

**FY 2019-2020 Virginia Beach Budget
Response to Council Questions**

Question Number: FY 20 16

Question: On the slide titled FY20 CIT Increase Requests 3.677 GIS Early Warning Sea Level Rise Sensors, 1) what is (are) the year(s) of installation of the 35 water level sensors? 2) Were the sensors initially purchased by the appropriation to date shown or by another project? 3) How was the base funding requirement in FY 20 computed? The delta percentage between FY 23 and FY 22 is 4.8214 percent, between FY 24 and FY 23 is at .738 percent, and between FY 25 and FY 24 is 4.658 percent. What is the foundation and logic for the cost escalation factors employed? Why not use forecasted inflation factors? 4) Why not contract with ODU to do data collection, monitoring and maintenance? 5) Have we issued a request for bids for vendor performance? 6) What is the mean time between failure for the sensors? 7) What is the manufacturer's projected service life? 8) Are there additional sites where we need to install sensors? 9) Do the sensors now include a video feed? What is the cost of adding video feed that is activated when the sensors detect the environment to be at flooding parameters?

Date Requested: February 25th, 2019

Requested By: Councilmember Moss

Department: Information Technology

Response:

- 1) In the scope of the CIP project 10 sensors were installed in 2017, 8 in 2018 and 17 are planned to be installed for 2019. Additional sensors have been ordered outside of the CIP process (by Public Works) through operational budget units or from grants but are not part of the CIP increase request.
- 2) Purchased from the CIP project beginning in 2017.
- 3) The estimated costs are \$1200 per sensor estimated increases are 5 % per year. The values should be the following: FY23 \$44,100, FY24 \$46,305, FY25 \$48,620. We will work with the previous funding amount requested.
- 4) ODU currently does not provide these services. City of Newport News, Norfolk, Virginia Beach and William & Mary's Virginia Institute of Marine Science (VIMS) participated in Global City Teams Challenge (GCTC) as a collaborative regional smart cities project named "StormSense" to proactively address the flooding issues in the future. VIMS provides a regional storm surge model that is used to forecast flooding. Precipitation will be part of the model in the fall of 2019. VIMS Tidewatch program is actively adding the sensor data and providing access to observations and 36-hr forecast data as the sensor data is made available. We have quotes and

are working on finalization for contracted vendor services for annual maintenance and repair of the sensors.

- 5) The original bid was a sole source procurement in 2017 due to the fact that only one vendor was able to integrate with the Esri software and provide wireless streaming of data. We are working to finalize a contract for vendor support/maintenance services.
- 6) To date we have had no operational failures of the sensors. As part of our initial pilot period the city the sensors performed as expected and were providing data on 15-minute intervals. We have reduced the time between data pulls to six minutes to match NOAA standards. With this change we had to replace system timers. We are now operating on a stable system without any issues for the last six months. We did experience two instances of vandalism and incurred two weeks of down-time, but this was a result of not having an executable maintenance contract. As part of the new maintenance and support contract we are requiring spare parts to be maintained by the vendor and require 48-hour service restoration.
- 7) Projected service life is 5 years. We have funding that will cover replacement of the devices to match the five-year lifecycle.
- 8) Yes, site selection is determined by VIMS and Public Works Stormwater based on data and feedback from their respective computer models or observed flooding patterns. Sensors can also be relocated to other sites as needed to support the models.
- 9) The existing and remaining pilot sensors do NOT include video capabilities. Video can be added to locations based on priorities and needs. Video feeds are being planned for key locations including the mouth of the Lynnhaven River, Rudee Inlet and Munden Point. The costs vary from \$500 to \$1200 depending on the type of camera and required connectivity. This will be used for validation of water levels and would also be available in the Emergency Operations Center for situational awareness.