March 6, 2015

The Honorable Williams D. Sessoms, Jr., Mayor  
Members of City Council

Subject: Moody’s Update – Coastal Virginia Credit Focus Review

Dear Mayor and Council Members:

Moody’s Investor Services is one of three rating agencies that rate the City’s bonds. Its staff has been asked to prepare a report on how coastal Virginia cities are addressing sea level rise/recurrent flooding (SLR/RF). As a coastal Virginia city, they have asked the City of Virginia Beach to answer questions regarding our approach SLR/RF. Staffs from Finance, Public Works, Planning, and the City Manager’s Office have reviewed and answered the questions posed by Moody’s.

Attached you will find the completed questionnaire, which has been provided to Moody’s. The overall theme of the responses is that the City is being pro-active in addressing SLR/RF and when spread over many future years, the City’s strategy for dealing with SLR/RF preserves the tax base and future economic growth opportunities at a cost that is affordable to its citizens.

If you have any questions, please contact Patti Phillips or Phil Davenport.

With Pride in Our City,

James K. Spore  
City Manager  
JKS/PAP/NLL

enclosure
Moody’s Update/Coastal VA Credit Focus Review

Virginia Beach, VA

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In general, the City follows the guiding principle that the future is the shoreline, not retreat. The political environment is engaged and wants solutions that protect jobs and sustain our quality of life; and that will transform the City into the 21st century. As the city continues to transform, needed sea-level protective infrastructure will be inculcated as part of all projects. The City believes these principles will protect its economic future while also protecting its resources.

Debt and Other Long Term Obligations

1. How has/will flood mitigation efforts impact your CIP?

That sea level is rising is a fact accepted by the City of Virginia Beach. At the same time, The City of Virginia Beach (CVB) is a thriving coastal city and intends to take the needed actions to identify and implement the necessary measures to assure its future on the coast.

The initial step for the CVB to address sea level rise and recurrent flooding (SLR/RF) is to prepare a Comprehensive City Response Plan. City Council has endorsed and provided $3 million in funding for this critical initiative to specifically identify the potential impact of SLR and to develop an appropriate and comprehensive response plan. Dewberry Consultants, LLC has been retained by the City to develop the Comprehensive City Response Plan to SLR/RF.

The work to develop the Comprehensive Response Plan is now underway. The development of the Comprehensive City Response Plan to SLR/RF will entail three major steps and will be developed for each of the four watersheds in the City, beginning with the Lynnhaven watershed, which is a tributary of the Chesapeake Bay. The first major step will set the basic parameters to identify areas that will be potentially impacted by SLR/RF. These basic parameters include the appropriate planning horizons, and researching and selecting the expected sea level rise for the appropriate storm scenarios. The second major step will identify the impacts of SLR/RF based on parameters from Step 1. The third major step will be to develop a Comprehensive City Response Plan to SLR/RF in each impacted area. The Response plan will be based on the three generally recognized adaptation strategies for SLR/RF: Engineered Protection Measures; Accommodation; and Land Use Management. A Detailed Response plan will be developed for each planning horizon.
This structured and informed approach will allow the City to address SLR/RF effectively, efficiently and comprehensively from the planning, engineering, and fiscal perspectives.

The Comprehensive City Response Plan to SLR/RF in the Lynnhaven watershed is scheduled to be completed in late 2017. The Comprehensive City Response Plan to SLR/RF for the remaining three major watersheds in the City should be completed by late 2018.

2. Does the current CIP include any spending for flood mitigation or resiliency initiatives? Will this be included in future CIPs?

Yes, the current CIP includes a $3,000,000 appropriation of the above mentioned initiative. In addition, the CIP includes discrete infrastructure improvement projects to mitigate flooding conditions, as well as robust support for the maintenance and operation of the storm water system. Both address flood mitigation and resiliency. The City has completed $43.8 million in flood control projects over the last 5 years. Over the next 10 years, the City expects to spend $135 million on currently identified flood control projects.

3. Approximately how much has been spent over the past 3-5 years mitigation?

The term “mitigation” perhaps needs to be defined. We believe in this context that the word means “actions (expenditures) to offset the effect of sea level rise and/or changes in climatic conditions”. Most of our discrete flood control projects have a purpose and need that stem from recurrent flooding. It is difficult to segregate the portion, or increment, of the projects’ expense that was directly related to mitigation. Nevertheless, in the past 5 years several major Storm Water projects have been accomplished (Rosemont Forest Pump Station, 61st Street Pump Station, North and South Lake Holly (3 of 5 phases completed or underway for each), Eastern Shore Drive and Windsor Woods drainage studies and designs, and Goodspeed Road). The total value of these projects exceeded $43.8 million.

4. Please discuss any current ongoing projects around flood resiliency?

The City has undertaken multiple redevelopment/drainage improvement projects to alleviate flooding and increase future flood resiliency. The following three examples are provided:

- **Bow Creek Recreation Building Project**
  Added additional wet pond storage to increase water quality impact and help mitigate localized flooding potentials.

- **Rosemont Forest Pump Station**
  Constructed stormwater pump station to help protect 18 homes from structural damage and about 530 homes from recurrent flooding.

- **Drainage improvements along Shore Drive**
  Installed check valves and tide gates to help minimize recurrent and nuisance flooding in neighborhoods adjacent to tidal waters connect to the Lynnhaven Inlet.
Flood resiliency along the oceanfront has been accomplished by two major civil works projects (beach replenishment) at the Resort Area and at Sandbridge Beach. In addition, the City regularly provides beach replenishment along the Chesapeake Bay beaches. Beach replenishment prevents or reduces damages from coastal storm events, preserves property values and reduces storm related expenses.

Additionally, the City applied for and has been awarded two FEMA Hazard Mitigation Grants under the federal Severe Repetitive Loss program to elevate 15 homes that have experienced past flooding.

5. If nothing is incorporated: Has your governing body discussed the capital or financial implications of rising sea levels?

The capital and financial implications of doing nothing regarding recurrent flooding/sea level rise would far exceed the cost of mitigation. The issue of sea level rise is not new to the City of Virginia Beach; sea level rise in the area has been documented since tide levels have been recorded and adaptation has occurred throughout the history of the City. However, in response to projections for continued and possibly accelerated sea level rise coupled with more frequent weather events, the City Council has made preparing for sea level rise and recurrent flooding a priority. The Comprehensive Sea Level Rise and Recurrent Flooding Response Plan initiative mentioned earlier in these responses will address the capital and financial implications of rising sea levels.

Finances

6. Please discuss how flooding has impacted the city’s budget and how flood mitigation efforts may impact future budgets?

To date, the City has been able to address most flooding issues within the revenue stream provided by the Storm Water Utility fees. By proactively planning for flood mitigation through the development of the response plan, the City will be able to better plan and budget for needed mitigation efforts in response to citizen expectations.

7. Has current flooding caused unexpected expenditures in previous years’ budgets? Is there a contingency line item in your budget for flood control/clean-up?

No, recurrent flooding has not caused unexpected expenditures in previous years’ budgets.

While no contingency exists specifically for flood control, the City does have the ability to appropriate mid-year for special needs, should they arise, out of the City’s general reserve for contingencies or by reprioritizing CIP projects.
Throughout the City’s entire history, rare and extreme weather events have caused unexpected expenditures. Flooding is typically a minor part of the expense – roads may be temporarily inundated, but are not typically destroyed by the event. Very few City facilities have suffered direct structural flooding, and such expenses, as rare as they are, are typically insured. The major City cost for storm events is wind generated debris removal, trees in the street, and support to neighborhood cleanup.

8. Is the city expecting any federal funding for flood mitigation?

The City of Virginia Beach has administered over $1.5 million in federal funding for elevation of homes through the FEMA Severe Repetitive Loss Program and recently received another $1.2 million grant to continue the projects. The City also routinely partners with federal agencies such as the Army Corps of Engineers in developing and maintaining major flood control projects, such as the Resort and Sandbridge beach replenishment projects, and a major flood control project in the center of the City – Canal No. 2. In addition, the City of Virginia Beach is participating with many local, state, and federal agencies, as well as higher education, private industries and non-profit organizations, to address the impacts of sea level rise/recurrent flooding. These efforts will likely cumulate in a regional program or series of projects for which eligibility for federal civil works funding will be sought.

The General Assembly passed a bill during the 2015 legislative session requiring Hampton Roads localities to plan for sea level rise. The bill (SB1443 [http://hamptonroads.com/bill-tracker?sb1443]) requires cities that are part of the Hampton Roads Planning District Commission to include in their comprehensive plans strategies for rising seas and recurrent flooding. The strategies must be collaborative and added the next time the cities review their plans, the bill says. The House passed the measure 90-9, sending it to the Governor’s desk.

9. Do you have estimated number of flood days for the past few years? Are there any available projections for flood days that you use for budgetary or capital planning?

Currently we do not track the number of flood days in a year since they have not been significant. Instead, we track flooding information as it relates to significant storms that affect our area, i.e. areas that flooded due to Hurricanes Irene and Sandy. We do not do any projections on flooding as it relates to budget or capital planning. The information we utilize from past storms provides us data to plan for evacuation, future grant projects and outreach efforts.

**Tax Base & Economy**

10. Please provide an update on any development efforts along the waterfront:

   a. Are there any ongoing waterfront redevelopment efforts and have they taken into account any vulnerability to extreme weather events
- The nature of the City’s resort area along the oceanfront is such that redevelopment is constantly occurring. In order to provide a greater degree of protection against more extreme weather events and the impacts of sea level rise, the City of Virginia Beach has strengthened its floodplain protection provisions to require a two-foot freeboard.

- In addition, about 20 years ago, the City partnered with the Army Corps of Engineers to build the Hurricane Protection Seawall along the Atlantic Ocean in the resort area from Rudee Inlet to 42nd Street. This project widened the beach and provided a wall to withstand the “140-year” storm. The beach is kept nourished to an engineer-specified height and width through on-going replenishment projects. The majority of Oceanfront development is not in a floodplain due to the seawall. The area is under a form based building code, which requires more resilient development.

- The following are examples of redevelopment projects that take recurrent flooding/sea level rise into consideration:
  - Redvelopment of the Duck In site on Shore Drive fronting the Chesapeake Bay, includes building a seawall and elevating the property (engineered solution)
  - The Chesapeake Bay Foundation’s Brock Environmental Center at Pleasure House Point, an open space conservation project on the Lynnhaven River; the building sits on pilings set back about 200 feet from the river and has a permeable parking lot. Pleasure House Point is a sensitive wetlands area purchased by the City to protect it from development. (accommodation)
  - Kings Landing - will cluster development outside the floodplain, leaving the floodplain as open space. (land use management)

b. Has waterfront development taking into account rising sea levels? (i.e. elevated buildings)

- In 2013 the City of Virginia Beach strengthened its floodplain protection provisions to require a two-foot freeboard. The increased freeboard can be constructed at a negligible cost relative to investment in the construction.

- Over 500 residential development projects in the last year were for properties located on the waterfront. In addition to acquiring City building permits, the residential owner must obtain permits from the Wetlands Board and the Chesapeake Bay Preservation Area Board (if in the Chesapeake Bay watershed). The Wetlands Board is responsible for the review of requests for permits for the use, alteration or development of wetlands, coastal primary sand dunes and beaches. The Chesapeake Bay Board is charged with protecting areas on the Chesapeake Bay that have an intrinsic water quality value or are sensitive to the impact of development. As part of the permitting process, the Board(s)
advises the applicant of their flood zone, base flood elevation, projected sea level rise impacts to the property, and the recommended shoreline stabilization technique.

c. Have there been any zoning / long-term planning adjustments downtown and along the water front to mitigate future flooding impacts?

- The City’s Floodplain Ordinance has several provisions related to flood resiliency in the Special Flood Hazard Area (aka floodplain). This Ordinance can be found on the City’s Web site; Code of Virginia, Appendix K at this link: https://library.municode.com/index.aspx?clienid=10122

(If link does not work, follow this path from VBGov.com: Government/Codes and Ordinances; click on Virginia Beach City Code link found at the top of the page; scroll down to Appendix K in left hand column.)

- Was updated in 2013 to increase freeboard for all new development and substantial improvements to 2 feet (finished floors must be at least two feet above the 100-year flood elevation)
- Limits the amount of fill allowed for development in the Southern part of the city and requires mitigation for fill
- Prohibits new residential development in the Southern part of the city on lots created after October 23, 2001

- The City’s Site Plan Ordinance (Appendix C) and Storm Water Ordinance (Appendix D) include provisions related to lot and road drainage for new developments

- The City’s Zoning Ordinance (Appendix A) has language related to developable land and density credits for development

- Enforces the Virginia Uniform Statewide Building Code, which includes requirements to reduce flooding impacts

- Multiple City Plans speak to flood resiliency
  - 2009 Comprehensive Plan includes statements related to floodplain management and sea level rise
  - Sustainability Plan
  - Outdoors Plan
  - Green Sea Plan
  - Lynnhaven Strategic Growth Area Plan

- The Public Works Specifications and Standards, and the Public Utilities Design Manual include statements related to elevation and flood-proofing of public infrastructure in a special flood hazard area

- A large portion of the City’s floodplain is protected as open space
  - 38% of the Special Flood Hazard Area is protected as a City or State Park or by a private land conservation organization
  - Many new developments are designating a portion of their land as open space (this is typically in the floodplain) held by the Homeowner’s Association
- Purchased Pleasure House Point and designated it as open space to permanently forgo development
- The attached map of Virginia Beach shows the Special Flood Hazard Areas (floodplains).
- The City’s Strategic Plan includes initiatives related to flood resiliency under the Quality Physical Environment and Economic Vitality Strategic Issue Teams
- The City participates in various regional groups to learn about, discuss, and address recurrent flooding
- The City recently adopted new FEMA Flood Insurance Rate Maps

d. Has current flooding halted any development downtown and along the waterfront
- Development hasn’t been halted but it has slowed down the approval process to ensure that proposed plans meet required drainage ability and the end product is sustainable.

e. What is estimated ($ amount) waterfront investment over the next 5 years? What has the city realized in investment spending or tax base growth associated with waterfront development over the past few years?
- The City will continue with its sand replenishment programs, the Severe Repetitive Loss program, and through the CIP will continue constructing identified flood control projects, which could cost up to $70 million over the next 5 years.
- Sea level rise/recurrent flooding has not substantially affected any infrastructure so far. In addition, public and privately owned property is generally covered by insurance.

Management:
1. What is management’s current view on the potential impact/vulnerabilities in your community from rising sea levels?

The funding of a major comprehensive study to assess the vulnerabilities and to develop a plan of action for sea level rise clearly articulates the commitment of the City of Virginia Beach to this challenge. The City firmly believes that the cost of damage done by ignoring sea level rise will far exceed the cost of mitigation.

Virginia Beach is committed to saving and protecting as many flood prone areas as possible to preserve its tax base and future economic vitality. The City has adopted a measured strategy to managing recurrent flooding/sea level rise. The City follows three main strategies that offer protection: Engineered Protection Measures; Accommodation; and Land Use Management. The engineered solutions are reserved for the most valuable property, as these are the most expensive solutions. Discrete flood control projects are included in the CIP for public property. (See response to Question #3 in the Debt Section.)
This approach is consistent with historical sea level rise seen for this area. To date, the City has been able to address most flooding issues within the revenue stream provided by the Storm Water Utility, with some federal contributions. This approach to SLR/RF is effective, while still being affordable to taxpayers. The City’s approach may be modified based on the findings of the Comprehensive Sea Level Rise and Recurrent Flooding Response Plan currently being developed.

When spread over many future years, the City’s strategy for dealing with sea level rise/recurrent flooding preserves the tax base and future economic growth opportunities at a cost that is affordable to its citizens.

From a heightened risk of extreme weather events?

The heightened risk of extreme weather events is so interwoven into the challenges of sea level rise that the City of Virginia Beach has chosen to address sea level rise/recurrent flooding as a single issue. Therefore, the City of Virginia Beach is vigorously pursuing strategies to adapt to and to mitigate the impacts of extreme weather events.

2. Has the city drafted an action plan or the action plan or engaged a consulting firm for a feasibility study:

As previously stated the City of Virginia Beach has contracted with Dewberry Consultants to develop a Comprehensive Sea Level Rise and Recurrent Flooding Response Plan. The study will evaluate the vulnerability of all areas of the City, evaluate the application of adaption strategies, and establish an appropriate action plan for each of the impacted areas of the City.

3. Has there been an estimate on potential impact from rising sea levels or flooding.

As a portion of the initiative on sea level rise / recurrent flooding, costs for various mitigation strategies will be analyzed.