

## **Appendix B: Baltimore County Decision Memorandum**

### **County Flooded Property Purchase and Drainage Program Review, May 1, 2020**



JOHN A. OLSZEWSKI, JR.  
*County Executive*

STACY L. RODGERS  
*County Administrative Officer*

### **DECISION MEMORANDUM**

To: County Executive John A. Olszewski, Jr.  
From: Steve Lafferty, Chief Sustainability Officer  
Steve Walsh, Director, Department of Public Works  
Through: Stacy Rodgers,  
CC: Pat Murray  
Tom Kiefer  
Subject: County Flooded Property Purchase and Drainage Program Review  
Date: May 1, 2020

Does this decision have a fiscal impact? ☒ Yes ☐ No

#### **Overview**

Localized flooding in the County has led to property loss as well as anxiety and concerns by many residents. The County's programs to address these problems have focused on extant floodplain delineations, capital projects and a system of compensation tied to the actual floodplains. Requests to the County to purchase properties highlights aspects of the current floodplain management practices that should be evaluated and possibly strengthened, particularly in light of the impacts of climate change.

#### **Background**

In January 2020, the CAO convened a meeting with the Director of Public Works, County Attorney, Director of Budget and Finance and the Chief Sustainability Officer to review and discuss the County's programs regarding floodplains, drainage and property acquisition due to flooding. She expressed concern about, and asked for recommendations for, the current system. She raised questions about current projects and funding, the flood proofing/mitigation program, acquisitions, development activities and so-called "fringe" properties.

#### **The Storm Drain System and Stormwater Management**

Baltimore County's drainage network developed following the general pattern of other metropolitan areas around the country. Drainage systems were not standardized and runoff was mostly diverted locally and allowed to flow overland to various outfall points. The low density of development initially allowed such an approach. While engineers tried to create a resilient infrastructure, they had limited data and analytical tools at their disposal.

It is now clear that the absence of floodplain standards and the source data (storm intensities and distribution and runoff coefficients, etc.) being used in older areas of the County contributed to the problems. The drainage systems in older communities that were approved and built more than 25 years ago with little or no regulation are being overwhelmed. Changes in our climate are adding to the problem.

However, climate and increased impervious surfaces are not the only drivers of the shortcomings. Suburban growth in the 1950s-1980s largely disregarded streams and floodplains and many of these waters were simply piped and paved over. Consequently, various neighborhoods were inadvertently built in floodplains. The floodplain and forest buffer regulations did not come into full effect until the early 1980's. The Federal Emergency Management Agency (FEMA) mapping began in 1984.

There are 1451 miles of storm drains in the county. While seven hundred and seventy-eight (778) miles were constructed before 1980, another 618 miles have been built just in the last 40 years.

The storm drain infrastructure installed in the 1950's and 60's is more than a half-century old and is approaching, and in many instances exceeding, the end of its useful life. Therefore, more storm drain infrastructure requires significant repair and replacement. The older designs of the systems and the current demands and standards are often incompatible with each other. This can lead to flooding or the excessive overland flow of water so the stormwater cannot be handled. The flooding does not only occur in the floodplains. Localized flooding can occur in roadways or residents' yards wherever a drainage course exists.

The County has not fully mapped its needs or even evaluated its assets due to the rapid pace of post-WWII development. Therefore, incompatibilities and stressed drainage systems have not been identified on an on-going basis. Being more proactive will require the County to evaluate its assets and set priorities. To that end, DPW is contracting with the Maryland Environmental Service (MES) to finish a location and physical assessment of the storm drainage system in the areas with the sparsest records.

Pursuant to state law, developments rely on Environmental Site Design (ESD) criteria to capture water from the 100% (1-year = 2.7" over 24 hrs.) storm event. The 10% and 1% annual storm events are not mandatory. This standard is intended to improve water quality but not to manage water quantity. Previously mandated standards provided good results as far as flooding controls. These standards are still regulated as part of MDE's Stormwater Management Design Guidelines. They require the run-off leaving the developed site to not exceed the runoff prior to development, for the higher intensity storms (10% and 1%).

Current ESD-centered requirements provide outstanding run-off quality treatment but are not designed to address significant flows of water. The County can require a higher level of management (10% and 1%) for areas with known downstream problems or interjurisdictional waters. There must be continued coordination between DPW's floodplain administration and DEPS's stormwater management.

### Floodplains

Floodplains are low-lying areas adjacent to streams and rivers. These areas naturally absorb the energy and volume of floodwaters and reduce the damage to the river channel. Floodplains are also areas where excess sediment and debris associated with floods are deposited by the moving waters after a storm. Floodplains that are identified and used by FEMA on the Flood Insurance Rate maps (FIRM) for the National Flood Insurance Program (NFIP) are for all waterways that have a contributing drainage area of more than a square mile (640 acres).

The 100-year, or 1% annual chance, flood is mapped and used for regulatory purposes. Baltimore County is a member of FEMA's National Flood Insurance Program (NFIP). By joining the NFIP, Baltimore



County agrees to establish restrictive ordinances in their 100-year/1% annual chance floodplains, which makes federal flood insurance available to all its residents.

Baltimore County regulates and has identified some of the floodplains where contributing drainage is less than 640 acres but greater than 30 acres. These areas are also subject to flooding which can be just as severe and damaging as the FEMA mapped floodplains. Under its contract with MES, the County will expand its comprehensive mapping of the floodplains that are 30 acres and above. Staff in DPW is currently mapping those areas considered to be "fringe" properties along the floodplains. A "fringe property" contains a dwelling that serves as a County taxpayer's primary residence and the dwelling is crossed by a 1% annual chance floodplain boundary line.

The presence of homes in, or adjacent to, floodplains also raises questions about permitting and design criteria for future construction and development. Due to climate change, the models indicate an increase in sea level rise by more than 1.6 feet by 2050 above the year 2000 mean sea level (MSL). Severe weather and more intense precipitation is also predicted, therefore, increasing the potential for riverine flooding. Current design and permitting requirements do not take these expected increases into account.

Since many homes were built in or adjacent to floodplains, increased, intense rainfall over the last decade has caused water to overflow the embankments or channels resulting in additional damages and loss. In the least, it has caused anxiety and fear by residents and property owners. Impoundment of water is generally difficult in the existing communities but could be one strategy for reducing the negative impacts.

In the past several years, Baltimore County has sought to enter FEMA's Community Rating System (CRS) program. The main benefit of CRS is that citizens who are enrolled in the NFIP can receive a discount on their premium. CRS has a scaled benefit ratio based on a point system which determines the discount the enrolled citizens will receive. If Baltimore County were in the CRS, it is thought that we would be Class 8 and enrollees would receive a 10% discount for properties in the Special Flood Hazard Area (SFHA) and a 5% discount for properties not in the SFHA. The SFHA is defined as areas subject to the 1% annual chance flood area. The average county resident in the SFHA pays about \$5000 in flood insurance in the NFIP. In 2013, Baltimore County had 4,605 policies, with total premiums of \$5,165,738. If the County were in Class 8, County homeowners would save about \$516,000. The amount of savings would undoubtedly be greater now. It appears that the highest rated class community in Maryland is Class 4 and those property owners receive a 30% discount for properties in the SFHA and 10% discount for properties not in the SFHA.

For Baltimore County to qualify for CRS the first step is that FEMA performs a Community Assistance Visit (CAV). During a CAV, FEMA representatives visit the community, examine the codes and regulations for properties in the flood plain and make sure that the codes and regulations are being followed. Baltimore County had a CAV in 2013 and received comments that have not been entirely addressed as of yet. While staff has diligently worked with FEMA to address these comments, such efforts are now on hold due to the National State of Emergency.

A major issue that Baltimore County must resolve in order to participate in the CRS involves two properties located on Town Center Court in the White Marsh Business Community. These two buildings were built in the mid 1990's in the SFHA and have had severe flooding issues a number of times. It is unclear whether it was a developer's engineer, builder or county mistake or a combination of all

three. For the County to enter the CRS, the Maryland Department of the Environment (MDE) will require that these 2 buildings be addressed even though they did not show up on the CAV. The county could purchase and demolish the buildings, perform flood mitigation, or possibly exclude them from the CRS.

#### Current Residential Floodplain property purchase criteria

The criteria which the county has used in determining whether a home would qualify for purchase is:

1. The dwelling must be the primary residence
2. First floor flooding or
3. An average of 1' of water depth around the 4 corners of a house during the 1% annual flood event. The county uses field surveyed corner and low window/doorway elevation of the dwelling to evaluate the relationships.

The criteria has been used since the late 1970's, after Hurricane Agnes, when the State and County had a large floodplain home purchase program. Hundreds of homes adjacent to flooding streams were purchased and either demolished or relocated. The County's criteria is used by practice and is not defined in code or regulation. The elevation criteria has worked but if water velocities are high or other circumstances were identified, the county could move to purchase. The homes that have not been flooded as badly, or where the land and not the house have been flooded, have not been eligible for purchase. This issue was recently reviewed in another Decision Memo due to requests to purchase made by homeowners in the Overbrook community. The requests were denied, upholding the current criteria.

While many properties have not qualified, the owners may still have experienced stress and losses. These property owners can act to minimize the flood risk by adding fill/grading, elevating stairwells and eliminating doors and window openings. The County's flood proofing grant program is available to assist in these efforts.

#### Current Flood proofing Grant Program

The County developed a flood proofing grant program to help residential property owners who may be located near a riverine floodplain or are fringe properties and have had flood damage. The program grants up to \$10,000 per residential property owner for eligible construction such as adding fill/grading, elevating stairwells and eliminating doors or windows. The owner submits an application which is, then, reviewed by the Grants Review Committee. The application form created in 2007 and requires information that may no longer be significant for such a grant. DPW has not aggressively marketed this program but offers it to residents when eligible homes are identified as a result of a complaint investigation. Therefore, the funding has not been fully utilized.

#### Capital Budgeting

The Storm Drain Design division in DPW has received \$6.15 million every two years to address myriad issues and problems with the storm drain system. It is proposed to increase to \$6.76 million in FY 21, \$7.35 million in FY 22 and \$6.85 million in FY 24. Yet the needs, as defined by the County, safety and system preservation, far exceed constituent demands. DPW cannot keep up with the needs and has fallen short in meeting demands. Projects are currently being pushed back many years so that, for example, the eroded storm drain outfalls in less populated areas and not close to any roads do not get



addressed. The County Executive included \$500,000 in the FY 2020 budget for Resiliency Projects. These funds are available to address flooding but is also being used to hire a consultant, Hazen and Sawyer, to provide a Climate Action Plan to address climate change impacts on county assets and operations.

The budget analysis for FY 2022 and beyond has begun to take resiliency and expected climate change impacts into account, consistent with the County's Strategic Plan, 2019-2022.

Two of the budget documents submitted for the FY 2021 budget reflect the scope of projects and fiscal needs for enhancing, repairing, replacing and/or extending storm drain systems to better ensure appropriate function and to mitigate or prevent flooding. These are:

[Copy of FY21BulklistingStormDrains \(002\) \(2\).xlsx](#) and [Stormdrains-revFY 21 Spending Plan 3-12-2020.xlsx](#)

## Recommendations

There are a number of programmatic changes which can be implemented to address the problems caused by flooding and the projected changes to rivers, streams, storm drain functions and other infrastructure due to climate change. In order to reduce the risk of harm and possible loss of property and lives, the county should take multiple steps:

1. The needs for the array of storm drain projects exceeds the current and projected capital budgets. The capital budget should be increased from \$6.76 million in FY 2021 and the \$6.85 planned for the two year cycles of FY2024 and beyond to at least \$8 million.
2. Support and foster "green infrastructure" projects by developing a program for property owners so that water is conveyed into natural drainage where there are no storm drains and also instead of along curbs and gutters and into existing storm drains.
3. Revisit and revise the August 2010 DPW Design Manual to alter and increase the current "freeboard" standards for construction.
4. Request approval from MDE to exclude two building on Town Center Court in White Marsh from the CRS application; if not successful, seek to purchase the two buildings and demolish them.
5. Apply to FEMA for CRS status in order to reduce flood insurance costs for homeowners.
6. Retain the current property acquisition criteria. However, create a waiver provision that enables a case-by-case opportunity for review by the County Administrative officer.
7. Map the "fringe properties" that may be impacted by increased riverine and other flood events.
8. Increase the funding in the Flood Proofing Grant Program and promote it through the county web site and other media; expand eligibility to those in county and FEMA designated floodplains and to "fringe" properties; and, revise the application and application process to be more user-friendly.
9. Study and reevaluate the opportunities for flood mitigation and potential water retention in those areas which have experienced the most flooding in the past decade.
10. Evaluate, and make recommendations in conjunction with MDE for, the reintroduction of mandatory water quantity management for 10% and 1% annual storm events in addition to current ESD practices in the stormwater management regulations.

## Analysis

Localized flooding has been a challenge in communities along the Bay and in many of the older neighborhoods. This is due to the proximity of residential and commercial structures or properties to floodplains, inadequate storm drains, increasingly severe weather and other factors. Over the decades,

the County has purchased properties that were damaged or in harm's way in the floodplains. Similarly, the County has invested tens of millions of dollars to improve and replace inadequate storm drains. New development capacity considers the threat of loss due to stormwater.

But, more attention and actions are needed. New strategies were encouraged in the County Executive's Transition Team Report. The Baltimore County Enterprise Strategic Plan calls for the county to identify "strategies and develop a plan to mitigate flooding derived from storm water drainage" during this fiscal year and, in the next three years, to develop a comprehensive green infrastructure plan, better ensure that stormwater management is improved and address the development review process.

Baltimore County is under a federal and state directive to improve our water quality based on the Total Maximum Daily Load (TMDL) and our MS4 permit. Water quality can be negatively impacted by flooding. Therefore, better controls on flooding will help us address water quality requirements.

The demand for funding to improve the storm drainage system far exceeds currently available funds. Neighborhood groups, and many individual citizens, have regularly requested the Planning Board to include funds to address localized flooding and mitigate the damage it has and can create.

### **Impact**

The most significant impact would be a reduction in the properties that are flooded when there are severe weather and precipitation events. This outcome can be addressed by changing the "freeboard" standards, increasing funds for storm drain projects and implementing a green infrastructure program. The County's acceptance into the CRS and subsequent reduction in the flood insurance premiums will be a substantial, positive impact for potentially thousands of residents. By increasing the funding in, and advertisement of, the Flood Proofing Grant Program we can provide greater protection for homeowners.

### **Alternatives**

1. The direct acquisition of the properties on Town Center Court in White Marsh was considered but a less expensive route is to first seek approval from MDE to exclude these from consideration in order to participate in the CRS. Property owners may oppose this action since it could lead to a significant increase in insurance premiums.
2. Changing the "freeboard" standards and reintroducing mandatory universal quantity management are likely to engender opposition from the development community. However by continuing the current standards, the county would allow certain buildings to be constructed in areas where there could be flooding and or allow development without controlling the 10% and 1% annual storm events. A waiver process could also be instituted for the developer to demonstrate that there will be no additional downstream flooding, erosion or negative impacts.
3. There was extensive discussion about changing the standards for acquiring properties that are in the floodplain. Baltimore County has one of the most generous programs at this time and we could not agree on alternative criteria.
4. Since the Flood Proofing Grant Program has been undersubscribed, leaving it as is was considered. However, since the County has made little or no efforts to publicize its availability, there was no way to gauge whether others would be interested.
5. This effort was requested by the County Administrative Officer so doing nothing is not an option.



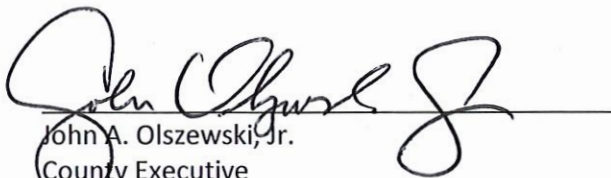
Decision

☒ Approve

☐ Disapprove

☐ Modify as follows:

☐ Need more discussion with:

  
John A. Olszewski, Jr.  
County Executive

6/25/2020  
Date



### DECISION MEMORANDUM APPENDIX

1. Funding purpose: Capital funds will be spent on enhancements, extensions and repair and replacement of storm drains; creation of green infrastructure projects; mapping of floodplain fringe properties; and, the possible acquisition of properties located in the floodplain. Operating funds will be expended for flood proofing grants, applying to FEMA and developing new criteria for development in and near floodplains.
2. Total funding required: There is no single project; capital funding for storm drains would increase by over \$1 million in each of the budgeted years.
3. County funding: All of the funding would be county funds
4. Outside funding: No
5. Existing funding: Existing funding is inadequate to address the extensive needs. Additional funds would be needed to expand demands for storm drain projects and funding would be needed if property acquisition is to occur.
6. Additional Comments:

#### CIRCLE ONE:

- |                           |    |                                |    |
|---------------------------|----|--------------------------------|----|
| 1. CAPITAL INVESTMENT     | XX | OPERATING INVESTMENT           | XX |
| 2. ONE-TIME INVESTMENT    |    | MULTI-YEAR INVESTMENT          | XX |
| 3. REQUIRES NEW EMPLOYEES |    | DOES NOT REQUIRE NEW EMPLOYEES | XX |