

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Progress Report Form

Exhibit A

DEP Agreement No.:	CM746		
Grantee Name:	City of Sebastian		
Grantee Address:	1225 Main Street, Sebastian, FL 32958		
Grantee's Grant Manager:	Lisa Leger Frazier	Telephone No.:	772-388-8228
Reporting Period:	Final Report/Quarterly Report for 4 th Quarter, April 1 – June 30, 2019. Deliverable Task 2: Comprehensive Plan Goals, Objectives, and Policies Update		
Project Number and Title:	CM746; Building Resilience into the Comprehensive Plan		

Task 1a: Kick-off Workshop

Progress for this reporting period:

The Kick-off Workshop was held on October 30, 2018. Key City staff and consultants met to review the goals and objectives of the project. Pertinent information was shared with City Staff prior to the meeting introducing the concept and statutory requirements. A Power Point presentation was made that provided applicable examples from other municipalities. The workshop was used as a mechanism to establish the lines of communication and flow of information. GIS data was shared along with a formation of the assets to be evaluated as part of the analysis. A short field visit was taken of the critical structures within the City. A 50-year planning level horizon for sea level rise was determined to be in the best interest of the City based on the location of the City and age of infrastructure.

Critical Facilities identified include:

- Infrastructure including evacuation routes
- Bridges along evacuation routes
- Public Facilities including City Hall, Police Station, Schools, Airport, Public Works Compound
- Cell Towers
- County utilities including lift stations.

Task 1b: Data Collection and Evaluation Process

Progress for this reporting period:

Consultant has begun collection of published data as part of the assessment and anticipates meeting the deliverable due date of 12/31/18. The Consultant will begin the review of data received and advise the City of any significant data gaps. A summary of findings was submitted.

Task 1d: Development and Evaluation of Adaptive Measures

Progress for this reporting period:

Based on the vulnerability matrix from subtask 1c, a qualitative screening process was developed with a range of adaptation measures for each asset/threat pair determined to be vulnerable. The draft summary of findings submitted under subtask 1c was vetted by the City stakeholders and submitted under this task as the Final Report and second deliverable on March 30, 2019.

Task 1e: Public Involvement

Progress for this reporting period:

City staff, with the assistance of the consultant, scheduled and advertised a Public meeting to present the Coastal Resiliency Plan and receive input on the vulnerability assessment or development of adaptive measures. A power point presentation was made to the City Council on April 24th that provided a summary of the final report submitted as part of the March 30, 2019 deliverable. Attached please find a copy of the City Council Agenda Transmittal.

In addition, City staff with the assistance of the consultant, scheduled and advertised a Public meeting with the City's Local Planning Agency (LPA)/Planning & Zoning Commission to present the draft GOPs for review and comment. Attached please find a copy of the Agenda for Thursday, June 20, 2019.

Task 2: Comprehensive Plan Goals, Objectives, and Policies Update

Progress for this reporting period:

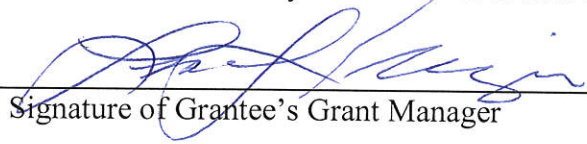
Based on the analysis, findings and strategies developed as part of Task 1, applicable Goals, Objectives, and Policies (GOPs) of the City's Comprehensive Plan were updated. Preparation of strikethrough and underline versions of the City's current comprehensive plan elements (Conservation, Coastal Management, Public Facilities, Future Land Use) were presented for review and comment. A matrix of recommended GOPs for amendment, including justification, assisted with the review process. The Plan was reviewed for consistency with adopted State and regional requirements since the last EAR. MAPS were updated in accordance with the Coastal Resiliency Plan. All Maps were submitted in GIS layer and imbedded in the Plan. Based on the findings, the draft GOPs were presented to City staff and the Local Planning Agency for consideration.

Attached please find the staff transmittal sheet; finalized review matrix of the recommended amendments to the existing Comprehensive Plan; draft changes to the GOPs applicable to the Coastal Resiliency Plan; and the Consultants power point presentation.

Identify any delays or problems encountered:

Not Applicable.

This report is submitted in accordance with the reporting requirements of DEP Agreement No. CM746 and accurately reflects the activities associated with the project.



Signature of Grantee's Grant Manager



Date



CITY COUNCIL AGENDA TRANSMITTAL

Council Meeting Date: April 24, 2019

Agenda Item Title: Presentation of Coastal Resiliency Plan by
Chris Niforatos, P.E. - Kimley-Horn and Associates

Background: Kimley-Horn and Associates, Continuing Services Planning Consultants with the City, have completed the Coastal Resiliency Plan for the City in compliance with the DEP grant funding.

Chris Niforatos (nif-o-rah-tis) will be delivering a presentation on the Coastal Resiliency Plan. Chris leads Kimley-Horn's national resilience practice and has over 25 years of experience in resiliency planning, numerical modeling, and devising risk-based strategies. He has evaluated the impacts of sea level rise on both the built and natural environments for coastal communities. His work experience extends both internationally and nationally and has successfully delivered a wide variety of projects from conducting vulnerability assessments and preparing hardening plans.

The Coastal Resiliency Plan may be viewed on the City website:

http://public.cityofsebastian.org/pdfs/COS_CoastalResiliencyPlan_FinalReport.pdf

or in the Community Development Department.



HOME OF PELICAN ISLAND

1225 MAIN STREET ■ SEBASTIAN, FLORIDA 32958
TELEPHONE (772) 589-5518 ■ FAX (772) 388-8248

AGENDA
PLANNING AND ZONING COMMISSION/LOCAL PLANNING AGENCY
THURSDAY, JUNE 20, 2019 – 6:00 P.M.

CITY COUNCIL CHAMBERS
1225 MAIN STREET, SEBASTIAN, FLORIDA

ALL AGENDA ITEMS MAY BE INSPECTED IN THE OFFICE OF COMMUNITY DEVELOPMENT
1225 MAIN STREET, SEBASTIAN, FLORIDA OR ON THE CITY WEBSITE

1. **CALL TO ORDER**
2. **PLEDGE OF ALLEGIANCE**
3. **ROLL CALL**
4. **ANNOUNCEMENTS AND/OR AGENDA MODIFICATIONS**
Modifications and additions require unanimous vote of members. Deletions do not apply.
5. **APPROVAL OF MINUTES** Regular meeting of April 18, 2019
6. **PUBLIC HEARINGS**
 - Chairman opens hearing, attorney reads ordinance or resolution or title
 - Commissioners disclose ex-parte communication
 - Chairman or attorney swears in all who intend to provide testimony
 - Applicant or applicant's agent makes presentation
 - Staff presents findings and analysis
 - Commissioners asks questions of the applicant and staff
 - Chairman opens the floor for anyone in favor and anyone opposing the request (anyone presenting factual information shall be sworn but anyone merely advocating approval or denial need not be sworn in)
 - Applicant provided opportunity to respond to issues raised by staff or public
 - Staff provided opportunity to summarize request
 - Commission deliberation and questions
 - Chairman calls for a motion
 - Commission Action

A. Public Hearing – **Review of Proposed Comprehensive Plan Text Amendments** to the Future Land Use Element, Conservation and Coastal Management Element, and Public Facilities Element with Regard to Adaptation of the Coastal Resiliency Plan
7. **UNFINISHED BUSINESS** None
8. **PUBLIC INPUT**
Public Input on items other than on the printed agenda, is five minutes, however, it can be extended or terminated by a majority vote of members present

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CHAPTER 5: CONSERVATION AND COASTAL MANAGEMENT ELEMENT

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(reference §9J-5.012(3), F.A.C.)

§5-1 CONSERVATION AND COASTAL MANAGEMENT GOALS, OBJECTIVES, AND IMPLEMENTATION POLICIES. This section includes both conservation and coastal management goals, objectives, and implementation policies. This section was consolidated into one unified element to eliminate redundancies and increase usability and readability. This section stipulates goals, objectives, and implementing policies for the Conservation and Coastal Management Element pursuant to 163.3177, F.S. 163.3177(6)(g) and 163.3178, F.S. and §9J-5.012(3), F.A.C.

GOAL 5-1: CONSERVATION AND COASTAL MANAGEMENT. ~~RESTRICT DEVELOPMENT ACTIVITIES THAT WOULD DAMAGE OR DESTROY COASTAL RESOURCES AND PROTECT HUMAN LIFE AND LIMIT PUBLIC EXPENDITURES IN AREAS SUBJECT TO DESTRUCTION BY NATURAL DISASTERS, FLOODING, AND SEA-LEVEL RISE. THE COASTAL COMMUNITY OF SEBASTIAN SHALL CONSERVE, PROTECT, AND APPROPRIATELY MANAGE THE CITY'S NATURAL COASTAL RESOURCES AND LIMIT PUBLIC EXPENDITURES IN AREAS SUBJECT TO DESTRUCTION BY FLOOD RISK AND NATURAL DISASTERS IN ORDER TO ENHANCE THE QUALITY OF LIFE AND QUALITY OF NATURAL SYSTEMS WITHIN THE COMMUNITY.~~

OBJECTIVE 5-1.1: PROTECT COASTAL RESOURCES, WETLANDS, ESTUARY, LIVING MARINE RESOURCES, FISHERIES, WILDLIFE, AND WILDLIFE HABITATS. ~~By December 31, 1998 The City shall continue to require~~ have adopted land development regulations which include performance criteria which limits disturbance of seagrass beds, wetlands, habitats of endangered or threatened species. The performance criteria shall protect fisheries, wildlife, and wildlife habitats from the adverse impacts of development by regulating the location, density, and intensity of those activities which cause the adverse impact. The City shall enforce these land development regulations and shall coordinate with Indian River County, the St. Johns River Water Management District (SJRWMD), and the State in promoting protection of fisheries, wildlife, and wildlife habitats. In order to prevent "taking" of private property rights, the City's land development regulations shall provide for flexible development alternatives, including planned unit developments which shall mandate conservation of said resources while allowing more flexible development options on developable portions of the site. The Objective shall be measured through the implementation of the following policies. ~~Beginning in January 1998 The City shall maintain land development regulations including performance standards designed to protect, conserve, and enhance wetlands and other natural resources, including estuarine environmental quality, by:~~

- a. Preventing potentially adverse impacts of development and redevelopment on wetlands and estuaries; Maintaining or improving estuarine environmental quality by improving storm water management by commencing the storm water management plan identified in Policy 4-2.1.1. The plan shall provide a basis for adopting regulatory measures for enhancing estuarine water quality and shall identify capital improvements needed to improve the storm water management system. This would include a City-wide evaluation to update the numerical model with the latest datasets identified in the City of Sebastian, Coastal Resiliency Plan, Prepared By: Kimley-Horn and Associates, Inc., March 2019.
- b. The regulatory measures recommended in the storm water management plan shall be incorporated in the land development regulations and the recommended capital improvements shall be incorporated in the Comprehensive Plan capital improvement schedule.
- c. Minimizing potential adverse impacts of development along the Indian River Lagoon, including estuarine resources such as living marine organisms, seagrass, coastal marsh, and mangroves together with adjacent environmentally sensitive transition areas; and

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- d. Regulating the impacts of development on wildlife habitats. These objectives shall be accomplished as herein below cited as well as through coordination with the St. Johns River Water Management District SJRWMD and FDEP, and through the Indian River Lagoon SWIM program.

This Objective shall be measured through the implementation of the following policies.

Policy 5-1.1.1: Development Restrictions in Wetlands, Lakes, and Estuarine Areas. The City shall enforce its wetland protection ordinance which shall restrict development within wetlands and shall require consideration of dedication of conservation easements by applicants for upland development who also own title to adjacent wetlands. By December 31, 1998, The City shall amend continue to require that its land development code to include performance criteria which prohibits development of wetlands. ~~Regulatory measures in 1998~~. The City shall also maintain land development regulations which include performance criteria designed to protect and preserve wetlands from physical and hydrologic alterations as well as specifically direct incompatible land uses away from wetlands. Wetlands shall be defined as set by 373.421 F.S. and 373.019(27) F.S. in Rule 9J-5.003 (149), FAC, and shall be protected from physical or hydrologic alterations in order to maintain natural functions. Wetlands have the following functions:

- Wetlands serve important natural biological functions, including food chain production; and general habitat; and nesting, spawning, rearing, and resting sites for aquatic or land species;
- Wetlands are an integral part of natural drainage systems impacting sedimentation patterns, salinity distribution, flushing characteristics, current patterns, and other environmental characteristics;
- Wetlands can be significant in shielding other areas from wave action, erosion, or storm damage;
- Wetlands serve as valuable storage areas for storm water and flood waters;
- Wetlands can be prime natural recharge areas; and
- Wetlands provide natural water filtration processes which serve to purify water.

No development shall be permitted in wetlands other than approved passive recreation, open space, restricted accessway, bird sanctuary, natural storm water retention/detention, natural preserve, or other similar approved uses pursuant to the City's Flood Prone Land and Wetland Preservation Ordinance, §20A-10.2(G), Land Development Code. There should also be the protection and conservation of lakes and estuarine areas. In order to protect lakes and estuarine areas, such as the Indian River Lagoon, and the St Sebastian River, the City's land development regulations shall include performance criteria designed to regulate against land development activities which adversely impact water quality, contribute to shoreline erosion and sedimentation, or otherwise threaten the long-term existence of lakes and estuarine areas. The intent of the Regulatory measures shall be to conserve the lakes and estuarine areas and protect these coastal resources from detrimental impacts of development.

Policy 5-1.1.2: Required Dedication of Conservation Easements or Reservations. By December 31, 1998 The City shall amend ~~continue to require~~ the land development regulations to include performance criteria designed to protect and preserve wetlands and wetland transition areas. The City shall amend ~~maintain~~ the Subdivision Ordinance and the Wetland Preservation Ordinance to provide for the dedication of conservation easements or reservations where the City finds that the dedication is reasonable in order to protect the value and function of a wetland.

Policy 5-1.1.3: Wetland Delineation (Establishing the Wetland Line). Beginning in January 1998, The City shall include in the LDC a requirement that any development that meets the criteria in ~~Policy 5-1.1.1~~ ~~Policy 3-1.1.1~~ conduct a wetland delineation. A delineation of the upland wetland boundary shall be established based upon an on-site field survey by a professional biologist or registered engineer provided by the applicant and coordinated with the St Johns River Water Management District (SJRWMD), the Florida Department of Environmental Protection (FDEP), and/or the US Army Corps of Engineers (USACOE). Furthermore, the development shall through a comprehensive planning process identify the types, values, functions, size, conditions, and specific locations of the

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wetlands on the site.

Policy 5-1.1.4: Administration of Wetland Development Restrictions. ~~By December 1999, The City shall have adopted-continue to require~~ land development regulations which implement the following:

1. Review Process. The City shall coordinate with the jurisdictional agencies for purposes of rendering legal, equitable, and environmentally sensitive determinations of the development rights to be permitted on such wetlands and/or lands under the jurisdiction of the State or Federal government. The developer of the parcel of environmentally sensitive land shall be responsible for obtaining permits or exemptions from the SJRWMD, FDEP, and USACOE Florida Department of Environmental Protection (DEP) and from the Army Corp of Engineers, as may be appropriate, prior to obtaining a development order or development plan review approval from the City. Regardless of permitting by Federal or State permitting agencies, the City shall reserve the right to determine the appropriate land use, density/intensity, and special mitigation measures including, but not limited to, the construction of culverts or other means.
2. Burden on the Applicant. The applicant shall bear the burden of proof in determining that development shall not adversely impact wetlands, transitional wetlands, and other environmentally fragile natural systems. The applicant shall prove that the type, value, function, size, and condition of the wetland will not be adversely impacted, such determinations shall be based on physical and biological data obtained from specific site investigations by a biologist, an engineer or by another professional competent in producing data and analysis necessary to support impact assessments.
3. Coordination with Other Agencies. ~~The urban forester, the Indian River County Soil Conservationist as well as representatives of the State Department of Environmental Protection, U.S. Army Corps of Engineers the St. Johns River Water Management District, or the U.S. Fish and Wildlife Service may be included during the development review process to assist in identifying and delineating wetlands. Applicants shall have an opportunity to so demonstrate that any wetland designations within the confines of their property no longer function as wetlands as defined above.~~
4. Waiver for Marginal Wetlands If Mitigated. ~~For small isolated marginal wetlands that the developer is providing viable compensatory preserve areas which mitigate against a loss of viable wetland systems, the City may waive the preservation requirements, in and only in, the case of an overriding public interest.~~
3. Compensatory mitigation may be permitted in cases of overriding public benefit where State agencies having appropriate jurisdiction approve the mitigation measures proposed by the developer. Any such development shall ensure continuance and maintenance of essentially natural conditions and functions.

Policy 5-1.1.5: Protect the Indian River Lagoon. ~~By December 31, 1998, The City shall adopt-amended~~ continue to require land development regulations which include performance criteria mandating that the potential impacts of proposed shoreline development be analyzed as part of the process and prior to approval of a development permit or development order. The applicant shall bear the burden of demonstrating that potential adverse impacts on estuarine resources have been or shall be prevented. The review process for all proposed development that fronts on Indian River Drive shall involve all local, State, and regional entities with jurisdictional authority. Impacts to be considered shall include the following but not be restricted to:

- prevent estuarine pollution;
- control surface water run off;
- reduce exposure to natural hazards;
- protect living marine resources;
- ensure adequate public access; and ensure adequate sites and standards for regulating water-dependent and water-related uses.

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~~**Policy 5-1.1.6: Protect, Stabilize, and Enhance the Estuarine Shoreline.** By December 31, 1998, the City shall incorporate criteria within the land development regulations which stipulate that no native vegetation shall be removed from the estuarine shoreline without a duly authorized City land clearing permit. Similarly, criteria shall be included in the land development regulations which require that applicants for development along the estuarine shoreline shall be required to revegetate, stabilize, and enhance damaged estuarine shorelines by planting native vegetation, including mangrove and/or other native estuarine plant species which:~~

- ~~a. Contribute to marine productivity and water quality;~~
- ~~b. Offer protection from erosion and flooding; and~~
- ~~c. Contribute to the natural soil building process.~~

~~Hardening of the estuarine shoreline with rip rap, bulkheads or other similar devices shall not be allowed unless erosion constitutes a critical peril to upland property and the use of vegetation has failed to stabilize the shoreline. Such shoreline hardening structures shall generally not be vertical seawalls or bulkheads and shall comply with performance standards herein cited in Policy 5-1.2.1(2)(c). The specific location and design of such structures shall be approved by the City as well as by other public entities having jurisdiction in the matter. Land development regulations shall incorporate the following performance criteria governing the location and design of such structures:~~

- ~~• Comply with best management principles and practices and be accomplished by use of the least environmentally damaging methods and designs possible;~~
- ~~• Avoid a vertical slope which generates erosive tendencies, especially to adjacent unprotected shoreline properties. Pervious interlocking Lile systems, filter mats, and similar stabilization methods shall be used in lieu of vertical walls whenever feasible;~~
- ~~• Not be located waterward of the mean high water line except when it is shown to be in the public interest;~~
- ~~• City approval shall be conditioned upon the applicant receiving approval from other public agencies having jurisdiction; and~~
- ~~• Incorporate a program of shoreline vegetation or revegetation in order to build, enhance, and stabilize a natural shoreline.~~

~~In order to stabilize areas susceptible to shoreline erosion, such as shorelines along canals and the Indian River Lagoon which are susceptible to erosion, land development regulations shall require that all new development preserve shoreline native vegetation and revegetate areas along shorelines demonstrating historically erosive tendencies.~~

Policy 5-1.1.6: Protect Living Marine Resources, Coastal Marsh, Estuarine Water Quality, and Seagrass Beds. ~~By December 31, 1997~~ The City shall ~~adopt~~ continue to require land development regulations which include performance criteria which shall regulate against adverse impacts of development on seagrass beds and coastal marsh areas. Since these areas are sensitive to increased turbidity and other forms of pollution, water run-off and introduction of nutrients shall be regulated through effective water quality management criteria. Given the hydrology of the area, it is encouraged that there be the development of a pollutant load model based off of the recommendations outlined in the City of Sebastian, Coastal Resiliency Plan, Prepared By: Kimley-Horn and Associates, Inc., March 2019. The land development regulations shall require that plans for development impacting marine resources be coordinated, with state and federal agencies having jurisdiction. The City's approval shall be conditioned upon the applicant receiving approval from other public agencies having jurisdiction.

In order to protect the water quality of the Aquatic Preserve, no new point source pollution shall be permitted to discharge into the lagoon or into ditches or canals flowing into the lagoon. In addition, in order to reduce non-point source pollutants, land development regulations shall incorporate the following performance standards in order to protect the quality of the City's water resources and comply with the Indian River Lagoon SWIM Plan, Indian River Lagoon Act, DEP, SBRWMTU, and the Indian River Lagoon Comprehensive Conservation and Management Plan. The City shall require the following:

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Land development regulations shall incorporate the following performance standards in order to protect the quality of the City's water resources and to conform to policies of the Indian River Lagoon SWIM, DEP and SJRWMD:

- a. Surface water management systems shall be designed and constructed to retain or detain with filtration, as a minimum the storm water run-off generated from the first one-inch of rainfall over the entire site. The storm water design standard shall be predicated on the following:

Off-site: 25-year, 24-hour design storm

On-site: 10-year, 24-hour design storm.

- b. A vegetated and functional littoral zone shall be established as part of the surface water management system of lakes occurring on all property. Prior to construction of the surface water management system for any phase of a project, the developer shall prepare a design and management plan for the wetland/littoral zone that will be developed as part of these systems. The plan should:
- i. Include typical cross sections of the surface water management system showing the average water elevation and the -3-foot contour (i.e., below average elevation)
 - ii. Specify how vegetation is to be established within this zone, including the extent, method, type and timing of any planting to be provided; and
 - iii. Provide a description of any management procedures to be followed in order to assure the continued viability and health of the littoral zone. The littoral zone as established should consist entirely of native vegetation and should be maintained permanently as part of the water management system. As a minimum, 10 square feet of vegetated littoral zone per linear foot of lake shoreline should be established as part of the surface water management system.
- c. Class II Waters (i.e., coastal waterbodies which currently do or have potential for supporting shellfish harvesting. That portion of the Indian River within the City's corporate limits has been classified by DEP as a Class II waterbody) shall be protected by incorporating the following provisions into the City's land development regulations:
- i. Dredging activities shall be limited to approved maintenance dredging and shall minimize adverse impacts on shellfish propagation or harvesting.
 - ii. Ensure good water quality by coordinating with the DEP and the SJRWMD in monitoring the quality of storm water run-off and nil discharge processes where these agencies have jurisdiction. The City shall notify the appropriate agency with jurisdiction as potential issues or problems are identified by the City. The City's amended land development regulations shall provide performance criteria designed to ensure that new development provides effective and adequate storm-water management improvements concurrent with the impacts of new development.
 - iii. Limit the use of Class II waters to water dependent activities that are not contrary to the public interest and satisfy a community need,
 - iv. Limit modification of grass beds only to those cases involving overriding public interest.
 - v. Where modification of grass beds is permitted the City shall assure that:
 - (a) A determination of overriding public interest has been demonstrated prior to modification of grass beds.
 - (b) Project run-off and nutrient introduction shall be controlled to prevent an increase in water turbidity.
 - (c) Projects damaging grass beds during construction shall incorporate mitigative techniques which re-establish benthic conditions favorable to natural regeneration.
 - (d) Special attention shall be given to stipulations cited in (a) through (c) above during the development review process. The City shall coordinate closely with State and federal agencies during the

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permitting processes to ensure that the intent of these policies is carried out.

Policy 5-1.1.7: Manage Impact of Coastal Development on Tidal Flushing and Circulation Patterns. Tidal flushing and circulation patterns generally shall not be altered by development activities. No development shall produce changes in the tidal flushing and circulation patterns unless the City and other public agencies having jurisdiction have granted requisite permits. No such permit shall be granted by the City unless all other agencies having jurisdiction have granted clearance and the applicant has submitted hydrographic information sufficient to clearly demonstrate that no adverse environmental impacts shall be occasioned by the proposed changes in tidal flushing and circulation patterns. Finally, no alteration in tidal flow shall be permitted which causes stagnation or siltation.

Policy 5-1.1.8: Promote Propagation of Fish and Wildlife. The City shall incorporate criteria in the land development regulations which require consideration of the impact of development on submerged lands and other habitats for fish and wildlife. The criteria shall be implemented to ensure maintenance of essentially natural conditions in order to further the propagation of fish and, wildlife as well as public recreation opportunities.

Policy 5-1.1.9: Protection of Manatee Habitats. The City shall promote protection of manatee habitats in a manner consistent with guidelines of the Marine Research Institute of the State Department of Environmental Protection. For instance, the City shall comply with the following State Guidelines:

- The City of Sebastian shall assist Indian River County, the Department of Environmental Protection, the U.S. Fish and Wildlife Service, and other State and federal agencies, in developing an area-specific manatee protection plan and marina siting plan in order to ensure long-range manatee and habitat protection.
- Permit applications for all boating facilities, including single family docks and dry storage, shall be evaluated in the context of cumulative impacts on Manatees and marine resources.
- Construction and expansion of multi-slip docking facilities and boat ramps shall be directed to locations where there is quick access to deep, open water, where the associated increase in boat traffic will be outside the areas of high manatee concentration, and where wetlands supporting manatee habitat will not be disturbed.
- The City shall assist DEP in distributing State publications and educational materials on coastal and marine resource conservation, and manatees in particular, to boaters, and assist the display of such materials.
- Slow or idle speed zones shall be adopted, with or without channel exemptions as appropriate, in areas frequented by manatees. Enforcement of speed zones should be improved.
- The City shall assist DEP in protecting manatees from injury and disturbance resulting from aquatic commercial and recreational activities. Manatee food requirements shall be considered in ~~all~~ aquatic plant management activities where manatees may occur.
- The City shall assist DEP in ensuring the protection of habitat of special significance to manatees.

Policy 5-1.1.10: Manage the Impacts of Development on Fisheries. The City shall incorporate procedures for coordinating with the Florida Game and Freshwater Fish Commission, and DEP, as appropriate, in reviewing the implications of development proposals, including proposed subdivisions and site plan review petitions. Such coordination shall be designed to assist in identifying potential adverse impacts of proposed development on marine habitats and fisheries. The City shall incorporate performance standards into land development regulations which are designed to preserve the water quality within the Indian River Lagoon and which protect marine grass beds, coastal marshes, and mangroves in order to preserve marine habitats and fisheries.

Policy 5-1.1.11: Protect Wildlife and Wildlife Habitats. By September 1990 The City shall ~~amend~~ ~~continue to~~ ~~require~~ the land development regulations to incorporate provisions which restrict development activities known to adversely impact endangered, threatened, or rare wildlife and wildlife habitats as well as wildlife and wildlife habitats of special concern as defined in Table VI-I of the Conservation ~~Sub-Section~~ ~~Element~~ data inventory and analysis. The City shall further protect wildlife and wildlife habitats by promoting the dedication of conservation easements or reservations as specified herein ~~in Policy 6-1.1.2~~ ~~Policy 5-1.1.2~~.

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Policy 5-1.1.12: Protection of Living Marine Resources. The City shall ~~continue to require~~ have adopted by December 31, 1997 land development regulations which require estuarine shoreline developments to avoid adverse impacts of development on seagrass beds and coastal marsh. Since these areas are sensitive to increased turbidity and other forms of pollution, water runoff and introduction of nutrients shall be regulated through effective water quality management criteria. Plans for development impacting marine resources shall be coordinated with state agencies having jurisdiction prior to the City granting plan approval and/or prior to release of any permit for construction.

Compensatory mitigation may be permitted in cases of overriding public benefit where State agencies having appropriate jurisdiction approve the mitigation measures proposed by the developer. Any such development shall ensure continuance and maintenance of essentially natural conditions in order to further propagation of fish and wildlife as well as public recreation opportunities.

OBJECTIVE 5-1.2: PROTECT NATIVE VEGETATION AND MARINE HABITATS. ~~Beginning in January 1998,~~ The City shall maintain land development regulations which include performance criteria designed to protect and retain major vegetative communities and marine habitats.

Policy 5-1.2.1: Implementing Protection of Vegetative Communities and Marine Habitats. Land development regulations, including the adopted Tree Protection and Landscape Regulations of the City's Land Development Code, shall be used in managing and protecting the impacts of development on major vegetative communities and marine habitats. These regulations shall mandate restoration in order to compensate for unauthorized removal of vegetation and to enhance stabilization of fragile slopes and/or shorelines impacted by development.

~~By December 31, 1998~~ The City shall ~~amend~~ ~~continue to require~~ its adopted land development regulations by mandating any wetlands mitigation shall include minimum performance standards in order to enhance regeneration of viable wetlands and wetland vegetative communities.

Policy 5-1.2.2: Preservation of Native Plant Communities. The City shall amend the adopted land development regulations to ensure compliance with the Treasure Coast Regional Planning Council Regional Comprehensive Policy Plan (Policy 10.1.2.2) mandating that new development set aside, as a minimum 25 percent of each native plant community (as identified in the Comprehensive Plan Data Inventory and Analysis). ~~Conservation Element Chapter 6).~~

The ordinance shall provide incentives for increased conservation of native plant communities determined by the Treasure Coast Regional Planning Council to be "regionally rare or endangered." Such an incentive program may include, for instance, an exchange which sets aside one (1) unit of "regionally rare or endangered upland" in exchange for two units of common habitat. Such "set asides" of habitat shall be preserved in a viable condition with intact canopy, understory, and ground cover.

Pursuant to the Treasure Coast Regional Planning Council policy cited above, the City may require payment of a fee in lieu of the above described mandatory "set aside" of habitat. Such cash payment may be in the form of an impact fee in lieu of habitat preservation to be accumulated from development for the purchase of upland habitat preservation off-site rather than on-site. Other adjustments may only be granted where compensatory mitigation is provided through revegetation with native plant species compatible with existing plant communities.

Where payment of an impact fee in lieu of preservation is an allowable option, the impact fee paid should be at least equivalent to: (the average assessed value of one acre of the particular habitat type under consideration within the County the development occurs in) (the number of acres of that habitat type the development was required to set aside but elected to contribute toward preservation off-site). Such impact fees shall be payable to the City prior to commencement of development on-site.

Policy 5-1.2.3: Removal of Undesirable Exotic Vegetation. The City shall amend the adopted Tree Protection Ordinance ~~as may be required~~ to require that, prior to the issuance of a certificate of occupancy for a new development, the owner/applicant shall remove all nuisance and invasive exotic vegetation on the subject property.

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Policy 5-1.2.4: Removal of Trees Causing Safety Hazard. The City shall amend its land development regulations to require that trees, such as Australian Pines, which are prone to wind damage and blockage of evacuation routes be removed from areas deemed by the City to be critical corridors for evacuation purposes. This policy shall be implemented concurrent with the above stated ~~policy 6-1.7.2~~ ~~policy 5-1.2.2~~. In addition, the City shall consider the feasibility of imitating a similar program to remove any trees on public property which impose a critical threat to evacuation routes.

OBJECTIVE 5-1.3: IMPROVE WATER QUALITY AND QUANTITY: ~~Beginning in January 1998,~~ The City shall maintain land development regulations which address water quality and quantity through the implementation of the following policies.

Policy 5-1.3.1: Regulate Agricultural Activities to Preserve Water Quality. Land development regulations shall include stipulations requiring that agricultural activities shall:

- a. Not be conducted adjacent to existing waterways and surface water management activities and shall comply with all applicable policies of DEP, SJRWMD, and other agencies having appropriate jurisdiction as well as State laws, including administrative rules governing the Indian River Lagoon Aquatic Preserve. Such activities shall not threaten the water quality of the Indian River Lagoon;
- b. Maintain natural drainage patterns;
- c. Promote the use of surface water supplies for irrigation purposes;
- d. Prohibit the expansion of agricultural activities into wetland areas; and
- e. Use best management principles and practices in order to reduce pesticide and fertilizer run-off, prevent soil erosion, and preserve water quality.

Policy 5-1.3.2: Regulate Wastewater Treatment Discharge to Preserve Water Quality. Land development regulations shall incorporate the following performance standards in order to protect water quality:

- a. All new residential subdivisions, excluding individual single-family houses in existing subdivisions, as well as multiple family and non-residential development within the established service area of the major public wastewater system shall be required to connect to the Indian River County wastewater system pursuant to §20A-17.2(P) of the Land Development Code of the City of Sebastian. In areas where developments cannot be connected to the public sewer, the development may be allowed to use septic tanks provided that the County Health Department approves and the developer agrees to install dry sewer lines in the development for connection at a later date. The City Council may waive the requirement to install dry lines.

Policy 5-1.3.3: Protect Deep and Surficial Aquifer Recharge Areas. The City has no prime deep aquifer recharge areas which have been identified by the St Johns River Water Management District. However, stipulations for protecting surficial aquifer recharge areas shall be incorporated into the City's land development regulations which require retention of open space for all development in order to:

- Preserve the quality and quantity of water resources within the surficial aquifer,
- Promote improved surface water management; and
Create natural or landscaped urban green space for enhanced community aesthetics and passive pedestrian activities.

Policy 5-1.3.4: Deep Aquifer Water Conservation. In order to protect the quality and quantity of deep aquifer water resources, the City shall coordinate with the St. John's River Water Management District and other applicable regulatory agencies in identifying the existence and location of free flowing deep aquifer wells and in requiring corrective measures, including capping, plugging, or installing regulatory devices

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which control the discharge of water from the deep aquifer pursuant to the St Johns River Water Management District policies.

Policy 5-1.3.5: Protection and Conservation of Potable Water Supply. By December 31, 1998, The City shall amend ~~continue to require~~ the land development regulations ~~to~~ by incorporate performance criteria for public potable water wellfield protection. In addition, administrative procedures shall require applicants for development to coordinate with the St Johns River Water Management District in obtaining consumptive use permits. In order to comply with potable water conservation policies of the St Johns River Water Management District and achieve a reduction in the current rates of water consumption, the land development regulations shall incorporate the following performance standards:

- a. Where reclaimed water is available, potable water supplies may not be used to meet irrigation needs.
- b. Require the use of water-saving plumbing fixtures on all new development.
- c. In order to reduce demand for irrigation water (which in turn often places greater demand upon potable water sources), at ~~ten~~ at least thirty (30%) percent of all landscaping material obtained from off-site sources for use on any site should be native plants. Further, at least fifty (50%) percent of nil trees used in landscaping shall be native species in order to lessen water demand.

Policy 5-1.3.6: Emergency Conservation of Water Sources. The City shall coordinate with the St Johns River Water Management District (SJRWMD) in implementing emergency water conservation measures based on the SJRWMD plans for management of the region's water resources.

Policy 5-1.3.7: Managing Land Use Surrounding Water Well Cones of Influence. By December 31, 1998 The City shall adopt amended ~~have~~ land development regulations which contain performance criteria designed to protect potable water supply and quality by restricting land development within public water well cones of influence in order to avoid potential adverse impacts on potable water resources.

Policy 5-1.2.8: SWIM Program Coordination. Beginning in January 1998, the City shall continue to coordinate, with the St. Johns River Water Management District for purposes of using resources available through the Surface Water Improvement Management (SWIM) program and Indian River Lagoon Comprehensive Conservation and Management Plan in order to enhance water quality especially surface waters which are directed to the Indian River Lagoon.

Policy 5-1.3.3: Best Management Practices. The city is susceptible to impacts of future sea level rise and combined rain events that would cause flooding based on data outlined in the City of Sebastian, Coastal Resiliency Plan, Prepared By: Kinley-Horn and Associates, Inc., March 2019. Best Management Practices to address flooding level of service violations and water quality shall be devised and, given the hydrology of the area, it is encouraged that there be the development of a pollutant load model. It is also encouraged that there be the hardening of pump-out stations in order to increase resiliency against flooding events.

OBJECTIVE 5-1.4: PROTECT AIR QUALITY. Beginning in January 1998, The City shall maintain land development regulations including performance standards which ensure that development meets or exceeds the minimum air quality standards established by the Florida Department of Environmental Protection (DEP) and shall establish regulatory programs to prevent and/or minimize non-point sources of air pollution (note: the City has no point sources of air pollution).

Policy 5-1.4.1: Combat Erosion and Generation of Dust Particles. Land development regulations shall incorporate performance standards which combat erosion and generation of fugitive dust particles. The regulations shall require that measures be taken on building sites or cleared areas which assure that ex-posed, destabilized, or other altered soil is expeditiously covered with an acceptable erosion control material.

Policy 5-1.4.2: Air Pollution and Land Use Regulations. The City's adopted land development regulations, including adopted soil erosion and sedimentation controls as well as nuisance abatement standards shall continue to

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protect against loss of air quality by maintaining land use controls which promote only activities compatible with existing land uses and natural systems and prohibit activities which generate air pollutants and other adverse impacts on the environmentally fragile coastal ecosystem.

OBJECTIVE 5-1.5: SHORELINE USES AND PUBLIC ACCESS TO SHORELINE, PROTECTING ESTUARINE SHORELINE AND CONSERVATION LAND RESOURCES. The City shall maintain land development regulations which include performance criteria ensuring implementation and enforcement of the Comprehensive Plan land use policies for prioritizing shoreline uses. ~~This objective shall be measured through the implementation of the following policies. By December 31, 1998 The City shall have adopted land development regulations which include performance criteria designed to ensure that designated conservation land resources, are protected based on locally determined criteria which further the goals, objectives and policies of the Conservation Conservation and Coastal Management Element. This Objective shall be measured through the implementation of the following policies.~~ The City shall also have adopted land development regulations which protect the water quality of the estuary by protecting the shoreline. This objective shall be implemented through the following policies.

Policy 5-1.5.1: Criteria for Prioritizing Shoreline Uses and Public Shoreline Access. In reviewing applications for shoreline development first priority shall be directed to the following shoreline uses:

- a. Non- structural shoreline protection uses such as native shoreline revegetation programs;
- b. Approved water-dependent estuarine shoreline uses such as: pervious accessways and duly permitted dock facilities and commercial marinas. All such facilities shall satisfy all provisions of the City's land development code and obtain requisite permits from all environmental permitting agencies prior to obtaining City approval. Newly proposed marinas shall not be approved unless the applicant demonstrates that the marina site is consistent with the City's conservation and coastal management policies. Priority shall be directed to water dependent uses which are available for public use.

These facilities shall demonstrate during site plan review compliance with performance standards stipulated in Policy 5- 1.2.1(2) in order to prevent adverse impacts to natural features. Second priority shall be directed toward water-related uses such as:

- a. Parking facilities for shoreline access;
- b. Residential structures which comply with the building code for structures within the State coastal building zone; and
- c. Recreational facilities which comply with applicable codes.

The City of Sebastian has no beach or dune system, and therefore, shoreline protection policies apply only to the estuarine shoreline.

Policy 5-1.5.2: Implementing Policies for Shoreline Land Uses. Land development regulations shall stipulate provisions implementing shoreline land use priorities, including criteria for regulating water-dependent and water-related shoreline land uses. The City shall have adopted by December 31, 1997 land development regulations which prohibit any development within the wetland estuarine shoreline, other than water dependent native shoreline vegetation programs, approved pervious or elevated accessways, or other uses approved by the City pursuant to other City regulations shall be permitted No structures which constrict water circulation in the lagoon shall be permitted. The regulations shall address the following:

- a. **Protecting Living Coastal Marine Life.** The City shall continue to enforce land development regulations which protect species with special status from the adverse impacts caused by development.
 - i. All applicants proposing development activities along the estuarine shoreline or within submerged areas shall be required to submit a site plan pursuant to site plan review regulations. Such site plan shall provide

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sufficient information describing marine life potentially impacted by proposed flood uses as well as related construction activity. The plan shall stipulate ~~11~~ ¹¹SSURances that the proposed project shall not adversely impact marine life or water quality. For instance, water quality control techniques such as the use of weirs for purposes of managing turbidity may be required by the City. In addition, the City shall require surveys of existing conditions, specifications of planned site improvements, and techniques to be used during construction as well as in operating and maintaining the land use in order to prevent damage to living marine organisms.

- b. **Water-Related Uses in State Coastal Building Zone.** All water-related uses shall be built on uplands landward of the floodway. Within the State coastal building zone all construction activities shall be predicated on plans compliant with applicable State and local building codes. Dredging and filling of wetlands or open water in order to accommodate water-related uses shall not be permitted unless the City approves such activity pursuant to provisions of the wetland protection ordinance, the storm water management ordinance, and all other relevant site plan review criteria.
- c. **Estuarine Shoreline Structures/Water-Dependent Uses.** Within the wetland estuarine shoreline, no development other than water dependent native shoreline revegetation programs approved pervious or elevated accessways, and other uses approved by the City pursuant to the Storm Water Management and Flood Protection Ordinance shall be permitted. Hardening of the lagoon shoreline shall not be permitted unless the upland property is critically imperiled and the use of vegetation has failed to stabilize the shoreline. The design specifications of any shoreline hardening structure shall:
 - i. Comply with best management principles and practices and be accomplished by use of the least environmentally damaging methods and designs possible;
 - ii. Avoid a vertical slope which generates erosive tendencies, especially to adjacent unprotected shoreline properties. Pervious interlocking tile systems, filter mats, and similar stabilization methods shall be used in lieu of vertical walls whenever feasible;
 - iii. Not be located waterward of the mean high-water line except when it is shown to be in the public interest;
 - iv. City approval shall be conditioned upon the applicant receiving approval from other public agencies having jurisdiction; and
 - v. Incorporate a program of shoreline vegetation or revegetation in order to build, enhance, and stabilize a natural shoreline.
- d. **Land Use Restrictions in Submerged Lands and Wetlands.** No non-water dependent uses shall be permitted on submerged lands or wetlands. Development on uplands adjacent to wetlands shall preserve a buffer known as the wetland transition area, as defined in the Storm Water Management and Flood Protection Ordinance. The specific boundary of a wetland transition area shall be established by field investigation. Similarly, no structures which constrict water circulation in the lagoon shall be permitted.
- e. **Protection of Wetland Transition Areas.** Transition areas shall be defined as the area separating wetland and upland areas and in which development activities may be regulated to protect wetlands. The transition zone is an area having a direct groundwater or surface water influence. The transition area provides a buffer between wetlands and upland development or other land alteration activities. This area shall meet the minimum size requirements established by SJRWMD for wetland buffers. The purpose of the transition zone is to ensure the continuing function of respective wetland communities. The City shall retain the right to prohibit development within the wetland transition area the boundary of a wetland transition area shall be established by field investigation. At a minimum the following uses shall be prohibited within the wetland transition areas:
 - All industrial uses;
 - Wastewater treatment facilities;
 - Animal feedlots;

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- f. **Dock Facilities.** Docks or marina improvements shall not be approved by the City until the applicant demonstrates compliance with all applicable federal and State laws and administrative rules, including §160.20.04(5), F.A.C., governing Aquatic Preserves as well as applicable policies of regional agencies. No commercial marina facilities shall be permitted on the Sebastian River. The City shall require site plans for all docks and marinas. These plans must demonstrate to the City's satisfaction that the facilities shall not adversely impact natural marine resources, including, but not limited to, seagrasses, estuarine waters, manatees and other living marine organisms. The plans shall indicate:
- Location relative to all impacted natural marine resources.
 - Structural specifications.
 - Description of all impacted natural marine resources, including their location and physical characteristics.
 - Multi-slip dock or marina facilities shall be located so as to prevent or minimize dredging and shall not disturb seagrass beds or adjacent wetlands.
 - Availability and location of sewage pump-out facilities.
 - Hurricane contingency plans.
 - Mitigation techniques proposed to compensate for any potential environmental disruption.
- g. ~~**Estuarine Water Quality.** In order to protect the water quality of the Aquatic Preserve, no new point source pollution shall be permitted to discharge into the lagoon or into ditches or canals flowing into the lagoon. In addition, in order to reduce non point source pollutants and comply with the Indian River Lagoon SWIM Plan, Indian River Lagoon Act, and the Indian River Lagoon Comprehensive Conservation and Management Plan, the City shall require the following:~~
- ~~Surface water management systems shall be designed and constructed to retain or detain with filtration, as a minimum, the storm water run off generated from the first one inch of rainfall over the entire site. The storm water design shall be predicated on the following:

Off-site: 25 year, 24-hour design storm — On-site: 10 year, 24-hour design storm.~~
 - ~~A vegetated and functional littoral zone shall be established as part of the surface water management system of lakes occurring on all property. Prior to construction of the surface water management system for any phase of a project, the developer shall prepare a design and management plan for the wetland/littoral zone that will be developed as part of these systems. The plan should:

(a) Include typical cross sections of the surface water management system showing the average water elevation and the 3 foot contour (i.e., below average elevation);

(b) Specify how vegetation is to be established within this zone, including the extent, method, type and timing of any planting to be provided; and

(c) Provide a description of any management procedures to be followed in order to assure the continued viability and health of the littoral zone. The littoral zone as established should consist entirely of native vegetation and should be maintained permanently as part of the water management system. As a minimum, 10 square feet of vegetated littoral zone per linear foot of shoreline should be established as part of the surface water management plan.~~
 - ~~The City shall coordinate with the St Johns Water Management District in developing and adopting an ordinance regulating installation of underground storage tanks for petroleum products.~~
 - ~~The City shall coordinate with the St Johns Water Management District in reviewing issues and appropriate enforcement activities surrounding safe yield for water withdrawals from the surficial aquifers near the Indian River Lagoon in order to avoid impacts on the estuary.~~

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- g. **Shoreline Access.** Shoreline access to the Indian River Lagoon shall be promoted in order to maintain accessways at approximately one-half mile intervals along the shoreline. State assistance shall be enlisted to achieve land required to appropriately store vehicles, provide rest room facilities, and accessways designed in a manner compatible with the shoreline ecosystem. The location of access points and related improvements shall be consistent with the City's Riverfront Study as enacted. The City has no beaches and, therefore, beach access policies of the State are not applicable; however, the City shall consider as part of the Riverfront Study ways to ensure public access and provide the necessary infrastructure to support waterfront activities.
- h. **Signage along the Indian River Lagoon.** At the time land development regulations are amended in order to comply with the adopted comprehensive plans, the City shall consider restricting commercial signage along the Indian River, to only those signs deemed essential for water dependent facilities. The City shall coordinate, with jurisdictional agencies to develop uniform signage and criteria to further this policy. The City's sign regulations in the area east of the railroad tracks from the north City limit to the south City limit shall be consistent with the recommendations in City's Riverfront Study as enacted.

Policy 5-1.5.3: Protection against Potential Adverse Impact on Estuarine Shoreline and Site Plans Required for Developments in Estuarine Shoreline Areas. ~~By December 31, 1997, The City shall adopt~~ ~~continue to require~~ land development regulations which require applicants for development along lakes, natural waterways, or the estuarine shoreline to submit as part of the development review process plans which demonstrate how the development shall incorporate feature designed to protect against potential adverse impacts to: Shoreline vegetation and stabilization; Water quality; Native habitat; Living marine resources; and Shoreline access. No shoreline development shall be approved until the applicant has demonstrated that potentially adverse impacts shall be prevented or that compensatory mitigation shall occur. ~~The City shall also have adopted by December 31, 1997 land development regulations which require all applicants proposing development activities along the estuarine shoreline or within submerged areas to submit a site plan pursuant to site plan review regulations. Such site plan shall provide sufficient information describing marine life potentially impacted by proposed land uses as well as related construction activity. The plan shall stipulate assurances that the proposed project shall not adversely impact marine life or water quality. For instance, water quality control techniques such as the use of weirs for purposes of managing turbidity may be required by the City. In addition, the City shall require surveys of existing conditions, specifications of planned site improvements, and techniques to be used during construction as well as in operating and maintaining the land use in order to prevent damage to living marine organisms.~~

Policy 5-1.5.4: Uses Within the Estuarine Shorelines. ~~The City shall have adopted by December 31, 1997 land development regulations which prohibit any development within the wetland estuarine shoreline, other than water dependent native shoreline vegetation programs, approved pervious or elevated accessways, or other uses approved by the City pursuant to other City regulations shall be permitted. No structures which constrict water circulation in the lagoon shall be permitted.~~

Policy 5-1.5.4: Protect, Stabilize, and Enhance the Estuarine Shoreline. ~~By December 31, 1998, The City shall~~ ~~continue to require~~ incorporate criteria within the land development regulations which stipulate that no native vegetation shall be removed from the estuarine shoreline without a duly authorized City land clearing permit. Similarly, criteria shall be included in the land development regulations which require that applicants for development along the estuarine shoreline shall be required to revegetate, stabilize, and enhance damaged estuarine shorelines by planting native vegetation, including mangrove and/or other native estuarine plant species which:

- i. Contribute to marine productivity and water quality;
- ii. Offer protection from erosion and flooding; and
- iii. Contribute to the natural soil building process.

Hardening of the estuarine shoreline with rip-rap, bulkheads or other similar devices shall not be allowed unless erosion constitutes a critical peril to upland property and the use of vegetation has failed to stabilize the shoreline. Such shoreline hardening structures shall generally not be vertical seawalls or bulkheads and shall comply with

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performance standards herein cited in ~~Policy 5-1.2.1(2)(c)~~ ~~Policy 5-1.5.2(c)~~. The specific location and design of such structures shall be approved by the City as well as by other public entities having jurisdiction in the matter. Land development regulations shall incorporate the following performance criteria governing the location and design of such structures:

- Comply with best management principles and practices and be accomplished by use of the least environmentally damaging methods and designs possible;
- Avoid a vertical slope which generates erosive tendencies, especially to adjacent unprotected shoreline properties. Pervious interlocking tile systems, filter mats, and similar stabilization methods shall be used in lieu of vertical walls whenever feasible;
- Not be located waterward of the mean high-water line except when it is shown to be in the public interest;
- City approval shall be conditioned upon the applicant receiving approval from other public agencies having jurisdiction; and
- Incorporate a program of shoreline vegetation or revegetation in order to build, enhance, and stabilize a natural shoreline.

In order to stabilize areas susceptible to shoreline erosion, such as shorelines along canals and the Indian River Lagoon which are susceptible to erosion, land development regulations shall require that all new development preserve shoreline native vegetation and revegetate areas along shorelines demonstrating historically erosive tendencies.

Policy 5-1.5.5: Shoreline Vegetation and Stability. ~~By December 31, 1997, The City shall adopt~~ ~~continue to require~~ land development regulations which require a duly authorized permit to remove vegetation from a shoreline. Where the City approves shoreline alterations, the applicant shall be required to re-vegetate, stabilize, and enhance damaged estuarine shorelines by planting native vegetation, including mangrove and/or appropriate native estuarine plant species which:

- i. Contribute to marine productivity and water quality;
- ii. Offer protection from erosion and flooding; and
- iii. Contribute to the natural soil building process.

Policy 5-1.5.6: Hardening of Shoreline. ~~By December 31, 1997, The City shall adopt~~ ~~continue to require~~ land development regulations which prohibit the hardening of the Indian River Lagoon shoreline or the shoreline of the St. Sebastian River with rip-rap, bulkheads or other similar devices, except where erosion constitutes a critical peril to upland property and the use of vegetation has failed to stabilize the shoreline. Such shoreline hardening structures shall generally not be vertical seawalls or bulkheads. The specific location and design of such structures shall:

- i. Comply with the best management principles and practices and be accomplished by use of the least environmentally damaging methods and designs possible;
- ii. Avoid a vertical slope which generates erosive tendencies, especially to adjacent unprotected shoreline properties. Pervious interlocking tile systems, Filter mats, and similar stabilization methods shall be used in lieu of vertical walls whenever feasible;
- iii. Not be located waterward of the mean high-water line except when it is shown to be in the public interest;
- iv. Approval conditioned upon receiving approval from other public agencies having jurisdiction; and
- v. Incorporate a program of shoreline vegetation or revegetation in order to build, enhance, and stabilize a natural shoreline.

Policy 5-1.5.7: Designation of Environmentally Sensitive Areas. In ~~Policies 6-1.3 and 6-1.4~~ ~~Objective 5-1.1~~

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and Objective 5-1.5 estuarine shoreline resources, wetlands, and upland habitats are addressed including the regulatory framework through which the City intends to manage, protect and preserve the resources. The Future Land Use Map series identifies these environmentally sensitive systems. Other lands shall be subject to restricted development as defined in Objective 6-1.9 5-1.5.

Map I-9 specifically includes areas reserved for conservation uses or restricted development Table I-1 in the land use element provides a tabular summary of existing and projected future use of natural and historical resources. This table includes areas reserved for conservation uses or restricted development Table I-1, footnote #1, incorporates a list of existing land development regulations that presently regulate and shall in the future continue to regulate use of natural resources. All natural and historic resources identified in Map I-9 and Table I-1 shall either remain undeveloped or shall undergo "restricted development." "Restricted development" shall be regulated through performance criteria within the amended Land Development Regulations and through objectives and policies contained in the adopted Comprehensive Plan.

OBJECTIVE 5-1.6: LIMITING PUBLIC SUBSIDY OF DEVELOPMENT IN THE COASTAL HIGH-HAZARD AREA. Upon adoption of the Comprehensive Plan, the City shall limit public expenditures that subsidize development permitted in coastal high-hazard areas to restoration or enhancement of natural resources and public services for water dependent uses. The City shall aim to minimize the impact of natural hazards such as flooding and sea level rise to the community by directing development away from the coastal high hazard areas as defined by State Statute §163.3178(2)(f), F.S.

Policy 5-1.6.1: Public Investments in Coastal High-Hazard Area. Public funded facilities shall not be built in the coastal high-hazard area, unless the facility is for public access, resource restoration, adequate evacuation, or service to water dependent activities. These facilities may face inundation and be impacted if they are outdoor facilities based on data included in the City of Sebastian, Coastal Resiliency Plan, Prepared By: Kimley-Horn and Associates, Inc., March 2019

OBJECTIVE 5-1.7: AVOID POPULATION CONCENTRATIONS IN COASTAL HIGH-HAZARD AREAS. ~~Beginning in January 1998,~~ The City shall restrict development and not increase densities or intensities beyond those depicted on the Future Land Use Map in Coastal High Hazard Areas (CHHA) in order to minimize danger to life and property occasional by hurricane events, flooding, or sea level rise. The City shall direct population concentrations away from CHHA. The CHHA shall be defined as those areas located within the Category I evacuation zone established in the Treasure Coast Regional Hurricane Evacuation Study.

Policy 5-1.7.1: Restrict Development in Coastal High-Hazard Areas. The City shall incorporate appropriate policies in the land development regulations in order to direct population concentrations away from known or predicted coastal high hazard areas which are areas located within the category I evacuation zone established in The Treasure Coast Regional Hurricane Evacuation Study. Also, the City shall direct population concentrations away from known areas that are vulnerable to flooding inundation and sea level rise as established in the City of Sebastian, Coastal Resiliency Plan, Prepared By: Kimley-Horn and Associates, Inc., March 2019. Development principles and strategies that eliminate unsafe development in the CHHA must be used as defined by §163.3178(2)(f), F.S.

The following provisions shall restrict development within the coastal high-hazard area:

- a. Water and sewer treatment plants, industrial holding ponds and other potential point pollution sources within the coastal high-hazard area are prohibited.
- b. Require construction within the hurricane flood zone to meet storm and flood proofing standards exceeding those required for a 100-year storm.
- c. Residential development and/or redevelopment in the CHHA shall not exceed existing residential densities for that property.

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- d. Beach sand dune alteration shall be prohibited.

OBJECTIVE 5-1.8: MAINTENANCE OF FLOODPLAIN. Beginning in January 1998, The City shall maintain land development regulations which include performance criteria designed to protect the natural functions, including flood- carrying and flood storage capacity, of the 100-year floodplain.

Policy 5-1.8.1: Enforce Policies to Maintain Floodplain. The City shall continue to enforce its surface water management and flood damage prevention regulations, §20A-10.2(H), Land Development Code of the City of Sebastian (as currently exists and as may hereinafter be amended). New development encroaching into the floodplain shall incorporate flood protection measures sufficient to protect against the 100-year flood. ~~New development encroaching into areas subject to sea level rise, storm surge, and flood inundation shall incorporate flood protection measures as defined in the City of Sebastian, Coastal Resiliency Plan, Prepared By: Kimley-Horn and Associates, Inc., March 2019.~~ The City's Storm Water Management and Flood Protection Ordinance shall maintain consistency with program policies of the Federal Insurance Administration. The City shall monitor new cost-effective programs for minimizing flood damage. Such programs may include modification to construction setback requirements or other site design techniques, as well as upgraded building and construction techniques. ~~The City shall encourage the use of best practices of development strategies that results in reducing flood risk and the removal of coastal real property from flood zone designations established by the Federal Emergency Agency as required by §163 31/8(2)(f), F.S.~~

Policy 5-1.8.2: Purchase of Floodplain. The City shall identify and recommend to the State and the St Johns River Water Management District purchase of floodplains that would comply with program guidelines established under the Conservation and Recreation Lands (CARL) Program or the Save Our Rivers (SOR) Program.

OBJECTIVE 5-1.9: HURRICANE EVACUATION. The City shall coordinate with Indian River County in attaining a hurricane evacuation time of less than twelve (12) hours. ~~There is the potential to put into place early warning notifications for elderly residents who are potentially more vulnerable as recommended in the City of Sebastian, Coastal Resiliency Plan, Prepared By: Kimley-Horn and Associates, Inc., March 2019.~~ Inundation caused by flooding and sea level rise is predicted to impact evacuation routes on Sebastian Boulevard and this vulnerability should be addressed to increase resilience.

City of Sebastian, Coastal Resiliency Plan, Prepared By: Kimley-Horn and Associates, Inc., March 2019

Policy 5-1.9.1: Hurricane Evacuation Logistical Support. In order to prevent unnecessary evacuees crowding roads and shelters, the City shall coordinate with Indian River County in disseminating information concerning the need of residents to evacuate at various hurricane threat levels, flood events, and sea level rise events. The City shall coordinate with the County and the Indian River County Emergency Management Director in assisting the implementation of the County's campaign to educate the general citizenry regarding emergency preparedness plans, including specific citizen directives.

Policy 5-1.9.2: Future Coordination with the County in Emergency Preparedness. In order to provide for safe and efficient evacuation of the residents of the City of Sebastian and other communities in the event of a hurricane, the City shall continue to coordinate with Indian River County in annual updates of the County Peacetime Emergency Plan. This update shall enable the County and incorporated municipalities to plan for future population densities which will neither adversely impact the efficiency of the evacuation plan nor increase evacuation times.

In order to ensure that future developments are consistent with the Peacetime Emergency Plan and amendments thereto, the City's land development regulations shall mandate that new development maintain a density threshold which is consistent with the Peacetime Emergency Plan. This stipulation will assure that future density thresholds may be accommodated without adversely impacting hurricane evacuation time. The City shall also coordinate with the County in updating hurricane evacuation shelter assignments as well as other policy formulation surrounding

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land use and emergency preparedness.

OBJECTIVE 5-1.10: HAZARD MITIGATION AND COASTAL HIGH-HAZARD AREAS. ~~Beginning in January 1998,~~ The City shall maintain land development regulations which contain performance standards regulating development activities in a manner which minimizes the danger to life and property occasioned by ~~hurricane~~ natural hazard events including:

1. Storm and Floodproofing Standard for Non-residential Structures. Non-residential construction within the coastal high hazard area shall meet storm and floodproofing standards exceeding those required for a one hundred (100) year storm.
2. Restrictions of Redevelopment. If a structure located within the high hazard area receive storm damage in excess of fifty (50) percent of its appraised value, all such damaged structures shall be required to meet all current laws and ordinances, including those enacted since construction of the subject structure.

Policy 5-1.10.1: Coastal High-hazard Area Defined. The coastal high hazard area (CHHA) consists of the Category I evacuation zone established in the Treasure Coast Regional Hurricane Evacuation Study. The only areas within the City limits identified in the Category I evacuation zone are the City's mobile home parks. The City shall enforce development restrictions, identified in ~~Policy 5-1.4.1~~ Policy 5-1.7.1, within the CHHA and any area found to have historically experienced destruction or severe damage from storm driven, wind, water, or erosion. The City has identified the high velocity storm surge area as indicated on the Federal flood insurance rate maps as the only such area.

Policy 5-1.10.2: Coordinate Update of the Hazard Mitigation Plan. The City shall coordinate with the County in updating the hazard mitigation annex of the Local Peacetime Emergency Plan pursuant to the five (5) year interval schedule adopted by the County. Updates of the Plan shall identify specific actions that may be implemented to reduce exposure to natural hazards. The current Plan contains no inter-agency hazard mitigation component. The Comprehensive Plan shall incorporate interagency hazard mitigation reports as such reports are generated in the future.

Policy 5-1.10.3: Implementing General Hazard Mitigation. ~~By December 31, 1998~~ The City shall adopt ~~to require~~ continue land development regulations which require that no development other than shoreline stabilization activities and water dependent recreation activities shall be allowed, within the coastal high hazard area. The only exception to this regulation shall be that existing mobile homes within the CHHA shall be grandfathered in, thereby may be repaired and/or replaced as long as the density does not increase. The performance criteria shall stipulate the need to reduce exposure of human life and property to natural hazards.

Policy 5-1.10.4: Existing Infrastructure in the CHHA. The City shall establish ~~by January 1999~~ a priority list of infrastructure facilities located in the CHHA which could be relocated, mitigated or replaced should state funding become available for such activities. Additional infrastructure and assets are inventoried in the City of Sebastian, Coastal Resiliency Plan, Prepared By: Kimley-Horn and Associates, Inc., March 2019, Appendix B, Asset-Threat Matrices.

OBJECTIVE 5-1.11: POST-DISASTER REDEVELOPMENT. ~~Beginning in January 1998,~~ The City shall continue to coordinate with the County in providing immediate response to ~~post-hurricane~~ post-disaster situations pursuant to policy directives cited below.

Policy 5-1.11.1: Recovery Operations. The City shall coordinate with Indian River County in modifying the Local Peacetime Emergency Plan in order to establish compliance with this objective. The update of the Plan shall include strategies for post-disaster recovery operations.

Policy 5-1.11.2: Post-Hurricane Assessments. ~~By December 31, 1998~~ The City Council shall appoint a Recovery Task Force comprised of the City Manager, the Building Official and others as determined by the City Council. The Recovery Task Force shall be responsible for assessing the conditions following a hurricane or other similar disasters

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such as flooding events and shall propose strategic actions necessary to establish order and re-establish communication and basic service delivery systems necessary for health, safety, and welfare. Within ninety (90) days after appointment of the Recovery Task Force, the Task Force shall meet to determine a management framework for resolving issues confronted in times of a natural disaster. The management framework shall be reviewed with the County Civil Defense Officer for compliance with the Local Peacetime Emergency Plan and shall be presented to the City Council for review and approval. The management plan should provide a basis for executing the following activities during times of natural disaster.

- a. Establishing a temporary moratorium on building activity;
- b. Reviewing and deciding upon emergency building permits;
- c. Coordinating with State and Federal officials to prepare disaster assistance applications;
- d. Analyzing and recommending to the City Council hazard mitigation options, including reconstruction or relocation of damaged public facilities;
- e. Developing a redevelopment plan including limitations on redevelopment in areas of repeated damage; and
- f. Recommending amendments to the Local Peacetime Emergency Plan and other appropriate policies and procedures.

Policy 5-1.11.3: Repair and Clean-up. In planning post-disaster redevelopment activities, factors to be considered in order to protect the public health and safety shall include:

- a. Repairs to potable water, wastewater and power facilities;
- b. Removal of debris;
- c. Stabilization or removal of structures in a perilous condition; and
- d. Minimal repairs to make structures habitable.

These considerations shall receive first priority in determining the appropriateness of emergency building permits. Long term redevelopment activities shall be postponed until the Recovery Task Force has coordinated immediate repair and clean-up operations.

Policy 5-1.11.4: Hazard Mitigation and Comprehensive Plan Amendments. The Recovery Task Force shall propose any needed Comprehensive Plan amendments which reflect the recommendations contained in any inter-agency hazard mitigation reports or other reports prepared pursuant to §406, Disaster Relief Act of 1974 (PL 93-288).

Policy 5-1.11.5: Redevelopment Activities. ~~Beginning in January 1998,~~ The LDRs shall require the redevelopment of any structure within the City that received storm-damage in excess of fifty (50%) percent of its appraised value to meet all current laws and ordinances, including those enacted since construction of the subject structure. The city shall require that new development and redevelopment in areas that are at high risk of flooding to use best practices, strategies, and engineering solutions that may reduce risk and losses due to storms, flooding and sea level rise as defined by §163.3178(2)(f), F.S.

Policy 5-1.11.6: Establish Public Facilities Review Committee. ~~By December 31, 1998,~~ The City Council shall designate the Recovery Taskforce as the City's designated Public Facilities Review Committee charged with the responsibility for reviewing available alternatives for managing damaged public facilities following a hurricane event. The Committee shall evaluate future options for such facilities, including, but not limited to, abandonment repair in place, relocation, and reconstruction, with structural modifications. The Committee shall consider these options based on the following considerations:

- a. Cost to construct;
- b. Impacts on the environment;
- c. Cost to maintain;
- d. Public sector;
- e. Recurring damages;
- f. Impacts on land use, and
- g. Other relevant factors.

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OBJECTIVE 5-1.12: HISTORIC RESOURCES. The City shall assure that there shall be no loss of historic resources on City owned property and land development regulations shall assure that historic resources on private property shall be protected, preserved, or re-used in a manner sensitive to the historic properties of the site and/or structure. The City's Historic Resources are listed in Appendix B of the Housing Element.

Policy 5-1.12.1: Promote Identification of the City's Historic, Archaeological, and Cultural Resources. The City shall coordinate with the State Division of Historic Resources and the Sebastian River Historical Society in continuing to identify, protect, analyze, and explain the City's historical, archaeological, and cultural resources. Such efforts shall include determination of their worth and vulnerability, as well as determination of specific applicable preservation management policies.

Policy 5-1.12.2: Performance Standards for Protecting Sites of Historic or Archaeological Significance. Land development regulations shall include precautions necessary to prevent the following adverse impacts to historic or archaeological sites of significance:

- a. Destruction or alteration of all or part of such site;
- b. Isolation from, or alteration of the surrounding environment;
- c. Introduction of visual, audible, or atmospheric elements that are out of character with a property or alter its setting;
- d. Transfer or sale of the site of significance without adequate conditions or restrictions regarding preservation, maintenance, use, or re-use;
- e. Vegetation removal shall not be permitted on a historic or archeological site unless the vegetation to be removed is a part of a duly authorized scientific excavation, or is a part of an approved development plan; and
- f. Other forms of neglect resulting in resource deterioration.

Policy 5-1.12.3: Alternatives to Preserving Historic or Archaeological Sites. As an alternative to preserving historic or archaeological sites, the owner of impacted lands may allow excavation of the site by the Division of Historic Resources or another State approved entity prior to development. Should a site be scientifically excavated in this manner, development may proceed following completion of the scientific excavation by the approved entity.

OBJECTIVE 5-1.13: PUBLIC SERVICES IN COASTAL AREA. The level of service standards, service areas, and proposed phasing stipulated in other elements of the Comprehensive Plan for facilities in the coastal area and additional standards under this objective shall be applied whenever development orders or permits are requested. This objective shall be measured through the implementation of the following policies.

Policy 5-1.13.1: Ensure Available Infrastructure and Coordinate Timing and Staging of Public Facilities with Private Development. ~~By December 31, 1998,~~ The City shall have adopted land development regulations which shall ensure that future development is directed only to those areas where public facilities which meet the City's adopted level of service standards are available concurrent with the impacts of the development. In order to assure appropriate timing and staging no occupancy permit shall be granted until infrastructure and services required by respective developments are in place and available for use concurrent with the impacts of development. The infrastructure shall be designed in a manner consistent with the existing and projected future demands generated by development projected in the future land use element. The infrastructure shall also be consistent with applicable local, regional and State coastal resource protection policies.

OBJECTIVE 5-1.14: COMBAT SOIL EROSION. ~~Beginning in January 1998,~~ The City shall maintain land development regulations which include performance criteria designed to reduce the incidence of soil erosion caused by land clearing, breaches in stabilized shorelines, and lands having exposed soil without vegetative cover.

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Policy 5-1.14.1: Implementing Erosion Control. Land development regulations shall require that appropriate measures be taken during land clearing and building operations to assure that exposed, destabilized or otherwise altered soil is expeditiously covered with an acceptable erosion control material. These provisions shall be incorporated in the Subdivision and Tree and Landscape Ordinances.

OBJECTIVE 5-1.15: PREVENTING POTENTIAL ADVERSE IMPACTS OF FUTURE MINING OF MINERALS AND MINERAL EXCAVATION ACTIVITIES. No mining activities, including sand mining, shall be permitted within the City since the City is characterized by natural systems which would potentially receive irretrievable losses from the impacts of such operations.

Policy 5-1.15.1: Prohibition Against Mining Activities. Land development regulations shall prohibit mining of minerals, except for existing sand mining operations, based on the irretrievable losses which such intense activities may potentially impose on the City's fragile coastal ecosystem as documented in the Comprehensive Plan Data Inventory and Analysis.

OBJECTIVE 5-1.16: HAZARDOUS WASTE MANAGEMENT. The City shall coordinate with Indian River County as well as appropriate State and regional agencies in developing effective plans for managing hazardous waste (Note: No hazardous, waste pollutants or sites currently exist within the City). Beginning in January 1998, the City shall maintain land development regulations which prohibit the following land uses and activities within wellfields and aquifer recharge areas as well as any area where it would adversely impact natural resources:

- a. Sanitary landfills;
- b. Animal feedlots;
- c. Incinerators
- d. Wastewater treatment facilities;
- e. Petroleum or pesticide storage facilities;
- f. Above-ground or below-ground pipes for pollutants or contaminants.
- g. All other land uses that store, handle, or generate hazardous materials or wastes. Hazardous materials or wastes, as regulated by this section shall consist of the following:

- Chapter 38F-41 of the Florida Administrative Code (the Florida Substance List).
- Title 40 of the Code of Federal Regulations Part 261 (Identification and Listing of Hazardous Wastes).
- Title 40 of the Code of Federal Regulations Part 302.4 (Table 302.4) (List of Hazardous Substances and Reportable Quantities).
- Title 40 of the Code of Federal Regulations part 355, Appendix A and B (List of Extremely Hazardous Substances).

Policy 5-1.16.1: Managing Hazardous Waste. The City shall continue to enforce land development regulations which incorporate development restrictions directed toward preserving natural systems and accommodating only low intensity land use activities identified in the Land Use Element. Therefore, the City does not anticipate that hazardous waste shall threaten the City's natural resources. Nevertheless, the City shall continue to work, with the County and appropriate State and regional agencies in developing an improved areawide solid waste management program which includes more innovative solid waste management technologies that save energy and/or produce renewable energy and effectively manage hazardous waste.

OBJECTIVE 5-1.17: INTERGOVERNMENTAL COORDINATION WITHIN THE COASTAL AREA AND FOR MANAGING CONSERVATION ACTIVITIES. Establish an intergovernmental coordination mechanism in order to manage coastal resources within the jurisdiction of more than one local government or public agency and assist in implementing appropriate portions of existing multi-jurisdictional resource planning and

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management plans addressing the coastal area, including the Indian River Lagoon and other natural systems within the City.

Also, establish an intergovernmental coordination mechanism in order to manage natural resources and assist in implementing appropriate laws, ordinances, and plans of existing State, regional and local agencies sharing responsibilities for managing natural resources within the City.

Policy 5-1.17.1: Implementing Policies for Intergovernmental Coordination Within the Coastal Area and for Managing Conservation Activities. The City shall coordinate with Indian River County and appropriate regional, State, and federal agencies in managing coastal resources. These policies shall also be applied in managing intergovernmental activities associated with protecting, conserving, and preserving natural resources within the City. Management activities shall include, but not be limited to, the following:

- a. The City shall coordinate the following coastal resource management issues with Indian River County:
 - i. Participate in County forums and technical review concerning emergency preparedness and hurricane evacuation issues and update of the Peacetime Emergency Plan, including hurricane evacuation plans.
 - ii. Participate in technical review and in formulation of policies concerning the U.S. 1, C.R. 512, and Roseland Road (C.R. 505) corridors, including storm water management policies within these corridors. This activity shall also be coordinated with the State DOT.
 - iii. Public access issues shall be coordinated with Indian River County, including issues surrounding maintenance and improvements.
 - iv. Issues surrounding conservation of the shorelines of the Indian River and St. Sebastian River shall be coordinated with Indian River County, and the State DEP as appropriate.
 - v. The City shall coordinate resource management within the Indian River Lagoon with Indian River County.
- b. Major issues to be coordinated with Indian River County in order to assure that all future development shall be timed and staged to assure that requisite infrastructure and services are available to respective developments concurrent with the impacts of the development.
- c. Major issues to be coordinated with the Florida Department of Environmental Protection (DEP) and the St. Johns River Water Management District (SJRWMD) as may be appropriate in managing the following activities, which are occurring within the area that fronts on Indian River Drive, excluding improved open space:
 - i. The City shall coordinate all development and resource conservation measures impacting the Aquatic Preserve with the DEP as well as other applicable public agencies. These activities shall include, but not be limited to, review of proposed development potentially impacting natural resources, including development petitions for docks, shoreline stabilization, dredging, or other alteration of natural resources under the State's jurisdiction.
 - ii. All applications for development activity impacting waters of the State as well as tidally influenced coastal marsh, or other lands under the jurisdiction of the State shall be coordinated with agencies having appropriate jurisdiction.
 - iii. The City shall coordinate with technical staff within DEP and SJRWMD in order to assure implementation of sound principles and practices of coastal resource management during the development review process as well as in the formulation of policies impacting coastal resource management.
 - iv. The City shall coordinate with the SJRWMD as well as other appropriate State agencies in matters surrounding storm water management, drainage, water quality and quantity, and consumptive use permitting.

The City Growth Management Department shall coordinate with the Treasure Coast Regional Planning Council (TCRPC) in preparing the Comprehensive Plan and amendments thereto in order to assure consistency with the Treasure Coast Regional Planning Council Comprehensive Plan. In addition, the City shall coordinate other planning issues of regional significance with the TCRPC. The City shall forward copies of development proposals within the area that fronts on Indian River Drive to public agencies having jurisdiction in the management of potentially impacted natural resources.

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OBJECTIVE 5-1.18: CONTINUING EVALUATION OF CONSERVATION AND COASTAL MANAGEMENT ELEMENT EFFECTIVENESS. The City shall use the following policies as criteria in evaluating the effectiveness of the Conservation and Coastal Management Element.

Policy 5-1.18.1: Review the Impact of Changing Conditions on Coastal Management and Conservation Policy. The City shall monitor and evaluate significant changes in the characteristics of natural coastal resources and natural resources within the City. Policy implications of such changes shall be examined and corrective measures shall be pursued. Coastal management and conservation policies shall be refined as needed in order to remain responsive to evolving problems and issues.

Policy 5-1.18.2: Schedule, Budget and Implement Programmed Activities. The timely scheduling, programming, budgeting and implementation of programmed coastal management activities and conservation activities identified in this Element shall be evidence of the City's effectiveness in carrying out a systematic program for implementing coastal management and conservation goals, objectives, and policies.

Policy 5-1.18.3: Coordinate with Public and Private Sectors. While continually implementing and evaluating the Conservation and Coastal Management Element, the City shall maintain a process of intergovernmental coordination as well as coordination with private sector groups interested in coastal management and conservation policy and programs. The effectiveness of this approach shall be evaluated by the success of coordination mechanisms in resolving coastal management and conservation problems and issues.

Policy 5-1.18.4: Achieve Effective Resolution of Coastal Management and Conservation Goals, Objectives and Policies. The effectiveness of the Conservation and Coastal Management Element shall be measured by the City's success in achieving coastal management and conservation goals, objectives and policies. The Conservation and Coastal Management Element incorporates a systematic planning process for identifying coastal management and conservation problems and issues and implementing corrective actions.

OBJECTIVE 5-1.10: INTERGOVERNMENTAL COORDINATION WITHIN THE COASTAL AREA AND FOR MANAGING CONSERVATION ACTIVITIES. Establish an intergovernmental coordination mechanism in order to manage coastal resources within the jurisdiction of more than one local government or public agency and assist in implementing appropriate portions of existing multi-jurisdictional resource planning and management plans addressing the coastal area, including the Indian River Lagoon and other natural systems within the City.

Also, establish an intergovernmental coordination mechanism in order to manage natural resources and assist in implementing appropriate laws, ordinances, and plans of existing State, regional and local agencies sharing responsibilities for managing natural resources within the City.

POLICY 5-1.10.1: IMPLEMENTING POLICIES FOR INTERGOVERNMENTAL COORDINATION WITHIN THE COASTAL AREA. The City shall coordinate with Indian River County and appropriate regional, State, and federal agencies in managing coastal resources. These policies shall also be applied in managing intergovernmental activities associated with protecting, conserving, and preserving natural resources within the City. Management activities shall include, but not be limited to, the following:

- a. The City shall coordinate the following coastal resource management issues with Indian River County:
 - i. Participate in County forums and technical review concerning emergency preparedness and hurricane evacuation issues and update of the Peacetime Emergency Plan, including hurricane evacuation plans.
 - ii. Participate in technical review and in formulation of policies concerning the U.S. 1, C.R. 512, and Roseland Road (C.R. 505) corridors, including storm water management policies within these corridors. This activity shall also be coordinated with the State DOT.

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- ~~iii. Public access issues shall be coordinated with Indian River County, including issues surrounding maintenance and improvements.~~
- ~~iv. Issues surrounding conservation of the shorelines of the Indian River and St. Sebastian River shall be coordinated with Indian River County, and the State DEP as appropriate.~~
- ~~v. The City shall coordinate resource management within the Indian River Lagoon with Indian River County.~~
- ~~a. Major issues to be coordinated with Indian River County in order to assure that all future development shall be timed and staged to assure that requisite infrastructure and services are available to respective developments concurrent with the impacts of the development.~~
- ~~b. Major issues to be coordinated with the Florida Department of Environmental Protection (DEP) and the St. Johns River Water Management District (SJRWMD) as may be appropriate in managing the following activities, which are occurring within the area that fronts on Indian River Drive, excluding improved open space:~~
 - ~~i. The City shall coordinate all development and resource conservation measures impacting the Aquatic Preserve with the DEP as well as other applicable public agencies. These activities shall include, but not be limited to, review of proposed development potentially impacting natural resources, including development petitions for docks, shoreline stabilization, dredging, or other alteration of natural resources under the State's jurisdiction.~~
 - ~~ii. All applications for development activity impacting waters of the State as well as tidally influenced coastal marsh, or other lands under the jurisdiction of the State shall be coordinated with agencies having appropriate jurisdiction.~~
 - ~~iii. The City shall coordinate with technical staff within DEP and SJRWMD in order to assure implementation of sound principles and practices of coastal resource management during the development review process as well as in the formulation of policies impacting coastal resource management.~~
 - ~~iv. The City shall coordinate with the SJRWMD as well as other appropriate State agencies in matters surrounding storm water management, drainage, water quality and quantity, and consumptive use permitting.~~
- ~~e. The City Growth Management Department shall coordinate with the Treasure Coast Regional Planning Council (TCRPC) in preparing the Comprehensive Plan and amendments thereto in order to assure consistency with the Treasure Coast Regional Planning Council Comprehensive Plan. In addition, the City shall coordinate other planning issues of regional significance with the TCRPC. The City shall forward copies of development proposals within the area that fronts on Indian River Drive to public agencies having jurisdiction in the management of potentially impacted natural resources.~~

OBJECTIVE 5-1.11: CONTINUING EVALUATION OF COASTAL MANAGEMENT ENVIRONMENTAL ELEMENT EFFECTIVENESS. The City shall use the following policies as criteria in evaluating the effectiveness of the Coastal Management Environmental Element.

Policy 5-1.11.1: Review the Impact of Changing Conditions on Coastal Management Policy and Conservation Policy. The City shall monitor and evaluate significant changes in the characteristics of natural coastal resources and natural resources within the City. Policy implications of such changes shall be examined and corrective measures shall be pursued. Coastal management policies and conservation policies shall be refined as needed in order to remain responsive to evolving problems and issues.

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~~Policy 5-1.11.2: Schedule, Budget and Implement Programmed Activities.~~ The timely scheduling, programming, budgeting and implementation of programmed coastal management activities and conservation activities identified in this Element shall be evidence of the City's effectiveness in carrying out a systematic program for implementing coastal management goals, objectives, and policies.

~~Policy 5-1.11.3: Coordinate with Public and Private Sectors.~~ While continually implementing and evaluating the Coastal Management Environmental Element, the City shall maintain a process of intergovernmental coordination as well as coordination, with private sector groups interested in coastal management and conservation policy and programs. The effectiveness of this approach shall be evaluated by the success of coordination mechanisms in resolving coastal management and conservation problems and issues.

~~Policy 5-1.11.4: Achieve Effective Resolution of Coastal Management Goals, Objectives and Policies.~~ The effectiveness of the Coastal Management Environmental Element shall be measured by the City's success in achieving coastal management and conservation goals, objectives and policies. The Coastal Management Environmental Element incorporates a systematic planning process for identifying coastal management and conservation problems and issues and implementing corrective actions.

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CONSERVATION AND COASTAL MANAGEMENT DATA INVENTORY AND ANALYSIS

This section includes two sub-sections that address the requirements as defined by State Statute including §163.3177, F.S., 9J-5.012(2), F.A.C., by providing the data inventory and analysis supportive of goals, objectives, policies, and implementation programs for both coastal management and conservation. Appropriate cross-references to other Comprehensive Plan Elements are included in order to avoid the duplication of information.

Identification of the Coastal Area. Pursuant to the requirements as defined by State Statute including §163.3177, F.S., of §9J-5.012, F.A.C., the coastal area shall be defined as the area between U.S. 1 and the Indian River Lagoon, except where North Central Avenue intersects with U.S. 1, then the eastern edge of North Central Avenue shall constitute the western boundary of the City's coastal area. Map 5-1 delineates the coastal area of Sebastian.

It should be noted that there are issues within the Conservation and Coastal Management Element that will be influenced by factors outside the designated coastal area. Traffic circulation, hurricane evacuation, and infrastructure issues are among those topics that will be discussed on a larger scale. The City has not designated any unincorporated areas adjacent to its borders as areas of special concern.

Identification of Natural Resources. This section identifies and inventories air and water quality, floodplains, valuable mineral deposits, soil erosion problems and endangered species.

Description of Natural Resources. Rivers, bays, lakes, wetlands including estuarine marshes, and air including information on quality of resource available from and classified by the Florida Department of Environmental Protection.

5A: Coastal Management

Existing Land Use and Shoreline Conflicts

The Land Use Element includes a detailed inventory and analysis of existing and future land use needs within the City of Sebastian.

Land Uses in the Coastal Area. The land uses along the Indian River Lagoon within Sebastian consist mainly of commercial land uses with several recreational and open space areas. The coastal area is approximately 65 acres in size. In addition to the commercial uses, there are several scattered residential uses located within the coastal area. Non-residential uses still maintain the largest share of uses within the coastal area. A more in-depth inventory and analysis of existing land uses within the City can be found in the Future Land Use Element.

A. **Water Dependent Uses.** Rule §9J-5.003(144), F.A.C. Florida Statute defines water dependent uses as activities that can be carried out only on, in, or adjacent to water areas because the use requires access to the water body. Within Sebastian, these activities include public and private marinas; fishing; boating; and active and passive recreation. The waterfront area is a vital economic activity area within the City. The ambiance of the City is perhaps rooted in this area. The City has a plan for the waterfront area (cross-reference Land Use Element). The City places a high value on the few water dependent facilities noted on Map 5-1 and looks forward to their continued use, maintenance, and enhancement over time.

A number of water-dependent structures are located east of Indian River Drive as noted on Map 5-1, including three marinas, two piers, and two boat ramps. Several small privately-owned boat docks and piers line the littoral area but are not shown on the map, as they do not represent major water-dependent or related land uses. The marinas are located in an area that is suitable for marina activities. Along the Indian River Lagoon shoreline, the City has two major access points at the Municipal Pier (northernmost pier cited on Map 5-1) and at the Yacht Club and Boat (southernmost pier cited on Map 5-1). There are approximately thirty parking spaces at each facility. The waterfront area spans approximately 9,000 linear feet within the City limits.

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Map 5-1 Coastal Area of Sebastian

- B. **Water Related Uses.** ~~Rule 9J-5.003(146), F.A.C.~~ Florida Statute defines water related uses 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. Water related uses include: boat storage, marine repair, retail boat and trailer sales, marine industrial (boat building, boat yards, hull work and painting, marine construction), tropical fish collection and sales, fish houses (wholesale and retail fish sales, processing, and packaging), commercial fishing support (trap storage, building and dipping), ship stores, bait and tackle stores, and dive shops. The City has no water related activities aside from the water dependent activities discussed herein.
- C. **Land Use Conflicts.** At this time there are few if any conflicts related to land use in the coastal area; however, this could change in the future. The City's Riverfront Committee has studied and created a plan for improving the riverfront, including preservation of strategic areas. The Goals, Objectives, and Policies of the Conservation and Coastal Management Element s would govern any conflict that arose between land uses proposed in the Riverfront Plan and the environmentally sensitive portions of the coastal area. These two elements cite numerous objectives and policies designed to protect estuarine resources from the adverse impacts of development. These policies and performance standards shall be incorporated in the amended land development regulations in order to prevent potential conflict associated with development or redevelopment of marine related activity in the waterfront core area.

Another conflict that exists is not a land use conflict, but rather a conflict between animal and man. Manatees are frequently found in portions of the Sebastian River and Indian River Lagoon. These mammals are very slow and therefore cannot protect themselves from motorized watercraft. The Comprehensive Plan Goals, Objectives, and Policies stipulates policies for protecting such marina life, including posting of signage warning boaters of potential presence of manatees and regulating speeds in areas where manatees are known to frequent as identified in Policy 6-1.7.5.

- D. **Economic Base.** The waterfront core area is a vital economic activity area within the City. The ambiance of the City is perhaps rooted in this area. The Riverfront Committee understood the role that the riverfront plays in Sebastian's economy. The Committee stated that in order for the City to retain the natural beauty of the area as well as increase the economic base, a mix of residential and commercial uses is necessary within the coastal area. This was the basis for the Riverfront Plan.

Natural Resources and Development Implications

~~§9J-5.012(2)(b), F.A.C.~~

The City of Sebastian has guided development within the community to supply its residents with an acceptable level of supportive services. This fact, together with the City's numerous natural resources, provides the residents of Sebastian with a highly desirable natural setting with water oriented recreational amenities. The following section provides an inventory and analysis of the natural and man-made resources present throughout the City of Sebastian, and the impact future development will have on these resources. Those areas that are subject to coastal flooding are also addressed. The City has not identified other areas of special local concern "since the following analysis provides a comprehensive analysis of natural resources based on available information.

Vegetative Communities and Marine Habitats with Dominant Species, Fisheries, and Endangered, Threatened, Rare or Species of Special Concern. Sebastian contains four primary vegetative communities and one primary marine habitat. Inland waterways are also classified as a vegetative community, though not a primary one, due to its role as a habitat and feeding grounds for a variety of flora and fauna. The six vegetative communities indigenous to Sebastian and the Sebastian River Estuary are described below based upon data and information from the ~~St. Johns River Water Management District (SJRWMD)~~. Map 5-2 delineates the generalized locations of these communities within the City. The specific boundaries of these communities can only be identified through on-site investigation in areas where a question arises concerning the environmental sensitivity of a

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parcel of land. This section provides a general description of these communities and the implications of development within them. ~~The Conservation Element (§9J-5.013(1)(a), F.A.C.) denotes the dominant plant and animal species associated with each of the communities.~~ This section also denotes the dominant plant and animal species associated with each of the communities and analyzes the vegetative communities, marine habitats, and endangered, threatened, or species of special concern within Sebastian.

- A. **Coastal Ridge Community.** The Coastal Ridge Community is comprised of slash pine with an understory of palmetto and is found on the higher elevation areas of the City. The coastal ridge community lies within some of the most developed areas of Sebastian; hence, they exist in small dispersed clusters. This community is characterized by level to gently sloping, excessively drained and moderately well drained soils such as Astatula and St. Lucie which are sandy to a depth of eighty (80) inches or more. The coastal ridge community is characterized as good to excellent recharge potential for the surficial aquifer. Due to the importance of the surficial aquifer in providing potable water to the City, development in these areas should be limited or restricted to ensure the continued viability of this community. Finally, raccoons, opossums, the Florida mouse, various songbirds, hawks and Eastern diamondback rattlesnake are among the dominant wildlife species found in this community.

The US 1 corridor is located entirely within the coastal ridge community. Most of the City's non-residential development, including commercial and industrial uses, is located within the US 1 corridor. Very little undeveloped land remains in this area. Land development regulations addressing open space and tree protection need to be enforced in order to preserve the remaining value and functions of the coastal ridge. As future populations further develop these areas into residential, commercial, and industrial land uses, these vegetative communities will be separated into smaller clusters as slash pine and palmetto land cover is removed. Alteration of the coastal ridge community's character is also likely to occur as vegetation more typically associated with residential developments, such as palm trees and shrubbery, are included in man-made landscaping of these areas.

The coastal ridge communities lie within some of the most developed areas of Sebastian; hence, they exist in small dispersed clusters. As shown on the Existing Land Use Map in the Future Land Use Element, residential, commercial, and industrial land uses are located on the approximately 865 acres consisting of coastal ridges. As future populations further develop these areas into residential, commercial, and industrial land uses, these vegetative communities will be separated into smaller clusters as slash pine and palmetto land cover is removed. Alteration of the coastal ridge community's character is also likely to occur as vegetation more typically associated with residential developments, such as palm trees and shrubbery, are included in man-made landscaping of these areas.

Changes to the character of the community's vegetation and related-densities will likely induce species sensitive to environmental changes to seek more attractive, undisturbed habitats in areas outside Sebastian's corporate limits. Species favoring open terrain and urban settings are likely to commence refuge in transitional areas. However, no abnormal impacts on flora or fauna are expected to occur; only those impacts normally associated with an area experiencing further urbanization are anticipated for the Coastal Ridge Community.

- B. **South Florida Flatwoods.** The Flatwoods are found on nearly level land at lower elevations than the Coastal Ridge Community where water movement is gradual to the natural drainage ways. The flat topography and saw palmetto with intermittent pines are characteristic of this community. The soils are nearly level, deep, acid, sandy and poorly to somewhat poorly drained. Representative soils in this community are Myakka, Eau Gallie, and Immokalee. Due to the lower elevations (portions of this community are within the 100-year flood plain), specific standards and regulations have been implemented to protect the residents from the effects of flooding. Raccoon, opossum, bobwhite quail, mourning doves, and the green anole are among the dominant wildlife species found in the Flatwoods This Community covers most of the City and is found in large clusters. The land use for those areas containing flatwoods in the coastal area is commercial. The Riverfront Plan dictates the impact of future development on the South

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Florida Flatwoods community in the coastal area. The Riverfront Plan ensures the value and function of the community is preserved through land development regulations.

The South Florida flatwoods community, as shown on Map 5-2, in the Coastal Management Element, is the most represented vegetative community within the City of Sebastian. This community presently remains in large undisturbed clusters, and covers an area of approximately 6,282 acres. Existing designated land use for those areas containing flatwoods is primarily residential (single family). Although much of the subject area is undeveloped, a large portion is already committed to residential development. A large portion of Sebastian is part of a planned community and, hence, has been subdivided into lots.

The designated land use for those areas containing flatwoods is primarily residential (single family). Although much of the subject area is undeveloped, a large portion is already committed to residential development. A large portion of Sebastian is part of a planned community and, hence, has been subdivided into lots. Therefore, future residential development will replace much of this vegetative community's natural vegetation, separating it into smaller dispersed clusters. Since Sebastian will attract new residents and development, this vegetative community can be expected to decrease in density as new homes and associated landscaping and lawns alter its current character.

Although sufficient vegetation will exist to support wildlife endemic to this community, some wildlife species can be expected to decrease in numbers as they move westward into Indian River County to avoid contact with man and to find more natural habitats. Conversely, as more open space is created to accommodate residential land use needs, wildlife species not common to flatwoods, but which prefer open terrain, may be attracted to these areas. Impacts to both flora and fauna of the flatwoods community, as described above, are expected to be typical for an undeveloped area undergoing urbanization. No abnormal impacts are expected to occur from future residential developments locating in flatwood domains.

Map 5-2: Vegetative Communities

- C. Wetland Hardwood Hammock.** This vegetative community is found in depressions or on lower elevations than the Flatwoods. The Wetland Hardwood Hammock is a wetland climax forest on poorly drained soil with a high-water table. The soils associated with this community are nearly level, somewhat poorly and poorly drained with loamy subsoil and sandy surfaces. Representative soils in this community are Myakka and Oldsmar. Live oak, cabbage palm, red maple, wax myrtle, and wild grape are among the dominant plant species found in this community. Grey squirrels, skunks, raccoons, the red-shouldered hawk, and the green tree frog are among the dominant animal species found in the Wetland Hardwood Hammock.

Existing wetland hardwood hammock communities consist of densely vegetated, undisturbed natural areas. Since they lie within floodplains and do not contain soil characteristics favorable to development, the character and quality of these communities should continue to remain in their current natural state. No structures are presently constructed within this community, but future development may encroach into its fringes potentially reducing its present total area of approximately 417 acres. Wildlife indigenous to these wetland hardwood hammock communities will probably remain at existing population levels, with only minimal impacts placed on those creatures whose habitats are located on the fringe of the community. The City has a wetland protection ordinance, which has been useful in retaining wetlands. The Henderson Wetlands Protection Act of 1984 (State of Florida) protects wetlands designated as State waters. Permits must be obtained from the Florida Department of Environmental Protection (DEP) before development can occur within these wetland areas.

- D. Swamp Hardwoods.** The Swamp Hardwood vegetative community is normally submerged or saturated for a portion of the year, and is characterized by a primarily deciduous canopy. Soils associated with this community are nearly level, very poorly drained, and are dark colored. Representative soils are Floridana and Holopaw. Dominant plant species found in this community are laurel oak, red maple, black gum, hackberry, swamp dogwood, ~~Jack-in-the-Pulpit~~ and climbing milkweed. ~~Marsh rabbit, grey squirrel, pileated~~

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woodpecker, horned owl, and barred owl are among the dominant animal species found in the Swamp Hardwood community.

Urban development has encroached into some clusters of swamp hardwood in past years, and some areas that have been filled and covered are now indiscernible from their original natural vegetative state. A number of wetland pockets were once located in what now serves as the Sebastian 'town green,' but these also have been filled. Existing undisturbed wetland areas remain in the northern and southern sectors of the City. With the exception of wetlands associated with Schumann Lake, most wetlands lie in areas designated for residential (southern areas of Sebastian) or for industrial (northern areas) land uses. In addition to local controls over wetlands, prior to any activities in wetlands lying within jurisdictional waters of the State, a fill permit must be obtained from the DEP. SJRWMD maintains jurisdiction over other wetlands such as the Collier Creek swamp hardwoods area. No wetlands or swamp hardwood areas exist within the jurisdiction of the Federal government.

Although 353 acres of land characteristic of swamp hardwoods have been identified, they are condensed into small-dispersed clusters containing sparse native vegetation indigenous to this community. Due to future development potential in the central sectors of the City, only small pockets of swamp hardwoods will probably continue to exist in the far southern and northern areas of Sebastian. The City of Sebastian would take appropriate measures to protect those swamp hardwoods found in these areas from development encroachment.

E. The Indian River Lagoon. The Indian River Lagoon rests along the eastern border of Sebastian's northern sector. The Pelican Island National Wildlife Refuge and spoil islands are found within this area as well. The Lagoon is possibly the most productive habitat within the City of Sebastian. As a whole, the Indian River Lagoon supports one of the richest and most productive aquatic faunas within the continental United States. This estuary has revealed a large variety of plants and animals, as well as a concentration of rare and endangered organisms, including mammals, birds, reptiles, fishes, and invertebrates that exist in several communities, such as:

- Marine (Sea) grass beds
- Deep water areas
- Tidal flats
- Saltmarsh grass
- Oyster Bars

The littoral vegetative community identified along Sebastian's shore includes seagrass beds. Locations of these beds are depicted on Map 5-2. Dominant wildlife endemic to seagrass beds include

- Bird species: brown pelican, double crested cormorants, white ibis, gulls, and ducks;
- Fish species: tarpon, Florida blenny, bluntnose stingray, and sea catfish;
- Invertebrates: Pink shrimp, stone crab, blue crab, spiny lobster, Southern quahog, clams and oysters;
- Mammal species: manatee.

In 1986, a segment of the estuary from Malabar to Vero Beach was designated an Aquatic Preserve by the State of Florida. A management plan was developed by the Florida Department of Environmental Protection (DEP) to ensure continued viability of this sensitive environment. This plan addresses the management of the Indian River (Malabar to Vero Beach) located in Indian River and Brevard County, and presents the primary responsibilities and authorities delegated to DEP to successfully undertake this endeavor. As stipulated with the plan, "the main objective of the resource management plan in the aquatic preserve is to protect the resources of the aquatic preserves for the benefit of future generations." (Section 258.35, F.S.) According to the plan, management of the Preserve will primarily emphasize the "maintenance of the existing and essential natural conditions." (Aquatic Preserve Management Plan, 1986) These maintenance techniques will include:

- Monitoring, protecting, and restoring plant communities and animal life, particularly endangered and threatened flora and fauna;
- Conserving archaeological and historical sites;
- Managing encroachment of development along The Preserve's shoreline, and within its waters;

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- Coordinating with other State and Federal environmental agencies.

The Indian River Lagoon is expected to remain in its current natural condition for some time since it is protected by State regulations from impacts from development on its shores, as well as from fill and dredge activities within its waters. Water quality within the Lagoon may also improve as State and local pollution control efforts prevent and reduce pollution levels entering its waters. The SJRWMD has designated the Indian River Lagoon as a SWIM project, which furthers the efforts by the State, County and City to improve water quality.

- F. Inland Open Water Areas.** Those inland areas of Sebastian which are submerged during all of the year, with the exception of extreme dry periods, are classified as inland open water areas. Most of these areas are usually below the water table. Such areas include streams, lakes, ponds, canals, and waterways. Those areas of Sebastian classified as inland open waterways include Collier Creek, Schumann Lake, three unnamed lakes/ponds, Collier Waterway, and Elkcam Waterway.

Inland open waterways should receive only minimal effects from future development. Although development will not encroach into the waterways, urban runoff from adjacent residential neighborhoods could possibly degrade their water quality. However, increases in pollution levels associated with runoff should be minimal, allowing the vegetation and wildlife now present therein to proliferate for years to come. No future development is planned for areas within inland open waterways.

Coastal Floodplains. The National Flood Insurance Program which is administered by the Federal Emergency Management Agency has determined that portions of the City of Sebastian are subject to flooding from a 100 year storm. Specific flood zone boundaries can be found on the Flood Insurance Rate Map (FIRM) ~~Community Panel Number 120123-0005 B revised May 4, 1989~~. These maps are on file with the City of Sebastian Building Department. These maps provide flood zone designations and base flood elevations for the community. The maps also identify those areas subject to coastal flooding from wave action. Map 5-2 denotes the general areas within Sebastian that are subject to coastal flooding.

A large portion of land area situated within the 100-year floodplain lies within the southern area of the City. Most of this floodplain is currently designated for residential land use on the existing as well as proposed Future Land Use Map. The floodplain associated with the Sebastian River also covers an area designated for residential land use. Although this area is presently undeveloped, residential development is likely to occur in this area in the near future. A small portion of industrial land on the western airport property also lies within a 100-year floodplain. In addition, as shown on the 100 Year Floodplain Map, a number of arterial and collector roadways cross through portions of the 100-year floodplain.

The largest commercial area within the City lies between U.S. Route 1 and the Indian River Lagoon in the northeast area of the City. The proposed future land use designation for this area is Riverfront Mixed Use, which allow a mix of commercial, residential, and office uses. This area will continue to be the commercial core of Sebastian.

- A. Location of Coastal Floodplains.** Flood prone areas within Sebastian generally embrace most all wetlands located within the City. Wetlands are depicted on Map 6-1. ~~of the Conservation Element.~~ Map 5-2 delineates the 100-year flood plain as well as the VE-Zone that is subject to the effects of storm surge, waves, erosion, or other manifestations of rapidly moving or storm driven water. The VE-Zone does not encroach landward of the City limits as denoted on Panel 0077E. The only structures located with the VE- Zone include water dependent marina moorings, piers, and boat ramp facilities within the Indian River.
- B. Development in the Floodplain.** Development occurring within floodplain areas must include appropriate measures to preclude detrimental effects of floodwaters. A drainage system comprised of a network of canals, ditches, and natural waterways mitigates potential flooding problems for development currently located in areas affected by 100-year floodplains. Special measures have had to be incorporated into roadway construction and development within these floodplain areas, primarily reflected in the consideration of on-site elevation above the flood level. Particularly in the southern area of the City,

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development has had to provide additional drainage facilities to prevent new flood problems from arising or from exacerbating existing problems. The largest portion of the City's drainage facilities are situated in its southern section, where such facilities are needed the most. Increased development in flood prone areas will most likely involve filling of low areas and the construction of homes that meet the FEMA guidelines. Filling of wetlands should be avoided to ensure that the natural buffering and retention capabilities of these areas are preserved.

- C. **Regulating Development in the Floodplains.** The City's floodplain management program and storm water management regulations prohibit construction waterward of the high velocity storm surge area defined by the VE-Zone on the FEMA Maps, unless the DEP and other applicable agencies approve dredge and fill for activities such as water dependent activities. In addition, these ordinances require that development within the floodplain protect the functions and values of the floodplain as elaborated in the land use element. Performance criteria that mandate the post development conditions shall not increase the amount or rate of surface water runoff beyond pre-development conditions.

The Conservation and Coastal Management Element's Goals, Objectives, and Policies establish standards for preserving the value and natural functions of the floodplain, estuary, and associated flora and fauna. As the land development regulations are amended, the new code must implement these goals, objectives, and policies. New data and mitigation strategies should be incorporated and implemented as outlined in the City of Sebastian, Coastal Resiliency Plan, Prepared By: Kimley-Horn and Associates, Inc., March 2019. Specifically, the Adaptation Action Plan which includes strategies, actions, and adaptations that can be implemented short and long term. There should be the utilization and incorporation of the Coastal Resiliency Plan's flood and sea level rise data for future use and analysis including justifications of the accompanying goals, objectives, and policies.

Coastal Wildlife Habitats. Within the City of Sebastian, a number of areas are used as habitats by certain species of fauna. Some species are highly specific regarding their nesting, breeding, and feeding grounds, while others are highly adaptive and able to exist in a variety of environments. Specific species of wildlife and their habitats are listed in Table 6 in the Conservation Sub-Section, Element. Map 5-2 denotes the respective habitats by vegetative community.

While the wildlife thriving in and along the Indian River Lagoon and the Sebastian River primarily consist of aquatic-related animals and fish, the coastal ridge community contains dominant species that require drier habitats. However, some coastal ridge species may frequent the shores of the Lagoon to scavenge for food or prey. Further description of dominant wildlife species found within these coastal communities is provided in the Conservation Sub-Section, Element.

As the City of Sebastian experiences more development, environmentally sensitive areas and specific wildlife habitats may be adversely affected. Care should be taken to assure the preservation of those areas that are critical to specific species survival.

Living Marine Resources. The Indian River Lagoon supports one of the richest and most productive aquatic habitats within the continental United States. Marine grasses are generally found in shallow water areas of estuaries. The Indian River Lagoon has a significant amount of grass beds in the vicinity of Sebastian. Manatee grass (*Syringodium filiforme*), Cuban shoal grass (*Halodule wrightii*), and widgeon grass (*Ruppia maritima*) are most prevalent. These species tend to form in distinct zones, with their location depending on water depth. These areas stabilize sediments; entrap silt; recycle nutrients; provide shelter, habitat, and substrate for animals and other plants; and are an important direct food source for a number of animals, including the endangered West Indian Manatee. Increased freshwater and storm water run-off as well as dredge and fill activities can cause increased turbidity, siltation, and subsequent degradation of these beds. Those species found in shallow areas are also subject to damage by boating activity. Protection of these grass beds should be promoted when addressing issues concerning the Indian River Lagoon.

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Historic Resources and Development Implications

~~§9-5.012(2)(e), F.A.C.~~

The land use element identifies historically significant buildings within the City of Sebastian. Since the vast majority of the historical sites within Sebastian are located within the coastal area, it is important for the City to preserve these sites. Table 5-1 identifies the generalized location of these historically significant structures within the coastal area.

The Sebastian Area Historical Society, Inc. has developed a publication entitled "A Historic Tour of the Sebastian Area." This publication will enhance the public's knowledge of the City's historic resources, which will in turn encourage the preservation of those sites as the coastal area develops. The Comprehensive Plan includes policies for protecting historic resources. These policies ensure that future development does not adversely impact the historic and archaeological sites identified herein or other sites, which may be identified in the future.

In addition, the Pelican Island National Wildlife Refuge, located southeast of the City, has been listed in the National Historic Register as sites of prehistoric significance. Because this site is located in a National Wildlife refuge, it is protected to the maximum extent possible.

TABLE 5-1: HISTORICALLY SIGNIFICANT SITES IN THE COASTAL AREA

LOCATION	RESIDENTIAL SITES	NON-RESIDENTIAL SITES
Indian River Drive	Paul Stevenson House; L. F. Chesser House; George Nelson House; C. F. G. Kroegel House; Paul Kroegel House; Ruth Miller Roundtree House; Bob McCain House; Charlie Beugnot House; Carrol Park House; Jesse Youngue House; David Peter Gibson House; McDonald House; Ruffner House; W. C. Edwards House; Archie Smith House; George Welline House.	Sebastian City Marker; McCain Garage (Hurricane Harbor), Ocean Breeze Service Station, Indian River Seafood Co.; Sembler & Sembler, Inc.; May's Marina; Archie Smith Wholesale Fish Co.;
US Highway 1	S. A. Park House; William Braddock House; Carlisle House; Dale Winbrow Log Cabin; M. M. Miller House; Parris Lawson House; Ardelia Cain-Wilson House; Stephen Vickers House; Cain House; Doc Sloan House; Wimbrow Residence; Longacre House; Okie Bland House; Thomas McPherson House.	Vickers Store; Walters Garage; Sebastian Town Hall; Sebastian Woman's Club; East Coast Lumber and Supply Co.; Letchworth Garage
Main Street	John Beugnot House,	R.G. Hardee Oak Tree;
Washington Place	Maurice Braddock House,	
Central Avenue		Sebastian and Park Cemeteries

Source: Sebastian Area Historical Society, Inc. 1997

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Analysis of Estuarine Areas

~~§9 5.012(2)(d), F.A.C.~~

Pursuant to ~~§9 5.012(2)(d), F.A.C.~~, §163.3177, F.S. this section will describe the existing conditions and future impacts development will have on the Indian River Lagoon.

Aquatic Preserve. In January 1986, the State of Florida declared the Indian River Lagoon, from Malabar to Vero Beach, an Aquatic Preserve. The intent is to have areas with exceptional biological, aesthetic, or scientific value set aside as preserves or sanctuaries for the benefit of future generations. The Indian River Lagoon is an important home and nursery area for an extensive array of fish and wildlife, as well as an area for various recreational activities. The Aquatic Preserve borders portions of the City of Sebastian on the east.

Water Quality. The Florida Department of Environmental Protection (DEP) has classified the estuary bordering Sebastian as Class II waters. Class II waters are defined as coastal water bodies which can or actually do support shellfish harvesting.

Pollutants. DEP published a report in June 1986, which states that the principal water quality problem within the estuary is high nutrient levels. The principal pollution sources were identified as sewage treatment plants and urban run-off. Fresh water enters the Aquatic Preserve from streams and canals, which divert water from the St. Johns River Basin. Following is a list of known point sources of pollution with surface water outfalls as identified by the FDEP in their 1986 report:

<u>Site Name</u>	<u>Type of Discharge</u>	<u>Discharged to:</u>
Reflections	Storm Water	Indian River Lagoon
Sebastian Lakes	Storm Water	Sebastian River
Pelican Point Water	Industrial	Indian River Lagoon
Whispering Palms Treatment Plants	Domestic Sewage	Indian River Lagoon
Riverside	Storm water	Indian River Lagoon
Cypress Estates	Storm water	Sebastian River
San Sebastian	Storm water	Sebastian River
Grimes Industrial	Industrial	Sebastian River

Note: The Whispering Treatment Plant is no longer a source of pollution as the plant has been deactivated, and the area is now served by central sanitary sewer.

The non-point source pollutants introduced to the surface waters of the Sebastian area through urban run-off may have a number of detrimental effects to the natural systems of the City. Suspended solids increase the turbidity of the Lagoon and thus reduce the amount of sunlight reaching the seagrass beds. Elevated nutrient levels result in eutrophication of the estuary and decreased productivity of the system as a whole. In addition to the above-mentioned pollutants, heavy metals such as mercury, zinc and lead accumulate in the sediments of the receiving waters, thereby contaminating benthic organisms. Impacts of sea level rise and combined rain events may affect water quality and a pollutant load model may need to be developed as recommended in the City of Sebastian, Coastal Resiliency Plan, Prepared By: Kimley-Horn and Associates, Inc., March 2019.

- A. Improvements Related to Water Quality.** The City of Sebastian has prepared an engineered Storm Water Management Plan. A key component of this plan is the creation of a retention area serve the middle portion of the City's storm water management needs. This retention area would redirect some of the storm water away from the Indian River Lagoon, thereby reducing the pollutants entering the Lagoon. In addition, the City, in an effort to remedy existing non-point source pollution problems, may require greater on-site retention of urban run-off the use of grass swales and natural vegetation to slow the sheet flow of this run-off is recommended. Infiltration basins, which allow percolation of storm water into the sandy soils of the City, are another method of reducing the amount of non-point source pollution occurring within Sebastian.

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1. **Indian River Lagoon.** As stated in the Coastal Management Element, The Indian River Lagoon is considered an Aquatic Preserve from Malabar to Vero Beach. The City of Sebastian borders this area of exceptional water quality. The Florida Department of Environmental Protection (FDEP) has classified the estuary bordering the City of Sebastian as Class II waters. Class II waters are defined as coastal water bodies which potentially can or actually do support shellfish harvesting. Indian River County operates all centralized potable water and sanitary sewer service in Sebastian. Therefore, any of the existing wastewater treatment plants that were discharging into the Lagoon are now deactivated and not polluting the waters. As more septic tanks are connected to central sewer, the opportunity for pollutants from septic tanks to enter the Lagoon will be eliminated. Improvement of water quality in the Indian River Lagoon has been a cooperative effort between the City, the County, SJRWMD, the National Estuary Program, the Indian River County Mosquito Control District, and the Natural Resource Conservation Service. The SJRWMD's SWIM program has studied agricultural runoff and best management practices in the Sebastian area. SJRWMD has also worked with Florida Department of Health, Indian River County Department of Environmental Health, the Marine Resources Council of East Central Florida, and the National Estuary Program to monitor surface water quality. SWIM has provided funding for a septic tank survey and a seagrass mapping program.
2. **St. Sebastian River.** According to DEP's 1992 305(b) report, the St. Sebastian River has the poorest water quality in the southern half of the Indian River Lagoon. The C-54 and Fells mere canals drain into the St. Sebastian River contributing excess fresh water to the Indian River Lagoon. Problems stem from agricultural runoff throughout the watershed, residential development in the south prong, and wastewater discharges in the north prong.
3. **Groundwater.** The Soil Survey of Indian River County states that the surficial aquifer water is of good quality and is generally suitable for all purposes. The removal of iron and color and reducing of hardness is generally desirable when surficial aquifer waters are used for domestic purposes. A more detailed inventory of the surficial aquifer can be found in the Future Land Use Element and the Sanitary Sewer, Solid Waste, Drainage, Potable Water and Natural Groundwater Aquifer Recharge Element

MAP 6-1

Estuarine Shoreline and Wetland Areas

- B. **Regulations.** The City adopted land development regulations in late 1992, which implemented the goals, objectives and policies found in this element. The City has attempted to eliminate negative impacts from development through the enforcement of land development regulations, including storm water management; landscaping; and tree protection.
- C. **Coordination with Other Entities.** Improvement of water quality in the Indian River Lagoon has been a cooperative effort between the City, the County, SJRWMD, the National Estuary Program, the Indian River County Mosquito Control District, and the Natural Resource Conservation Service. The SJRWMD's SWIM program has studied agricultural runoff and best management practices in the Sebastian area. SJRWMD has also worked with Florida Department of Health, Indian River County Department of Environmental Health, the Marine Resources Council of East Central Florida, and the National Estuary Program to monitor surface water quality. SWIM has provided funding for a septic tank survey and a seagrass-mapping program. Table 5-2 identifies the existing State, regional and local regulatory agencies and programs used in matters of estuarine environmental quality.

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TABLE 5-2: STATE, REGIONAL, & LOCAL REGULATORY AGENCIES & PROGRAMS

DEPARTMENT/AGENCY	PROGRAMS
STATE	
1. Department of Environmental Protection	The Department of Environmental Protection (DEP) is responsible for regulating air and water quality. DEP is the lead agency for implementation of the Aquatic Preserve Management Plan, and is associated with the aquatic preserve management program. The DEP is also the local contact for the initiation of dredge and fill applications in conjunction with the COE.
2. Department of Community Affairs.	The Department of Community Affairs is responsible for reviewing Developments of Regional Impact (DRI) and for designating Areas of Critical State Concern /ACSC).
3. Florida Fish and Wildlife Conservation Commission (FWC)	The FWC's office in Vero Beach along with the central office assists in developing fish and wildlife management programs for the aquatic preserve. This agency was formerly the Florida Game and Fresh Water Fish Commission.
4. Department of Transportation (DOT).	The DOT works with, the resident engineer on anticipated projects having possible impacts on the aquatic preserve.
5. Department of State, Bureau of Historic Preservation	This agency has a close working relationship in any activities or management policies needed for the protection of archaeological and historical sites.
6. Department of Health	Both The central office staff and field personnel have established communication and coordination linkages. The locally conducted programs of septic tank regulation and mosquito control.
REGIONAL	
1. St John's River Water District Management (SJRWMD).	SJRWMD administers permitting programs for the local consumable use of water and storm water discharge. In addition, it has primary responsibility for regulating water quantity and quality impacts of proposed development. The agency is also responsible for permitting dredge and fill activities.
2. Treasure Coast Regional Planning Council (TCRPC)	The TCRPC functions include: • Assisting local governments in coordinating planning issues transcending the boundaries of local jurisdiction; • Managing evaluation of developments of regional impact; • Serving as a regional clearinghouse for State and federal programs; and

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	• Prepare regional plans and assist The State in carrying out services of regional and state concern
LOCAL GOVERNMENTS AND SPECIAL DISTRICTS	
1. Special Districts	Districts include Sebastian River Water Control District, Inlet Taxing Districts, and Indian River Mosquito Control District These special taxing districts have been established to correct drainage, inlet maintenance and mosquito control problems.
2. Florida Inland Navigation District (FIND).	FIND is responsible for providing and maintaining spoils islands as well as being responsible for the dredging and maintenance of the Intracoastal Waterway.

Source: Solin and Associates, Inc., 1998

Natural Disaster Planning Considerations

~~§9-5.012(2)(e), F.A.C.~~

This section addresses natural disaster planning considerations including: hurricane evacuation, post-disaster redevelopment, and implications for infrastructure within the high hazard area.

Hurricane Vulnerability Zone. The hurricane vulnerability zone for the City of Sebastian has been identified as those areas requiring evacuation during the event of a 100-year storm, or Category 3 hurricane. The areas requiring evacuation during such occurrences are the Indian River Lagoon shoreline; the 100-year floodplains; mobile home residences; and areas receiving impacts from Category 3 hurricane storm-surge heights.

Generally, areas experiencing Category 3 storm-surge impacts lie within the 100-year floodplain. *As shown in Map 5-3, areas within the City receiving storm-surge impacts during Category 3 storm events are within the 100-year floodplain for either the Indian River or Sebastian River. The threats of sea level rise and flooding could also have potential negative impacts to public facilities. Development and redevelopment strategies should be used to reduce flood risk in these areas as defined in § 163.3178(2), F.S. Mitigation strategies, such as defining existing street and structure flooding levels of service, are provided in the City of Sebastian, Coastal Resiliency Plan, Prepared By: Kimley-Horn and Associates, Inc., March 2019.*

Hurricane Preparedness. The Regional Planning Council has done several hurricane preparedness and evacuation studies for the Treasure Coast area, including Sebastian. The last hurricane evacuation study update was done in 1994.

- A. **Evacuation Areas and Population.** Within Indian River County, those residents living on the barrier island as well as those living in mobile homes are required to evacuate during a Category 1 hurricane. All hurricane evacuation planning is coordinated with the Indian River County Emergency Management Office. Those residents within hurricane vulnerability areas will be evacuated at varying degrees beginning with Category 2. The estimated number of residents from the Sebastian area evacuating at each storm level is denoted below:

<u>Storm Event</u>	<u>Evacuation Population</u>
Category 1:	2,884 (mobile home residents)
Category 2:	5,854

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Category 3:	6,501
Category 4:	7,150
Category 5:	10,026

B. Public Shelters. Experience has shown that not all residents who may be threatened evacuate their homes. Only a small percentage of those residents, who do evacuate their homes, utilize public shelter facilities. Many residents prefer to relocate at commercial hotels/motels, homes of friends or relatives, or at other private shelters. A small number will seek refuge at public shelters managed by either the American Red Cross or the Indian River County Emergency Management Service. Both these organizations estimate that approximately nineteen percent (19%) of the evacuees will take refuge at designated shelters.

The primary evacuation shelters within or near Sebastian are Sebastian High School (2,000 spaces) and Pelican Island Elementary School (1,064 spaces). With 3,064 spaces, the local shelters adequately meet the needs of those seeking shelter. The numbers requiring public shelter for each storm level are shown in Table 5-3. Although public shelters are dispersed throughout Indian River County, some County residents from other evacuation zones or from neighboring coastal Counties may choose to take refuge at Sebastian area shelters. However, their numbers are expected to be minimal. Therefore, an adequate amount of shelter space is available for Sebastian residents in the unfortunate event of a hurricane.

TABLE 5-3: EVACUATION POPULATION USING PUBLIC SHELTERS BY STORM EVENT

STORM CATEGORY	EVACUEES	POPULATION USING PUBLIC SHELTER	SHELTER	
			CAPACITY	REMAINING
1	2,884	548	3,604	3,056
2	5,854	1,112	3,604	2,492
3	6,501	1,235	3,604	2,369
4	7,150	1,359	3,604	2,245
5	10,026	1,905	3,604	1,699

Source: Solin and Associates, Inc., 1997

Map 5-4: Hurricane Vulnerability Zone

- C. Evacuation Routes.** The evacuation routes out of the City of Sebastian include US 1 and CR 512. These two roadways also serve most of the northern half of the County. US 1 run north and south through the entire County and would be used by a number of residents to evacuate into other counties. CR 510 via the Wabasso Causeway would provide an evacuation route for the residents of the north barrier island. CR 510 connects with CR 512 west of Sebastian and CR 512 connects with I-95 a few miles west of the CR 510 intersection. Because the evacuation routes serving the City also serve the County, hurricane evacuation planning must be done on a countywide basis. Map 5-5 identifies designated evacuation routes.
1. **Constraints on Evacuation Routes.** Constraints are likely to prevail on certain segments of U.S. 1 and C.R. 512 since they both traverse through areas subject to flooding from 100 to 500-year storm waters. The segment of U.S. 1 just south of C.R. 512 north to Main Street lies within a 100 to 500-year floodplain, while a quarter-mile length of C.R. 512 crosses the 100-year floodplain associated with Collier Creek. The potential for road-surface flooding during heavy rainfall is greater along these road segments within Sebastian than along others. The road segments listed below may experience constraints from road surface flooding during storm events:
 - i. **US 1/CR 512 Intersection.** This intersection lies within an area experiencing flooding during 100-year storm occurrences. In addition, the intersection is situated on the western border of an area impacted by

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storm-surge from the Indian River Lagoon during Category 3 or worse hurricane.

- ii. **Roseland Road, Near Sebastian Airport.** A small portion of Roseland Road, as identified on the Hurricane Vulnerability Zone Map, is impacted by 100-year storm flooding as well as storm-surge occurring during a Category 5 hurricane.
 - iii. **Collier Creek Crossings.** Both Roseland Road and C.R. 512, the main evacuation routes for the City of Sebastian, both cross Collier Creek. Regular inspection of both bridges crossing the creek is imperative to ensure structural reliance. Should one of these bridges wash-out during a storm-event, as some bridges crossing canals did in other areas of the Treasure Coast during previous storm events, a safe evacuation of Sebastian and Indian River County residents could be placed into a precarious situation.
2. **Future Transportation Needs Related to Evacuation.** The County has conducted several studies that determined that no specific roadway improvements are needed by 2020 to accommodate hurricane evacuation. One study with specific impacts on evacuation in the Sebastian area is the recently completed Wabasso Causeway Study. This study determined that north barrier island evacuation times would be acceptable at buildout without any major roadway improvements. The focus of that study was the causeway, and the analysis indicated that the causeway would not need improvement by 2020.
- D. **Clearance Time.** Clearance time is defined as the time required to clear the roadway of all vehicles evacuating in response to a hurricane or other severe weather event. Clearance time is determined by three factors: mobilization time, travel time, and delay time. Travel time and delay time are to a great extent dependent upon roadway characteristics. Mobilization time is dependent upon how much notification is provided and how prepared the citizens are to evacuate.

According to the Treasure Coast Regional Hurricane Evacuation Study, evacuation clearance times for Indian River County will vary based on storm levels and impacts associated with a hurricane. In case of a hurricane threat, Sebastian residents will be notified by radio and television broadcast systems, the mobile public-address system, and the anti-looting squad as to the appropriate time to evacuate their areas. Proper notification will allow sufficient time for Sebastian residents to evacuate the area.

Map 5-5: Hurricane Evacuation Routes

The study showed that the clearance time for Indian River County ranged from 5.5 hours for a summer season, rapid response during a Category 1 or 2 storm event to 10.5 hours for a late fall season, long response to a Category 3, 4 or 5 storm event. With a maximum estimated clearance time of 10.5 hours for worst case conditions in the most severe storm event, the County's clearance time is within the generally accepted standard of 12 hours.

- E. **Special Needs Population.** The evacuation plan provides highest priority to the movement of physically handicapped and individuals with special needs, which comprise approximately 250 persons Countywide. In addition, the Treasure Coast Regional Planning Council has indicated that 6.9% of the residents in Indian River County would need transportation assistance. The evacuation plan stipulates that school buses will serve as a transportation mode when and where needed.

The Indian River County Emergency Management Department maintains a file of the physically handicapped and individuals with special needs. Special transportation has been arranged which includes vans and hydraulic lifts, ambulances, taxis, and private vehicles. Red Cross officials have designated special shelters. An emergency phone line is designated for their use through the emergency operations center. A local television station has arranged to carry disaster announcements directed to this special group and a post-disaster check will be conducted for this group according to policies cited in the evacuation plan.

Post Disaster Redevelopment. The City of Sebastian Department of Growth Management has no records indicating that any structures in Sebastian have a history of receiving repeated damage during storm surge or flood conditions. Actually, no habitable structures are located in the VE-Zone.

In order to effectively administer redevelopment activities subsequent to a major storm event, the City must develop an organizational framework in concert with Indian River County. The City of Sebastian should consider adopting strategic guidelines for post-disaster recovery operations. A Recovery Task Force should be created. This Task Force should be

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directed to prepare a management plan for assessing conditions following a hurricane or similar disaster, including strategic actions necessary to establish order and reestablish communication and basic service and delivery systems necessary for health, safety and welfare. The coastal management goals, objectives, and policies provide specific courses of action for accomplishing this objective.

Identification of the Coastal High Hazard Area. The coastal high hazard area (CHHA) consists of the Category I evacuation zone established in the Treasure Coast Regional Hurricane Evacuation Study. The only areas within the City limits identified in the Category I evacuation zone are the City's mobile home parks. The City shall enforce development restrictions, identified in Policy 5-1.4.1, within the CHHA and any area found to have historically experienced destruction or severe damage from storm driven wind, water, or erosion. The City has identified the high velocity storm surge area as indicated on the Federal flood insurance rate maps as the only such area. The threats of sea level rise and flood events should also be taken into consideration in regard to development and redevelopment strategies used in these areas as defined in § 163.3178(2), F.S. Additional mitigation strategies are outlined in the City of Sebastian, Coastal Resiliency Plan, Prepared By: Kimley-Horn and Associates, Inc., March 2019. The restriction of development activities and limiting of public infrastructure expenditures within the CHHA and hazard prone areas should also be considered as defined in § 163.3178(1), F.S.

A. **Storm Surge Areas.** As shown on the Hurricane Vulnerability Zone Map, three areas within the City of Sebastian will receive effects from a high velocity storm-surge. Each area is discussed below.

- The area generally east of Indian River Drive bordering the Indian River Lagoon is likely to be affected more than any other area in the City. During a Category 3 hurricane, storm-surge is projected to reach a height of 12.8 feet above sea level. This area has an elevation of eight to ten feet. Existing land use in this area consists primarily of commercial and institutional uses. The proposed land use for this area is Riverfront Mixed Use.
- Two land pockets along Roseland Road just west of the Sebastian Airport may be affected by storm-surge during a Level 3 or worse hurricane. Both land areas are presently undeveloped. The Future Land Use Map designates an institutional use for both sites.
- Adjacent land to the portion of the Sebastian River which lies within the City's corporate *limits* will also be susceptible to effects of storm-surge during a Category 3 or worse hurricane. Uplands adjacent to this portion of the Sebastian River are part of the San Sebastian subdivision; a single family residential development the development has preserved the functions of the Sebastian River floodplain. The development is compliant with the City's drainage performance standards and wetlands have remained intact.

Existing Infrastructure in the Coastal High Hazard Area. No infrastructure exists within the coastal high hazard area (CHHA). The only structures within the CHHA in Sebastian are mobile homes. In addition, no structures are located within a portion of any floodway within the City. Additional infrastructure in the city that has been inventoried or identified as being at risk to sea level rise or flooding is recorded in the City of Sebastian, Coastal Resiliency Plan, Prepared By: Kimley-Horn and Associates, Inc., March 2019, Appendix B, Asset-Threat Matrices.

Development and Redevelopment in the Coastal Area. The City of Sebastian should apply performance standards in managing development or redevelopment within coastal areas. Performance standards are particularly vital in protecting the function and value of the one-hundred (100) year floodplain. The City enforces a comprehensive flood and storm water management ordinance, which has specific criteria for managing development within the 100-year floodplain. Effective management of new development and redevelopment activities should prevent future loss of property and life.

Future Considerations to Reduce or Maintain Hurricane Evacuation Times. The City of Sebastian can maintain current estimated evacuation times or reduce them in the future by considering the following:

- Improve traffic circulation system according to level of service standards set forth in the Goals, Objectives, and Policies Document
- Improve quality of traffic flow during severe storms or hurricane events by eliminating or alleviating aforementioned hazardous constraints.
- Follow procedures set forth in the Indian River County Disaster Evacuation Plan.

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Indian River County Peacetime Emergency Plan: Disaster Evacuation Plan. This Plan sets forth the overall direction and control of disaster evacuation operations for Indian River County. The Evacuation Plan outlines the organization, concept or operations, responsibilities, warning, and alert system, and special transportation needs required to adequately prepare for a hurricane prior to its landfall. In the event a hurricane should strike Indian River County, an executive group comprised of the County Emergency Management Director, County Administrator, County Attorney, Chairman of the Board of County Commissioners, County General Services Director, and the mayor of each incorporated municipality within the County, including the City of Sebastian. The City of Sebastian should continue to cooperate and work with the County when it updates and evaluates the County Disaster Evacuation Plan.

Beach and Dune Systems

~~§9-5.012(2)(±), F.A.C.~~

There are no beach or dune systems present within the City of Sebastian. The undeveloped shoreline areas that are present shall be covered in the following section.

Public Access Facilities

~~§9-5.012(2)(g), F.A.C.~~

This section provides an inventory of the public access facilities, as well as the capacity and need for future access areas.

Public Access Facilities to the Indian River Lagoon. Map 5-1 shows water dependent uses along the Indian River shoreline. Table 5-4 summarizes the characteristics of water dependent activities in the Sebastian area. The Indian River shoreline is 9,000 feet within the City limits and includes two points of public access marked by the two City piers. Each access point can accommodate approximately thirty vehicles, respectively

TABLE 5-4: MARINAS AND BOAT RAMPS

Name	Ownership	Type of Facility	Available Parking
1. Dale Wimbrow Park	County	Boat Ramp	20
2. Main Street/Riverfront Park	City	Dock/Boat Ramp/Fishing Pier	40
3. Sebastian Yacht Club	City	Dock/Boat Ramp/Fishing Pier	20
4. Sebastian Inlet Marina	Private	Marina/Boat Ramp	N/A
5. Oyster Point Resort	Private	Marina/Boat Ramp	N/A
6. Mavs Marina	Private	Marina	N/A
7. Sembler & Sembler	Private	Marina	N/A
8. Paradise Marina	Private	Marina	N/A
9. Marker 68 Marina	Private	Marina	N/A

Source: City of Sebastian, 1997

Public Access Facilities to the St. Sebastian River. The portion of the Sebastian River shoreline within the City is located in San Sebastian Springs, a privately developed single family residential community. However, as noted on the Recreation Resources map in the land use and recreation elements, public access points are provided at Wimbrow Park and McDonald Park, two riverfront parks owned and operated by Indian River County.

Coastal Roads and Facilities Providing Scenic Overlooks. The location of Indian River Drive and adjacent bike path to the Indian River Lagoon provides scenic overlook opportunities for motorists and pedestrians along the shoreline as well as at the two piers noted on Map 5-1. In addition to this roadway, the Riverfront Park located at Main Street and Indian River Drive east of U.S. 1, has facilities adjacent to the Aquatic Preserve, which provide overlook opportunities.

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The Pelican National Wildlife Refuge lies near the eastern border of the City. This area is administered by the Federal government and was established to protect the birds, many of which are endangered or threatened, which utilize this area. While only being accessible by boat, the Refuge gives the residents of Sebastian and surrounding areas a place to observe wildlife in its natural habitat.

Existing Infrastructure in the Coastal Area

§9-5.012(2)(h), F.A.C.

This section provides the existing and future infrastructure needs for the City of Sebastian. No infrastructure is located in the high hazard area.

Roadways, Bridges and Causeways. Two main roadways, Indian River Drive and US 1, service the coastal area of Sebastian. US 1 is a State arterial and Indian River Drive is a County collector. The remaining roadways are local.

Sanitary Sewer and Potable Water Facilities. The majority of the residents of Sebastian rely on septic tanks and private wells for sanitary sewer and potable water. The County's potable water and sanitary sewer treatment plants are located outside the City's limits. The only public facilities within the City are the County's water and sewer mains.

Drainage System. The City of Sebastian presently relies on a network of swales, ditches, and canals for their drainage. Storm water is discharged into the Indian River Lagoon and the Sebastian River. The City prepared a storm water master plan, which will include a retention area to serve the middle portion of Sebastian.

Shoreline Protection Structures. The City currently regulates against hard shoreline protection structures.

Fiscal Impact of Future Infrastructure Needs and Improvements. A complete analysis of the future infrastructure needs and improvements can be found in the Capital Improvements Element. This Element provides a description of the fiscal impacts, phasing and projected needs for infrastructure within the City of Sebastian.

CONSERVATION ELEMENT DATA INVENTORY AND ANALYSIS

§9J-5.013(1), F.A.C.

This section addresses the data inventory and analysis requirements of §9J-5.013(1), F.A.C., supportive to the goals, objectives, policies and implementation programs for the Conservation Element. Appropriate cross references to the Land Use and Coastal Management Elements are included in order to avoid the duplication of information.

Identification of Natural Resources

This section identifies and inventories air and water quality, floodplains, valuable mineral deposits, soil erosion problems and endangered species.

Description of Natural Resources. Rivers, bays, lakes, wetlands including estuarine marshes, and air including information on quality of resource available from and classified by the Florida Department of Environmental Protection.

5B Conservation

- A. **Air Quality.** The Florida Department of Environmental Protections (DEP) does not presently monitor air quality in the Sebastian area on a regular or periodic basis. However, according to DEP's Division of Air Resource Management in the Central Florida District Office, air quality in the Sebastian area is good to excellent. Reasons supporting excellent air quality include: 1) the absence of major industries in the area (i.e., not point sources of air pollution), and 2) close proximity of the Atlantic Ocean and land and sea breezes tend to rapidly disperse automobile-generated pollution.

Major industrial centers in the Southern and Midwest United States occasionally affect air quality in the City during the winter months due to southern pollution drift combined with weather inversions. However, these

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incidences are rare.

Corridor pollution produced from traffic on U.S. 1 and C.R. 512 is minor and although traffic will increase as the population in the area increases, federal controls on automobile pollutant emission rates should cause reductions in the gross amount of pollutants present.

Pollution generated from commercial and industrial developments within and adjacent to the City is not anticipated to adversely affect the air quality of Sebastian. Fugitive dust particles from land cleared for development may be experienced by the community, and developers should be requested to quickly replant development areas following clearing.

Considering all factors, no measurable decrease in the City's air quality is anticipated in the immediate or long-term future.

1. Water Quality.

- a. Indian River Lagoon. As stated in the Coastal Management Element, the Indian River Lagoon is considered an Aquatic Preserve from Malabar to Vero Beach. The City of Sebastian borders this area of exceptional water quality. The Florida Department of Environmental Protection (FDEP) has classified the estuary bordering the City of Sebastian as Class II waters. Class II waters are defined as coastal water bodies which potentially can or actually do support shellfish harvesting.

The FDEP published a report in June 1986 which states that the principal water quality problem within the estuary is high nutrient levels. The principal pollution sources were identified as sewage treatment plants and urban run-off. Fresh water enters the Aquatic Preserve from streams and canals which divert water from the St. Johns River Basin. Following is a list of known point sources of pollution with surface water outfalls as identified by the FDEP in their 1986 report:

<u>SITE NAME</u>	<u>TYPE OF DISCHARGE</u>	<u>DISCHARGED TO</u>
<u>Reflections</u>	<u>Storm water</u>	<u>Indian River Lagoon</u>
<u>Sebastian Lakes</u>	<u>Storm water</u>	<u>Sebastian River</u>
<u>Pelican Point Water</u>	<u>Industrial</u>	<u>Indian River Lagoon</u>
<u>Whispering Palms Treatment Plant (IJ)</u>	<u>Domestic Sewage</u>	<u>Indian River Lagoon</u>
<u>Riverside</u>	<u>Storm water</u>	<u>Indian River Lagoon</u>
<u>Cypress Estates</u>	<u>Storm water</u>	<u>Sebastian River</u>
<u>San Sebastian</u>	<u>Storm water</u>	<u>Sebastian River</u>
<u>Grimes Industrial</u>	<u>Industrial</u>	<u>Sebastian River</u>

Note: (I) The Whispering Palms Treatment Plant is no longer a source of pollution as the plant has been Deactivated and the area is now served by central sanitary sewer.

The non-point source pollutants introduced to the surface waters of the Sebastian area through urban run-off may have a number of detrimental effects to the natural systems of the City. Suspended solids increase the turbidity of the Lagoon and thus reduce the amount of sunlight reaching the seagrass beds. Elevated nutrient levels result in eutrophication of the estuary and decreased productivity of the system as a whole. In addition to the above-mentioned pollutants, heavy metals such as mercury, zinc and lead accumulate in the sediments of the receiving waters, thereby contaminating benthic organisms.

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Improvement of water quality in the Indian River Lagoon has been a cooperative effort between the City, the County, SJRWMD, the National Estuary Program, the Indian River County Mosquito Control District, and the Natural Resource Conservation Service. The SJRWMD's SWIM program has studied agricultural runoff and best management practices in the Sebastian area. SJRWMD has also worked with Florida Department of Health, Indian River County Department of Environmental Health, the Marine Resources Council of East Central Florida, and the National Estuary Program to monitor surface water quality. SWIM has provided funding for a septic tank survey and a seagrass mapping program.

- a. **St. Sebastian River.** According to DEP's 1992 305(b) report, the St. Sebastian River has the poorest water quality in the southern half of the Indian River Lagoon. The C-54 and Fellsmore canals drain into the St. Sebastian River contributing excess fresh water to the Indian River Lagoon. Problems stem from agricultural runoff throughout the watershed, residential development in the south prong, and wastewater discharges in the north prong.
- b. **Groundwater.** The Soil Survey of Indian River County states that the surficial aquifer water is of good quality and is generally suitable for all purposes. The removal of iron and color and reducing of hardness is generally desirable when surficial aquifer waters are used for domestic purposes. A more detailed inventory of the surficial aquifer can be found in the Future Land Use Element and the Sanitary Sewer, Solid Waste, Drainage, Potable Water and Natural Groundwater Aquifer Recharge Element.

MAP 6-1

Estuarine Shoreline and Wetland Areas

- B. **Wetlands.** The City of Sebastian has a number of wetland areas within its corporate limits. The Land Use Element contains a wetlands map and a section which describes the value and function of wetlands. The City's existing regulatory measure for preserving wetlands is described. The Conservation and Coastal Management Element cites additional approaches to regulate the wetlands including a more specific approach in identifying wetlands based on wetland vegetation and hydric soils.

Floodplains. The National Flood Insurance Program which is administered by the Federal Emergency Management Agency has determined that portions of the City of Sebastian are subject to flooding from a

100-year storm. Approximate boundaries of these areas are defined in the Land Use and Coastal Management Elements. Specific flood zone boundaries can be found on the Flood Insurance Rate Map (FIRM) Community Panel Number 120123-0005-B revised May 4, 1989. These maps are on file with the City of Sebastian Building Department.

A large portion of land area situated within the 100-year floodplain lies within the southern area of the City. Most of this floodplain is currently designated for residential land use on the existing as well as proposed Future Land Use Map. The floodplain associated with the Sebastian River also covers an area designated for residential land use. Although this area is presently undeveloped, residential development is likely to occur in this area in the near future. A small portion of industrial land on the western airport property also lies within a 100-year floodplain. In addition, as shown on the 100-Year Floodplain Map, a number of arterial and collector roadways cross through portions of the 100-year floodplain.

The largest commercial area within the City lies between U.S. Route 1 and the Indian River Lagoon in the northeast area of the City. The proposed future land use designation for this area is Riverfront Mixed Use, which allow a mix of commercial, residential, and office uses. This area will continue to be the commercial core of Sebastian.

Development occurring within floodplain areas must include appropriate measures to preclude detrimental effects of floodwaters. A drainage system comprised of a network of canals, ditches, and natural waterways mitigates potential flooding problems for development currently located in areas affected by

100-year floodplains. Special measures have had to be incorporated into roadway construction and development within these floodplain areas, primarily reflected in the consideration of on-site elevation above the flood level.

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Particularly in the southern area of the City, development has had to provide additional drainage facilities to prevent new flood problems from arising or from exacerbating existing problems. The largest portion of the City's drainage facilities are situated in its southern section, where such facilities are needed the most.

Commercially Valuable Mineral Deposits. A review of the Florida Mining Atlas: A Guide to Mineral Resource Management from the Florida Department of Environmental Protection (published 1982), revealed that there are no commercially valuable deposits of coquina, dolomite, phosphate, clay, or peat present within the City of Sebastian. No active or inactive mineral mining sites, other than sand mining along the coastal ridge in the southeast portion of the City, have been identified within the City.

Soil Erosion Problems. The City of Sebastian does not have any specific areas of soil erosion according to the Soil Conservation Service. Erosion potential can be mitigated by reducing the time interval between the clearing of land and actual development or construction. Four general areas have been identified as potential soil erosion problem areas:

- A. **Construction Areas.** Many areas are cleared of vegetation prior to construction. During that interval, construction sites are highly subject to wind erosion. Many times, these intervals span several weeks or more before development takes place.
- B. **Canal Areas.** The banks of canals may erode causing sediment to build up within the canals and reducing the carrying capacity of the waterways. This erosion is frequently caused by run-off from construction sites. During construction, the removal of vegetation from canal banks or at the waterline increases the amount of soil which may subsequently be washed into the waterway.
- C. **Gentle Slopes.** The City of Sebastian has areas characterized by sandy soils and gentle slopes. These areas are subject to erosion during periods of heavy and/or frequent rainfall.
- D. **Indian River Lagoon Area.** Portions of the Indian River Lagoon shoreline which are disturbed or altered also have erosion potential. Runoff from the land, combined with wind and wave action from the estuary, can transport a large quantity of soil from these areas in a very short period of time.

Vegetative Communities and Marine Habitats with Dominant Species, Fisheries, and Endangered, Threatened, Rare or Species of Special Concern. This section analyzes the vegetative communities, marine habitats, and endangered, threatened, or species of special concern within Sebastian.

A. **Vegetative Communities and Marine Habitats.** Four (4) primary vegetative communities and one

(1) primary marine habitat exists within the City of Sebastian. This section provides an overview of these communities and the dominant species that are found in each. Map 5-2 of the Coastal Management Element provides the generalized locations of these communities throughout the City.

1. **Coastal Ridge Community.** The Coastal Ridge Community is comprised of slash pine with an understory of palmetto and is found on the limited higher elevation areas of the City. This community is characterized by level to gently sloping, excessively drained and moderately well drained soils such as Astatula and St. Lucie which are sandy to a depth of eighty (80) inches or more. The raccoon, opossum, Florida mouse, various songbirds, hawks and Eastern diamondback rattlesnake are among the dominant wildlife species found in this community.

The coastal ridge communities lie within some of the most developed areas of Sebastian; hence, they exist in small dispersed clusters. As shown on the Existing Land Use Map in the Future Land Use Element, residential, commercial, and industrial land uses are located on the approximately 865 acres consisting of coastal ridges. As future populations further develop these areas into residential, commercial, and industrial land uses, these vegetative communities will be separated into smaller clusters as slash pine and palmetto land cover is removed. Alteration of the coastal ridge community's character is also likely to occur as vegetation more typically associated with residential developments, such as palm trees and shrubbery, are included in man made landscaping of these areas.

Changes to the character of the community's vegetation and related densities will likely induce species sensitive to environmental changes to seek more attractive, undisturbed habitats in areas outside Sebastian's corporate limits. Species favoring open terrain and urban settings are likely to commence refuge in

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transitional areas. However, no abnormal impacts on flora or fauna are expected to occur; only those impacts normally associated with an area experiencing further urbanization are anticipated for the Coastal Ridge Community.

2. **South Florida Flatwoods.** The Flatwoods are found on nearly level land at lower elevations than the Coastal Ridge Community where water movement is gradual to the natural drainage ways. The flat topography and saw palmetto with intermittent pines are characteristic of this community. The soils are nearly level, deep, acid, sandy and poorly to somewhat poorly drained. Representative soils in this community are Myakka, Eau Gallie and Immokalee. Raccoon, opossum, bobwhite quail, mourning doves and the green anole are among the dominant wildlife species found in the Flatwoods.

The South Florida flatwoods community, as shown on Map 5-2 in the Coastal Management Element, is the most represented vegetative community within the City of Sebastian. This community presently remains in large undisturbed clusters, and covers an area of approximately 6,282 acres. Existing designated land use for those areas containing flatwoods is primarily residential (single family). Although much of the subject area is undeveloped, a large portion is already committed to residential development. A large portion of Sebastian is part of a planned community and, hence, has been subdivided into lots.

Future residential development will replace much of this vegetative community's natural vegetation, separating it into smaller dispersed clusters. Since Sebastian is predictably destined to attract new residents and development, this vegetative community can be expected to decrease in density as new homes and associated landscaping and lawns alter its current character.

Although sufficient vegetation will exist to support wildlife endemic to this community, some wildlife species can be expected to decrease in numbers as they move westward into Indian River County to avoid contact with man and to find more natural habitats. Conversely, as more open space is created to accommodate residential land use needs, wildlife species not common to flatwoods, but which prefer open terrain, may be attracted to these areas. Impacts to both flora and fauna of the flatwoods community, as described above, are expected to be typical for an undeveloped area undergoing urbanization. No abnormal impacts are expected to occur from future residential developments locating in flatwood domains.

3. **Wetland Hardwood Hammock.** This vegetative community is found in depressions or on lower elevations than the Flatwoods. The Wetland Hardwood Hammock is a wetland climax forest on poorly drained soil with a high water table. The soils associated with this community are nearly level, somewhat poorly and poorly drained with loamy subsoil and sandy surfaces. Representative soils in this community are Myakka and Oldsmar. Live oak, cabbage palm, red maple, wax myrtle, and wild grape are among the dominant plant species found in this community. Grey squirrels, skunks, raccoons, the red shouldered hawk, and the green tree frog are among the dominant animal species found in the Wetland Hardwood Hammock.

Existing wetland hardwood hammock communities consist of densely vegetated, undisturbed natural areas. Since they lie within floodplains and do not contain soil characteristics favorable to development, the character and quality of these communities should continue to remain in their current natural state. No structures are presently constructed within this community, but future development may encroach into its fringes, potentially reducing its present total area of approximately 417 acres. Wildlife indigenous to these wetland hardwood hammock communities will probably remain at existing population levels, with only minimal impacts placed on those creatures whose habitats are located on the fringe of the community.

4. **Swamp Hardwoods.** The Swamp Hardwood vegetative community is normally submerged or saturated for a portion of the year, and is characterized by a primarily deciduous canopy. Soils associated with this community are nearly level, very poorly drained, and are dark colored. Representative soils are Floridana and Holopaw. Dominant plant species found in this community are laurel oak, red maple, black gum, hackberry, swamp dogwood, Jack-in-the-Pulpit and climbing milkweed. Marsh rabbit, grey squirrel, pileated woodpecker, horned owl and barred owl are among the dominant animal species found in the Swamp Hardwood community.

Urban development has encroached into some clusters of swamp hardwood in past years, and some areas which have been filled and covered are now indiscernible from their original natural vegetative state. A number of wetland pockets were once located in what now serves as the Sebastian 'town green', but these

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also have been filled. Existing undisturbed wetland areas still remain in the northern and southern sectors of the City. With the exception of wetlands associated with Schumann Lake, most lie in areas designated for residential (southern areas of Sebastian) or for industrial (northern areas) land uses.

Although 353 acres of land characteristic of swamp hardwoods have been identified, they are condensed into small dispersed clusters containing sparse native vegetation indigenous to this community. Due to future development potential in the central sectors of the City, only small pockets of swamp hardwoods will probably continue to exist in the far southern and northern areas of Sebastian. The City of Sebastian would take appropriate measures to protect those swamp hardwoods found in these areas from development encroachment.

5. **The Indian River Lagoon.** The estuary is possibly the most productive habitat within the City of Sebastian. As a whole the Indian River Lagoon supports one of the richest and most productive aquatic faunas within the continental United States. This estuary has revealed a large variety of plants and animals, as well as a concentration of rare and endangered organisms.

The Indian River Lagoon is expected to remain in its current natural condition for some time since it is protected by State regulations from impacts from development on its shores, as well as from fill and dredge activities within its waters. Water quality within the Lagoon may also improve as State and local pollution control efforts prevent and reduce pollution levels entering its waters. The SJRWMD has designated the Indian River Lagoon as a SWIM project which furthers the efforts by the State, County and City to improve water quality.

6. **Inland Open Water Areas.** Those inland areas of Sebastian which are submerged during all of the year, with the exception of extreme dry periods, are considered to be inland open water areas. The greater portion of these areas are usually below the water table. Such areas include streams, lakes, ponds, canals, and waterways. Those areas of Sebastian classified as inland open waterways include Collier Creek, Schumann Lake, and three unnamed lakes or ponds; and Collier and Elkeam Waterways.

Inland open waterways should receive only minimal effects from future development. Although development will not encroach the waterways, urban runoff from adjacent residential neighborhoods could possibly degrade their water quality. However, increases in pollution levels associated with runoff should be minimal, allowing the vegetation and wildlife now present therein to proliferate for years to come. No future development is planned for areas within inland open waterways.

Fisheries. Throughout the Aquatic Preserve there are a number of commercially and recreationally valuable species of fin and shellfish. Clams, oysters, crabs and shrimp are the major invertebrates that are commercially valuable in the area. Sea trout, snook, pompano, mullet, and redfish are among the finfish that are harvested both commercially and recreationally from the waters bordering the City of Sebastian. Due to the expansive nature of the Indian River Lagoon, it is very difficult to determine exact values for the commercial and recreational catches of the above-mentioned species within the City.

Endangered Species. Table 6-1 identifies those species which have been listed by either Federal, State or local governments as being endangered, threatened or as a species of special concern, and are found within the City of Sebastian. This list is not all inclusive. Some of the species which are included in the list are found infrequently within the City but have ranges that do include Sebastian.

SCIENTIFIC NAME		COMMON NAME(S)	DESIGNATED STATUS		
GFC		FWS	CITIES		
CHAPTER 5: CONSERVATION AND COASTAL MANAGEMENT ELEMENT					
Reptiles and Fish					
<u>Alligator mississippiensis</u>	<u>American alligator</u>	<u>SSC</u>	<u>T(S/A)</u>	<u>II</u>	
<u>Caretta caretta</u>	<u>Atlantic loggerhead turtle</u>	<u>T</u>	<u>T</u>	<u>I</u>	
<u>Centropomus undecimalis</u>	<u>Common snook</u>	<u>SSC</u>			
<u>Chelonia mydas mydas</u>	<u>Atlantic green turtle</u>	<u>E</u>	<u>E</u>	<u>I</u>	
<u>Dermochelys coriacea</u>	<u>Leatherback (=leathery) turtle</u>	<u>E</u>	<u>E</u>	<u>I</u>	
<u>Drymarchon corais couperi</u>	<u>Eastern indigo snake</u>	<u>T</u>	<u>T</u>		
<u>Eretmochelvs imbricata imbricata</u>	<u>Atlantic hawksbill turtle</u>	<u>E</u>	<u>E</u>	<u>I</u>	
<u>Gopherus polyohemus</u>	<u>Gopher turtle</u>	<u>SSC</u>			
<u>Lepidochelys kempi</u>	<u>Atlantic ridley turtle</u>	<u>E</u>	<u>E</u>	<u>I</u>	
<u>Nerodia fasciata taeniata</u>	<u>Atlantic salt marsh snake</u>	<u>T</u>	<u>T</u>		
<u>Birds</u>					
<u>Ajaia ajaja</u>	<u>Roseate spoonbill</u>	<u>SSC</u>			
<u>Aphelocoma</u> <u>coerulescens</u>	<u>Florida scrub jay</u>	<u>T</u>	<u>T</u>		
<u>Egretta caerulea</u>	<u>Little blue heron</u>	<u>SSC</u>			
<u>Egretta rufescens</u>	<u>Reddish egret</u>	<u>SSC</u>			
<u>Egretta thula</u>	<u>Snowy egret</u>	<u>SSC</u>			
<u>Egretta tricolor</u>	<u>Tricolored (=Louisiana) heron</u>	<u>SSC</u>			
<u>Falco peregrinus tundrius</u>	<u>Arctic peregrine falcon</u>	<u>E</u>	<u>I</u>		
<u>Falco sparverius paulus</u>	<u>Southeastern American kestrel</u>	<u>T</u>	<u>II</u>		
<u>Haematopus palliatus</u>	<u>American ovstercatcher</u>	<u>SSC</u>			
<u>Haliaeetus leucocephalus</u>	<u>Bald eagle</u>	<u>T</u>	<u>T</u>	<u>I</u>	
<u>Trns canadensis oratensis</u>	<u>Florida sandhill crane</u>	<u>T</u>	<u>II</u>		
<u>Mycteria americana</u>	<u>Wood stork</u>	<u>E</u>	<u>E</u>		
<u>Pandion haliaetus</u>	<u>Osprey</u>	<u>SSC</u>	<u>II</u>		
<u>Pelecanus accidentalis</u>	<u>Brown pelican</u>	<u>SSC</u>			
<u>Sterna antillarum</u>	<u>Least tern</u>	<u>T</u>			
<u>Sterna dougallii</u>	<u>Roseate tern</u>	<u>T</u>	<u>T</u>		
<u>Mammals</u>					
<u>Lutra canadensis</u>	<u>River otter</u>	<u>II</u>			
<u>Podomys floridanus</u>	<u>Florida mouse</u>	<u>SSC</u>			
<u>Ajaia ajaja</u>	<u>Roseate spoonbill</u>	<u>SSC</u>	<u>E</u>	<u>I</u>	

GFC = Florida Game and Fresh Water Fish Commission

FDA = Florida Department of Agriculture and Consumer Services

FWS = United States Fish and Wildlife Service

CITES = Convention on International Trade in Endangered Species of Wild Fauna and Flora

E = Endangered

T = Threatened

T(S/A) = Threatened/Similarity of Appearance

SSC = Species of Special Concern

I = Appendix I Species (CITES)

II = Appendix II Species (CITES)

III = Appendix III Species

(CITES)

CHAPTER 5: CONSERVATION AND COASTAL MANAGEMENT ELEMENT

Existing and Potential Usage of Natural Resources. This section provides a description of existing commercial, recreational and conservation uses for the natural resources in the City of Sebastian. Known pollution problems, including hazardous wastes, are discussed as well as the potential for preservation, conservation, and utilization of available lands within the City.

The Land Use Element includes a detailed evaluation of the existing and projected future use of conservation resources. This section includes a statement of how development within areas having natural constraints to development shall be restricted based on existing land development regulations as well as proposed amendments to those regulations.

Existing Commercial, Recreational and Conservation Uses. The following section describes the commercial, recreational and conservation uses of the natural resources found in Sebastian.

A. Commercial Uses. The natural resources within Sebastian are used in two different ways: water dependent uses, and commercial fishing.

1. **Water-Dependent Uses.** The City of Sebastian has approximately 198 acres of commercial land within its boundaries. A portion of this commercial land abuts the Indian River Lagoon, the majority of which is used by marinas, restaurants, and their ancillary facilities.

2. **Commercial Fishing.** The Indian River Lagoon is used commercially by fin and shell fishermen. According to the Florida Department of Environmental Protection (DEP) Shellfish Sanitation Section in Apalachicola, the taking of shellfish is prohibited within that portion of Sebastian's jurisdiction located between the Indian River Lagoon main navigational channel and the mainland shoreline, and the portion of the Indian River Lagoon located within the City's jurisdiction west of the navigational channel has been conditionally approved by DEP for shellfishing. No area of the Lagoon within Sebastian has received unrestricted approval.

Although commercial fishing is permitted in the Lagoon, the shallow waters within the Sebastian area limit its extent. According to the Fisheries-Independent Monitoring Program Annual Report for 1995, the Indian River Lagoon was home to a number of different fish and shellfish species which are commercially or recreationally important. The predominant shellfish was the stone crab (*menippe spp.*) and the predominant fish was the spot (*leostomus xanthurus*). Other fish and shellfish reported were sheepshead, white trout, ladyfish, tarpon, southern whiting, striped mullet, white mullet, shrimp, black drum, red drum, and permit.

B. Recreational Uses. The Indian River Lagoon provides the most extensive resource-based recreational area within the City. Fishing, boating and other water-dependent recreation are available throughout the Aquatic Preserve. Marinas, piers, and boat ramps are located along the segment of the Lagoon abutting the City.

C. Conservation Uses. Conservation uses are defined as activities within land areas designated for the purpose of conserving or protecting natural resources or environmental quality. This includes areas designated for flood control, protection of quality or quantity of groundwater or surface water, floodplain management, fisheries management, or protection of vegetative communities or wildlife habitats.

1. **Conservation of Vegetative Communities.** Vegetative communities within the City's land area are protected, in part, through a tree protection ordinance. By limiting removal of trees from development sites, and through mandatory planting of trees on such sites, the ordinance helps to conserve vegetative communities, particularly the pine flatwoods which dominate the greater portion of Sebastian's land area. Vegetative communities rooted in floodplains and State waters are also protected by State environmental regulations and local development regulations. The development regulations require a 50 percent reservation of open space for residential development and a 15 - 35 percent reservation of open space for nonresidential development. In addition, it is recommended that the City amend the tree protection ordinance to ensure compliance with the Treasure Coast Regional Planning Council Regional Comprehensive Policy Plan #10.1.2.2 mandating that new development set aside, as a minimum, 25 percent of each native plant community which occurs on site.

2. **Conservation of Marine Communities.** The seagrass vegetative community lies within the Indian River Lagoon where FDEP monitors their conditions, protects them from potential damage, and restores damaged beds. Conservation efforts conducted by FDEP are discussed in greater detail in the Indian River Lagoon

CHAPTER 5: CONSERVATION AND COASTAL MANAGEMENT ELEMENT

Aquatic Preserve Management Plan and the Indian River Lagoon SWIM plan.

Due to shallow waters within the Sebastian area, the top of seagrass beds lie near the surface, making this habitat susceptible to damage from motor boats, both pleasure and commercial craft. Although no studies have been conducted on the impacts of water craft on the seagrass communities, the local office of the Department of Environmental Protection has observed damage to the beds. Any wildlife thriving in these shallow waters also are susceptible to harm from motor boats.

3. **Conservation of Marine Species.** Manatees, a large and docile mammal listed on both State and Federal endangered species lists, are susceptible to detrimental impacts from both loss of seagrass beds as well as water crafts. Threats to manatees from water craft may be reduced in areas along the Indian River where reduced speed limits are posted or where manatee habitats are identified and posted as such. The Marine Research Institute of FDEP maintains records of those manatees known to be fatally injured by water craft. Although figures are not available for the immediate lagoon area adjacent to Sebastian, information for Indian River County is 7 manatee deaths occurring between 1974 and 1987 as a result of collisions with water craft. However, these figures do not reflect unidentified injuries or fatalities to the species.

Conservation of the Scrub Jay and Habitat. The Scrub Jay is a bird presently listed on the State's endangered or threatened species list. In the early 1 990's, the Florida Game and Fresh Water Fish Commission has conducted an inventory of their habitats and population levels within the City of Sebastian. General locations of their habitat and nesting areas include the area just south of the airport and the Sebastian Highlands area. Identification of their nesting areas has enabled the City, County, and State to preserve some areas from future detrimental impacts of development.

The Federal Fish and Wildlife Service has taken a more active role in preserving scrub jay habitats along the eastern coast of Florida. The State and the County have worked together to acquire several key tracts of land outside of the City along the west edge of the Sebastian River. In addition, the State in conjunction with Indian River County has purchased the property within the St. Sebastian PUD and the AGC Industrial Park for the purposes of preserving scrub jay habitats as well as several other small tracts in the Sebastian Highlands area.

Known Pollution Problems. No major sources of air pollution have been identified within the City of Sebastian. In 1986, DEP identified nine (9) areas of point source pollution within and immediately adjacent to the City of Sebastian. Since then, one of the nine has been eliminated as a pollution source. DEP has stated that the urban run-off is still a major contributor of pollutants to the surface waters of the City and Indian River County. Utilization of more advanced treatment techniques and storm water management will assist in decreasing the detrimental effects of pollution on the natural systems of the City.

Neither the City of Sebastian nor the Treasure Coast Regional Planning council have records available on hazardous waste generators within the City of Sebastian. Although no generators have specifically been identified, hazardous waste is usually generated by most automobile service and maintenance stores as well as by other industries within the corporate limits that utilize solvents or detergent tertiary products in the production of goods and services.

Potential for Preservation, Conservation and Utilization of Natural Resources. Preservation areas have been defined by the Florida Department of Environmental Protection (DEP) as those areas within the municipality having major ecological, hydrological, physiographic, historical or socio-economic importance to the public at large. These areas are already subject to various State regulatory programs. The importance of these areas to the City has been discussed in previous sections. A continuance of present preservation programs and implementation of additional programs as needed is recommended to ensure the viability of these areas in the future. Areas within the City of Sebastian included in this classification are:

- Class II Waters
- Marine Grass beds
- Historical and Archaeological Sites
- Wetlands

Conservation areas have been defined by the Florida DEP as those lands and waters of the municipality having certain natural or institutional use limitations requiring special precautions prior to conversion to development. Such precautions could entail extensive design and constructions criteria to protect the development from unsuitable landscape conditions. Areas classified as conservation areas include the following: Surficial Aquifer Recharge Areas and 100 Year Floodplains.

CHAPTER 5: CONSERVATION AND COASTAL MANAGEMENT ELEMENT

Map 4-9 of the Sanitary Sewer, Solid Waste, Drainage, Potable Water and Natural Groundwater Aquifer Recharge Element delineates those areas within the City of Sebastian which have been designated as having good to excellent recharge potential for the surficial aquifer by the Indian River County Soil Survey. With the exception of those areas identified as wetlands on Map 6-1, all other areas within the City have moderate to good potential as recharge areas.

As was noted in the Sanitary Sewer, Solid Waste, Drainage, Potable Water and Natural Groundwater Aquifer Recharge Element, a large share of the residents of Sebastian are dependent upon the surficial aquifer for potable water. Areas with excellent recharge potential should be conserved to ensure adequate supply of water for the future. The use of permeable pavements and more restrictive land use regulations may be utilized in these conservation areas to ensure the viability of this resource.

Development of the 100-year floodplain must comply with design standards as they have been defined by the State and local governments before construction is approved in these areas. As development continues and the amount of developable land decreases, pressure to develop the environmentally sensitive lands within the City will increase. As such, the City of Sebastian may wish to implement measures to preserve, conserve or protect the environmentally sensitive areas within the community for future generations.

Other areas having potential for conservation or protection include the following:

1. Sebastian River. The portion of the Sebastian River flowing within the City lies within an area which is presently designated for residential uses. At the time such development occurs, sufficient setback from the river will ensure protection of water quality as well as refuge for wildlife.
2. Marine Seagrass Beds. Seagrass beds thriving along the Indian River Lagoon's edge at Sebastian provide habitat for a plethora of aquatic species, including the endangered manatee. These areas are protected as they lie within the Aquatic Preserve.
3. Vegetative Communities. Although a large portion of land within the City has already been platted and committed to land uses, large undeveloped tracts of land are present on which exist undisturbed vegetative communities. Some of these areas have been designated for institutional land uses, primarily recreation in nature, on the current, proposed Future Land Use Map. Park designs should consider the preservation of vegetative communities to provide habitat for wildlife as well as passive recreation alternatives for residents of Sebastian. A large tract of land surrounding the Sebastian Airport has been designated for institutional land uses. Areas encompassing the golf course adjacent to the airport also contain undisturbed vegetative communities.

Current and Projected Water Needs. This section provides an inventory of the current and projected water needs and sources to the year 2010. The projections will be based on present demands and estimated population. Quality, quantity, existing conservation measures, and policies concerning available sources will be analyzed.

Existing Potable Water Sources. Potable water in the City of Sebastian is received from either private on-site wells or from the County's water treatment plant. Sebastian derives its potable water from one of two sources, the surficial or deep aquifer. The surficial aquifer is recharged via rainfall percolation through the soils. This source has relatively good quality water, but is highly susceptible to contamination from various land use practices such as chemical applications for agricultural purposes, septic tank use and over-pumpage resulting in saltwater intrusion. The deep or artesian aquifer, also known as the Floridan aquifer, is recharged in eastern Osceola County and is less susceptible to contamination from land uses due to its slow eastward movement which removes and traps pollutants in the soils. Once this water reaches the Sebastian area it has high chloride levels and an undesirable color and smell. Reverse osmosis is the method of choice in this area for treatment of waters from the Floridan aquifer.

Existing Potable Water Demand. The Indian River County Evaluation and Appraisal Report: Potable Water Sub-Element (Draft) states that the City of Sebastian has a per unit potable water demand of approximately 250 gallons per day. Table 6-2 provides a listing of the projected potable water demand based upon the population projections and the Indian River County Comprehensive Plan Potable Water Sub-Element. To ensure the efficient and acceptable delivery of potable water services to the City of Sebastian, continued coordination with Indian River County Utilities is recommended.

CHAPTER 5: CONSERVATION AND COASTAL MANAGEMENT ELEMENT

TABLE 6-2: EXISTING AND PROJECTED POTABLE WATER DEMAND

<u>YEAR</u>	<u>POPULATION</u>	<u>UNITS</u>	<u>GALLONS/UNIT/DAY</u>	<u>AVERAGE DEMAND</u> <u>(Gallons/Day)</u>
<u>1998</u>	<u>15,115</u>	<u>5,998</u>	<u>250</u>	<u>1,499,504</u>
<u>2000</u>	<u>17,153</u>	<u>6,775</u>	<u>250</u>	<u>1,693,750</u>
<u>2005</u>	<u>20,798</u>	<u>8,278</u>	<u>250</u>	<u>2,069,500</u>
<u>2010</u>	<u>24,449</u>	<u>9,476</u>	<u>250</u>	<u>2,369,000</u>

Source: Solin and Associates, Inc. 1999

Quantity of Available Water. According to the St. Johns River Water Management District SJRWMD adequate quantities of groundwater exist in both the Shallow and Floridan Aquifers to meet future water demands of the City of Sebastian as well as surrounding communities. Utilization of reverse osmosis water treatment systems will provide an unlimited amount of available water for residential, commercial, industrial and agricultural land uses. Potable water requiring only aeration and disinfection, however, is limited in quantity. Wells within the Sebastian area penetrate both aquifer systems.

The Indian River County Water Master Plan provides information on the transmissivity and well yields for the Shallow and Floridan Aquifers underlying Indian River County. Hydrologic properties of the Shallow Aquifer are relatively consistent in coastal areas of Indian River County. For the Shallow Aquifer, transmissivity (i.e., the measurement of water movement through geologic subsurface) ranges from approximately 20,000 to 50,000 gallons per day per foot. Wells drawing water from this aquifer typically yield between 200 and 1,100 gallons per minute (GPM). Wells penetrating the Floridan Aquifer generally exceed 1,000 GPM.

Analysis of Water Conservation, Use and Protection. The City of Sebastian participates in water conservation, use, and protection through programs and policies supported by the St. Johns River Water Management District (SJRWMD). Under Section 373.016, F.S., the SJRWMD and all other water management districts are required to "promote conservation, development, and proper utilization of surface and ground water." To accomplish this directive, the SJRWMD considers and establishes conservation in policy and rule development, public information programs, planning, and resource management and evaluation. Programs and policies of SJRWMD are enumerated below.

Water Shortage Plan. Section 373.246, F.S., delegates powers to the SJRWMD Governing Board to declare and implement water shortage warnings water use restrictions, and water shortages. To aid the Board in the decision-making process, the Water Management District develops a Water Shortage Plan with a purpose to provide for essential water uses such as medical care and fire protection, for instance. The City of Sebastian is the primary enforcement agent of the Water Shortage Plan.

- G. **Consumptive Use Rule.** The consumptive use rule established in Chapter 40C-1, F.A.C., requires water consumption criteria to be based on the reasonable and beneficial use of water. A reasonable and beneficial use dictates:

"The use of water in such quantity as is necessary for economic and efficient utilization for a purpose and in a manner which is both reasonable and consistent with the public interest."

Conservation measures are also witnessed through the use of a consumptive use permitting process which enables the SJRWMD to review certain proposed and existing developments for reasonable and beneficial use of water.

- H. **Wastewater Reuse Program.** The SJRWMD encourages the reuse of wastewater for irrigation purposes as a measure to conserve water. Incentives to install and utilize wastewater reuse facilities is provided in the Water Management District's permitting process for wastewater treatment facilities.

CITY OF SEBASTIAN

CHAPTER 5: CONSERVATION AND COASTAL MANAGEMENT ELEMENT

- I. **Abandoned Artesian Wells.** Included among the SJRWMD's conservation efforts is a program targeted at plugging unattended, free-flowing artesian wells. This program attempts to identify abandoned wells, seal them, and restore them to their natural hydrologic condition.
- J. **Public Education.** SJRWMD also promulgates information to the public concerning water conservation. Pamphlets, slide shows, speeches, and addresses made through media sources are a variety of ways in which the District educates and informs the public about water conservation.

Either Indian River County Utilities or on-site wells provide water to residents of Sebastian. In order to protect existing and future wellfield locations from possible future harmful impacts associated with development encroaching into these areas, the City of Sebastian should encourage Indian River County to establish a wellfield protection ordinance and program. At the present no such ordinance has been adopted. Such a program will help ensure future populations of Sebastian safe quantities of potable water within the surficial aquifer.

Existing and Projected Agricultural Water Demand. According to the Future Land Use Element there are no agricultural land uses within the City of Sebastian. No change in agricultural land uses is anticipated in the foreseeable future.

Existing and Projected Industrial Water Demand. According to the Indian River County Comprehensive Plan Potable Water Sub-Element, the existing and projected industrial demand for the North County area is and will continue to be 2,500 gallons per day (GPD) per gross acre. This amount is equivalent to approximately ten (10) dwelling units per acre based on Indian River County estimates of water consumption by industrial land use activities in the North County area, including the City of Sebastian. Based on existing and projected industrial acreage of 50 and 140 acres, respectively, the City's present and future industrial water demand will increase from 125,000 to 350,000 GPD by 2010.

City of Sebastian Coastal Resiliency Plan & Comprehensive Plan Amendments

JUNE 20, 2019



Sebastian, FL - Comprehensive Plan - Resiliency Update

Kimley»Horn

Agenda

Project Description: translating science and data into risk preparedness policy

- Introductions
- Review of State Legislation
- Review of Kimley-Horn Resiliency Plan Findings
- Draft Amendments to Sebastian Comprehensive Plan
- Future Resiliency Strategies for Consideration
- Questions and Comments

Sebastian, FL - Comprehensive Plan - Resiliency Update

Kimley»Horn

State Legislation 2015 Peril of Flood Act

Sebastian, FL - Comprehensive Plan - Resiliency Update

Kimley»Horn

2015 Peril of Flood Act

➤ Requires Florida coastal communities to address flood risks related to high-tide events, storm surge, flash floods, stormwater runoff, and sea-level rise in the coastal management element of the local government comprehensive plan.

➤ **Section 163.3178(2)(f), Florida Statutes** : "A redevelopment component that outlines the principles that must be used to eliminate inappropriate and unsafe development in the coastal areas when opportunities arise. The component must *include development and redevelopment principles, strategies, and engineering solutions that reduce the flood risk in coastal areas which results from high-tide events, storm surge, flash floods, stormwater runoff, and the related impacts of sea-level rise.*"

Sebastian, FL - Comprehensive Plan - Resiliency Update

Kimley»Horn

2019 City of Sebastian Coastal Resiliency Plan

Sebastian, FL - Comprehensive Plan - Resiliency Update

Kimley  Horn

2019 Resiliency Plan

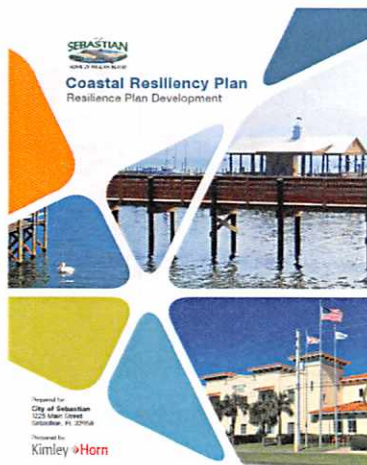


TABLE 6. POTENTIAL ADAPTATION STRATEGIES

Potential Adaptation Strategies	Ability to Increase Resilience	Cost and benefits	Community Acceptance	Environmental Impacts	Socio-economic Impacts
Canal Bank Inspections	●	●	●	●	●
Define Street and Structure Level of Service	●	●	●	●	●
Retrofit Outfalls with Inline Check Valve	●	●	●	●	●
Update Comprehensive Plan	●	●	●	●	●
Update Stormwater Master Plan	●	●	●	●	●
Raise Lift Station Electrical Controls	●	●	●	●	●

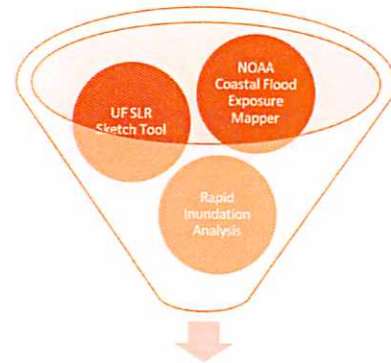
*Level of value to the City: ● = High ● = Medium ● = Low

Sebastian, FL - Comprehensive Plan - Resiliency Update

Kimley  Horn

2019 Resiliency Plan

- Prepared by Kimley-Horn in March 2019
- Vulnerability Assessment prepared to analyze the City's critical infrastructure in regards to multivariable coastal flooding including rainfall events, high tides, sea level rise, storm surge, and more.
- Development of an Adaptation Action Plan with both short term and long term strategies.



Actionable Strategies

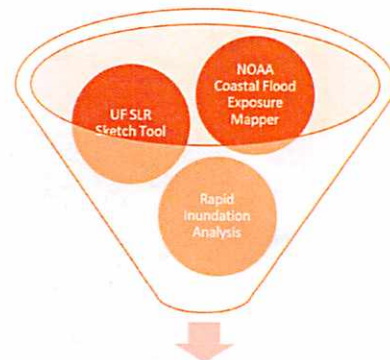
Sebastian, FL - Comprehensive Plan - Resiliency Update

Kimley»Horn

2019 Resiliency Plan

➤ Short Term Actions:

- Define existing street and structure levels of service.
- Locate and map all City outfalls.
- Retrofit outfalls with inline check valves to inhibit coastal flooding.
- Update the Comprehensive Plan Elements specific to Peril of Flood and analysis.



Actionable Strategies

Sebastian, FL - Comprehensive Plan - Resiliency Update

Kimley»Horn

Draft Amendments to the Comprehensive Plan

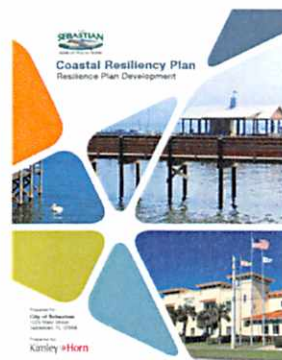
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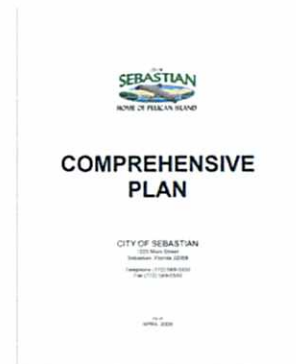
Draft Comprehensive Plan Amendments

Project Description:

To incorporate the Coastal Resiliency Plan into the Comprehensive Plan to increase the community's resilience to the peril of flood.



City of Sebastian
Coastal Resiliency Plan



City of Sebastian
Comprehensive Plan

Sebastian, FL - Comprehensive Plan - Resiliency Update

Kimley»Horn

Draft Comprehensive Plan Amendments

WHY?

- To reflect and reference the Coastal Resiliency Plan and its mitigation strategies
- To update elements with coastal development best practices and recognize the risk and potential impact of flooding
- To comply with updated Sections 163.3177 (Required and optional elements of Comprehensive Plan) and 163.3178 (Coastal Management), Florida Statutes, and the 2015 Florida Peril of Flood Act

Sebastian, FL - Comprehensive Plan - Resiliency Update

Kimley»Horn

Draft Comprehensive Plan Amendments

OVERVIEW:

Incorporated the findings of the Coastal Resiliency Plan into:

- Land Use Element (Chapter 1)
- Public Facilities Element (Chapter 4)
- Coastal Management and Conservation Elements (Chapters 5 and 6, respectively)

Sebastian, FL - Comprehensive Plan - Resiliency Update

Kimley»Horn

Draft Comprehensive Plan Amendments

OVERVIEW:

Incorporated the findings of the Coastal Resiliency Plan into:

- Land Use Element (Chapter 1) *12 Amendments to recognize Resiliency Plan*
- Public Facilities Element (Chapter 4) *8 Amendments to recognize Resiliency Plan*
- Coastal Management and Conservation Elements (Chapters 5 and 6, respectively) *Consolidation of 2 Chapters, 6 Objectives, 12 Policies into unified "Conservation and Coastal Management Element", Amendments to incorporate findings and strategies found within Resiliency Plan.*

Draft Comprehensive Plan Amendments

Coastal Management and Conservation Elements (Chapters 5 and 6, respectively)

- Consolidation of into unified "Conservation and Coastal Management Element"
- Amendments to incorporate findings and strategies found within Resiliency Plan
- Unified element is both *more functional and readable*
- Updated to rectify invalid cross-references or element references
- Deletion and/or modification of dates to reflect land development code updates
- Results in 6 fewer objectives, 12 fewer policies, 10 fewer pages

Draft Comprehensive Plan Amendments

Ch. 5 Coastal Management and Conservation Elements

- (New) "Conservation and Coastal Management Element" Title; brief explanation added in beginning to explain that the two chapters were consolidated into one element
- (New) Goal 5-1 to encompass the goals of both coastal management and conservation
- (Edit) Obj. 5-1.1: added in "Fisheries" and "Wildlife" to title because of policies integrated in; merged in Obj. 6-1.8 language (merged because both talked about protecting wildlife habitats)
 - (Edit) Policy 5-1.1.1: Policy 6-1.2.10 merged with it (similar language about land development regulations in regard to lakes and estuarine areas) and also merged Obj. 6-1.4 and Policy 6-1.4.1 with it (similar language of wetland development restrictions)
 - (Edit) Under this Objective added in Policy 6-1.4.3, 6-1.4.3, 6-1.4.5 (protecting wetlands)
 - (Edit) Removed Policy 5-1.1.3 and relocated it under the now Objective 5-1.5 (estuarine shoreline language)
 - (Edit) Policy 5-1.1.6 (was 5-1.1.4): added in Resiliency Plan language; removed SWIM language (not applicable); merged Policy 6-1.2.1 (based on matrix recommendation and language regarding water quality management criteria); also relocated the now Policy 5-1.5.2g (was Policy 5-1.2.1(2)f) language to include estuarine water quality (exact words and repeating info)

Sebastian, FL - Comprehensive Plan - Resiliency Update

Kimley»Horn

Draft Comprehensive Plan Amendments

Ch. 5 Coastal Management and Conservation Elements (continued)

- (Edit) Under this Objective added in Policy 6-1.7.5 (protection of manatee habitats follows objective title)
- (Edit) Under this Objective added in Policy 6-1.8.1, 6-1.8.2, 6-1.8.3 (similar language on protection of wildlife)
- (Edit) Moved Obj. 6-1.7 (now titled Obj. 5-1.2) to follow Obj. 5-1.1 as they are similar in discussing the protection of marine habitats. All of the policies were moved with Obj. 6-1.7 except Policy 6-1.7.5 (Policy 6-1.7.5 was moved under Obj. 5-1.1).
- (Edit) Moved Objective 6-1.2 to be next in sequence (now titled Obj. 5-1.3) based on the recommendations in matrix to integrate with Obj. 5-1.1. It was maintained separately but relocated closer to the previous objectives with similar language. All of the policies were moved with Obj. 6-1.2 except Policy 6-1.2.1 (merged with Policy 5-1.1.4, now 5-1.1.6), Policy 6-1.2.4 (moved under the now Objective 5-1.5 due to shoreline language), Policy 6-1.2.10 (merged with Policy 5-1.1.1) which were moved to other objectives in order to better integrate similar language together. Also, Policy 6-1.2.11 was deleted based on references to SWIM.
 - (New) Policy 5-1.3.8 Best Management Practices: created to incorporate recommendations from Coastal Resiliency Plan

Sebastian, FL - Comprehensive Plan - Resiliency Update

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Draft Comprehensive Plan Amendments

Ch. 5 Coastal Management and Conservation Elements (continued)

- (Edit) Moved Obj. 6-1.1 next in sequence (is now titled Obj. 5-1.4) based on language - air quality which is similar language with previous objective; All of Obj. 6-1.1 policies were relocated within the Obj.
- (Edit) Objective 5-1.2 is now titled Obj. 5-1.5 and Objective 6-1.9 was merged with it (Policy 6-1.9.1 was integrated and it is now under this objective as Policy 5-1.5.7).
 - (Edit) Policy 5-1.2.1(2) is now titled Policy 5-1.5.2 and Policy 6-1.4.2 was merged with it (wetland transition areas).
 - (Edit) Merged Policy 6.13.1 with Policy 6.1.8.4 (both about estuarine shoreline) and it is now titled Policy 5-1.5.3 added under this objective.
 - (Edit) Policy 6-1.8.5 moved under this objective and merged with Policy 5-1.5.2 (which used to be Policy 5-1.2.1(2)) (same estuarine shoreline land use language).
 - (Edit) Policy 5-1.1.3 (is now titled Policy 5-1.5.4) moved under this objective based on content (estuarine shoreline).
 - (Edit) Policy 6-1.13.2 (now title Policy 5-1.5.5) and Policy 6-1.13.3 (now title Policy 5-1.5.6) both added under this Objective because talking about shoreline.

Sebastian, FL - Comprehensive Plan - Resiliency Update

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Draft Comprehensive Plan Amendments

Ch. 5 Coastal Management and Conservation Elements (continued)

- (Edit) Obj. 5-1.3 is now titled Obj. 5-1.6; added in language of F.S.
 - (Edit) Policy 5-1.3.1 is now titled Policy 5-1.6.1; added in language from Resiliency Plan.
- (Edit) Obj. 5-1.4 is now title Obj. 5-1.7; added in resiliency language.
 - (Edit) Policy 5-1.4.1 is now titled Policy 5-1.7.1; added in Resiliency Plan language and F.S. language.
- (Edit) Obj. 6-1.3 was added in here and is now titled Obj. 5-1.8.
 - (Edit) Policy 6-1.3.1 is now titled Policy 5-1.8.1; added in Resiliency Plan language.
 - (Edit) Policy 6-1.3.2 is now titled Policy 5-1.8.2.
- (Edit) Obj. 5-1.5 is now titled Obj. 5-1.9; added in Resiliency Plan language.
 - (Edit) Policy 5-1.5.1 is now titled Policy 5-1.9.1; added in Resiliency Plan language.
- (Edit) Obj. 5-1.6 is now titled Obj. 5-1.10 (all policies relocated with Obj. and are relabeled).
- (Edit) Obj. 5-1.7 is now titled Obj. 5-1.11 (all policies relocated with Obj. and are relabeled).
- (Edit) Obj. 5-1.8 is now titled Obj. 5-1.12 (all policies relocated with Obj. and are relabeled).

Sebastian, FL - Comprehensive Plan - Resiliency Update

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Draft Comprehensive Plan Amendments

Ch. 5 Coastal Management and Conservation Elements (continued)

- (Edit) Obj. 5-1.9 is now titled 5-1.13 (all policies relocated with Obj. and are relabeled).
- (Edit) Obj. 6-1.5 is added here and is now titled Obj. 5-1.14 (moved here so all one chapter) (all policies moved over with Obj. and are relabeled).
- (Edit) Obj. 6-1.6 relocated and is now titled Obj. 5-1.15 (moved as one chapter) (all policies moved over with Obj. and are relabeled).
- (Edit) Obj. 6-1.10 relocated and is now titled Obj. 5-1.16 (moved as chapter) (all policies moved over with Obj. and are relabeled).
- (Edit) Combined Objective 6-1.11 with Obj. 5-1.10 and it is now titled Obj. 5-1.17 (included policies were repetitive – updated language to reflect for both coastal management and conservation).
- (Edit) Combined Obj. 6-1.12 and Obj. 5-1.11 and it is now titled Obj. 5-1.18 (included policies were repetitive– updated language to reflect for both coastal management and conservation).

Sebastian, FL - Comprehensive Plan - Resiliency Update

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Example Amendments

“Also, the City shall direct population concentrations away from known areas that are vulnerable to flooding inundation and sea level rise as established in the City of Sebastian, Coastal Resiliency Plan, Prepared By: Kimley-Horn and Associates, Inc., March 2019. Development principles and strategies that eliminate unsafe development in the CHHA must be used as defined by §163 3178(2)(t) F.S.”

“This includes the incorporation of the mitigation strategies that are outlined in the City of Sebastian, Coastal Resiliency Plan, Prepared By: Kimley-Horn and Associates, Inc., March 2019. The impacts of future sea level rise and combined rain events may cause more flooding and level of service violations and water quality issues that require best management practices to be devised. Given the hydrology of the area, the city shall develop a pollutant load model as recommended in the Coastal Resiliency Plan. There shall also be the consideration of hardening the pump -stations based on their criticalities.”

“The threats of sea level rise and flooding could also have potential negative impacts to public facilities. Development and redevelopment strategies should be used to reduce flood risk in these areas as defined in §163. 3178(2), F.S. Mitigation strategies, such as defining existing street and structure flooding levels of service, are provided in the City of Sebastian, Coastal Resiliency Plan, Prepared By Kimley-Horn and Associates, Inc., March 2019.”

Sebastian, FL - Comprehensive Plan - Resiliency Update

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Impact of Amendments

THE RESULTS

- Proposed amendments assist in better reflecting the threats of flooding and sea level rise while simultaneously improving the Comprehensive Plan's organization and structure
- Efforts integrate resiliency into the Comprehensive Plan – minimizing the threat of future inundation through best practices and the identification of vulnerabilities



Future Comprehensive Plan Resiliency Strategies for Consideration

Future Strategies

HOLISTIC LAND USE STRATEGIES TO BE CONSIDERED DURING FUTURE COMPREHENSIVE PLAN UPDATE

- Strategy 1: Establish an Adaptation Action Area (AAA) with specific land development regulations
- Strategy 2: Establish a Transfer of Development Rights (TDR) Program with sending and receiving zones

Future Strategies

Strategy 1: Establish an Adaptation Action Area (AAA)

- An AAA is an overlay district that covers parts of the City vulnerable to the impacts of flooding and future sea level rise
- Adopt this overlay district based on the data, analysis, and modeling outlined in the Coastal Resiliency Plan
- Development within this overlay district must comply with coastal development best practices including but not limited to Flood Resistant Design and Construction Engineering Solutions, Low Impact Development techniques that utilize vegetation and natural features to minimize surface runoff and reduce flood risk.



Future Strategies

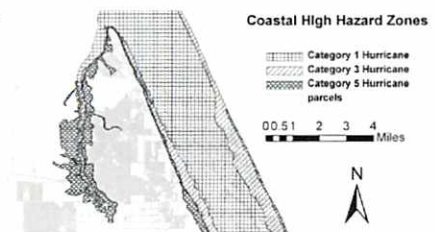
Strategy 1: Establish an Adaptation Action Area (AAA)

- Example Objective: Establish an Adaptation Action Area Overlay District. To minimize future risk, the City shall establish an Adaptation Action Area Overlay District for areas that are vulnerable to coastal flooding and the impacts of sea level rise, based on the data and modeling outlined within the Coastal Resiliency Plan, Kimley-Horn and Associates, March 2019 and compliant with § 163. 3178, F.S..
- Example Policy: Within the Land Development Code, the City of Sebastian shall establish criteria for Low Impact Design and Flood Resistant Design for new development and redevelopment within the AAA.

Future Strategies

Strategy 2: Establish a Transfer of Development Rights (TDR) Program

- Use established Coastal High Hazard Area (CHHA) or proposed AAA Overlay District to create a "sending zone" for development rights to less vulnerable areas designated as "receiving zones".
- Development rights in vulnerable lowland and wetland areas could be sold to upland areas
- Allows development at higher densities in low risk areas and encourages less intense development in floodplains
- Incentivizes preservation of floodplain without takings



Future Strategies

Strategy 2: Establish a Transfer of Development Rights (TDR) Program

- Example Objective: Establish a Transfer of Development Rights Program. The City shall establish a Transfer of Development Rights program to incentivize the preservation of natural resources within vulnerable areas identified within the Coastal Resiliency Plan, Kimley-Horn, March 2019.
- Example Policy: The City shall designate parcels within the established Coastal High Hazard Area (CHHA) as a sending zone for development rights, and parcels outside of the established CHHA as receiving sites for density and intensity transferred through the TDR program.

City of Sebastian Coastal Resiliency Plan & Comprehensive Plan Amendments Questions and Comments

JUNE 20, 2019





COMMUNITY DEVELOPMENT DEPARTMENT
1225 MAIN STREET ■ SEBASTIAN, FLORIDA 32958
TELEPHONE (772) 589-5518 ■ www.cityofsebastian.org

DATE: June 20, 2019
TO: Local Planning Agency
FROM: Community Development Department
RE: Coastal Resiliency Comprehensive Element Text Changes

The City of Sebastian has completed the Coastal Resiliency Plan in accordance with Task 1 of the FDEP Florida Resilient Coastlines Funding. Task 2 requires an update to the respective Elements of the City's Comprehensive Plan in accordance with statutory requirements of the Peril of Flood Act relating to coastal flooding and sea level rise. An assessment of vulnerability of various aspects of land-use, assets, society and ecosystems to certain hazards was made with the end goal of enhancing resiliency through modifications to the Goals, Objectives, and Policies (GOPs) of the applicable elements of the comprehensive plan.

The three elements, Coastal Management, Conservation and Public Facilities, have not been updated since 1999. Major modifications are required of the entire Comprehensive Plan prior to October 2020. Therefore, the City is only reviewing these elements in accordance with the FDEP Grant requirements (**Due by June 30, 2019**) which are related to Coastal Resiliency. These **Draft GOP's** will be incorporated into the final version which we will begin working on throughout this next year. Final GOP's will be approved by the City Council and the DEO once we complete the update to the Data, Inventory and Analysis (DIA).

The results from the Coastal Resiliency Plan indicate that a majority of the City's infrastructure does not appear to be at risk from sea level rise and only some infrastructure is at risk during major rain events. Potential adaptation strategies and timelines to consider were presented as follows:

- **Short Term**
 - ✓ Update Comprehensive Plan
 - ✓ Define existing flooding levels of service – streets
 - ✓ Locate and map all City outfalls – retrofit with tide valve
 - ✓ Discuss potential of early warning systems for elderly
- **Long Term**
 - ✓ Re-evaluate bulkhead/sideslope inspections; detailed surveying
 - ✓ Update Stormwater Master Plan
 - ✓ Coordinate with County to prioritize hardening of lift stations

The Kimley-Horn team has incorporated the findings of the City of Sebastian, Coastal Resiliency Plan, prepared by Kimley-Horn and Associates, Inc., March 2019 into the Land Use Element (Chapter 1), Public Facilities Element (Chapter 4), and the Coastal Management and Conservation Elements (Chapters 5 and 6, respectively) of the City's Comprehensive Plan. The amendments pertain primarily to coastal resiliency and sea level rise, including those recommendations incorporated in the Coastal Resiliency Plan. Additionally, there has been the consolidation of redundant/repetitive policies and objectives allowing for a merger of the two elements, Coastal Management and Conservation, into a new element titled "Conservation and Coastal Management Element". This results in a much more functional, readable, and usable unified element incorporating the recommendations of the Coastal Resiliency Plan. In summary, the consolidation resulted in six (6) fewer objectives and twelve (12) fewer

policies. A summary of the changes that were made to create the new Conservation and Coastal Management Element are as follows.

- Modifications to objectives discussing habitat protection for policy consolidation
- Inclusion of resiliency plan references, data, and analyses to objectives regarding the CHHA, floodplain, evacuation plans, and redevelopment and development in vulnerable areas
- Updates due to amendments in Florida Statutes
- Updates to rectify invalid cross-references or element references
- Deletion and/ or modification of dates and “shall” clauses in policies to reflect land development code updates (these were vetted at length to confirm the land development code reflected the direction provided). These now read as “shall continue to require” or “shall maintain”.
- Text updates to incorporate the resiliency plan and support its implementation

These changes were important to better reflect the threats of flooding and sea level rise and the importance of resiliency measures while also improving the organization and flow of the Comprehensive Plan. The reorganization of the Conservation and Coastal Management Elements into one element is recommended to address similar topics/subjects in a more succinct manner. A comprehensive matrix of changes has been included within this package.

For your information, the following is an excerpt from the City Land Development Code Sec. 54-1-2.9 – *Procedures for amending the comprehensive plan.*

“Planning and Zoning Commission Review. The Planning and Zoning Commission,, shall hold a public hearing thereon.....In deliberating, the Commission shall consider the following:

- 1.**Consistency with Other Elements of Plan.** Whether the proposal is consistent with the other elements of the comprehensive plan. The commission shall identify any inconsistencies.
- 2.**Conformance with Ordinances.** Whether the proposal is in conformance with any applicable substantive requirements of the City of Sebastian Code of Ordinances, particularly the Land Development Code, and/or whether the proposed amendment will require amendments to any ordinances of the City.
- 3.**Changed Condition.** Whether, and the extent to which, land use and development conditions have changed since the effective date of the existing regulations involved which are relevant to the proposed amendment.
- 4.**Land Use Compatibility.** Whether, and the extent to which, the proposal would result in any incompatible land uses, considering the type and location of uses involved.
- 5.**Adequate Public Facilities.** Whether, and the extent to which, the proposal would result in public facilities and services exceeding the capacity for such services and facilities existing or programmed, including transportation, utilities, drainage, recreation, education, emergency services and similar necessary facilities and services.
- 6.**Natural Environment.** Whether, and the extent to which, the proposal would result in significantly adverse impacts on the natural environment.
- 7.**Economic Effects.** Whether, and the extent to which, the proposal would adversely affect the property values in the area, the general health, safety and welfare and impact the financial resources of the City.
- 8.**Orderly Development.** Whether the proposal would result in an orderly and local development pattern. Any negative effects on such patterns shall be identified.
- 9.**Public Interest Enabling Act.** Whether the proposal would be in conflict with the public interest, and whether it is in harmony with the purpose and intent of this chapter and its enabling legislation.
- 10.**Other Matters.** Other matters which the Planning and Zoning Commission may deem appropriate.”

Policy 1-1.1.3: Density Defined. Maximum gross residential density shall be determined by dividing the “maximum allowable units” by the “gross land area” (i.e., dwelling units/gross land area). All residential densities denoted on the Future Land Use Map stipulate the maximum gross densities permitted for development on the land. Gross land area shall be defined as those contiguous land areas under common ownership proposed for residential development. In cases where residential land abuts waters of the State, the boundary shall be delineated as established by the State and no density credit shall be granted for waters of the State. In cases where residential land abuts other natural floodplains or wetlands, the land development regulations shall provide performance standards and/or criteria which may further restrict the character of land for which density credit may be granted. The intent is to allocate density credits only to those lands which are buildable pursuant to urban design criteria. These criteria shall be incorporated within the land development regulations. Mitigation strategies, identified in the City of Sebastian, Coastal Resiliency Plan, Prepared By: Kimley-Horn and Associates, Inc., March 2019, are provided in the Conservation & Coastal Management Element.

Density is expressed in terms of a range up to a specified maximum. Where so stated as a range, the maximum density is not guaranteed by right. Subdivision, zoning and site plan review criteria and procedures shall assure that specific density assigned to new development is compatible and consistent with established residential development patterns and provides equitable use of the land. Criteria to be considered in allocating density shall include, but not be limited to, the following:

- a. Protect the integrity and stability of established residential areas;
- b. Assure smooth transition in residential densities;
- c. Require application of sound landscaping and urban design principles and practices;
- d. Protect environmentally sensitive areas;
- e. Minimize the impact of flood hazards;
- f. Coordinate with Indian River County as well as appropriate state and regional agencies charged with managing land and water resources; and
- g. Provide reasonable use of the land.

and services; highway oriented sales and services; and other general commercial activities defined in the land development regulations. General commercial designations are located in highly accessible areas, adjacent to major thoroughfares. The maximum intensity of general commercial development measured in floor-to-area ratio is 0.6.

Policy 1-1.4.3: C.R. 512 Commercial (C-512). The purpose of the commercial C.R. 512 corridor is to accommodate retail sales and services and other commercial activities and community facilities that are compatible with nearby residential areas. This land use designation expressly excludes vehicular sales and services; bars and lounges; parking garages; enclosed and unenclosed commercial amusements; indoor theaters; merchandising of second-hand goods, including flea markets, wholesale trades and services; industrial uses or outside storage activities, or any other activities which may generate nuisance impacts such as glare, smoke, other air pollutants, noise, vibration, fire hazard, or other adverse impacts associated with more intense commercial and industrial activities. The maximum intensity of commercial development measured in floor-to-area ratio is 0.5.

Policy 1-1.4.4: Riverfront Mixed Use (RMU). The Riverfront Mixed Use designation is intended to provide a mixture of residential, commercial, recreational, and institutional uses in the Riverfront District. Development and redevelopment in this designation is at risk of potential flooding and sea level rise impacts per the City of Sebastian, Coastal Resiliency Plan, Prepared By: Kimley-Horn and Associates, Inc., March 2019. The City anticipates that by 2025, the mix of uses in RMU will be 25% residential; 20% institutional/recreational, and 55% commercial. The maximum intensity for commercial development and institutional/recreational uses shall be 0.6 FAR. The allowable residential uses are single family, duplexes, multiple-family up to eight (8) units per acre, and commercial resort residential uses.

Policy 1-1.4.5: General Pattern of Commercial Land Use. In order to promote efficient flow of traffic along major thoroughfares cited in the Traffic Circulation Element, achieve orderly development and minimize adverse impact on residential quality, commercial development shall be concentrated in strategically located areas having location characteristics which best accommodate specific land, site, public facilities and market location requirements of their respective commercial uses.

Similarly, proliferation of strip commercial development shall not be extended. The existence of commercial areas on one corner of an intersection shall not dictate the development of all corners with the same or similar use; nor does the existence of commercial development on a major thoroughfare dictate that all frontages must be similarly used.

Policy 1-1.4.6: Allocating Commercial Land Use. The allocation and distribution of

Objective 1-1.7: CONSERVATION LAND USE. The Conservation land use category identifies lands that are environmentally fragile natural resources for long term preservation. It is vital to redirect population and public expenditures away from these areas so that future development and redevelopment does not occur, as defined in §9J-5.003(30), FAC. This designation may be impacted by flooding and sea level rise predictions forecasted in the City of Sebastian, Coastal Resiliency Plan, Prepared By: Kimley-Horn and Associates, Inc., March 2019. Further descriptions of the conservation land use category can be found in the Conservation & Coastal Management Element of this text. The protection and preservation of conservation resources shall be achieved through the implementation of the following policies:

Policy 1-1.7.1: Conservation Designation (CON). It is the intent of the "Conservation" land use designation to provide for the long term protection and preservation of environmentally sensitive natural resource systems. If it is impractical to designate the area containing conservation resources as Conservation due to size, location, or other factors, the City shall have the option of obtaining a conservation easement from the property owner(s) to protect the area. Areas covered by a conservation easement shall be treated the same as areas designated as Conservation on the FLUM. Development is limited within "Conservation" designated areas to accessory uses only, except where State and/or federal agencies having jurisdiction allow development rights. The applicant shall bear the burden of proof in determining that development shall not adversely impact conservation resources. Site alteration should be limited to accessory structures that support the conservation use (i.e. park pavilions, classroom space, park ranger office/equipment, etc. The maximum intensity of development activity measured in floor to-area ratio is 0.25 FAR.

Policy 1-1.7.2: Acquisition: The City shall support the acquisition of natural areas or open space through publicly funded programs, including the acquisition and development of facilities that promote and educate the public about the economic, cultural and historic heritage of the City.

Policy 1-1.7.3: Allocation of Conservation Land Use. The City shall monitor the Future Land Use Map to ensure the application of Conservation Land Use to applicable properties. This includes taking into consideration flood prone areas or areas subject to sea level rise based on the City of Sebastian, Coastal Resiliency Plan, Prepared By: Kimley-Horn and Associates, Inc., March 2019.

GOAL 1-2: FUTURE ALLOCATION OF LAND USE. THE CITY SHALL ENSURE THAT THE CHARACTER AND LOCATION OF LAND USES INCORPORATE BEST MANAGEMENT PRACTICES AND PRINCIPLES OF RESOURCE CONSERVATION, PROMOTE ORDERLY LAND USE TRANSITION, AND MINIMIZE THREATS TO HEALTH, SAFETY, AND WELFARE.

Objective 1-2.1: PLAN AND DESIGN FOR RESIDENTIAL QUALITY. Residential

etc.; develop a mixture of uses and a variety of opportunities for recreational, residential and commercial uses; encourage progress while protecting property rights; and protect the environment while fostering compatible uses. The land development regulations shall encourage a mix of uses and enforce the "Old Florida Fishing Village" design theme within the Riverfront CRA.

Policy 1-2.9.3: Public and Private Sector Partnerships. The City shall coordinate redevelopment issues with the private sector in promoting mobilization of public and private resources necessary to effectively carry out redevelopment efforts, especially along the Indian River Drive corridor which borders the Indian River Lagoon.

Policy 1-2.9.4: Code Enforcement Activities. Code enforcement activities shall be continued as an integral part of the City's regulation programs. The code enforcement program shall preserve and protect structurally sound land improvements and land uses consistent with the Comprehensive Plan.

Policy 1-2.9.5: Preserving Riverfront Access. River access, either through boat ramps, docks and piers or through walkways, scenic easements or breezeways, is a treasure to be enjoyed by all of the citizens of Sebastian. The City shall continue to develop programs and identify funding sources to acquire access to the river. Sea level rise and flooding should be considered in low-lying areas when considering use of public funds to acquire access to the river as defined in §163.3178(1), F.S.

Policy 1-2.9.6: Preservation of Existing Assets within the Riverfront. The protection, restoration, and enhancement of existing assets, including historical structures, is important in implementing the "Old Florida Fishing Village" theme. The City shall continue to enforce the procedures and ordinances adopted for this purpose. By 2010, the City shall develop programs and identify funding sources to protect, restore and enhance the historical structures in the Riverfront District. Sea level rise and flooding should be considered in low-lying areas in regard to limiting the use of public funds to achieve these goals as defined in §163.3178(1), F.S.

Policy 1-2.9.7: Reinforce and Enhance Appearance of City Gateways along the US 1 and CR 512 Corridors. The City, together with the private sector, shall continue to introduce landscaping and urban sign amenities along gateways to the City particularly the US 1 and CR 512 corridors. Such enhancement shall include application of community appearance criteria which reinforces good principles of design as well as preserving unique characteristics and open space for scenic vistas. The gateway improvements shall also address the implementation of uniform streetscape amenities, enhanced signage and intersection improvements.

the land use element analysis of vacant lands) in order to protect and/or conserve natural systems, including topography, soil conditions, vegetation, natural habitat, and other environmentally sensitive land and water resources. Land use shall also be predicated on availability of man-made infrastructure and service systems required to support respective land use activities.

Policy 1-3.2.1: Future Land Use Map and Related Policies. The Future Land Use Map and related policies identified in section 1-2 "Future Land Use Map," provide definitions of land use designations and qualitative standards which shall be applied in allocating future land uses.

Policy 1-3.2.2: Land Development Regulations. The City's existing land development code governing zoning; subdivision; signage; landscaping and tree protection; and surface water management shall be revised as needed in order to: 1) effectively regulate future land use activities and natural resources identified on the Future Land Use Map; 2) adequately protect property rights; and 3) implement the goals, objectives, and policies stipulated in the Comprehensive Plan. The land development regulations shall continue to be applied to:

- a. Regulate the subdivision of land;
- b. Regulate the uses on land and in water consistent with this Element, ensure the compatibility of adjacent land uses, and provide for open space;
- c. Protect the environmentally sensitive lands designated in the Comprehensive Plan, especially wetlands which shall be identified based on presence of hydric soils including but not limited to: Chore, loamy fine sand, Pineda fine sand, Floridana sand, Malabar fine sand, Myakka fine sand depressional, Holopaw fine sand, Pompano fine sand, and Riviera fine sand. In addition, wetlands may be identified by wetland vegetative species as presented in Rule 17-4.022, FAC, or as may hereafter be amended. Additional lands, including areas subject to seasonal and periodic flooding, may be subject to development standards based on the data from the City of Sebastian, Coastal Resiliency Plan, Prepared By: Kimley-Horn and Associates, Inc., March 2019;
- d. Regulate areas subject to seasonal and periodic flooding and provide for drainage and stormwater management. Additional lands may be subject to development standards based on the data from the City of Sebastian, Coastal Resiliency Plan, Prepared By: Kimley-Horn and Associates, Inc., March 2019;
- e. Protect aquifer recharge functions and areas;
- f. Regulate signage;
- g. Ensure safe and convenient on-site and off-site traffic flow and vehicle parking needs;

- h. Dedication, acquisition and development of future rights-of-way as identified in the programmed engineered master plan for the City's major thoroughfares; and
- i. Provide that development orders and permits shall not be issued which result in a reduction of levels of services for impacted public facilities below the levels of service standards which shall be adopted by the City Council.

Policy 1-3.2.3: Standards for Residential Density. Existing land development regulations shall be applied for purposes of implementing this Comprehensive Plan. Residential development standards shall be based on and be consistent with the densities indicated in the corresponding Policies.

Policy 1-3.2.4: Non-Residential Development Standards. Land development regulations addressing the location and extent of non-residential land uses shall continue to be enforced in a manner with the Future Land Use Map and the policies and descriptions of types, sizes, and intensities of land uses contained in this Element.

Policy 1-3.2.5: Performance Standards. The following performance standards incorporated in the land development code shall be updated and refined as needed to reflect best management principles and practices. This includes management principles and practices that protect areas vulnerable to sea level rise and periodic/seasonal flooding. Plan review shall be carried out by the Department of Growth Management and the City Engineer, using as needed other professionals with demonstrated expertise in the issue under review.

- a. Provide criteria for protecting wetlands;
- b. Establish open space requirements;
- d. Provide criteria for drainage and stormwater management;
- e. Incorporate criteria for requiring off-street parking and managing internal traffic circulation as well as access to and egress from the street system;
- f. Mandate availability of requisite services and infrastructure;
- g. Stipulate criteria for perimeter screening and buffering land uses and facilities which may otherwise adversely impact development of adjacent land use;
- h. Establish standards for erosion and sedimentation control;
- i. Address historically significant properties meriting protection.
- j. Require an assessment of the environmental impact of development during major site plan review and stipulate appropriate performance criteria in the Land Development Code.

GOAL 1-4: RESOURCE PROTECTION. THE CITY SHALL SEEK TO MAINTAIN AND MANAGE THE CITY'S NATURAL AND MAN-MADE RESOURCES BY ESTABLISHING A PATTERN OF DEVELOPMENT THAT IS HARMONIOUS WITH THE CITY'S NATURAL ENVIRONMENT AND QUALITY OF LIFE.

Objective 1-4.1: COASTAL HIGH HAZARD MITIGATION AND HURRICANE EVACUATION PLANS. The land development regulations shall include administrative procedures which ensure that any development order approved by the City impacting population density within the coastal area is coordinated with the Indian River County Hurricane Evacuation Plan and applicable regional or State hurricane evacuation plans. Additionally, the City shall eliminate uses that are inconsistent with any interagency hazard mitigation report deemed appropriate by the City. The City shall consider the findings of the City of Sebastian, Coastal Resiliency Plan, Prepared By: Kimley-Horn and Associates, Inc., March 2019 in updates to the Coastal High Hazard Mitigation and Hurricane Evacuation Plans. This objective shall be measured through implementation of the following policies.

Policy 1-4.1.1: Interagency Hazard Mitigation Reports. Interagency hazard mitigation report shall mean the recommendations of a team of federal, state, regional, or local officials which address measures to reduce the potential for future flood losses and which is prepared in response to a Presidential Disaster Declaration.

Policy 1-4.1.2: Coordinate Hazard Mitigation Reports with Development and Redevelopment. In the event that Sebastian is included in a Presidential Disaster Declaration, the City shall use the interagency hazard mitigation report as the basis for prohibiting redevelopment of uses which are inconsistent with the report recommendations. Additionally, the City shall use the interagency hazard mitigation report to prevent new uses which are inconsistent with the report recommendations from locating in the area included in the Presidential Disaster Declaration. Finally, should an interagency hazard mitigation report be issued for Sebastian, the City shall consider adopting a program for eliminating existing uses which are inconsistent with the report recommendations.

Objective 1-4.2: PROTECTION OF ARCHAEOLOGICAL AND HISTORIC RESOURCES. The City shall establish procedures for identification and protection of historic properties and structures within the City and to provide for protection of archaeological sites.

Policy 1-4.2.1: Development Impacts. Beginning in January 2009, the City shall require development applicants to demonstrate measures to mitigate the adverse impacts of the proposed development on historic or archaeological site or structure identified in the adopted Comprehensive Plan. As a minimum, the plan shall identify precautions to be taken to prevent the following adverse impacts:

- Destruction or alteration of all or part of such site;
- Isolation from, or alteration of the surrounding environment;
- Introduction of visual, audible, or atmospheric elements that are out of character with a property or alter its setting;

- Vegetation removal shall not be permitted on a historic or archaeological site unless the vegetation to be removed is a part of a duly authorized scientific excavation, or is a part of an approved development plan;
- Transfer or sale of the site of significance without adequate conditions or restrictions regarding preservation, maintenance, use or re-use; and
- Other forms of neglect resulting in resource deterioration.

Policy 1-4.2.2: Programming for Archaeological and Historic Sites. The City shall coordinate with the State in developing programs for implementing City and State policies for identifying, preserving, and enhancing sites of historical and/or archaeological significance. Programs for identification, evaluation of relative significance, protection, preservation, and enhancement shall be promoted, utilizing available public resources at the local, State, and Federal level as well as available private sector resources.

Objective 1-4.3: PROTECTION OF NATURAL RESOURCES. The City shall maintain land development regulations which ensure that development and conservation activities shall protect natural resources as directed by the below stated policies. Implementation standards should be adopted by the City specific to the mitigation portion of the City of Sebastian, Coastal Resiliency Plan, Prepared By: Kimley-Horn and Associates, Inc., March 2019.

Policy 1-4.3.1: Managing Environmentally Sensitive Lands. The City shall maintain land development regulations that protect natural resources, such as, groundwater, surface water, floodplains, wildlife habitat, wetlands and other vegetative communities, from the impact of development. Additionally, the City will limit development in areas that have inadequate soils, topography or other constraints to protect public health and welfare. Wetland preservation shall be consistent with the requirements and regulations of the St. Johns River Water Management District, FDEP, and the Corps of Engineers.

Policy 1-4.3.2: Natural Systems. The City shall maintain regulations for managing environmentally sensitive natural systems, including, but not limited to, the Indian River Lagoon, the Sebastian River, Schumann Lake, Lake Hardee, Collier Creek, the Elkcam Waterway, and other environmentally sensitive resources

Policy 1-4.3.3: Protect Habitats of Flora and Fauna Having Special Status. The habitat of rare, endangered, and threatened species of flora and fauna and others having special status as identified in the Conservation Element shall be protected.

Policy 1-4.3.4: Aquifer Recharge. The City shall establish an aquifer recharge ordinance, which would provide incentives for developers to minimize impervious surfaces in prime recharge areas.

Objective 1-4.5: CONSIDER APPLICATION OF INNOVATIVE LAND AND WATER RESOURCE MANAGEMENT AND ENERGY CONSERVATION CONCEPTS.

The City of Sebastian shall continue to maintain land development regulations which incorporate concepts for managing land and water resources which are responsive to unique development and conservation issues identified in the City's Comprehensive Plan.

Policy 1-4.5.1: Incorporate Innovative Techniques in the Land Development Regulations. The City's land development regulations shall continue to incorporate land and water resource management techniques, which have been demonstrated to be successful and cost effective in resolving development and conservation issues such as surface water management, soil erosion and sedimentation control, land clearing and excessive tree removal, loss of native plants and wildlife habitat, and conservation of water supply. Implementation standards are encouraged to be adopted by the City specific to the mitigation portion of the City of Sebastian, Coastal Resiliency Plan, Prepared By: Kimley-Horn and Associates, Inc., March 2019.

Policy 1-4.5.2: Use of Energy. Site planning standards shall be adopted which require and/or provide incentives to developers to incorporate energy conservation measures in site layout and design. Promote practices that ensure that each form of energy is used to do work for which it is best suited. Recognize the energy services provided by natural features of the environment including landscape, sun and wind, and promote site development and resource management that complements or substitutes for energy-intensive technologies.

Policy 1-4.5.3: Energy Efficient Land Development. Land development regulations shall continue to promote energy efficient land development. Recognize the relative energy dependency of commercial and industrial land uses and consider energy dependency in any policy pertaining to new industry promotion strategies or policy concerning maintenance or expansion of existing industry or commerce. Encourage land use patterns that by location, scale; and design minimize long-term energy commitments to construction, operation, maintenance, and replacement. Encourage natural resource conservation and utilization in ways that are consistent with sound energy management principles.

Policy 1-4.5.4: Coordination of Energy Management. The City shall participate in regional, State, or local initiatives directed at coordinating energy management within the public and private sectors. These tasks may include joint formulation of energy related decisions with concerned federal, state, regional, and County agencies as well as with concerned private entities. Such activities shall be directed toward maximizing awareness of energy related problems, issues, alternative techniques for resolving energy related problems and issues, and to identify future areas

Policy 1-4.7.4: Administer Land Use Controls. Administer adopted land use controls, including the zoning ordinance, subdivision regulations, building regulations, housing code, traffic regulations, and regulations governing streets and sidewalks.

Policy 1-4.7.5: Public Assistance. Provide continuing land use information and assistance to the public.

Policy 1-4.7.6: Intergovernmental Coordination. Coordinate land development issues where applicable with other public agencies at all levels of government pursuant to the Intergovernmental Coordination Element of this plan.

Policy 1-4.7.7: Manage Current Developmental Impacts. Evaluate and manage impacts of proposed development pursuant to existing ordinances, including, but not limited to, public facilities, natural environment, and impact on stable residential neighborhoods.

Implementation standards are encouraged to be adopted by the City specific to the mitigation portion of the City of Sebastian, Coastal Resiliency Plan, Prepared By: Kimley-Horn and Associates, Inc., March 2019.

Policy 1-4.7.8: Urban Design and Community Appearance. Good principles of urban design shall be applied through site plan review procedures in order to enhance general community appearance as well as to preserve and enhance open space and landscape. This program shall assist in protecting major natural and man-made resources within the City, including such scenic natural resources as the Indian River Lagoon, the Sebastian River, the Collier Creek natural drainage corridor, Schumann Lake, as well as developing residential neighborhoods and centers of commercial or institutional activity.

Policy 1-4.7.9: Special Land Use Studies. In order to maintain land use policies responsive to changing conditions, problems, and issues, the City shall undertake special studies as needed to develop specific local strategies for resolving unanticipated land use problems and issues.

Objective 1-4.8: CONTINUING EVALUATION OF LAND USE ELEMENT EFFECTIVENESS. The City shall use the following policies as criteria in evaluating the effectiveness of the Land Use Element.

Policy 1-4.8.1: Review the Impact of Change Indicators on Land Use Policy. Trends in the magnitude, distribution, and characteristics of population and land use shall serve as indicators of possible changes in land use needs. The policy implications of major trends in land use characteristics shall be evaluated on a continuing basis. Land use policy shall be refined as needed in order to remain responsive to evolving problems and issues.

Policy 1-4.8.2: Schedule, Budget and Implement Programmed Activities. The timely scheduling, programming, budgeting and implementation of programmed land use activities identified in this Element shall be

OBJECTIVE 4-1.3: PROCEDURES AND STANDARDS FOR ON-SITE WASTEWATER

TREATMENT SYSTEMS. The City shall on a continuing basis assist in assuring implementation of existing State regulations imposing mandated standards for inspections, operation, and maintenance of on-site wastewater treatment systems.

Policy 4-1.3.1: Use of On-site Wastewater Treatment Systems. The City's septic to sewer program is a critical component considering the location of existing septic tanks within environmentally sensitive areas and areas vulnerable to the impacts of flooding and sea level rise. Use of on-site wastewater treatment systems shall be limited to the following conditions:

- a. Existing septic tanks may remain in service until such time as centralized service is made available.
- b. Use of septic tank systems for new development shall be restricted to sites on which the Indian River County Public Health Unit renders a finding that the site and facility design is in compliance, with State and local regulations governing the same.
- c. New development shall be required to connect with the central sewer system. Pursuant to the standards established by Indian River County.

Policy 4-1.3.2: Coordinate with the Indian River County Public Health Unit. The City's land development regulations shall require that all proposed development which impacts an existing septic tank or generates need for a new septic tank be required to provide evidence of approval by the Indian River County Public Health Unit prior to receiving a development order or permit from the City. Any such approval by the City shall be conditioned upon the applicant's compliance with Indian River County requirements for ongoing facility maintenance and operation.

Policy 4-1.3.3: Conditions Governing Development Orders or Permits. Beginning in January 1, 1998, the City shall adopt amended land development regulations at the earliest date possible which include performance criteria stipulating that prior to the issuance of development orders or permits all development shall be found consistent with regulations of all federal, State, and local on-site wastewater treatment systems.

The City's performance criteria shall also regulate the location, timing, and scale of development in order to ensure that new development is effectively served by wastewater services. The performance criteria shall discourage the proliferation of permanent package treatment plants. System reviews shall be coordinated with the State Department of Environmental Protection (DEP) in order to promote best management practices and compliance with relevant State permitting procedures. Similarly, through application of the performance criteria the City shall discourage extensive use of septic tanks and wastewater drain fields on areas with characteristics or conditions unsuited for their adaptation.

Policy 4-1.3.4: Compliance with On-Site Wastewater Treatment and Water Quality Regulations. By September 1990 the City shall adopt amended land development regulations which require that performance criteria be incorporated in order to regulate on-site wastewater treatment, including impacts on water quality. The performance criteria shall stipulate that all new or altered on-site wastewater treatment improvements shall be compliant with regulations of federal, State, and County agencies having jurisdiction. The performance criteria shall stipulate that the City shall not issue any permit for new or altered on-site wastewater treatment systems. Due to the area's vulnerability to sea level rise and flooding, the City's respective Ordinances should reflect the mitigation strategies that are outlined in the City of Sebastian, Coastal Resiliency Plan, Prepared By: Kimley-Horn and Associates, Inc., March 2019.

OBJECTIVE 4-2.Id: IMPLEMENTATION OF THE CITY'S STORMWATER MANAGEMENT SYSTEM CONCEPTUAL MASTER PLAN.

The City has, through Craven Thompson and Associates, Inc., prepared a Stormwater Management System Conceptual Master Plan (SWCMP). The SWCMP was developed to two factors: 1) the City has developed to the point where flooding potential is acute, and 2) public awareness and dissatisfaction with current drainage conditions. The basic finding of the SWCMP is that the Sebastian Highlands subdivision has severe drainage system deficiencies that, in the event of a severe storm, would cause major flooding of streets and homes as well as damage infrastructure. The City shall incorporate the stormwater management system improvements recommended in SWCMP into the Comprehensive Plan Capital Improvement program through the implementation of the following policies.

Policy 4-2.Id.1: Stormwater Management Plan Implementation Projects. The City shall work towards implementing over the next 10 years the following projects identified in the City's Stormwater Management Conceptual Master Plan:

PROPOSED WORK PHASE	EST. TOTAL COST	EST. AVG YEARLY COST
Maintenance: Primary	\$750,000	\$75,000
Maintenance: Secondary	\$770,000	\$77,000
Maintenance: Back and Side Ditches	\$415,000	\$41,500
Maintenance: Swales	\$160,000	\$16,000
Capital Improvements: Perimeter Culverts	\$2,843,000	\$284,300
Capital Improvements: Control Structures	\$900,000	\$90,000
Capital Improvements: Stormwater Puma Stations	\$1,500,000	\$150,000
Capital Improvements: Stormwater Park	\$2,000,000	\$200,000
Capital Improvements: Interior Systems North of CR 512	\$10,800,000	\$1,080,000
Capital Improvements: Interior Systems South of CR 512	\$11,200,000	\$1,120,000
TOTAL	\$31,338,000	\$3,133,800

Policy 4-2.1.1: Compliance with Capital Improvements Element. All major public facility projects shall be undertaken in accordance with the schedule provided in the Capital Improvements Element of this plan, as may be hereinafter amended.

Policy 4-2.1.2: Priority for Correcting Existing Deficiencies. In developing the annual schedule of capital improvement projects, the City shall assign highest priority to those projects required for purposes of correcting existing deficiencies. When developing the next Capital Improvements Plan and prioritizing the expenditure of public funds the City is encouraged to consider the recommendations of the City of Sebastian, Coastal Resiliency Plan, Prepared By: Kimley-Horn and Associates, Inc., March 2019.

Policy 4-2.1.3: Existing Deficiencies Shall Not Be Increased by New Development. The City shall issue no development order for new development which would result in an increase in demand on deficient facilities prior to completion of improvements needed to bring the respective facility up to standard. The City is encouraged to consider the mitigation data, information, and strategies contained in the City of Sebastian, Coastal Resiliency Plan, Prepared By: Kimley-Horn and Associates, Inc., March 2019. The City shall include an adequate facilities requirement as part of the updated Land Development Code. The adequate facilities ordinance shall mandate that future applications for development shall include a written evaluation of the impact of the anticipated development on the levels of services for the water and wastewater systems, solid waste system, drainage, recreation, and the traffic circulation system.

The latest point for determining whether public facilities shall be available concurrent with the impacts of development shall be prior to the issuance of a development order or permit which contains a specific plan for development, including the densities and intensities of use. Prior to issuing such development order or permits, the City shall render a finding that the applicant has provided written assurance that the proposed

development shall be served with each of the above cited facilities with a level of service at least equal to that level of service stipulated in Policy 4-1.1.1. The developers application shall include written assurances that any required improvements shall be in place concurrent with the impacts of the development (i.e., by the time a certificate of occupancy is granted by the City). The application process shall be consistent with requirements cited in Objective 9-1.5 and Policy 9-1.5.1.

Policy 4-2.1.4: Coordinate with Indian River County Hazardous Waste Planning Efforts. The City shall offer assistance to Indian River County as the County assesses and plans for hazardous waste management in a manner consistent with the provisions of §403.7265, F.S.

OBJECTIVE 4-2.2: MEETING PROJECTED PUBLIC FACILITY DEMANDS TO 2002. The City shall plan for projected public facility demands through the year 2002 by undertaking the following projects:

- a. Wastewater System Projects.
- b. Solid Waste Projects.
- c. Drainage Projects.
- d. Potable Water System.

Policy 4-2.2.1: Coordinate with Capital Improvements Element. All public facility projects shall be undertaken in accordance with the schedule provided in the Capital Improvements Element of this Plan.

Policy 4-2.2.2: Public Facility Planning and Management Efficiency. In scheduling the location, timing and staging of public facility improvements, the City Council shall consult the City of Sebastian Coastal Resiliency Plan, Prepared By: Kimley-Horn and Associates, Inc., March 2019. The City Council shall also use the following criteria:

- a. Minimize disruption of services;
- c. Maintain service levels for all respective facilities.
- b. Prevent duplication of labor; and

Policy 4-2.2.3: Additions of Public Facility Project Approvals. All required federal, State, and County permits shall be obtained before the City undertakes or authorizes contractors to undertake construction and/or operation of facilities.

OBJECTIVE 4-2.3: MEETING PROJECTED DEMANDS FOR THE YEAR 2003 THROUGH YR 2010. The City shall meet projected public facility demands between 2003 and 2010 by undertaking the following projects:

- a. Wastewater System Projects.
- b. Solid Waste Projects.
- c. Drainage Projects.
- d. Potable Water System.

Policy 4-2.3.1: Scheduling Needed Capital Improvements. The City Council shall ensure that projects required to meet projected demands through the year 1996 shall be in the Capital Improvements Element of this plan in accordance with the requirements of §163.3177(3), F.S.

GOAL 4-3: PROVIDE ADEQUATE DRAINAGE. PROVIDE ADEQUATE STORMWATER DRAINAGE IN ORDER TO PROTECT AGAINST FLOOD CONDITIONS AND PREVENT DEGRADATION OF QUALITY OF RECEIVING WATERS.

OBJECTIVE 4-3.1: PROTECT NATURAL DRAINAGE FEATURES. By September 1998 the City shall adopt land development regulations protecting natural drainage features and ensuring that future development utilizes stormwater management systems consistent with criteria of DEP and SJRWMD as well as the improvements identified in City's Stormwater Management System Conceptual Master Plan (SWCMP). It is recommended to update the current Stormwater Master Plan to include a City-wide evaluation to improve the numerical model with the latest datasets as outlined in the City of Sebastian.

Coastal Resiliency Plan, Prepared By: Kimley-Horn and Associates, Inc., March 2019. A detailed inventory of stormwater assets should be completed and the update of the model should include the development of a schema to increase the adaptive capacity for the City in the case of sea level rise and chronic flooding scenarios.

As a minimum the regulations shall include the following:

- Establish a coordination mechanism with the Sebastian River Water Control District (SRWCD) for controlling the flow of water through the SRWCD's radial gate dam in order to protect the natural drainage features in Sebastian;
- Establish a buffer zone along all natural drainage features;
- Maintain on-site drainage requirements to ensure that natural drainage features are not overloaded by runoff from adjacent properties (water quantity);
- Prohibit direct discharge of untreated stormwater into natural drainage features (water quality);
- Existing stormwater engineering, design and construction standards for on-site systems should be evaluated and amended as needed;
- Existing standards for erosion and sediment controls should be evaluated and amended, if necessary; and
- Periodic inspection of on-site systems shall be required to ensure continuance of system design and maintenance.

Policy 4-3.1.1: Ensure that Urban Lands Provide Adequate Drainage and Protection from Flooding and Manage the Retention of Ground and Surface Water at Levels that Enhance Natural Storage Capacity of Watersheds and Promote Aquifer Recharge. Promote the ecological, biological, and hydrological role that surface waters play in sustaining recharge to aquifers and supporting surface vegetation. Manage the location design and intensity of urban development in order to foster continuance of natural hydrological processes, including preserving recharge areas, promoting on-site retention of surface waters and natural return of surface water into the soil, and channelling excess stormwater volume primarily via natural grassy swales. Require the integration of natural storage areas and natural drainage courses into water management plans for new development. The recognition of sea level rise and flooding risks should be taken into consideration and there should be the incorporation of the data sets and mitigation strategies that are outlined in the City of Sebastian, Coastal Resiliency Plan, Prepared By: Kimley-Horn and Associates, Inc., March 2019.

Policy 4-3-1.2: Provide Adequate On-Site Retention and Ground Water Recharge while Directing the Surplus Run-off to Receiving Waterways in a Manner which Prevents Imbalance to their Ecosystems. Upon adoption of the Comprehensive Plan, the City shall continue to enforce the level of service standards identified for retention/detention in Policy 4-1.1.1. By September 1990 the City of Sebastian shall adopt amended land development regulations which shall include land use controls, such as subdivision regulations, zoning, including site plan review and performance criteria as well as special erosion controls, landscape and flood management ordinances which shall assist in implementing stormwater management and water quality controls. The programs shall be continually updated based on improved knowledge of problems, issues, and best management practices. This includes the incorporation of the mitigation strategies that are outline in the City of Sebastian, Coastal Resiliency Plan, Prepared By: Kimley-Horn and Associates, Inc., March 2019. The impacts of future sea level rise and combined rain events may cause more flooding and level of service violations and water quality issues that require best management practices to be devised. Given the hydrology of the area, the city shall develop a pollutant load model as recommended in the Coastal Resiliency Plan. There shall also be the consideration of hardening the pump-stations based on their criticalities.

In FY 1992-93 the City shall commence the engineered stormwater management plan which shall provide recommended regulatory measures designed to protect and preserve water quality, retard runoff, and enhance percolation.

By the end of 1994, the Stormwater Management Plan shall be implemented by adopting regulatory ordinances for implementing the Plan. In addition, by the end 1994 the City shall amend the capital

City of Sebastian Comprehensive Plan Update

Identified (Possible) Conflicts & (preliminary) Recommendations

	Article/Section	Standard	Comment	Recommendation
Ch. 1 Future Land Use				
	B.2 Natural Resources	Description of what is included in the City's natural resources including applicable Element(s)	Although informational only, Element references must be updated to reflect the new Element Title	Revise with the new Element Title and also reflect the full Resiliency study here (and in DIA)
	C.2 Land Use Analysis	Vacant Land Suitability Analysis	discusses what needs to be analyzed as part of the vacant lands analysis and what factors to reference/incorporate including Natural Resources	Update/amend sub-section d. Natural Resources to reflect analysis should also consider the 2019 Resiliency Plan
	C.3 Projected Land Use Needs	Identifies areas of the City for future development and redevelopment including areas within flood prone areas (including SLR) based on 2019 Study	Language is provided here (no GOPs though) regarding future development and redevelopment including future conservation areas	Revise and update information in this section to reflect the 2019 Resiliency Plan; will also need to update and expand information within the respective GOPs of this Element to redirect population and public expenditures away from these areas
	C.4/C.5	Redevelopment Needs	Reflects areas of the City within an identified CRA including areas along the Riverfront which may be subject to SLR	Add language regarding/recognizing the potential for impacts due to SLR and Resiliency in future redevelopment projects
	Table I-6 FLU Table	Identifies the acreages of FLU designated lands including Environmentally Sensitive Lands (ESL)	Not part of the KH Scope of Services; however the analysis should be discussed and identified to be updated based on the 2019 Resiliency Plan	N/A
	Map I-5 ESL Map	Illustrates/identifies the currently designated ESLs	May require an update based on 2019 Resiliency Plan (Not part of the KH Scope of Services to update maps/GIS)	N/A
	Policy 1-1.1.3	Density Defined	No specific change is warranted but should be identified for future discussion including recognition of the mitigation measures per the 2019 Plan	Consider identifying (cross-reference) with new combined conservation/coastal element for mitigation strategies
	Policy 1-1.1.4	RMU	No specific change but acknowledgement of 2019 Study and potential impacts to development and redevelopment in this area should be discussed	2019 Study Acknowledged
	Obj 1-1.7	Conservation Land Use including corresponding Policies 1-1.7.1, 2, 3	Identifies and describes the Conservation Land Use which may be impacted by the 2019 data	Clarify Code reference and also clarify/identify 2019 Plan, including cross-reference (see also - specific policy) to new element
	Policy 1-2.9.5	Preserving Riverfront Access	Provides language regarding City acquisition of access to the riverfront	Note, amendment may not be necessary other than to acknowledge FS with regard to peril of flood/slr components regarding use of public funds
	Policy 1-2.9.6	Preservation of Existing Assets within the Riverfront	Provides for the protection, restoration and enhancement of existing assets within the riverfront	see previous comment
	Policy 1-3.2.2	Land Development Regulations	Identifies the areas that should be subject to additional development standards including those areas subject to seasonal and periodic flooding	Note, amendment may not be necessary but it should be understood that additional lands may be subject to the development standards based on the data from the 2019 study
	Policy 1-3.2.5	Performance Standards	Identifies those items that may be included in the land development code and requiring additional standards	Add language regarding (reflecting) areas subject to SLR and or periodic/seasonal flooding
	Goal 1-4	Resource Protection	see following Obj and Policies specific to Resource Protection	See Below
	Obj 1-4.1/Policy 1-4.1.1 and 1.2	CHH Mitigation and Hurricane Evacuation Plans	Identifies the plans needed including coordination efforts for development and redevelopment post hazard	New/amended language not necessary; may want to consider incorporating by reference the 2019 Resiliency Plan into the City's adopted Plans
	Obj 1-4.3/Policies 1-4.3.1, 3.2, 3.5 and 3.7	Protection of Natural Resources	Requires the City to adopt and maintain land development regulations for the protection of natural resources including floodplains	see previous comment; this is more of an acknowledgement that implementing standards should be adopted by the City specific to the mitigation portion of the Resiliency Master Plan
	Policy 1-4.5.1	Incorporate Innovative Techniques....	Similar comment as above	see previous comment
	Policy 1-4.7.7	Manage Current Developmental Impacts	Similar comment as above	see previous comment
Ch. 4 Public Facilities				
	Drainage	Facilities and Operational Responsibility	Identifies what structures and facilities are maintained/to be maintained by the City; includes references to maintenance, etc.	More of an acknowledgement in the definition; however, the City's Stormwater Management Ordinance should be amended and updated to reflect the Mitigation Strategies and information in the Resiliency Plan
	Sanitary Sewer	Facilities and Operational Responsibility	Identifies the County system and increased coordination between the City and County with respect to septic to sewer conversion.	Continued discussions and coordination with the County including coordination on the hardening of critical infrastructure (i.e., lift stations) is recommended. No amendment is needed to this language

	Existing Natural Drainage and Recharge...	Regulations and Programs	Identifies the specific programs and regulations to be enforced within the City including zoning, stormwater, subdivision regulations.	More of an acknowledgement in the definition; however, the City's respective Ordinances should be amended and updated to reflect the Mitigation Strategies and information in the Resiliency Plan
	Policy 4-1.3.1 and 3.4	On-site wastewater treatment systems and regulations	Provides standards including time frames for the adoption of City standards and or conditions for allowing septic systems	See previous comment; also, the City's septic to sewer program is a critical component considering the location of existing septic tanks within environmentally sensitive areas
	Policy 4-2.1.2	Priority for Correcting Existing Deficiencies	Policy relates to the annual update of the CIP to correct deficiencies.	Similar to previous comments, this is not a recommended policy/text amendment but an acknowledgement that the 2019 Plan should be consulted when developing the next CIP and prioritizing the expenditure of public funds
	Obj 4-3.1 and related Policies	Protect Natural Drainage Features	Policies relate to the provisions for adequate stormwater and protection of lands, etc.	Not part of the formal scope of this review; however, these policies should be reviewed consistent with the 2019 Plan and appropriate measures/ordinances developed or amended to incorporate the 2019 Plan recommendations
Ch. 5 Coastal Management/Ch. 6 Conservation		Note: This Analysis and the following comments assume (recommend) a consolidation of the Coastal Management and Conservation Elements into one succinct Element in order to eliminate redundancies, streamline the Elements and the respective GOPs		
	B. Land Use Conflicts		describes what is required when conflicts arise between land use and certain lands	Update the language to reflect the new Element comprised of the two sub elements Coastal and Conservation
	Coastal Floodplains		Contains references for FEMA and FIRM related information including references to maps	Update the map references and refine the definitions consistent with FS
	Regulating Development in the Floodplain		Provides standards for development and areas where development is prohibited	Confirm references and agencies regulating. Also, reflect new Element Name and identify the 2019 Resiliency Plan as incorporated by reference but placed in the DIA; identify the Adaptation Action Plan including mitigation strategies
				Within the DIA, utilize the 2019 Plan Data and incorporate for future use and analysis including justification of GOPs
	Natural Disaster Planning Considerations	Identifies Hurricane Vulnerability Zones, storm events, etc.		Language could be added reflecting Sea Level Rise / Peril of Flood including (potential) impacts to public facilities, identify strategies per Plan also
		Identification of CHHA	Defines and references the CHHA and storm surge areas/zones	Update information consistent with FS including Peril of Flood and SLR considerations; additional strategies provided in Resiliency Plan
				Includes updating terms and requirements for public infrastructure expenditures within the CHHA and hazard prone areas
		Existing Infrastructure in the Coastal Area	Identifies public infrastructure currently within the CHHA	Update language and analysis including facilities inventoried as part of the 2019 Plan
	Goal 5-1 and related Obj and Policies	Coast Management; Restricting Development Activities....	Provides guidance and standards for Coastal Management including development and redevelopment within the CHHA and other defined areas; provides generalized restrictions within certain areas; implementing policies for shoreline uses, etc.	Amend GOPs consistent with FS and including mitigation strategies (by reference); updating references to FS specific to Peril of Flood.
Note: Objective 5-1.1 through 5-1.11 have some level of amendment either by update of the reference to the new Element, FS references, updates per the FS regarding Peril of Flood or similar				
	Conservation Element section B	address Water Quality / Indian River Lagoon	Some of this information is duplicative and references/reiterates information already discussed and or provided in the Coastal Element	Delete duplicate language and consolidate all IRL information
	Conservation section C	addresses Floodplains	see previous comment	see previous comment
	Vegetative Communities (page 6-5, etc.)	Coastal Ridge, South Florida Flatwoods, etc.; items 1-6 are duplicative with Coastal Element language	see previous comment	see previous comment
	Conservation Uses (page 6-10)	Conservation Uses including Vegetative Communities, etc.	Language is similar and duplicative in certain cases	see previous comment
	Obj 6-1.2 and Obj 5-1.1	Water Quality and Protecting Coastal Resources, Wetlands, etc.	Protection of environmentally sensitive areas and includes similar language	can consolidate / integrate into one succinct Objective
	Policy 6-1.4.3, 4.4, 4.5	Required Dedication of Conservation Easements	Update date (reflects 1998) and confirm regulations are adopted and maintained	
	Policy 6-1.4.5	Wetland Development Restrictions	Update date (reflects 1999) and confirm regulations are adopted and maintained	
	Obj 6-1.8 and 6-1.9; and Obj 5-1.2	Shoreline Protection Measures	Protection Measures of shorelines and estuarine habitats; similar information found within both Ch 5 (5-1.1, 5-1.2, 5-1.3, etc.) and 6 (6-1.8/6-1.9)	can consolidate / integrate into one series of Policies/one Obj
	Policy 5-1.2.1 and 6-1.4.2	Wetland Transitions	Similar information provided; however, some differing information as to definition and application	Revise and update for consistency between terms; may also consider consolidating into one policy with sub components
	Obj 6-1.13 and 5-1.2	Address Shoreline and Estuarine environments	Both Elements including language specific to shorelines and estuarine environments	see previous comment