revenue source, and proposed fiscal year for funding. Depending upon the department, only capital requests for major capital outlays for projects are included in the Five Year Capital Program. All other minor capital projects are contained in the Annual Budget, which covers personnel and operating costs and minor capital outlays.

The Finance Director produces the detailed draft Five Year Capital Program and Annual Budget. The City Manager meets with department heads to review budget proposals and any necessary revisions are made. The draft Five Year Capital Program and Annual Budget are presented to Council in a series of meetings open to the public. Revisions may be made to both draft budgetary documents upon direction from City Council. The revised documents then go through two public hearings, where further revisions may be made, prior to their adoption.

Upon adoption of the Five Year Capital Program, the staff prepares the five year CIS. The updated CIS is incorporated in the Capital Improvements Element by ordinance. However, if any amendments are to be made to the GOPs of the Capital Improvement Element, they are required to go through the amendment procedures per Section 163. 3184, Florida Statutes.

Existing Policy 1.5 identifies ten criteria ranked in order of importance for evaluating requests for a capital outlay involving a CIS project. In review of these criteria, the staff suggests several

revisions to eliminate criteria not relevant to the evaluation and add other appropriate criteria. Therefore, several revisions are proposed to existing Policy 1.5.

Existing Policy 1.6 calls for the preparation of an Annual Capacity and Analysis Report to be prepared by the Planning and Development Department that is intended to be submitted along with the annual Capital Improvements Schedule and Five Year Capital Program. This report has never been prepared due primarily to the lack of need and staffing priorities.

Overall, the City has maintained its LOS standards for water and sewer, stormwater, and solid waste facilities. No issues with these standards are anticipated through 2035. Historically, the only concurrency issues have been with roads; however, at the present time no deficiencies exist and none are anticipated over the next five years.

Rather than prepare an annual capacity and analysis report, the staff is recommending that it continue to collect and review pertinent data provided by appropriate city and county agencies to identify any potential deficiencies. Therefore, it is recommended that Policy 1.6 be eliminated and separate policies be incorporated in the CIE to reflect this policy change.

## CONCURRENCY MANAGEMENT SYSTEM

To ensure LOS standards are maintained, the City has established a Concurrency Management System. This system provides a regulatory framework for ensuring adequate public facilities and services are in place or will be in place to support proposed development. This system provides criteria for monitoring and measuring facility capacity, and assessing impact of development on public facilities and services, and provides specific procedures for issuing development orders consistent with adopted LOS standards.

This element of the Comprehensive Plan sets policies and establishes a process for the concurrency management system. The specific application and administration of this system is through the City's Land Development Regulations. Pursuant to Chapter 163, Florida Statutes, these regulations define the details of the concurrency management system and establish its administrative requirements.

### Project Applicability

All development orders issued by the City must comply with the requirements of the concurrency management system and meet LOS standards. Development orders consist of the following: comprehensive plan amendments; re-zonings; code compliance certification and site plan approvals; and preliminary plat approvals. Consistent with Indian River County's regulations, the construction of any single family home on an existing platted lot may constitute a de minimus impact on roads and thus be exempt from road concurrency requirements.

### Level of Service Standards

The LOS standards for concurrency related facilities are established in this plan for the following: transportation (roadways); stormwater management; solid waste; sanitary sewer;

potable water; and public schools. As noted previously, the staff is recommending that LOS standards for recreation and open space be eliminated from this plan.

For each facility, LOS is a measure of the relationship between demand for the service and capacity of the facility. Capacity is measured differently for each type of facility. Table 10-7 identifies both the capacity and demand measures for each type of facility. These measures are addressed in detail and existing capacities of each public facility are indentified in the application elements of this Comprehensive Plan.

Table 10-7. Level of Service Measures for Concurrency Related Facilities

| Public Facility Category | Specific Facility | Capacity Measure | Demand Measure | Geographic Scope |
|---|---|---|---|---|
| Transportation | Roadways | Volume of cars accommodated over time | Peak season/peak Direction/Peak Hour Trips | Affected Roadways |
| Stormwater Management | Drainage Conveyances | Volume of water | Volume of stormwater out-falling from site | Site Specific |
| Solid Waste | Landfill | Volume in Active Cell Design Capacity | Generation Rate (tons or cubic yards per capita) | Entire County |
| Sanitary Sewer | Treatment Plant | Treatment Design Capacity (GPD)[1] | Generation Rate (GPD per ERU[2]) | Service Area |
| Potable Water | Treatment Plant | Treatment Design Capacity (GPD)[1] | Generation Rate (GPD per ERU[2]) | Service Area |
| Schools | Public Schools (K-12) | Permanent school stations (FISH) | Students per housing type | Entire County |

Notes:

1. GPD means gallons per day.
2. ERU mean equivalent residential units per day

Concurrency requires that each facility within the geographic scope of a proposed project's impact have sufficient capacity to accommodate the project's demand. If capacity is not available, the project cannot be approved. Table 10.7 provides the criteria for establishing a demand to capacity comparison for a proposed project, which is discussed more fully in the next section.

Stormwater is a special exception to other facilities in Table 10.7, as it is tied to a specific property or development and the on-site retention/detention facilities are not public but owned by the property owner. Development is required to meet the stormwater management facilities LOS standard on a site-by-site basis by meeting a specific stormwater retention standard. Additionally, multi-family and nonresidential development is required to provide on-site drainage facilities that meet a 25-year/24 hour storm event.

## Demand

The critical component of the concurrency management system is demand. Demand is a measure of facility use. When compared to facility capacity, demand can indicate the level-of-service for that facility. Demand is divided into three components: existing demand; committed demand; and project demand.

Existing Demand. Existing demand is the current level of use for a facility. It may be measured for water and wastewater facilities by the existing flow in gallons per day; for roads the number of peak hour/peak direction/peak season vehicle traffic; and for schools the number of full-time students enrolled. Existing demand when compared to capacity can show if the facility has unused facility or if it functioning over capacity. However, existing demand is not static, it must be monitored on a timely basis to ensure that capacity is available and to identify the need and plan for improvements to capacity.

Committed Demand. Committed demand is a measure of the impact that an approved development projects will have on a facility with reserve or surplus capacity. These are projects which have been approved, but have not yet come on-line to affect actual capacity of a facility. In determining available capacity committed demand along with existing demand must be taken into account.

Generally committed demand remains until such time as either the project comes on line or the development permit expires. Once projects are completed, committed demand becomes part of existing demand, which is always changing and must be monitored on a timely basis.

Projected Demand. The third type of demand is new project demand. For a new projects or expansion of existing projects, demand estimates must be made on a facility by facility basis. Only if sufficient available capacity exists for each impacted facility can the project be approved and a development order issued. Upon issuance of the development order, the estimated impacts on each facility would be considered committed demand.

## Availability of Capacity

The City's concurrency review process evaluates the capacity of existing built-facilities. Generally, no development order or permit shall be issued for any project where the project's demand in combination with existing and committed demand will exceed the capacity of a facility at the service level established for this plan. However, programmed facilities will also be considered in assessing capacity when the following conditions are met:

- For sanitary sewer, potable water, solid waste, and stormwater management facilities:

    1. A development order or permit is issued subject to the condition that, at the time of the issuance of a certificate of occupancy or its functional equivalent, the necessary facilities and services are in place and available to the new development; or

2. At the time the development order or permit is issued, the necessary facilities and services are guaranteed in an enforceable development agreement to be in place and available to serve new development at the time of the issuance of the certificate of occupancy or its functional equivalent.

- For roads:

  1. The development order or permit is issued subject to the condition that the necessary facilities to serve the development are included in the City's adopted Capital Improvements Schedule and are scheduled to be in place or under construction within three years from first building permit issuance; or

  2. The development order or permit is issued subject to a binding executed contract or enforceable development agreement to pay for or construct its proportionate share of required improvements consistent with the provisions of Section 163.3180, Florida Statutes, that guarantees that the necessary facilities and services will be in place or under construction to serve the development within not more than three years after the issuance of the first building permit; or

  3. The development order or permit is issued subject to a proportionate fair-share agreement consistent with the provisions of Section 163.3180 with the condition that the proportionate fair share agreement shall be available only to the party of parties to the proportionate fair share agreement.

- For schools:

  A residential development order or permit is issued only if the needed capacity for the particular school service area is available or is available in one or more contiguous service areas.

**Regulation**

No development order or permit shall be issued for any project, where the project's demand in conjunction with existing and committed demand will exceed the capacity of a facility at the service level established in this plan. The level-of-service analysis is conducted during the project review process of the Land Development Regulations for which development order approval is required.

The processing and review of development applications is conducted by the City's Planning and Development, Public Works, and Water and Sewer Departments except for the following public facilities:

1. Roads functionally classified as a collector or above are subject to concurrency review and determination by Indian River County in accordance with Chapter 910 of the Indian River County Land Development Regulations.

2. Public school facilities are subject to concurrency review and determination in accordance with Chapter 910 of the Indian River County Land Development Regulations and the Interlocal Agreement for Coordinated Planning and School Concurrency. Any proposed land use change and residential development project that may generate students is required to obtain a school capacity availability determination letter (SCADL) from the Indian River County School District.

**Monitoring System**

As discussed previously, the need for an elaborate monitoring and reporting system to implement the City concurrency requirements for public facilities is not necessary, nor cost-effective. All the City's public facilities are operating at or above LOS standards and future growth is limited and primarily confined to infill and redevelopment of existing developed areas.

The only public facilities that warrant closer attention are individual roadways. The Indian River County MPO's 2040 Long Range Transportation Plan projects several arterials will operate at less than the current LOS of "D" in the next 10 to 20 years. Capital projects responding to these deficiencies are proposed in the long range transportation plan. In the meantime, the changing availability of capacity on the region's road network is closely monitored by Indian River County with updated data provided through quarterly traffic counts.

As needed, the Planning and Development Department updates the database files established for each public facility. Update information on demand and supply related to these facilities is obtained from the responsible city departments, Indian River County, and the Indian River School District. In consultation with these agencies, the planning staff is in a position to identify any need for future expansion of facilities or revisions to the adopted LOS standards.

## NEEDS ASSESSMENT

This section provides an overall assessment of capital improvement projects including estimated costs and revenue sources needed to maintain adopted levels-of-service and implement specific policies of the Comprehensive Plan over the next five year period. Individual capital projects with committed funding sources are detailed in the annual five year CIS that is included in the Policy Document to this Comprehensive Plan.

As required by Chapter 163, Florida Statutes, the annual five-year CIS includes the City of Vero Beach projects; Indian River County Metropolitan Planning Organization transportation projects; Indian River County landfill projects; and the Indian River County School District projects. The annual CIS is presented in the following four exhibits of the Policy Document:

- Exhibit C, City of Vero Beach Capital Improvements Schedule, FY 2017/18-FY 2021/22.

- Exhibit D, Indian River County MPO Transportation Improvement Program. FY 2017/18-FY 2021/22

- Exhibit E, Indian River County Capital Improvements Schedule for Solid Waste and Road Projects, FY 2017/18- FY 2021/22.

- Exhibit F, Indian River County School District Capital Improvement Program, FY 2017/18-FY 2021/22.

**Stormwater Management Facilities**

For new development, the LOS standards for stormwater run-off are being implemented on an individual site-by-site basis. Existing development that is either improved or expanded is required to partially or fully meet the standards depending upon the scope of the project or amount of new imperious surface being added.

The LOS standard for the City drainage system is being maintained to meet the minimum 25 year/24 storm event. However, the major pressing issue is the continued need for capital outlays to repair and replace existing drainage lines. Needed capital outlays to repair and replace existing lines compete directly with the funding needs of the Public Works Department's program to retrofit stormwater outfalls and inlets to reduce nutrients and other pollutants entering the Indian River Lagoon as discussed in the Stormwater Management Sub-Element.

Over the next five years, the Department has identified $6.5 million in CIS stormwater projects. Only $2.8 million of those projects are funded in the annual CIS.

The overwhelming majority of the indentified funded and unfunded stormwater facilities are for repair and maintenance of existing drainage systems. Except for the completed Vero Isles project, none of the other 15 $5.6 million stormwater projects identified by the Public Works Department that would expand coverage of the treated portion of the urban watershed is included in the FY2017/18-2021/22 CIS. The funding of the Vero Isles project was helped significantly by a grant from the Indian River Lagoon Council.

As stormwater projects must compete for monies with other General Fund projects, such as roads, sidewalks, recreation, police, and general government, the staff has proposed consideration of a stormwater utility. This concept is discussed fully in the Stormwater Management Sub-Element.

**Solid Waste**

The County landfill has sufficient capacity to accommodate projected waste demand for the County through 2035. The LOS standard of tons per capita or cubic yards per capita is used to determine demand on the landfill capacity. No specific LOS standard is necessary for collection of garbage and other wastes; however, the City of Vero Beach must continue to provide a waste collection of a sufficient number of functioning garbage collection vehicles to haul garbage and

yard waste to the County landfill. Capital outlays for recycling are not included as they are addressed through a franchise agreement between the Indian River County and a private hauler.

City of Vero Beach. The Public Works Department has identified $1.66 million in CIS capital projects for solid waste projects. These capital outlays are for the annual replacement of garbage collection vehicles. All of these projects are programmed for funding in the CIS. The funding of these capital projects is through the revenues collection for solid waste services. Other than annual replacement of garbage collection vehicles, no significant capital outlays have been identified beyond the next five years for solid waste collection.

Indian River County (Solid Waste Disposal District). In its five-year Capital Improvements Schedule, Indian River County has identified $21.9 million in solid waste capital projects. The funds are from assessments and user fees. The projects are primarily for the designing, permitting, and construction of new cells at the landfill and the closing of cells. As discussed in the Solid Waste Sub-Element, the Indian River 2014 Solid Waste Management Plan projects that the useful life of the landfill can be extended through 2058 if the existing 37 percent recycling rate is maintained.

**Sanitary Sewer**

The Sanitary Sewer Sub-Element identified no existing or future LOS deficiencies through the year 2035 based on projections made by the Planning and Department projections using the revised LOS standards for wastewater demand. The existing waste treatment plant is sufficient capacity to meet projected demand through this period.

The most significant CIS capital improvement projects to be undertaken over the next five years are implementation of the STEP system, rehabilitation of gravity sewers, construction of new sludge processing system, odor control, and other improvements to upgrade, repair, or replace equipment.

The Water and Sewer Department has identified $4.8 million in needed CIS capital sewer projects over the next five years. All projects are programmed for funding in the CIS. The funding of these projects are through water and sewer revenues, impact fees, and STEP system prepayments.

A major capital outlay that may be considered in the future beyond the five-year CIS is the relocation of the wastewater treatment plant to the Vero Beach Regional Airport. However, the costs to decommission the existing plant and construct a new plant have been estimated at over $30 million. Therefore, as this possible relocation is primarily for aesthetic reasons, it is unlikely that any such decision on its relocation will be made in the next five years.

**Potable Water**

The Potable Water Sub-Element identified no existing or future LOS deficiencies over the period of the 2035 Comprehensive Plan based on projections made by the Planning and Department projections using the revised LOS standards for potable water demand. The existing water

treatment plants with the expansion of the RO (Reverse Osmosis) Plant will have sufficient capacity to accommodate projected demand during this period.

The Water and Sewer Department has identified $6.9 million in needed CIS capital potable water projects over the next five years. All projects are programmed for funding in the CIS. These projects are primarily for expansion of the RO water treatment plant, water line and service replacement, and water production wells. The funding of these projects are through water and sewer revenues, impact fees, and STEP system prepayments.[2]

**Transportation (Roads)**

As discussed in the Transportation Element, all road segments within the city limits are operating at or above the adopted minimum LOS standards. However, the Indian River County Metropolitan Planning Organization's 2040 Long Range Transportation Plan projects that several arterials within the city limits will fall below the LOS standard of "D" over the 20-year planning horizon of this Comprehensive Plan.

In addressing maintenance of LOS standards for roads within the city limits, Chapter 163, Florida Statutes, requires that not only City sponsored capital road projects must be included in the annual CIS, but the projects from the Indian River County Metropolitan Planning Organization (MPO) five year Transportation Improvement Program (TIP) that are relied upon to meet concurrency.

City of Vero Beach. The City of Vero Beach capital transportation projects for inclusion in the CIS include not only road and bridge projects and the repaving and repair of existing roads and bridges, but sidewalks and bikeways. The Transportation Element has specific policies promoting expansion of the pedestrian and bike network as important components in the city's transportation network.

The City Public Works Department has identified $3.9 million in needed capital road and sidewalk projects over the next five years. Only $1.1 million of these projects is programmed for funding in the CIS. The majority of unfunded projects are the annual resurfacing of city streets. As was the case with stormwater capital projects, roads and sidewalks must compete with needed capital outlays for stormwater, police, recreation, and other governmental functions supported by the General Fund.

In the long-term, Table 3-3 in the Transportation Element identifies 7 highway and congestion management projects to maintain and improve the existing capacity of the system or to achieve specific development and land use objectives. Based on their year of implementation, the total in 2015 dollars for these projects is $26.3 million. All of these projects are anticipated to be funded through the Indian River County MPO transportation planning and programming process except for the "Twin Pairs" and 5th Avenue Extension.

[2] Water and Sewer capital outlays are both funded from revenues in the same fund, Fund 423.

The "Twin Pairs" is a project of significant importance to the City in creating the Downtown as a pedestrian-friendly, mixed use designation. The City is filing a lane reduction permit application with FDOT. If approved, the City will need to consider how the complete $1.0 million project (2013 dollars) including landscaping and other aesthetic improvements will be funded.

If the City waits for FDOT to due resurfacing and milling of the road (~2021), it will still have to come forward with local funds to install landscaping and make other aesthetic improvements that account for an estimated one-third the total costs of the project. Rather than General Fund revenues, the local funds would most likely come from such sources as the Tax Increment Trust for the Historic Downtown Vero Beach Economic Development Zone, a special assessment, or contributions from developers.

The estimated $500,000 cost for the 5th Avenue Extension is based on conceptual plans and no funding source has been identified. Funding of this project would most likely have to come from local funding sources other than the General Fund, such as a special assessment or contributions from developers.

Indian River County MPO. The adopted Indian River County MPO Transportation Improvement Program (TIP) FY 2017/18- FY 2021/22 programmed $121.9 in roadway capacity and traffic operations, maintenance, and safety projects. Within Vero Beach, two road capacity projects totaling over $13 million are for the purchase of right-of-way, construction of improvements to the 43rd Avenue-SR 60 intersection, and widening of 43rd Avenue between 18th Street and 26th Street. Approximately $5.8 million is programmed for resurfacing of 17th Street and SR 60.[3]

The FY 2017/18-2021/22 TIP programmed $1.16 million in bicycle and pedestrian projects. One project, construction of a sidewalk on 43rd Avenue from Aviation Blvd. to Airport Drive West was included in the TIP. The total cost of this project was programmed for $540,000.

All the projects in the adopted FY 2017/18-2021/22 TIP are fully funded. However, the Indian River County MPO's 2040 Roadway Cost Feasible Plan identified over $290 million in unfunded projects over the next 25 years. The much needed project (estimated at $16.6 million) to widen Aviation Boulevard between 43rd Avenue to U.S. Highway is not scheduled until FY 2026-2030. The City is working with MPO officials to review the project and possibly revise the scope to move the project forward more quickly.

**Schools**

The Annual School Concurrency Assessment Report for 2015-2016 shows Indian River County School District's is operating within adopted Level-of-Service standards. Long-range forecasts of school population prepared by the Indian River County Planning Division indicated a slow growth in school population. Additional student growth is to be accommodated with existing capacity or as needed revisions to school service area boundaries.

[3] The project sheets for FY 2016/17-FY 2020/21 projects within Vero Beach are included in Exhibit D.

The Indian River County School District's FY 2017/18-FY 2021/22 Capital Improvement Program programs over $66.1 million in capital projects. None of these projects involve expansion in the capacity of the school system.