



## Request

An Ordinance to Adopt and Incorporate into the Virginia Beach Comprehensive Plan the Virginia Beach Sea Level Wise Adaptation Strategy and to Amend Sections 1.1 (Plan for Sea Level Rise and Recurrent Flooding), 1.2 (Shore Drive Corridor), 2.2 (Sea Level Rise, Recurrent Flooding, and Hazard Mitigation), and 2.3 (Sea Level Rise and Recurrent Flooding).

## Summary of Request

- In 2014, City Council launched the Comprehensive Sea Level Rise and Recurrent Flooding Capital Improvement Program project, which is now known as Sea Level Wise, to enable Virginia Beach to establish long-term resilience to sea level rise and associated recurrent flooding. The first phase of Sea Level Wise focused on establishing a full understanding of flood risks by analyzing sea level rise and recurrent flooding impacts to both built infrastructure and the natural environment. Phase two concentrated on developing and evaluating options for addressing short-term and long-term flood risks. During Phase three, a comprehensive planning process brought together all the distinct Sea Level Wise components to form an integrated Adaptation Strategy to guide adaptation efforts across the entire city, as well as actionable adaptation projects for each of the city's four major watersheds. The final phase involves implementing the projects identified throughout this effort.
- Virginia Beach and the Hampton Roads region are experiencing the highest rate of sea level rise on the East Coast. Regional planning guidance suggests communities plan for sea levels to increase by 1.5 feet by 2050, 3 feet by 2080, and 4.5 feet by 2100. Virginia Beach is exposed to several sources of coastal flooding, including high tide flooding, wind tide flooding, storm surge flooding, rainfall (compounding) flooding, and groundwater flooding. Unless significant action is taken, future flood events will have wide-ranging impacts on the City's infrastructure, economy, and overall well-being.
- Virginia Beach recognizes the realities associated with increased sea level and is taking significant action. However, no single strategy will address the problem. As such, the City combined a variety of approaches in an Adaptation Framework to prepare for the future. The Adaptation Framework consists of four complementary themes, each with a specific approach to flood risk management. The layers are designed to support each other, integrating structural and non-structural measures to ensure comprehensive flood protection across a range of environmental conditions. Adaptation strategies fall broadly into the categories of natural mitigation, preparing the community, engineered defenses, and adapting structures.
- Integrated flood adaptation planning will involve propagating the findings from this report and the reports that come after it, throughout all City planning processes and decision frameworks. This integration and incorporation will be different for every department, process, and document. Sea level rise and recurrent flooding is a challenge that impacts nearly every area of the City in some capacity, underscoring the importance of incorporating the most up-to-date research and data into current and future planning.

- Future staff reports for discretionary approvals will contain analysis noting how the site meets the intent of the recommendations and principals of the Sea Level Wise Adaptation Strategy.

## Recommendation

The adoption and incorporation of the Adaptation Strategies into the Comprehensive Plan is one of many steps that the City of Virginia Beach will take to solidify the long-term commitment to addressing sea level rise and recurrent flooding in all aspects of planning and decision making. Staff recommends approval of this Ordinance for the adoption and incorporation into the Virginia Beach Comprehensive Plan.

## Public Outreach Information

### Planning Commission

- Over 500 residents participated in the adaptation strategy development process through a series of thirteen interactive public engagement meetings, and an online portal for residents who were unable to attend the live community meetings. The public meetings were advertised and promoted via multi-media campaigns to ensure perspectives from diverse audience were captured. The first set of public engagement meetings were held in 2017 and early 2018. The second round of meetings was held in 2019 to introduce the public to policy, nature-based, city-wide structural, and site-level flood risk management strategies in development. A final round of public meetings was held in early 2020 to allow residents an opportunity to comment on the draft report.
- As required by State Code, this item was advertised in the Virginia Pilot Beacon on Sundays, May 10, 2020 and May 17, 2020.
- This Staff report, as well as all reports for this Planning Commission's meeting, was posted on the Commission's webpage of [www.vbgov.com/pc](http://www.vbgov.com/pc) on May 21, 2020.

*November 20, 2018*

well-placed at higher elevations and away from inland tidal waters. A few of the SGAs either border or contain existing inland tidal waters. These include:

- Thalia Creek on the eastern boundary of the Pembroke SGA;
- the southern tributaries of the Eastern Branch of the Lynnhaven River, which runs through the center of the Lynnhaven SGA to London Bridge Creek;
- Linkhorn Bay on the eastern border of the Hilltop SGA; and
- Lake Rudee, Lake Holly, Owls Creek, and the southern tributaries of the Resort SGA.

Accordingly, our SGA Plans recommend substantial buffers between new development and these waterways, and in some cases, reclaiming these buffer areas for open space as opportunities arise. ~~In order to fully assess impacts to the Strategic Growth Areas and our city as a whole, a capital project is underway which will model sea level rise, recurrent flooding, and storm surge under different scenarios. The Sea Level Wise Adaptation Strategy assess impacts to the Strategic Growth Areas and our city as a whole, as well as identifying Strategy elements that will improve the City's resilience to the flood conditions of both today and tomorrow.~~



*Thalia Creek Greenway in Pembroke SGA*

November 20, 2018

- while the most densely populated area of the City, is primarily a neighborhood residential area;
- comprises commercial uses to support the neighborhoods;
- accommodates Shore Drive, a primary circulation corridor for the City; and,
- affords more passive recreational and tourism amenities.

The Bayfront Advisory Commission (originally established as the Shore Drive Advisory Committee and then the Bayfront Advisory Committee) was established by City Council in 1998. The mission given by City Council to the Bayfront Advisory Commission is:

... to review and make recommendations to the City Council regarding public and private projects and issues associated with the Bayfront area, and projects or issues associated with the Bayfront area that the City Council may refer to the Commission.

More information is provided in the *Shore Drive Corridor Plan*, adopted by the City Council in 2000. The *Shore Drive Corridor Design Guidelines* provide direction for the form and function of land use and development in this area. Both of these documents are available in the Planning Department's online Document Library at [www.vbgov.com/Planning](http://www.vbgov.com/Planning).

The planning policies that apply to the entire Shore Drive Corridor and Bayfront Communities are:

- Completion of the remaining roadway improvements (all identified Phases) along Shore Drive to enhance the safety, access, and character of the Corridor;
- Retain the majority of Shore Drive, particularly east of the bridge, as a four-lane road for as long as is practical, but protect the necessary right-of-way for an expansion to a six-lane facility, if necessary. Any increase in the number of lanes on Shore Drive could negatively impact the community by further separating the northern and southern parts of the Corridor;
- Ensure safe passage by pedestrians from one side of Shore Drive to the other side through reduced speed limits and well-identified pedestrian crossings;
- Ensure the safety of bicyclists using Shore Drive;
- Preserve and protect the character of the established neighborhoods;
- Improve land use compatibilities and avoid over-commercialization to insure that resort-based uses complement rather than dominate this corridor;
- Encourage reuse and revitalization of existing commercial properties;
- Achieve the lowest reasonable density for future residential uses;
- ~~Develop a strategy for addressing projected sea level rise as well as the recurrent flooding that occurs in this area.~~ Implement the recommendations of the Sea Level Wise Adaptation strategy to address projected sea level rise and recurrent flooding that occurs in this area.
- Update the *Shore Drive Corridor Design Guidelines*, and in particular, develop design guidance for residential development within the Corridor and its established neighborhoods;
- Improve public parking and public access to the beachfronts;
- Provide a continuous multipurpose trail through this corridor (reference the *Virginia Beach Outdoors Plan* for recommendations); and,
- Provide continued support for restoring the health of the Chesapeake Bay and Lynnhaven River.

This Suburban Focus Area has three sub-areas that, due to unique issues and/or opportunities, require further guidance. The following sections provide specific planning guidance for each.

Suburban Areas /1-72

~~With the projection for continuing and possibly accelerating sea level rise, City Council has directed that a Comprehensive Sea Level Rise and Recurrent Flooding Response Plan be developed and has allocated significant funding for its development. In 2014, a national consultant firm with expertise in developing comprehensive response plans to sea level rise and recurrent flooding was retained by the City to work with an interdisciplinary team of City staff to study the City's vulnerabilities to sea level rise and recurrent flooding on a watershed basis and develop the City's response plan. Work began on the plan in fall 2014 is expected to be completed by 2018.~~ In 2014, City Council launched the Comprehensive Sea Level Rise and Recurrent Flooding Capital Improvement Program project, which is now known as Sea Level Wise, to enable Virginia Beach to establish long-term resilience to sea level rise and associated recurrent flooding. The first phase of Sea Level Wise focused on establishing a full understanding of flood risks by analyzing sea level rise and recurrent flooding impacts to both built infrastructure and the natural environment. Phase two concentrated on developing and evaluating options for addressing short-term and long-term flood risks. During Phase three, a comprehensive planning process brought together all the distinct Sea Level Wise components to form an integrated Adaptation Strategy to guide adaptation efforts across the entire city, as well as actionable adaptation projects for each of the City's four major watersheds. The final phase involves implementing the projects identified throughout this effort.

As part of developing ~~this response plan~~ the Adaptation Strategy, the City has identified sea level rise planning horizons in order to complete the vulnerability assessment and develop adaptation strategies. Two scenarios were selected for short- and long-term planning purposes, using the NOAA, USACE, and VIMS projection scenarios:

- 1.5-foot of projected rise for the short term planning horizon.
- 3 feet of projected rise for the long-term planning horizon (50+ years) to be used as a basis for making long-term decisions, such as public infrastructure (roadways, bridges, alternative transportation modes, public utilities, and stormwater drainage system) design and replacement.

In addition to planning for sea level rise, several neighborhoods have been impacted by flooding from storm and rainfall events. The City is undertaking a drainage study to develop solutions to address flooding in these neighborhoods and protect them from future events. The City is also exploring the benefits of participating in FEMA's Community Rating System (CRS) Program, which could provide discounts on federal flood insurance premiums paid by property owners.

In Virginia Beach, living near the water remains desirable. Projected patterns for future development should be evaluated and considered to determine the vulnerability to flooding over time. Sea level rise must be particularly considered in areas with relatively flat topography, such as the Southern Rivers Watersheds Area, as small changes in sea level can adversely impact greater land areas. Care should be taken when locating and building homes and other structures, as well as new development and residential subdivisions, to ensure that they are adequately protected from flooding now and into the future.

### **Hazard Mitigation**

Environmental hazards are very real to our coastal area. The City must focus on long-term sustainability by identifying short and long term impacts associated with natural events. The *2011 Southside Regional Hazard Mitigation Plan* ([http://www.hrpdva.gov/uploads/docs/2011%20Southside%20HR%20Hazard%20Mitigation%](http://www.hrpdva.gov/uploads/docs/2011%20Southside%20HR%20Hazard%20Mitigation%20Plan.pdf)

[20Plan.pdf](#)) recommends specific actions designed to protect residents, business owners and the built environment from hazards that pose the greatest risk. A comprehensive mitigation approach addresses hazard vulnerabilities that exist today and in the foreseeable future. Therefore, projected patterns of future development must be evaluated and considered in terms of how that growth will increase or decrease a community's hazard vulnerability over time.

Land use is a particularly important theme in Southside Hampton Roads, where many communities are facing increasing growth rates. Local policies that guide community growth and development, incentives tied to natural resource protection, and public awareness and outreach activities should be considered to reduce participating jurisdiction's future vulnerability to identified hazards.

The *Southside Regional Hazard Mitigation Plan* is currently in the process of being updated and rewritten into a *Regional Hazard Mitigation Plan*, with expected adoption in late 2016. Care should be taken to ensure consistency between the Comprehensive Plan and the *Regional Hazard Mitigation Plan*, especially related to strategies to mitigate recurrent flooding and sea level rise.

#### **Recommended Policies: Sea Level Rise, Recurrent Flooding, and Hazard Mitigation**

- Concentrate new development at higher elevations outside special flood hazard areas.
- Use alternative construction techniques to minimize fill in the Floodplain Subject to Special Restrictions.
- Wherever possible in the development approval process, avoid developing inside special flood hazard areas, especially in the Southern Watershed Area, which is characterized by limited relief and a minimal hydraulic gradient.

#### **Agenda for Future Action Recommendations: Sea Level Rise, Recurrent Flooding, and Hazard Mitigation**

- Develop a program to educate the public on the beneficial functions and values of floodplains.
- ~~Complete the City Comprehensive Response Plan to Sea Level Rise and Recurrent Flooding for all areas of the City and implement the recommendations therein, subject to funding.~~ Implement the findings and recommendations of the Sea Level Wise Response Strategy.
- Preserve and enhance beaches and dunes along the City's Atlantic Ocean and Chesapeake Bay shorelines.
- Implement the recommendations of the *Regional Hazard Mitigation Plan*.

#### **LAND DEVELOPMENT AND STORMWATER MANAGEMENT**

Land is a precious resource, limited in amount, highly valued and often exploited, a commodity that is constantly being sold, developed, or redeveloped. As the City matures, its land inventory becomes even scarcer. Management of land in its natural state demands that we employ wise management and stewardship practices to safeguard the City's natural heritage. Similarly, developed land should be used in a sustainable manner so that its value to present and future generations is maintained or enhanced. Integrated Site Design and stormwater management are key techniques that can be used to enable responsible and more sustainable land development practices.

and enacting local policies to guide growth and development, providing incentives tied to natural resource protection, and providing public awareness and outreach activities. One significant aspect of a community's future vulnerability is its land use development pattern. This is a particularly important theme in Hampton Roads where many communities are facing increasing growth rates which could determine their future vulnerability. Therefore, projected patterns of future development must be evaluated and considered in terms of how that growth will increase or decrease a community's hazard vulnerability over time. One area that the city must focus on is the identification of short and long term impacts from natural and man-induced events in order to prepare for long-term sustainability.

#### Sea Level Rise and Recurrent Flooding

Sea level rise is a major concern for Coastal Virginia, particularly for the Hampton Roads region. Hampton Roads ranks as the second most vulnerable area in the U.S. for sea level rise, behind New Orleans. Due to its coastal location, Virginia Beach continues to be an active participant in current regional planning efforts for Adaptation and Mitigation Planning for sea level rise and recurrent flooding. In 2013, Virginia Beach updated its floodplain ordinance. Among the major changes to the ordinance was the adoption of two feet of freeboard for all new construction and for substantial improvements to existing construction. In addition, the city has participated in several rounds of FEMA grant funding to elevate homes that have experienced severe repetitive loss. To date, seven homes have been elevated, another eight have funding to be elevated, and five homes are currently under review to receive funding. With the projection for continuing and possibly accelerating sea level rise, City Council has directed that a Comprehensive Sea Level Rise and Recurrent Flooding Response Plan be developed and has allocated significant funding for its preparation. The City has also developed the Sea Level Wise Adaptation Strategy, which consists of four complementary themes, each with a specific approach to flood risk management. The layers are designed to support each other, integrating structural and non-structural measures to ensure comprehensive flood protection across a range of environmental conditions. Adaptation strategies fall broadly into the categories of natural mitigation, preparing the community, engineered defenses, and adapting structures. In addition to planning for sea level rise, several neighborhoods have been impacted by flooding from storm and rainfall events, otherwise known as 'recurrent flooding'. The city is undertaking a drainage study to develop engineered solutions to address flooding in these neighborhoods and reduce their risk for flooding.

#### **Recommended Policies: Sea Level Rise and Recurrent Flooding**

- Concentrate new development at higher elevations outside special flood hazard areas.
- Use alternative construction techniques to minimize fill in the 'Floodplain Subject to Special Restrictions.'
- Wherever possible in the development approval process, avoid developing inside floodplain areas and similar low-lying areas.

#### **Affordability and Equal Housing Opportunity**