

City of St. Petersburg  
**Committee of the Whole**  
Meeting of January 24, 2019 @ 1:30 p.m.  
City Hall - Room 100

A. Call to Order – Council Chair Darden Rice

B. Discussion Item

a. **Coastal High Hazard Areas (Abernethy/Kilborn)**

C. Next Meeting – January 31, 2019 @ 2:00 p.m., City Hall - Room 100

a. Storefront Conversation Corridor Plan

b. St. Petersburg Housing Authority

D. Adjournment

**Committee of the Whole**  
**COASTAL HIGH HAZARD AREA (CHHA)**

**January 24, 2019**

**PURPOSE**

The purpose of this Committee of the Whole (COW) is to discuss matters pertaining to the Coastal High Hazard Area (CHHA), and possible text amendments to the City's Comprehensive Plan and Land Development Regulations (LDRs). The presentation and discussion shall consider methods for allowing safe and reasonable increases in residential density within the CHHA, while also leading to a higher standard of construction that is more resilient to storm surge, mitigates for service and infrastructure needs during and immediately following a major storm event, and enables safe re-occupation as quickly as possible following an evacuation.

Commitments to support future changes or final decisions regarding proposed text is not the purpose of this meeting, rather the purpose is to have a high-level discussion that will help City staff discern future direction on several critical points. The direction learned from this meeting will help City Staff prioritize next steps, coordinate research needs and partnerships.

**INTRODUCTION OF TERMS**

**COASTAL HIGH HAZARD AREA (CHHA).** The CHHA is defined as the area below the elevation of the Category 1 storm surge line as established by a Sea, Lake and Overland Surges from Hurricanes ("SLOSH") computerized storm surge model.

**HURRICANE EVACUATION ZONES.** Hurricane evacuation zones (A to E) reflect storm surge vulnerability and the appropriate evacuation level for Category 1 to 5 storm (hurricane) events.

**SPECIAL FLOOD HAZARD AREAS (SFHA).** The SFHA was previously known as the 100-year flood plain. These areas are identified on FEMA's Flood Insurance Rate Map. Designations within the SFHA include the V-Zone (Velocity) and A- or AE Zone (properties located in the latter have a 1% probability of flooding every year).

**TIMELINE FOR CITY FILE: LGCP-2017-02**

City File: LGCP-2017-02 pertains to a series of City-initiated amendments to the Future Land Use and Coastal Management elements of the Comprehensive Plan to address the City's new Coastal High Hazard Area (CHHA) boundary. The proposed amendments include adoption of the new 2016 CHHA Map, amending policies that prohibit requests for residential density increases within the CHHA, and adding balancing criteria to be considered when requests are made to increase density within the CHHA.

It cannot be emphasized enough that these proposed Comprehensive Plan text amendments, if ultimately approved, *do not* increase density or intensity in the CHHA. Only specific amendments to the City's Future Land Use Map and/or Official Zoning Map, if approved, will allow for an increase in density or intensity. Requests for such amendments, whether they are City-initiated or private applications, will be subjected to the City's normal application process, including public notice, CPPC and City Council public hearings, and state, regional and county review. All applications are reviewed and considered on a case-by-case basis.

#### Community Planning & Preservation Commission (CPPC)

On **August 8, 2017** the CPPC conducted a public hearing regarding these proposed changes, but before rendering a final decision, they requested that the language set forth in Section 163.3178(8), F.S., be added to the amendment. This section of the Florida Statutes addresses compliance of a comprehensive plan amendment with state coastal high-hazard provisions. Staff agreed to add the language, however, a final vote was not taken, and the matter was continued to a future date.

On **July 10, 2018** the CPPC conducted a new public hearing regarding these proposed amendments and voted 4 to 3 to recommend APPROVAL to City Council. Two CPPC members voiced concerns about Plan amendments or rezonings that could increase density in the CHHA.

#### City Council

On **August 23, 2018** the City Council's first reading and first public hearing for the ordinance addressing the proposed amendments was tabled/deferred until after a COW was convened.

## BACKGROUND

### **How are the CHHA boundaries determined?**

The CHHA boundary is determined using a computerized numerical model developed by the National Weather Service (NWS) called the Sea, Lake and Overland Surges from Hurricanes (SLOSH) model. The model estimates storm surge heights resulting from historical, hypothetical, or predicted hurricanes by considering the atmospheric pressure, size, forward speed, and track data.

NOAA's SLOSH Model web page (<https://www.nhc.noaa.gov/surge/slosh.php>) states that there are three different modeling methods that can be used to estimate surge. The National Hurricane Center (NHC) and Florida Emergency Management officials use the "Composite Approach" which runs several thousand times with hypothetical hurricanes under different storm conditions. The products generated from this approach are regarded by the NHC as the best approach for determining storm surge vulnerability for an area since it takes into account forecast uncertainty.

Areas included in the CHHA are governed both by state law and the policies adopted to administer those provisions in the local government comprehensive plans. To reduce loss of life and property caused by natural disasters, the State of Florida requires local governments to identify the CHHA and plan accordingly with the emphasis on reducing vulnerability to hurricane impacts (Section 163.3178, Florida

Statutes).

### **How long has the CHHA been around?**

The CHHA has existed since 1985. The definition and applicable standards have changed several times - in 2006, 2010, and most recently 2016. The most recent changes have led to a major expansion of the CHHA and have caused the City to re-evaluate its adopted policies.

### **What was the size of the expansion?**

The 2016 CHHA Map shows a Category 1 storm surge area of 16,328 acres, more than double the 7,705 acres identified on the 2010 Map. [See attached map.]

### **Why did the CHHA double in size?**

The Tampa Bay Regional Planning Council's 2017 Regional Evacuation Study states that the CHHA expansion is due to an update to the Composite SLOSH model's physics parameters which now include the use of Kelvin Wave dynamics which is thought to resolve coastal reflections of surges caused by trapped Kelvin Waves. In other words, the model update accounts for variation in tide waves caused by shallow seas and coastal waters. Wave amplitude increases when Kelvin waves move into shallow water. In coastal regions, Kelvin waves can also be generated as storm surges are diffracted by vertical boundaries and scattered by irregular coastlines.

### **What City Comprehensive Plan policies or objectives need to be re-evaluated?**

There are several Comprehensive Plan policies and objectives that need to be examined (replaced or amended), including Land Use Policy LU7.1 which states that "Requests for residential density increases within the Coastal High Hazard Zone shall not be approved," and Coastal Management Objective CM10B which states that "The City shall direct population concentrations away from known or predicted coastal high hazard areas consistent with the goals, objectives and policies of the Future Land Use Element."

A Future Land Use Map (FLUM) amendment or rezoning within the CHHA is not always about residential development; often it is about an office or retail (commercial) project. However, such an amendment or rezoning almost always allows for an increase in residential density too, as most of the future land use categories allow both. As it relates to increasing density in the CHHA, the language of Policy LU7.1 and Objective CM10B is quite different (stricter) from the language that exists in the Florida Statutes, TBRPC's Strategic Regional Policy Plan and the Countywide Plan Rules.

### **What general areas of the City are located within the expanded CHHA boundary?**

- Innovation District and the entire Salt Creek area
- USF St. Petersburg Campus
- Skyway Marina District: both sides of 34th Street South
- Coquina Key Shopping Plaza (minor portion)
- 4th Street North, both sides between 54th Avenue North and Howard Frankland Bridge
- Dr. ML King Jr. Street North, between 62nd Avenue and Gandy Blvd.

- ASI/Progressive Insurance Headquarters (Dr. ML King Jr. Street and 94th Avenue)
- Metropointe Commerce Park and Carillon Office Park
- Jabil Headquarters Campus
- Echelon Town Center
- Several mobile home parks

**If the City's Comprehensive Plan policies are not amended, what types of Future Land Use Map amendments will not be processed?**

- Approximately 4,000 acres (or 27%) of the CHHA is designated Residential Low or Residential Urban, which permit a density range from 5 to 7½ units per acre. City-initiated or private applications would typically be processed to amend the designation to Residential Medium, which permits up to 15 units per acre. Such applications would not be processed due to location within the CHHA.
- Approximately 1,575 acres (or 11%) of the CHHA is designated Residential Medium or Residential/Office General, which permit up to 15 units per acre. City-initiated or private applications (especially for R/OG designated land) would typically be processed to amend the designations to Planned Redevelopment-Mixed Use, which permits up to 24 units per acre. Such applications would not be processed due to location within the CHHA.
- Finally, numerous applications, both City-initiated and private, have been processed over the years for incremental expansion of commercial zoning along 4<sup>th</sup> Street North and Dr. ML King/9<sup>th</sup> Street North, often just one lot or two, to accommodate office and retail redevelopment. The typical request would be to amend the lower density residential designation to Residential/Office General or Planned Redevelopment-Mixed Use, which permit a residential density range from 15 to 24 units per acre. Such applications would not be processed due to location within the CHHA.

**Why is this expanded area, or the entire CHHA, of concern?**

It is understood that CHHA residents are the first to evacuate when a tropical system or hurricane threatens Pinellas County. Evacuation times and shelter capacity are always a concern, however, a land use amendment within the CHHA is not always about residential development; often it is about accommodating an office or retail project. Prohibiting a land use amendment in a 16,000-acre area could/would arguably hamper economic development in the City, and prevent (again, arguably) rational land use amendments from being enacted.

The ability for City Council to approve, on a case-by-case basis, requests to increase density/intensity within the CHHA would be consistent with Comprehensive Plan policies that address the efficient use of existing infrastructure and encourage development and redevelopment in areas where infrastructure exists, and excess capacity is available. The *inability* to increase density/intensity within the CHHA, on a case-by-case basis, could have a negative effect on the City's economic development efforts by:

- decreasing the size of development/redevelopment projects
- reducing private financial investment/reinvestment in real property
- decreasing the number of construction and permanent jobs created

- hindering the expansion of existing businesses
- making business recruitment more difficult
- limiting potential/probable increases in the tax base
- providing less diversification of the City's economic base
- reducing the number of multifamily units constructed, leading to fewer housing choices (e.g., workforce and affordable housing)
- hindering redevelopment efforts in impacted neighborhoods and business districts
- delaying the redevelopment or replacement of structures that do not conform to flood and wind hazard construction standards

## EVOLUTION OF THE CITY STAFF PROPOSAL

### What is City staff proposing?

The proposed text amendments to the Comprehensive Plan include adoption of the new 2016 CHHA Map, amending policies that prohibit requests for residential density increases within the CHHA and adding balancing criteria to be considered when requests are made to increase density within the CHHA.

The balancing criteria are found in the Countywide Plan Rules, administered by Forward Pinellas. Specifically, Section 4.2.7.1 of the Countywide Plan Rules states that "the Countywide Planning Authority shall deny an amendment to the Countywide Plan Map within the CHHA which results in an increase of density or intensity; except that they may, at their sole and absolute discretion, consider approving such amendment based upon a balancing of the following criteria, as are determined applicable and significant to the subject amendment." These criteria include:

1. Access to Emergency Shelter Space and Evacuation Routes. The uses associated with the requested amendment will have access to adequate emergency shelter space as well as evacuation routes with adequate capacities and evacuation clearance times.
2. Utilization of Existing and Planned infrastructure. The requested amendment will result in the utilization of existing infrastructure, as opposed to requiring the expenditure of public funds for the construction of new, unplanned infrastructure with the potential to be damaged by coastal storms.
3. Utilization of Existing Disturbed Areas. The requested amendment will result in the utilization of existing disturbed areas as opposed to natural areas that buffer existing development for coastal storms.
4. Maintenance of Scenic Qualities and Improvement of Public Access to Water. The requested amendment will result in the maintenance of scenic qualities, and the improvement of public access, to the Gulf of Mexico, inland waterways (such as Boca Ciega Bay), and Tampa Bay.
5. Water Dependent Use. The requested amendment is for uses which are water dependent.

6. Part of Community Redevelopment Plan. The requested amendment is included in a Community Redevelopment Plan, as defined by Florida Statutes for a downtown or other designated redevelopment areas.
7. Overall Reduction of Density or Intensity. The requested amendment would result in an increase in density or intensity on a single parcel, in concert with corollary amendments which result in the overall reduction of development density or intensity in the surrounding CHHA.
8. Clustering of Uses. The requested amendment within the CHHA provides for the clustering of uses on a portion of the site outside the CHHA.
9. Integral Part of Comprehensive Planning Process. The requested amendment has been initiated by the local government as an integral part of its comprehensive planning process, consistent with the local government comprehensive plan.

These nine criteria have been in the Countywide Rules since 2005. They were readopted in 2015, with a new requirement that they also be adopted locally (for those communities to whom it applies). There are 12 local governments in Pinellas County, in addition to St. Petersburg, that have addressed or are in the process of addressing the balancing criteria.

At the request of the CPPC, it is further proposed that the language set forth in Section 163.3178(8), F.S., be added to the amendment. This section of the Florida Statutes addresses compliance of a comprehensive plan amendment with state coastal high-hazard provisions. It specifically states that “A proposed comprehensive plan amendment shall be found in compliance with state coastal high-hazard provisions if:

- The adopted level of service for out-of-county hurricane evacuation is maintained for a category 5 storm event as measured on the Saffir-Simpson scale; or
- A 12-hour evacuation time to shelter is maintained for a category 5 storm event as measured on the Saffir-Simpson scale and shelter space reasonably expected to accommodate the residents of the development contemplated by a proposed comprehensive plan amendment is available; or
- **Appropriate mitigation is provided** (emphasis added) that will satisfy subparagraph 1 or subparagraph 2. Appropriate mitigation shall include, without limitation, payment of money, contribution of land, and construction of hurricane shelters and transportation facilities. Required mitigation may not exceed the amount required for a developer to accommodate impacts reasonably attributable to development. A local government and a developer shall enter into a binding agreement to memorialize the mitigation plan.”

Thus, the Florida Statutes allow for the mitigation of impacts reasonably attributable to development that results from a density increase within the CHHA. In discussions with officials from the Florida Department of Economic Opportunity (DEO), Bureau of Community Planning, it was made clear that the LOS standards set forth in the state statutes could be dealt with successfully by local governments *with mitigation*, and that amendments impacting the CHHA are reviewed and considered by DEO staff on a case-by-case basis.

### Consideration of Additional Balancing Criteria

City staff is recommending that two other balancing criteria be considered when increases in density are requested, in addition to the nine discussed above. They are as follows:

- Location within an Activity Center or Target Employment Center. The requested amendment area is located within a designated Activity Center or Target Employment Center.
- Furtheres the Goals and Policies of the Integrated Sustainability Action Plan (ISAP). The requested amendment results in the furthering of goals and policies identified in the ISAP, including but not limited to green infrastructure, green building, and low impact design.
- Reduction of Storm Vulnerable Structures. The reduction or elimination of substandard flood hazard and wind load bearing structures will be accelerated because of the redevelopment allowed by the plan amendment.

### Mandatory or Prioritized Criteria

The criteria are proposed as a balancing test *meaning* certain criteria may be weighted more than others at the discretion of the evaluator. City staff recommends that consideration be given toward making one or more criteria *mandatory*.

### Mitigation: A Countywide Conversation

For several months, Planning and Development Services Department staff has been working with the City's Office of Emergency Management (St. Petersburg Fire Rescue), as well as staff from Forward Pinellas, Pinellas County Planning Department, and Pinellas County Emergency Management. An informal "working group" has been formed, and to date has met four times.

It is anticipated that the agreed upon mitigation plan (necessitated by an increase in density within the CHHA) will likely involve the payment of money to provide additional shelter space in Pinellas County, with the developer paying a "to be determined" amount of money to build more shelter spaces for the additional persons attributed to the development. Pinellas County Emergency Management will likely set up a fund to account for this money. No details have been discussed, to date.

## **CHAPTER 16, CITY CODE (LAND DEVELOPMENT REGULATIONS)**

### **What City Code (LDR) changes are being considered?**

Section 16.30.040 of the City Code addresses development in the Coastal High Hazard Area (CHHA). It is proposed that the following development regulations be considered:

- New construction of residential dwelling units (resulting from a density/intensity increase from a plan amendment after (date of this change) shall provide for hurricane shelter mitigation. Such mitigation for the impacts attributable to the development shall include one or a combination of



the following: payment of money, contribution of land, or construction of hurricane shelters. Payment for construction of hurricane shelter space shall be provided prior to issuance of the certificate of occupancy for the dwelling unit(s), in accordance with the following formula:

*[Formula to be Determined in Consultation with Emergency Management]*

If the property owner elects to contribute land or construct hurricane shelter space, a binding agreement shall be executed regarding such mitigation prior to issuance of a building permit for construction of the residential units.

- New construction of hotels and multi-family, residential dwelling units shall provide a Hurricane Evacuation Plan requiring mandatory evacuation in accordance with Emergency Management directives. Such requirements shall be incorporated into a legally binding document such as lease documents, condominium rules, homeowner rules, or other such method approved by the POD.
- Establish CHHA design standards based on the following model from Norfolk, Virginia.

## CITY OF NORFOLK EXPERIENCE (RESILIENCE QUOTIENT SYSTEM)


In an effort to foster more flood resilient development and redevelopment, the City of Norfolk, Virginia adopted a new zoning ordinance in January 2018, with an effective date of March 1, 2018. The ordinance includes a new *resilience quotient system*, where developers earn points for incorporating different resilient measures that promote flood risk reduction, stormwater management and energy resilience, among other practices. New development is required to meet different resilience point values based on the development type (e.g., residential, nonresidential, mixed-use) and development size (e.g., number of residential units, square footage).


Section 5.12 of the Norfolk Zoning Ordinance, titled Resilience Quotient, is attached. City staff recommends that this *overall concept* be considered for incorporation into the land development regulations. If the City Council would like to evaluate further, City staff will prepare next steps for additional research and stakeholder engagement.

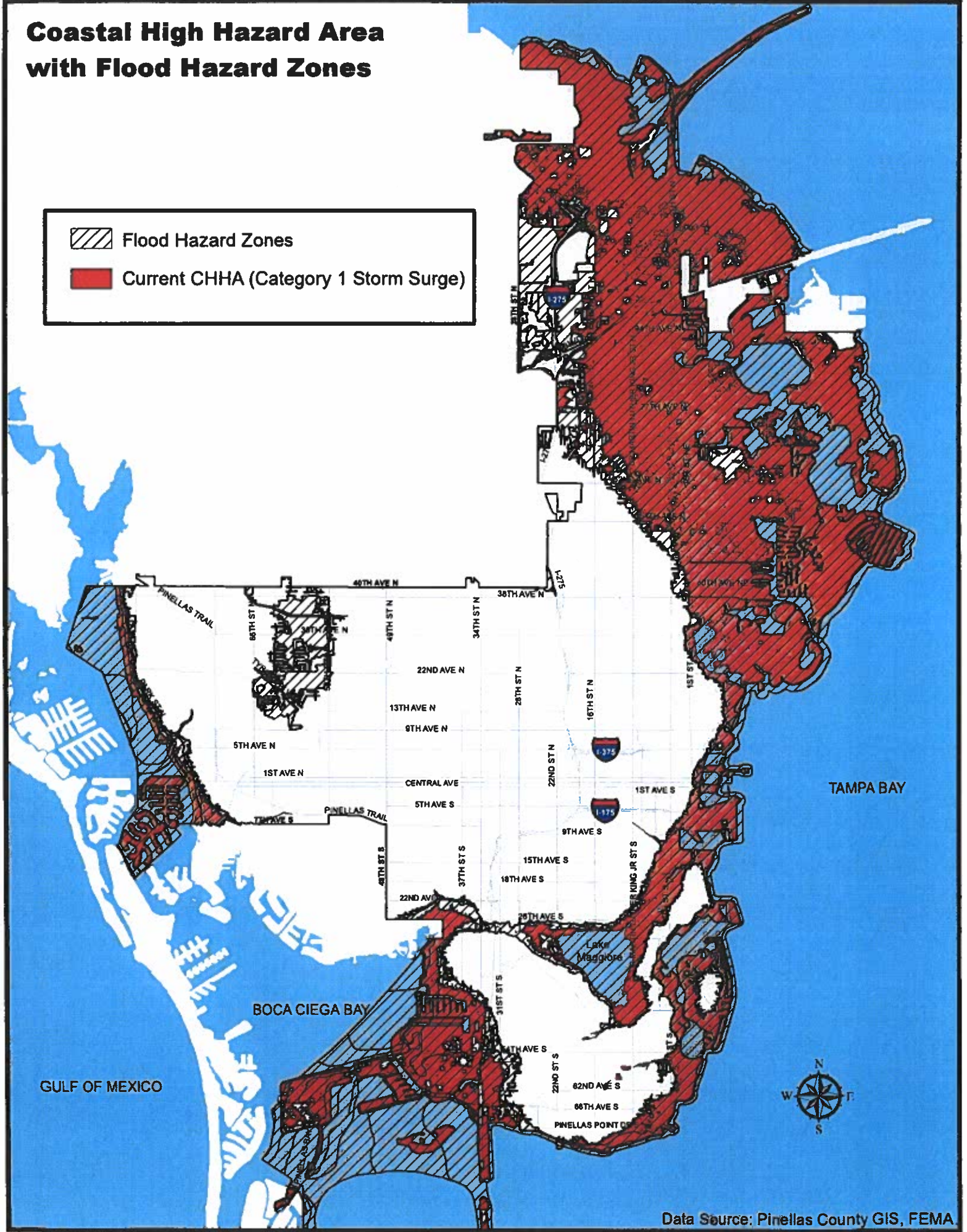
If interested, City staff recommends a limited scope than refines the model with particular attention given to reducing flood risk by establishing higher standards of construction that is more resilient to storm surge, mitigates for service and infrastructure needs during and immediately following a major storm event, and enables safe re-occupation as quickly as possible following an evacuation. These needs would be considered in consultation with the City's Construction Services and Permitting staff and Certified Floodplain Manager, and City and County Emergency Management staff.

**ATTACHMENT: COASTAL HIGH HAZARD MAP**

# Coastal High Hazard Area with Flood Hazard Zones

 Flood Hazard Zones

 Current CHHA (Category 1 Storm Surge)



**ATTACHMENT: NORFOLK RESILIENCY QUOTIENT**

CITY OF NORFOLK, VA  
RESILIENCE QUOTIENT

**5.12.1. PURPOSE**

The City of Norfolk is committed to be the coastal community of the future, with the capacity to endure and quickly recover from climatic and environmental shocks and stresses and bounce back quickly and stronger. All proposed development shall be reviewed to identify how it will enhance resilience for both the development specifically and the city generally. This section is intended to ensure development practices that promote resiliency in the following ways:

- A. Reduce risks from flooding;
- B. Conserve energy;
- C. Promote the use of alternative energy;
- D. Conserve water resources;
- E. Protect water quality;
- F. Manage stormwater;
- G. Support walkable, mixed-use development in appropriate places;
- H. Support multiple modes of mobility;
- I. Promote a healthy landscape;
- J. Support urban agriculture; and
- K. Promote healthy and safe lifestyles

**5.12.2. APPLICABILITY**

Unless exempted by this section, all development shall comply with the resilience quotient standards of this section.

**A. EXEMPTED DEVELOPMENT**

The following development is exempted from the standards of this section:

- (1) New buildings or redevelopment that have achieved or will achieve LEED requirements necessary to receive certification from the U.S. Green Building Council at the gold level or above;
- (2) Renovation or rehabilitation of a building constructed prior to March 1, 2018 when the cost of the work is less than 50 percent of the appraised value of the development prior to the renovation or rehabilitation; and
- (3) Expansion of a building constructed prior to March 1, 2018 whose expansion is less than 50 percent of the gross floor area of the building.
- (4) Historic or architecturally significant buildings which meet at least one of the following criteria:
  - (a) Individually listed on the US Department of the Interior's National Register of Historic Places; or
  - (b) Individually listed in the Virginia Landmarks Register; or
  - (c) Noted as a contributing structure in a district listed within the US Department of the Interior's National Register of Historic Places or the Virginia Landmarks Register or a local historic district designated in accordance with this Ordinance; or



- (d) Designated as a Norfolk Historic Landmark in accordance with Section 3.9.20, HL: Historic Landmark Designation.

### 5.12.3.

### TIMING OF REVIEW

Review for compliance with the standards of this section shall occur during review of a development application for either a conditional rezoning (see Section 2.4.4, Conditional Rezoning), planned development (see Section 2.4.5, Planned Development District), conditional use (see Section 2.4.8, Conditional Use Permit), site plan (see Section 2.4.18, Major Site Plan, or Section 2.4.19, Minor Site Plan), or Zoning Certificate (see Section 2.4.14, Zoning Certificate), as appropriate.

#### A. GENERALLY

Unless an alternative option is specified below, all new development and redevelopment to which the resilience quotient applies shall undergo site plan review during which the following conditions shall be reviewed and addressed:

- (1) Reducing risks from flooding;
- (2) Managing stormwater;
- (3) Promoting energy resilience including the use of alternative energy;
- (4) Conserving water resources and protecting water quality;
- (5) Supporting multiple modes of mobility, specifically including walkability and bikeability;
- (6) Developing in a manner that promotes healthy and safe environments and lifestyles; and
- (7) Providing inclusionary dwelling units within mixed-income residential or mixed-use developments.

#### B. DOCUMENTATION REQUIRED

Applicants shall provide documentation of techniques that will be utilized to satisfy the requirements of this section at the time of submittal of a development application. Documentation for items that may not be visually verified as part of an inspection may be provided in the form of invoices, receipts, or delivery confirmation for the items in question.

#### C. INSTALLATION AND MAINTENANCE OF RESILIENCE QUOTIENT DEVELOPMENT ACTIVITIES REQUIRED

All Resilient Development Activities approved as a part of a development shall be installed, maintained and perpetuated. Failure to do so shall be a violation of this Ordinance and subject to the remedies and penalties prescribed in Article 7, Enforcement.

#### D. DETERMINATION OF COMPLIANCE

The ZA shall determine whether the Resilient Development Activities proposed meet the requirements of this Ordinance. In carrying out this responsibility, the ZA may seek advice and counsel from other City staff and outside subject matter experts prior to issuing a determination. To the extent practicable, all determinations shall be rendered in writing stating the reasons therefor.

**5.12.5. RESILIENCE QUOTIENT COMPLIANCE FOR SINGLE FAMILY DEVELOPMENT**

**A. APPLICABILITY**

Any proposed development that includes only single family detached dwellings may elect to comply with the resilience quotient standards for single family development in this subsection in lieu of the site plan review process established in Section 5.12.4, Compliance with Resilience Quotient Standards, above.

- (1) **Risk Reduction**  
The lowest habitable floor and all significant electrical and mechanical equipment shall be elevated at least 16 inches above the highest adjacent grade unless a greater elevation is required by the provisions of the FPCH-O district.
- (2) **Stormwater Management**  
Roof drainage shall be intercepted and detained on site within a system providing no less than 200 gallons of total storage capacity; these requirements shall be memorialized in an agreement in lieu of a plan for stormwater.
- (3) **Energy Resilience**  
The electrical systems of the dwelling shall be designed with pre-installed wiring and connections to allow use of a generator during electricity outages and/or connection of solar, wind, or other locally-generated electricity source.

The ZA, for good cause shown, may authorize in writing minor deviations from the above requirements that achieve the same resilience goals to an equal or greater extent.

**5.12.6. RESILIENCE QUOTIENT COMPLIANCE FOR MULTIPLE DWELLING UNIT RESIDENTIAL DEVELOPMENT**

**A. APPLICABILITY**

The following types of development shall comply with the resilience quotient standards of this subsection:

- (1) Any proposed multi-family residential development other than one or two single family dwellings not part of a common plan of development; or
- (2) Any proposed development that includes one or more dwelling units as part of a mixed-use development. In this case, the standards of this subsection shall apply only to the residential portion of the development.

**B. GENERALLY**

Any multi-family residential development shall fully address all of the factors in Section 5.12.4, Compliance with Resilience Quotient Standards, during site plan review and shall comply with the following standards in so doing:

- (1) The lowest habitable floor and all significant electrical and mechanical equipment shall be elevated at least 16 inches above the highest adjacent grade unless a greater elevation is required by the provisions of the FPCH-O district.
- (2) 100% of the drainage from impervious surfaces on the site shall be captured and retained on site with sufficient storage to keep the first 1.25 inches of rainwater from an individual rain event on site without discharging onto neighboring properties or rights-of-way unless a regional stormwater management system is available to the development and the specific discharges into it have been approved by the Director of Public Works.

**C. ALTERNATIVE MINIMUM REQUIREMENTS**

Any multiple dwelling unit residential development may elect to comply with the resilience quotient standards for residential development in this subsection in lieu of the portion of the site plan review process established in Section 5.12.4, Compliance with Resilience Quotient Standards, above. The point system provides options within each of three components and each development shall achieve a minimum number of points from the menu of options shown in Table 5.12.6, Resilient Point System for Residential Development, based on the number of dwelling units within the development as shown below.

- (1) 1 to 5 units: 4 points total, no less than 1 point per component.
- (2) 6 to 29 units: 5 points total, no less than 1.5 points per component.
- (3) 30 to 89 units: 6 points total, no less than 1.5 points per component.
- (4) 90 to 199 units: 8 points total, no less than 2 points per component.
- (5) 200 or more units: 10 points total, no less than 2 points per component.

Any actions taken to meet the general requirements of Section 5.12.6.B for which points are available shall be included when tabulating the number of points achieved within each component.



**TABLE 5.12.6: RESILIENT POINT SYSTEM FOR RESIDENTIAL DEVELOPMENT**

| <b>Resilient Development Activity</b>  | <b>Points Earned</b>                |
|--|-------------------------------------|
| <b>Component 1: Risk Reduction</b>   |                                     |
| Construct building to meet 110-mile wind load design requirements of the VUSBC   | 2.00                                |
| Elevate the ground story finished floor and all significant electrical and mechanical equipment no less than 3 feet above highest adjacent grade   | 1.00, plus 0.50 per ft. above 3 ft. |
| Construct an impact-resistant (hail, tree damage) roof   | 0.50                                |
| Install impact (hurricane or wind) resistant windows   | 0.50                                |
| Install operable storm shutters  | 0.50                                |
| Establish operating procedures for how the project will handle loss of off-site or grid power, transition to a backup source of power, and transition back to normal operation   | 0.50                                |
| <b>Component 2: Stormwater Management</b>  |                                     |
| Install a <u>green roof</u> on at least 50 percent of the total roof area (25 percent for renovated buildings) and only plant materials permitted in <u>Section 5.2, Landscaping Standards</u>                         | 2.00                                |
| Install a green roof on at least 25 percent of the total roof area and only plant materials permitted in <u>Section 5.2, Landscaping Standards</u>   | 1.00                                |
| Provide <u>rain gardens</u> , street-side swales, soil and turf management or other appropriate storm water infiltration system(s) to capture and infiltrate a minimum of 25 percent of site-generated stormwater      | 1.00                                |
| Use pervious or grass paving systems on at least 50% of parking lot and driveway area in the development   | 1.00                                |
| Provide a fenced, centrally-located community garden space (which may be located as a rooftop garden) for residents and for urban gardening purposes at a ratio of 50 square feet per residential <u>dwelling unit</u> | 1.00                                |
| Retain at least 20 percent of existing pre-development natural, non-exotic vegetation  | 0.75                                |
| Provide a percentage of open space greater than that required in <u>Table 5.5.4(A), Required Open Space Set-Asides</u>   | 0.50 per additional 5% preserved    |
| For new tree plantings, enhance tree pits with specially engineered soils and native plants to absorb and filter runoff  | 0.25                                |
| Preserve large, non-exotic <u>trees</u> on site (large tree defined as 20 feet or greater in height and 24 inches or greater <u>DBH</u> )  | 0.10 per tree preserved             |
| <b>Component 3: Energy Resilience</b>  |                                     |
| Generate no less than 75% of the electricity expected to be used by the development from on-site solar and/or wind energy sources  | 3.00                                |

**TABLE 5.12.6: RESILIENT POINT SYSTEM FOR RESIDENTIAL DEVELOPMENT**

|   |                             |
|---|-----------------------------|
| Generate no less than 50% of the electricity expected to be used by the development from on-site solar and/or wind energy sources   | 2.00                        |
| Install a <u>cool roof</u> on at least 50 percent of the total roof area of the development   | 1.50                        |
| Generate no less than 25% of the electricity expected to be used by the development from on-site solar and/or wind energy sources   | 1.00                        |
| Generate no less than 25% of the electricity needed expected to be used by the development from on-site solar and/or wind energy sources  | 1.00                        |
| Install a geothermal energy heating & cooling system serving all residential units and common areas   | 1.00                        |
| Install a conditioned crawlspace under each primary structure   | 1.00                        |
| Install <u>green walls</u> on a minimum of 50 percent of the primary building's walls   | 1.00                        |
| Adopt an energy efficient site lighting budget (based on the International Dark Sky Association's designations for allowable lumens per square foot of specified use or type of hardscape)        | 1.00                        |
| Equip the project with at least one alternative, independent source of electricity supply so that the project is capable of fully operating if a primary source of power experiences interruption | 1.00                        |
| Pre-wire all <u>dwelling units</u> to accept power provided by on-site solar panels and/or wind turbines  | 1.00                        |
| Install a 20+ SEER HVAC system in each dwelling unit  | 1.00                        |
| Re-use or repurpose an historic building that is listed on a national, state, or local register, or at least 75% (based on surface area) of existing historic structures                          | 1.00                        |
| Install a cool roof on at least 25 percent of the total roof area of the development  | 0.75                        |
| Install a 16-19 SEER HVAC system in each dwelling unit  | 0.50                        |
| Install multi-room mini-split heating and cooling systems in each dwelling unit   | 0.50                        |
| Install a solar or tank-less water heating system in each dwelling unit   | 0.50                        |
| Install no fewer than 2 operable windows on no fewer than two exterior walls in each dwelling unit  | 0.50                        |
| Install a generator for power generation to keep critical functions (refrigerator, freezer, basic lighting, healthcare appliances, etc.) working in the event of power failure                    | 0.50                        |
| Provide shade, open-grid pervious pavement, or solar-reflective paving on 50% of total area of roads, sidewalks, and parking areas in the development   | 0.50                        |
| Provide electric vehicle (EV) level 3 charging stations, located in a parking structure or off-street parking lot, that are made available for use by residents                                   | 0.50 for every two stations |
| Plant vegetation so that 50% of the eastern and western building facades are shaded at noontime on the summer solstice within 10 years of planting  | 0.50                        |
| Use vegetation or vegetated structures to shade each dwelling's HVAC unit   | 0.25                        |

**TABLE 5.12.6: RESILIENT POINT SYSTEM FOR RESIDENTIAL DEVELOPMENT**

|   |                             |
|---|-----------------------------|
| Automatically turn off all outdoor signage and lighting between the hours of 10:00 p.m. and 7:00 a.m. except for security lighting  | 0.25                        |
| Provide a minimum of five percent of required automobile parking spaces that are signed and reserved for hybrid/electric/low energy vehicles in preferred locations near primary building entrances | 0.25                        |
| Provide electric vehicle (EV) level 2 charging stations, located in a parking structure or off-street parking lot, that are made available for use by residents                                     | 0.25 for every two stations |
| Re-use or repurpose an existing non-historic building, or at least 75% (based on surface area) of existing structures   | 0.25                        |
| Install highly-reflective blinds/shades to reduce solar gain  | 0.25                        |

**5.12.7. RESILIENCE QUOTIENT COMPLIANCE FOR NON-RESIDENTIAL DEVELOPMENT**

**A. APPLICABILITY**

Any proposed development that includes non-residential development. In the case of mixed-use development, the standards of this subsection shall only apply to the non-residential portion of the development.

**B. GENERALLY**

Any non-residential development to which the resilience quotient is applicable shall fully address all of the factors in Section 5.12.4, Compliance with Resilience Quotient Standards, during site plan review and shall comply with the following standards in so doing:

- (1) The lowest habitable floor and all significant electrical and mechanical equipment shall be elevated at least 8 inches above the highest adjacent grade unless a greater elevation is required by the provisions of the FPCH-O district.
- (2) 100% of the drainage from impervious surfaces on the site shall be captured and retained on site with sufficient storage to keep the first 1.25 inches of rainwater from an individual rain event on site without discharging onto neighboring properties or rights-of-way unless a regional stormwater management system is available to the development and the specific discharges into it have been approved by the Director of Public Works.

**C. ALTERNATIVE MINIMUM REQUIREMENTS**

Any non-residential development may elect to comply with the resilience quotient standards for non-residential development in this subsection in lieu of the portion of the site plan review process established in Section 5.12.4, Compliance with Resilience Quotient Standards, above. The point system provides options within each of three components and each development shall achieve a minimum number of points from the menu of options shown in Table 5.12.7.

- (1) Less than 10,000 sq. ft.: 3 points total, no less than 1 point per component.
- (2) 10,000 to 25,000 sq. ft.: 4 points total, no less than 1.5 points per component.
- (3) 25,000 to 50,000 sq. ft.: 6 points total, no less than 1.5 points per component.
- (4) Above 50,000 sq. ft.: 10 points total, no less than 2 points per component.

Any actions taken to meet the general requirements of Section 5.12.7.B, Generally, for which points are available shall be included when tabulating the number of points achieved within each component.

| <b>TABLE 5.12.7.: RESILIENT POINT SYSTEM FOR NON-RESIDENTIAL DEVELOPMENT</b>   |   |
|--|---|
| <b>Resilient Development Activity</b>  | <b>Points Earned</b>                      |
| <b>Component 1: Risk Reduction</b>   |   |
| Construct building to meet 110-mile wind load design requirements of the VUSBC   | 2.00                                      |
| Equip the project with at least one alternative, independent source of electricity supply so that the project is fully capable of operating if a primary source of power experiences an interruption   | 1.50                                      |
| If the project involves a critical facility that is intended to remain operational in the event of a flood, or whose function is critical for post-flood recovery, design the facility to be protected and operable at the water levels represented by a 0.2% annual chance (500-year) flood | 1.00                                      |
| Elevate the ground story finished floor and all significant electrical and mechanical equipment no less than 3 feet above highest adjacent grade or to an elevation of 11 (NAVD '88)   | 1.00, plus<br>0.50 per ft.<br>above 3 ft. |
| Install a generator for power generation in the event of power failure sufficient to keep critical operations functional   | 0.50                                      |
| Establish operating procedures for how the project will handle loss of off-site or grid power, transition to a backup source of power, and transition back to normal operation   | 0.50                                      |
| <b>Component 2: Stormwater Management</b>  |   |
| Install a <u>green roof</u> on at least 50 percent of the total roof area (25 percent for renovated buildings) and only plant materials permitted in <u>Section 5.2, Landscaping Standards</u>   | 2.00                                      |
| Install a green roof on at least 25 percent of the total roof area and only plant materials permitted in <u>Section 5.2, Landscaping Standards</u>   | 1.00                                      |
| Provide <u>rain gardens</u> , street-side swales, turf and soil management or other appropriate storm water infiltration system(s) to capture and infiltrate a minimum of 25 percent of site generated stormwater  | 1.00                                      |
| Use pervious pavement on at least 50% of parking lot and driveway area in development  | 1.00                                      |



**TABLE 5.12.7.: RESILIENT POINT SYSTEM FOR NON-RESIDENTIAL DEVELOPMENT**

|  |                                  |
|--|----------------------------------|
| Retain at least 20 percent of existing pre-development natural, non-exotic vegetation  | 0.75                             |
| Provide a percentage of open space greater than that required in <u>Table 5.5.4.A, Required Open Space Set-Asides</u>  | 0.50 per additional 5% preserved |
| For new <u>tree</u> plantings, enhance tree pits with specially engineered soils and native plants to absorb and filter runoff   | 0.25                             |
| Preserve large, non-exotic trees on site (large tree defined as 20 feet or greater in height and 24 inches or greater <u>DBH</u> )   | 0.10 per tree preserved          |
| <b>Component 3: Energy Resilience</b>  |                                  |
| Generate no less than 75% of the electricity expected to be used by the development from solar and/or wind energy sources  | 3.00                             |
| Generate no less than 50% of the electricity expected to be used by the development from solar and/or wind energy sources  | 2.00                             |
| Install a <u>cool roof</u> on at least 50 percent of the total roof area of the development  | 1.50                             |
| Generate no less than 25% of the electricity expected to be used by the development from solar and/or wind energy sources  | 1.00                             |
| Install a geothermal heating and cooling system serving all parts of the project   | 1.00                             |
| Install a conditioned crawlspace under each primary structure  | 1.00                             |
| Install <u>green walls</u> on a minimum of 50 percent of the primary building's walls  | 1.00                             |
| Install 20+ SEER HVAC systems throughout the project   | 1.00                             |
| Re-use or repurpose an historic building that is listed on a national, state, or local register, or at least 75% (based on surface area) of existing historic structures   | 1.00                             |
| Preserve or provide trees on the site which will within 10 years growing time will provide tree canopy over no less than 50% of the total site                             | 1.00                             |
| Install a cool roof on at least 25 percent of the total roof area of the development   | 0.75                             |
| Install 16-19 SEER HVAC systems throughout the project   | 0.50                             |
| Install mini-split heating and cooling systems throughout the project  | 0.50                             |
| Install solar or tank-less water heating systems throughout  | 0.50                             |
| Provide shade, open-grid pervious pavement, or solar-reflective paving on 50% of total area of roads, sidewalks, and parking areas in the development                      | 0.50                             |
| Provide electric vehicle (EV) level 3 charging stations, located in a parking structure or off-street parking lot, that are made available for use by users of the project | 0.50 for every two stations      |
| Plant vegetation so that 50% of the eastern and western building facades are shaded at noontime on the summer solstice within 10 years of planting                         | 0.50                             |
| Orient buildings within 20 percent of east-west axis for maximum solar exposure  | 0.50                             |

**TABLE 5.12.7.: RESILIENT POINT SYSTEM FOR NON-RESIDENTIAL DEVELOPMENT**

|   |                             |
|---|-----------------------------|
| Provide operable windows on at least 2 façades on each floor which provide flow-through ventilation   | 0.25                        |
| Use vegetation or vegetated structures to shade HVAC units  | 0.25                        |
| Automatically turn off all outdoor signage and lighting between the hours of 10:00 p.m. and 7:00 a.m. except for security lighting  | 0.25                        |
| Provide a minimum of five percent of required automobile parking spaces that are signed and reserved for carpools, hybrid, electric, and low energy vehicles in preferred locations near primary building entrances | 0.25                        |
| Provide electric vehicle (EV) level 2 charging stations, located in a parking structure or off-street parking lot, that are made available for use by users of the project  | 0.25 for every two stations |
| Re-use or repurpose an existing non-historic building, or at least 75% (based on surface area) of existing structures   | 0.25                        |
| Install highly-reflective blinds/shades to reduce solar gain  | 0.25                        |
| Provide skylights in an amount necessary to ensure natural lighting is provided to at least 25 percent of the habitable rooms in the structure  | 0.25, plus                  |

**5.12.8. MINOR DEVIATION FROM RESILIENCE QUOTIENT COMPLIANCE**

**A. APPLICABILITY**

Any proposed development subject to the resilience quotient provisions and electing to utilize the point system in lieu of having the resilience quotient be fully reviewed and implemented as a part of the site plan review process may propose minor deviations or alternative Resilient Development Activities for consideration.

**B. ZONING ADMINISTRATOR AUTHORITY**

- (1) The ZA, for good cause shown, may authorize in writing minor deviations from the resilient quotient requirements specified in the sections above provided that those resilience goals are still achieved to an equal or greater extent.
  
- (2) Any proposed deviation determined by the ZA to be more than a minor deviation shall not be approved by the ZA and the development shall, instead, utilize the site plan review process for a complete review of the resilience quotient factors contained in Section 5.12.4, Compliance with Resilience Quotient Standards.
  
- (3) The ZA shall review any alternative Resilient Development Activities that may be proposed and, if determined in writing that the alternative Resilient Development Activities will achieve the same resilience goals to an equal or greater extent, the ZA will assign point value(s) to the alternative Activities. The ZA shall maintain an online log of all approved alternative Resilient Development Activities and the point value assigned.