

Project Description/Objective: Charles County Government and the Charles County Resilience Authority are embarking on a new mission to resolve issues with private stormwater systems which would ordinarily be the responsibility of the landowner. To initiate the concept and get an idea of the scale of the problem, staff identified around 100 neighborhoods that pre-date the stormwater ordinance, with private stormwater systems that had known problems as determined by consistent complaints of flooding and had no County-owned easements or maintenance agreements.

The objective is to create a prioritized list of residential neighborhoods based on the following criteria.

- Urgency of Need/Public Safety/Imminent structural damage
- Equity
- Availability of Funding
- Dual Benefits such as availability of MS4 credit, resolving emergency access issues, etc.

Proposed Approach: Immediate vs. Long Term.

Immediate: Internally identify the top three public safety concerns and move forward with their investigation, easement acquisition, design, engineering and construction.

Long Term: Create a Suitability Model – a model that weights locations (residential neighborhoods) relative to each other based on given criteria.

Details: Break the task into 3 components.

1. **Exploratory** – identifies where the aging/inadequate infrastructure is located, uncovers how frequent nuisance flooding occurs and where, verifies known problems and justifies the next step – prediction.

During this step we gather the data that will be used to answer the questions that comprise the criteria in the predictive model. This should be done using a combination of field verification, imagery analysis, past inspections and field notes and documentation from the County’s permitting system.

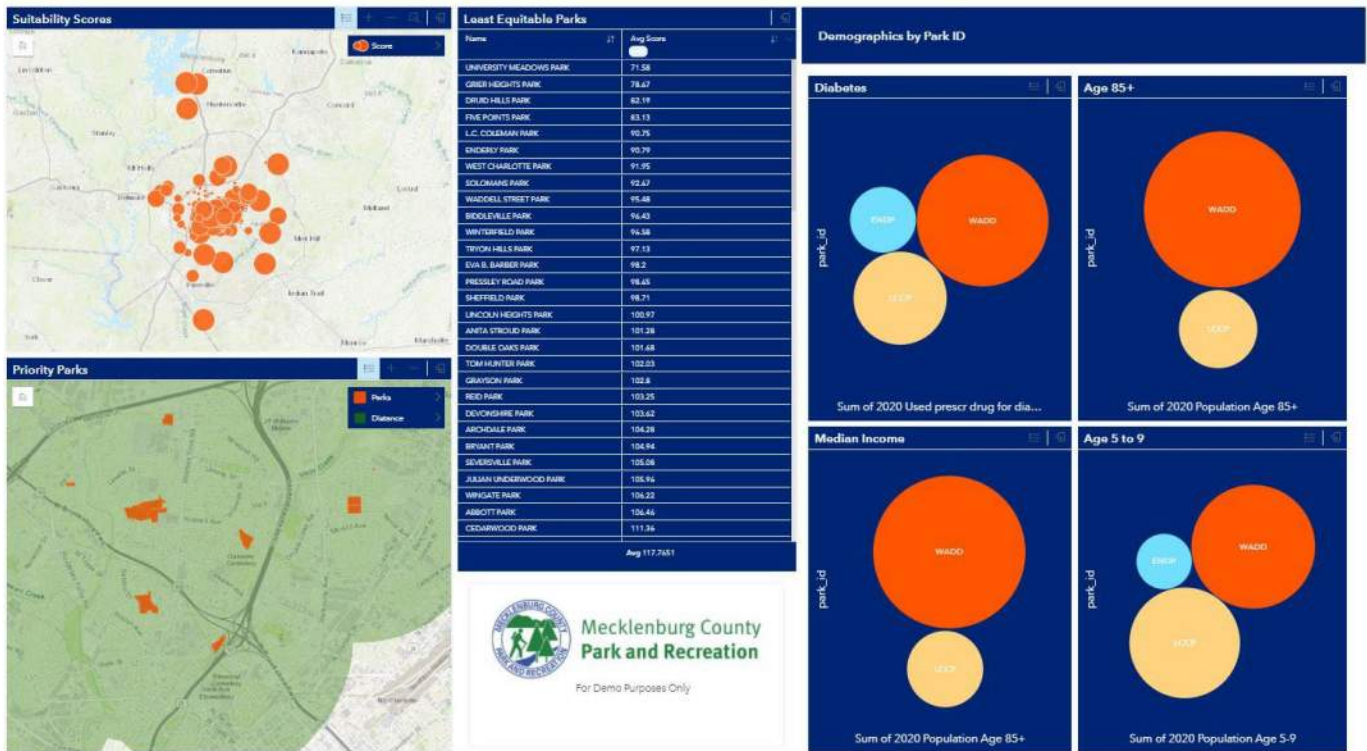
2. **Predictive** – accounts for stated criterium, weights and analyzes all factors into one output, ties the information back to neighborhoods.

It will be crucial to define the criterium. For example...

Urgency: What makes a project urgent? What is the difference between a nuisance issue and a safety issue? Sinkholes less than four feet from a structure or driveway? Flood water entering a structure during an event? Flooding of a certain height? The amount of time it takes standing water to dissipate?

Equity: How will equity be measured? We suggest the use of the Social Vulnerability Index. This index was created by the CDC and uses 15 U.S. Census variables to determine the potential negative effects on communities caused by external stresses on human health. Those factors are grouped into four overarching themes: socioeconomic status, household compilation, race/ethnicity/language, and housing/transportation.

3. **Prescriptive** – displays priority neighborhoods by scores, provides a dashboard for decision makers, answers questions through key indicators/charts/graphs and allows the sharing of findings easily with the public. The dashboard would look something like what is presented below.



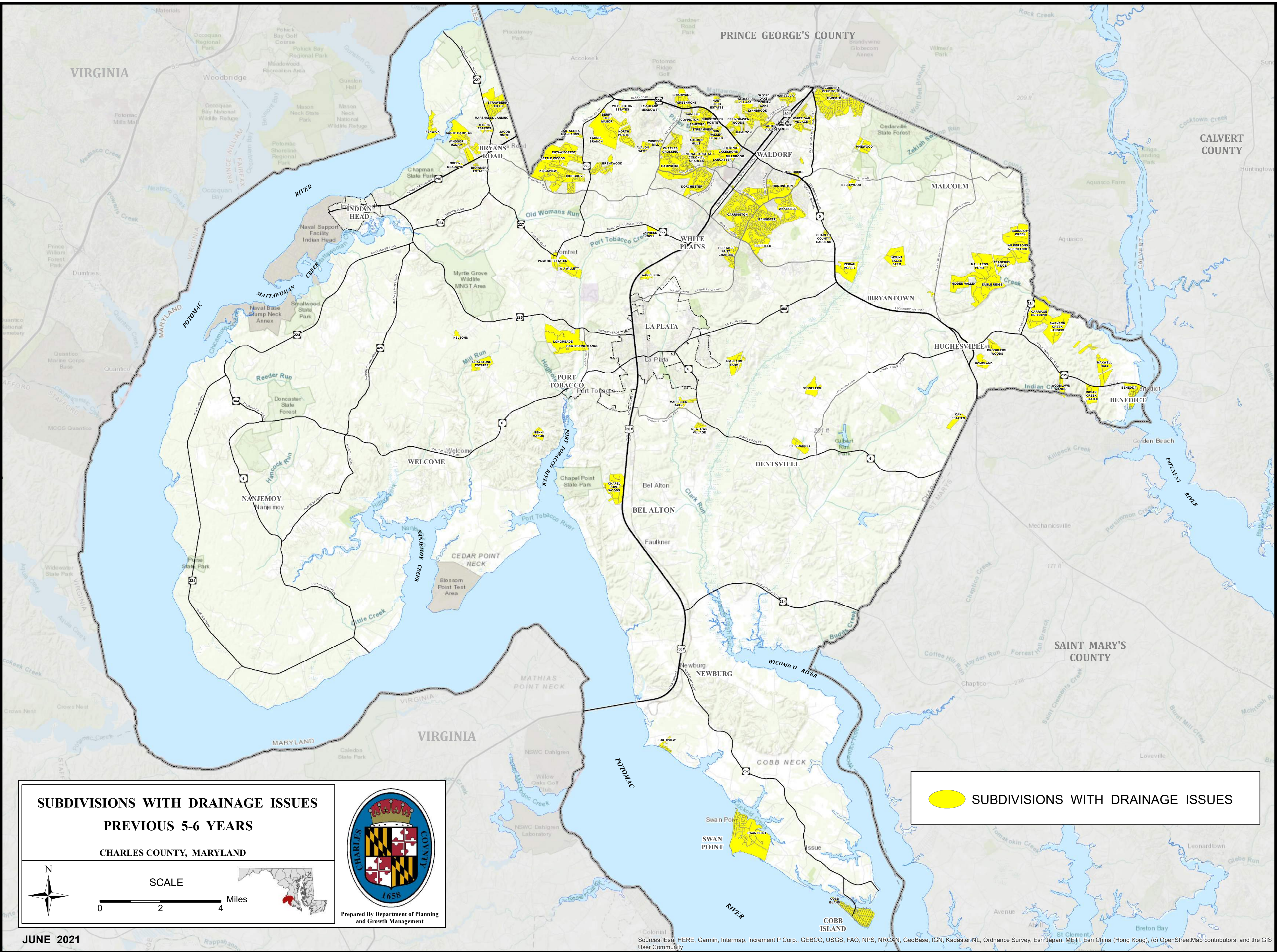
Partners: If this methodology is approved, the initial meeting of stakeholders should include a representative of the Resilience Authority, the Sustainability and Resilience officer, the County’s Chief Equity Officer, Director of Emergency Services, Director of PGM, Director of CPM and the Director of DPW.

Funding: This model is built from software (ESRI’s ArcGIS Pro and ArcGIS Online) for which the County already has licenses. It utilizes data that is mostly either in house already, buildable in house or data from the Living Atlas, which the County also already has through our current licensing. In short, we could do this in-house, if we had dedicated staff well versed in spatial analysis and suitability modeling. That is where the County will need assistance. We suggest using some of the funds dedicated to this project to either hire ESRI directly or one of their resellers. This can be bid using normal procurement protocols for three bids, since we can solicit quotes from various resellers for GIS service work.

Timeline: The timeline is unknown until we refine the methodology, specifically in regard to the need for field work. It can be anticipated that the immediate approach to address the 3 top public safety concerns can be well underway within a year, but could take up to three years to complete. During that time the model can be built to prioritize the next neighborhoods on the list.

Deliverables: exploratory and predictive models, dashboard and storymap

Cost/Benefit: The cost of this venture should be limited to the cost of the third party and staff time to supply the needed data and direction to that entity. The benefit is a transparent, data driven selection process.



**SUBDIVISIONS WITH DRAINAGE ISSUES
PREVIOUS 5-6 YEARS**

CHARLES COUNTY, MARYLAND




SCALE

0 2 4 Miles



Prepared By Department of Planning
and Growth Management

 SUBDIVISIONS WITH DRAINAGE ISSUES