Envision HdG

City of Havre de Grace Comprehensive Plan

August 28, 2023

Work Session 7:

Water Resources: Supply and Protection

Water Resources Element, Or WRE

- Required by HB 1141 in 2006, like Municipal Growth Element
- Ensuring Maryland's waters are protected as the local land use plan is developed and implemented, reflecting changes to MDE water resources programs over the past decade
- Integrating climate change, particularly flooding risks, into the drinking water, wastewater, and stormwater assessments of WRE

– From MDP blog on WRE Guidance, Jan. 2022

- Visions and Goals
- Land Use
- Sustainable Community
- Municipal Growth Element
- Relationship to the LSHG
- Regulatory Framework
- Economic Development
- Water Resources Element
- Housing Element
- Historic and Cultural Resources
- Multimodal Transportation
- Community Facilities
- Sensitive Areas, Environmental Resource Protection

Content of the WRE: (9 subsections)

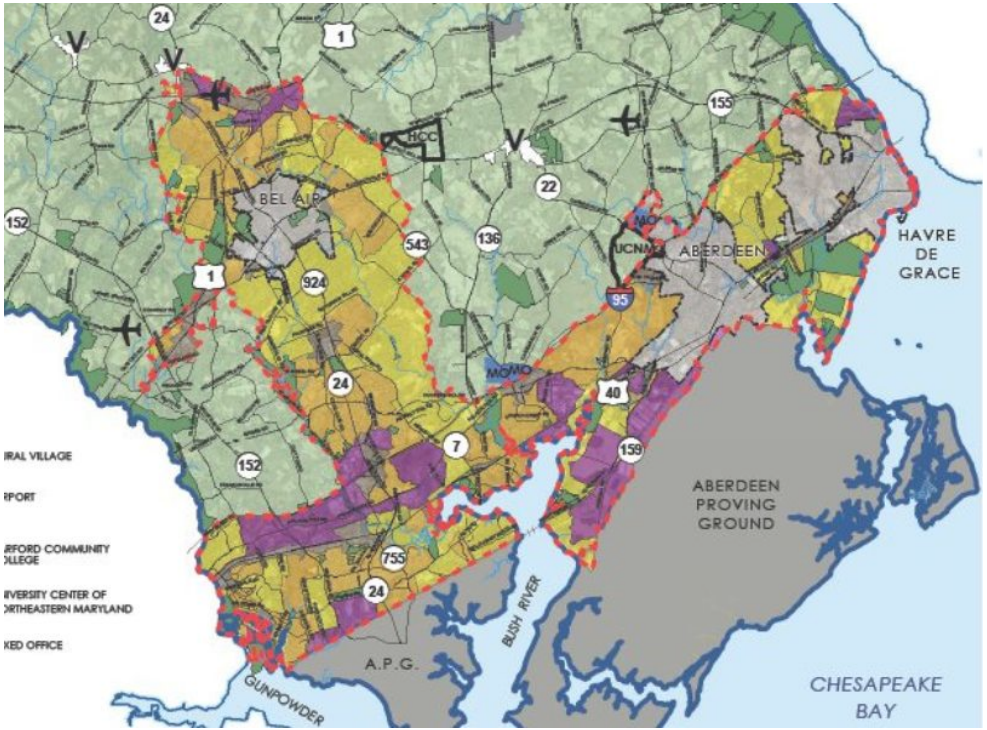
- Interjurisdictional collaboration
- Provision of safe drinking water
- Wastewater collection and treatment
- Management of stormwater runoff
- Chesapeake Clean Water Blueprint
- Shoreline projects
- Coastal and urban flooding
- Sea level rise and climate change impacts
- Supporting resources

1. Interjurisdictional collaboration

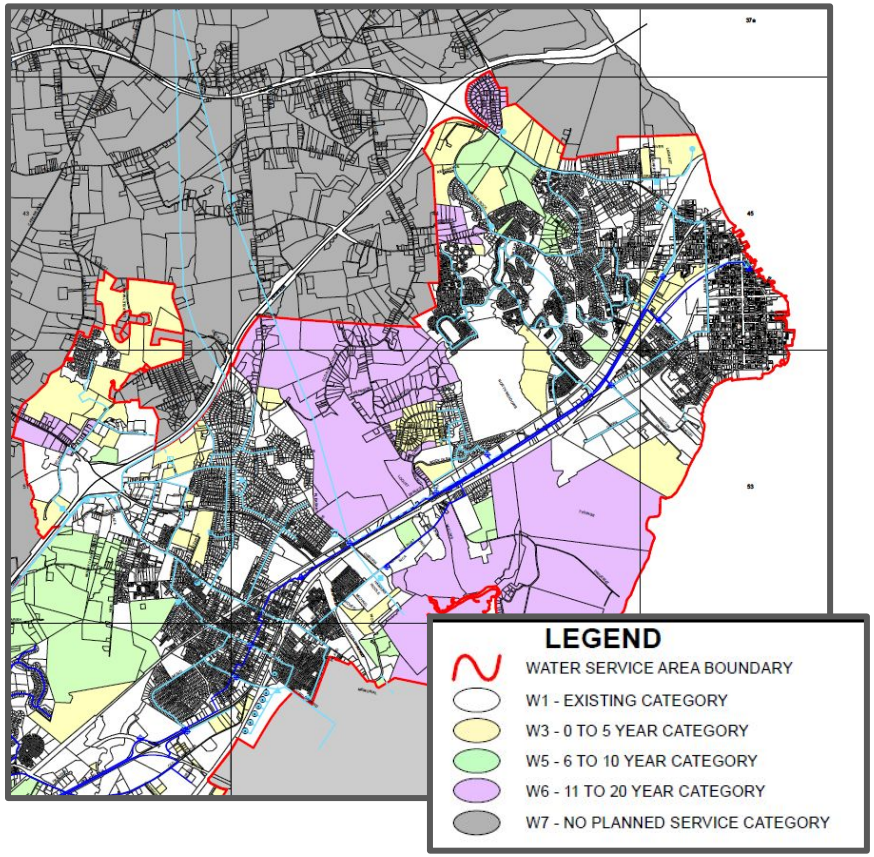
Harford County Development Envelope from HarfordNEXT, 2016

Water and Sewer Master Plan coordination

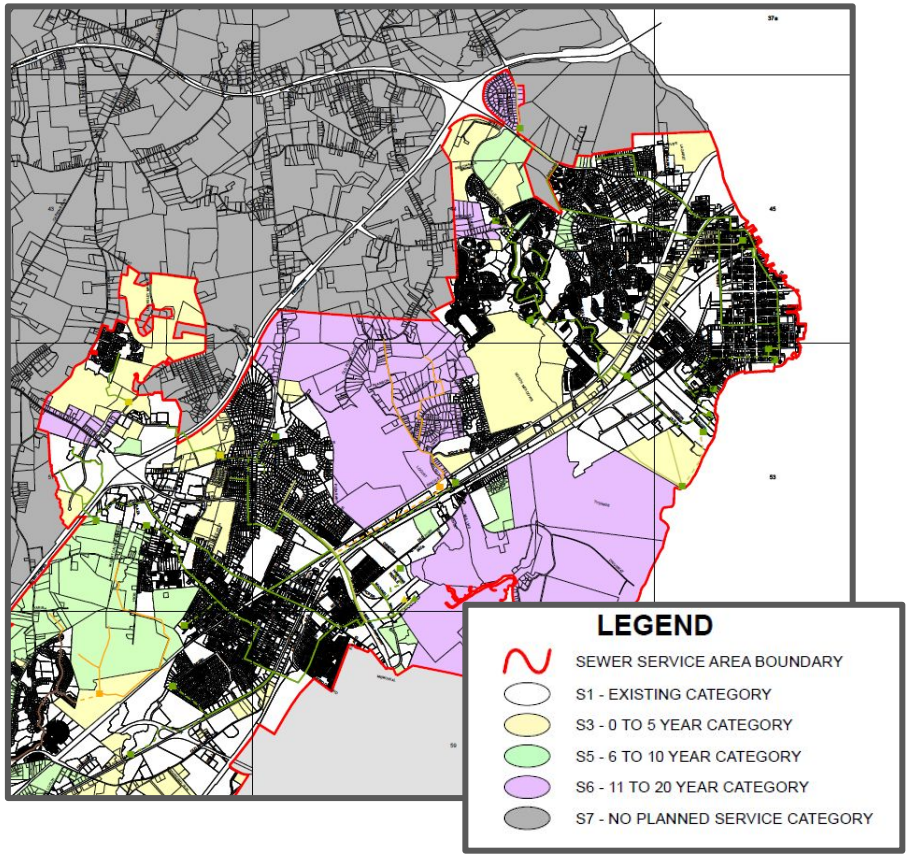
Mutual support, connected water systems, etc.



Planned Water Service Areas



Planned Sewer Service Areas



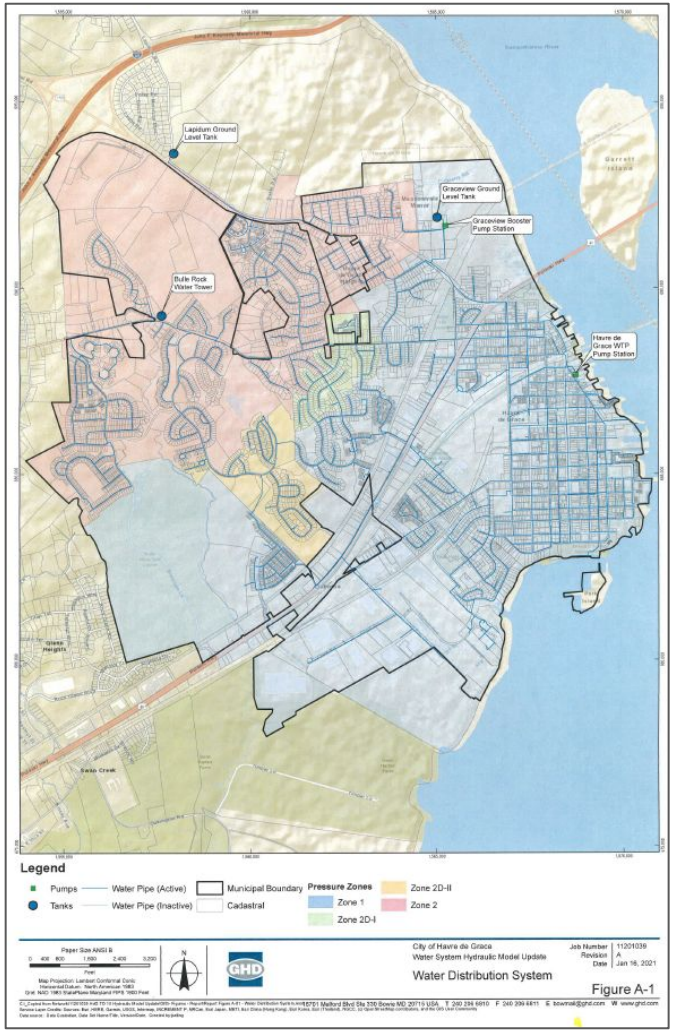
2. Provision of safe drinking water

Water Distribution System, map showing pressure zones

GHD's Water System Hydraulic Model Update, January 2021

Series of 2", 4", 6", 8", 12" water mains and valves throughout town

Drinking water and fire suppression



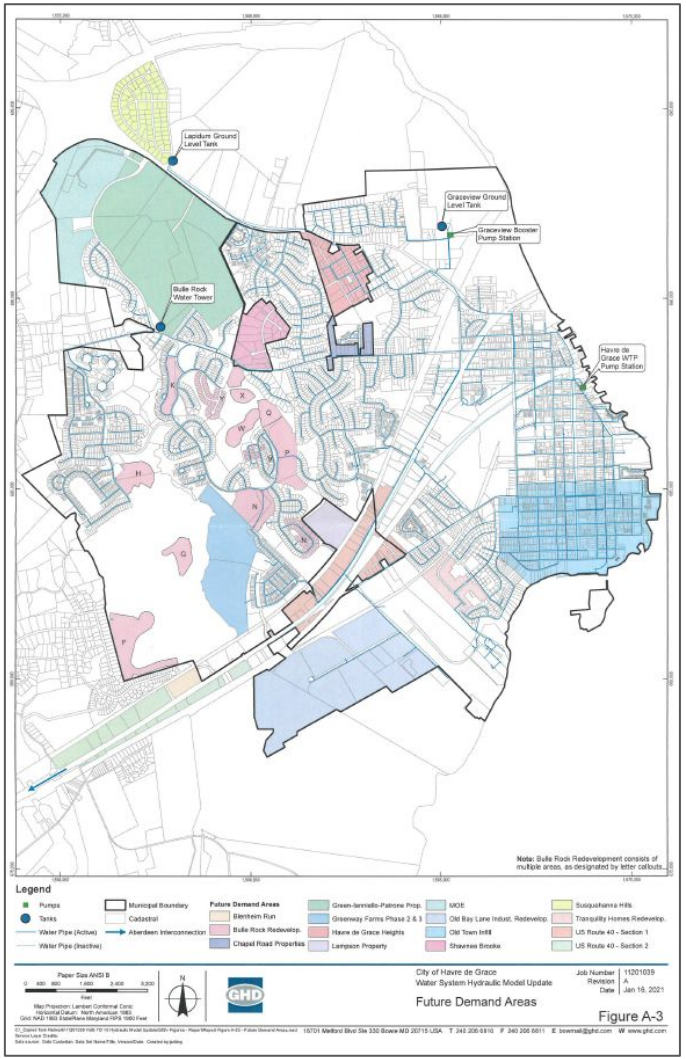
Future Demand Areas map, GHD

Demand areas align with residential development capacity in MGE

Table for current use and planned growth areas, 3.70 MGD safe yield capacity

1.88 MGD current usage

2.72 MGD total estimated demand [not including water to Aberdeen]



Havre de Grace Water Treatment Plant

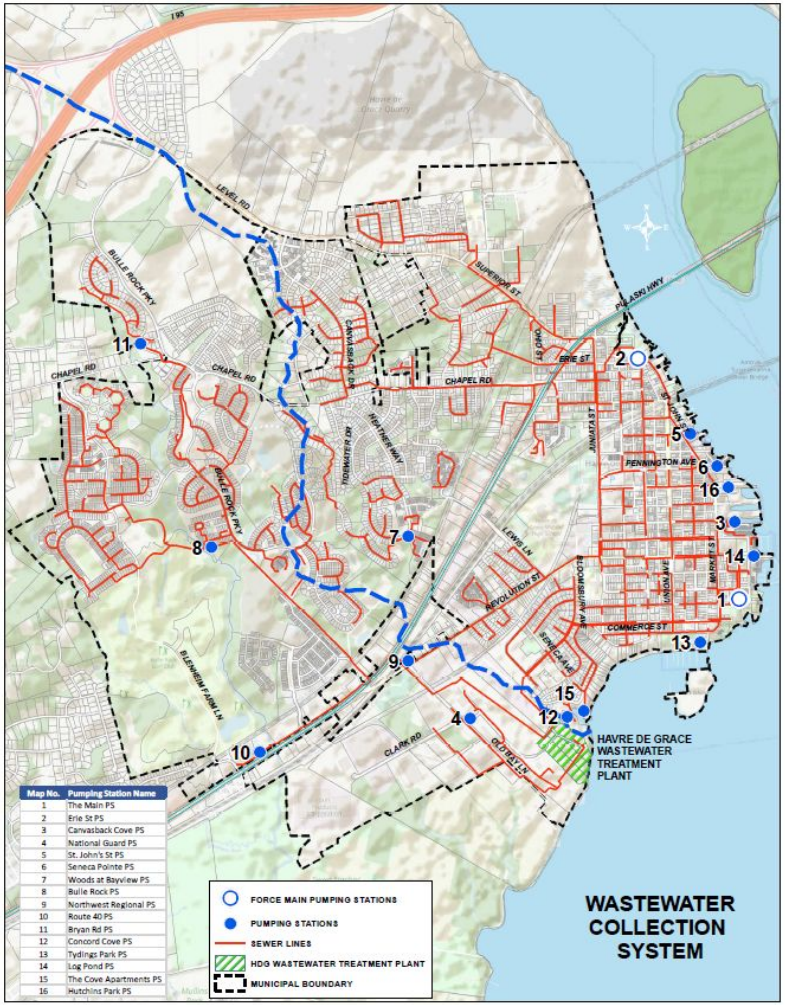
3. Wastewater collection system

ENR Wastewater Treatment Plant
[Enhanced Nutrient Removal]

16 Pumping Stations + collection system
[i.e. sewer lines]

Table for current use and planned growth areas, 3.03 MGD permitted capacity

Details about ENR levels for nitrogen, phosphorus limits for plant operations




REACTOR
MECHANICAL
AERATORS

4. Management of stormwater runoff

Sediment and Erosion Control

Stormwater Management Implementation

MS4 Phase II and NPDES Program

Management of Stormwater Runoff

- Describes the regulations related to SWM and sediment and erosion control
- Progression of regulations starting in the 1970's
- ESD to the MEP, adopted in local regulations in 2010, environmental site design to maximum extent practicable
- MS4 Phase II and NPDES Program implementation

Management of Stormwater Runoff, Cont'd

- Development and redevelopment
- Requirements for the City to reduce pollutants in older areas of City that had been without stormwater management (20 % impervious surface treatment)
- Milestones for meeting 20% nutrient reduction – nitrogen, phosphorus, and sediment

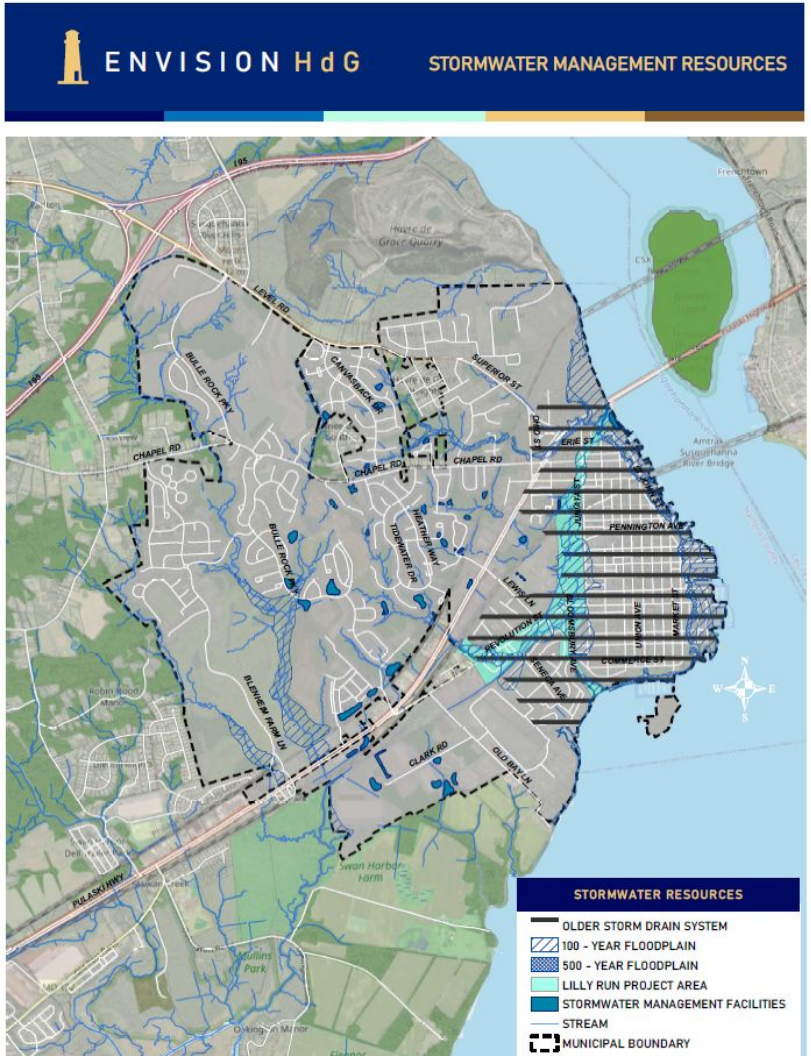
Stormwater Management Map

SWM ponds, facilities

Older portions of City shown, horizontal bars (legend)

Concentrated effort, 20% nutrient reduction, retrofit for water quality

Floodplain also mapped



MS4 Phase II and NPDES Program Implementation

- Federal law administered through EPA
- Local implementation through City's DPW staff
- MS4, municipal separate storm sewer systems
- NPDES, National Pollutant Discharge Elimination System
- MS4 Defines minimum control measures (MCMs)

Minimum Control Measures (MCMs)

1. Public Education and Outreach
2. Public Involvement and Participation
3. Illicit Discharge Detection and Elimination
4. Construction Site Stormwater Runoff Control
5. Post Construction Stormwater Management
6. Pollution Prevention and Good Housekeeping

5. Chesapeake Clean Water Blueprint

Chesapeake Clean Water Blueprint:

- Total Maximum Daily Loads, TMDL
- A “pollution diet”
- Accountability built in from federal to state to local implementation
- 6 States – Maryland, Pennsylvania, Virginia, Delaware, New York, and West Virginia – and Washington, D. C.

Pollution diet for all sectors:

Agriculture

Wastewater treatment plants

Urban/suburban SW runoff

Septic tank discharge

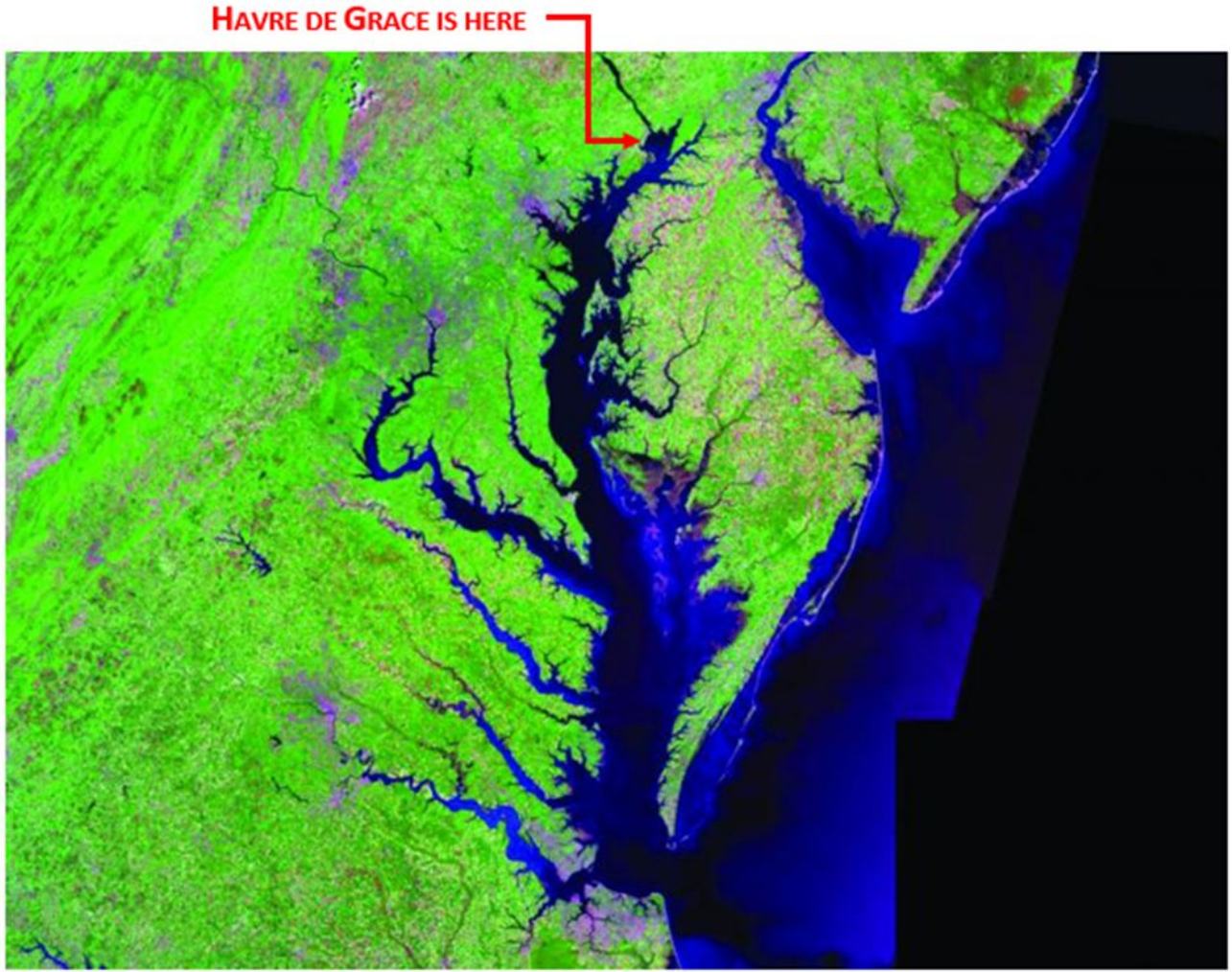
Illustration from Chesapeake Bay Foundation website, https://www.cbf.org/

Context for where Havre de Grace is in the relation to the Bay

Receiving end of the Susquehanna River

Pennsylvania,
New York

Havre de Grace:
Wastewater treatment
Urban SW runoff



6. Shoreline projects for water quality and coastal resiliency

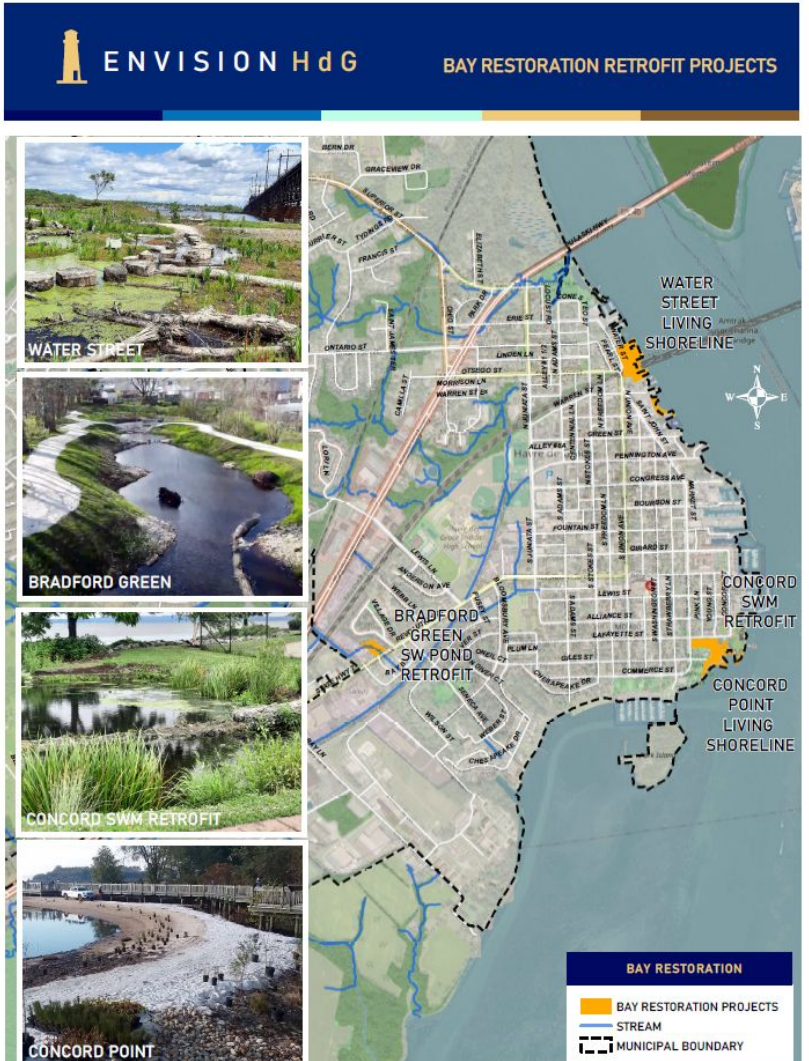
Bay Restoration Map with shoreline projects and other step-pool conveyance systems

Measurable water quality improvements based on area of impervious surface runoff treated

Water Street to Tidewater Grille

Concord Point, 3 Phases

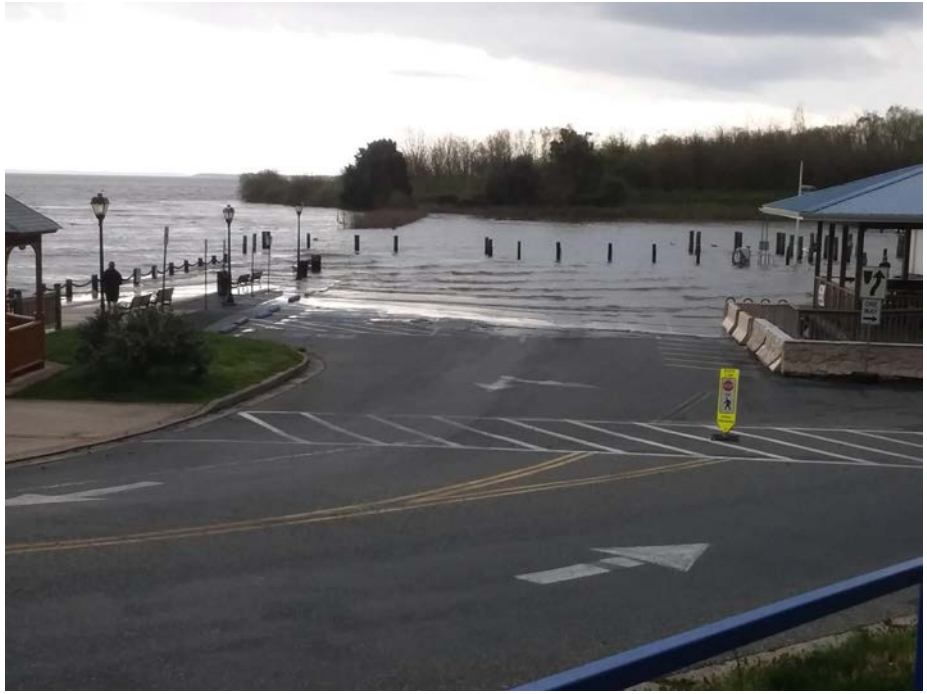
Bradford Green, SW improvements



Concord Point RSC, Phase 1

DPW Image for Stormwater Capital Projects, City’s website, living shoreline

7. Coastal and urban flooding



Interior flooding from stream systems

Lilly Run stream systems, various events

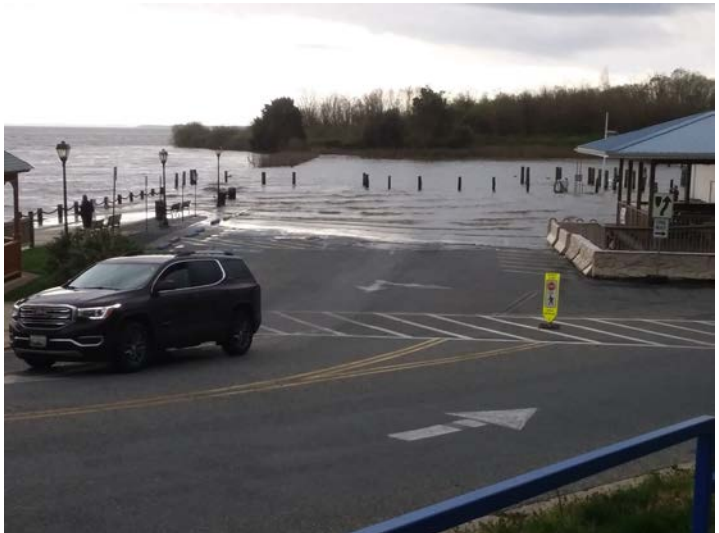
Coastal flooding

Hurricane Isabel,
September 19, 2003

8. Sea level rise and climate change impacts

April 30, 2020


April 13, 2020 high
water event



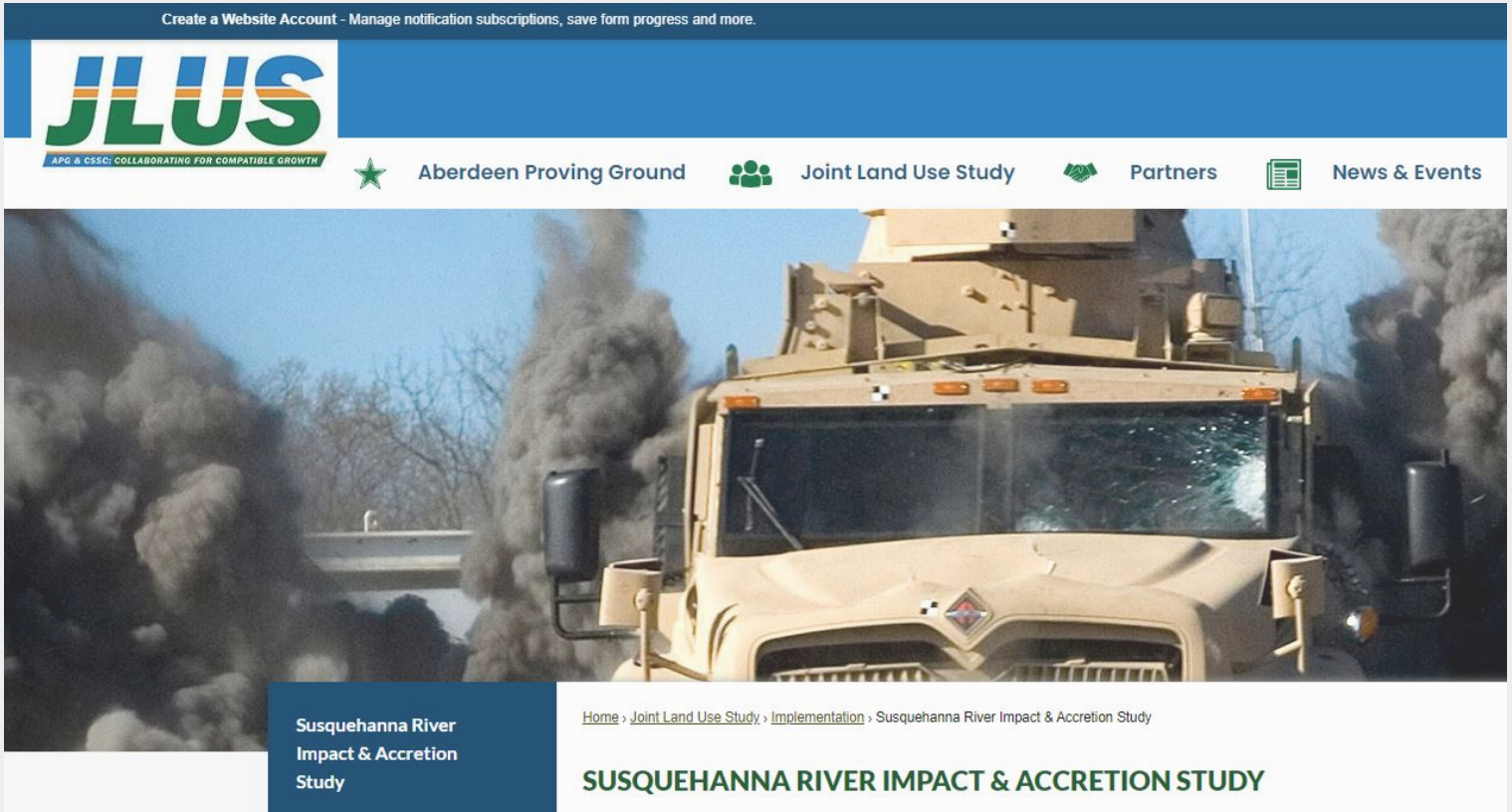

April 30, 2020 high
water event


THE PROMENADE GRILLE

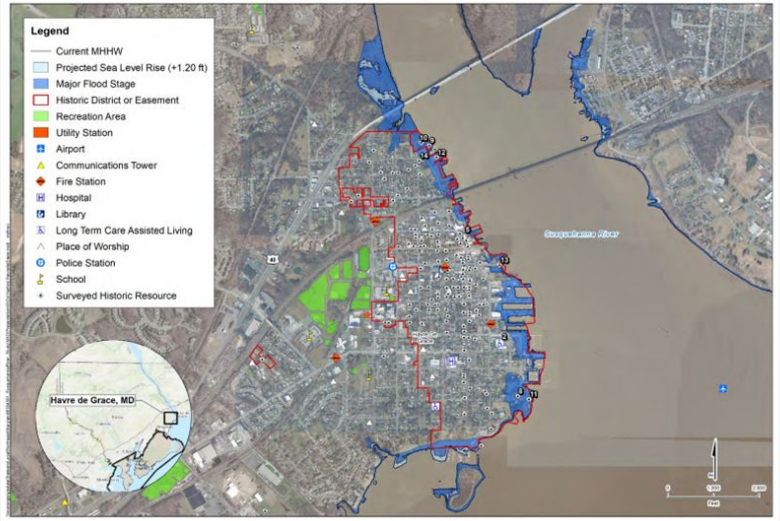

HIGH
WATER

Planning for Coastal Resiliency in the Northern Chesapeake Bay, EA Engineering, February 2019

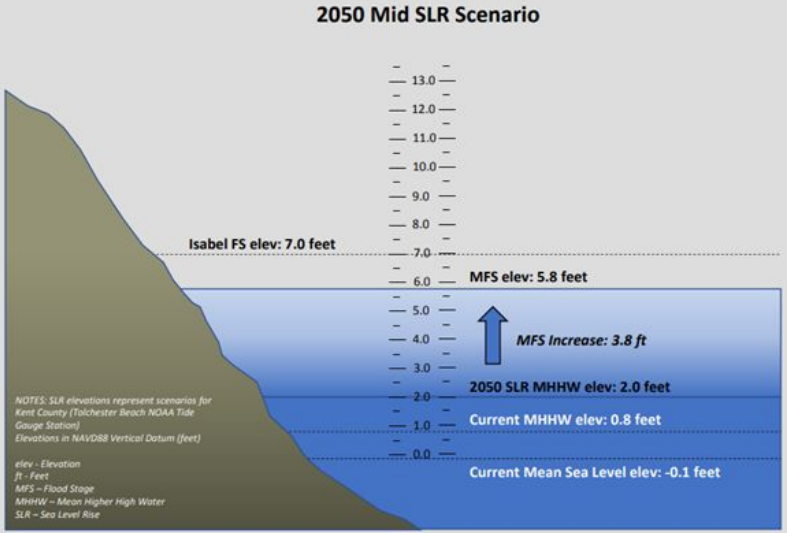
https://apg-chesapeakejlus.com/157/Susquehanna-River-Impact-Accretion-Study



2050 Mid SLR Scenario – 1.2 ft increase

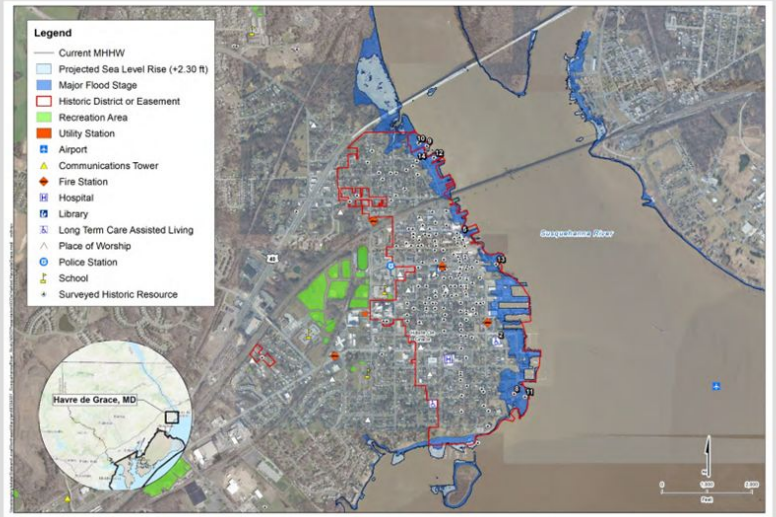


Scenarios



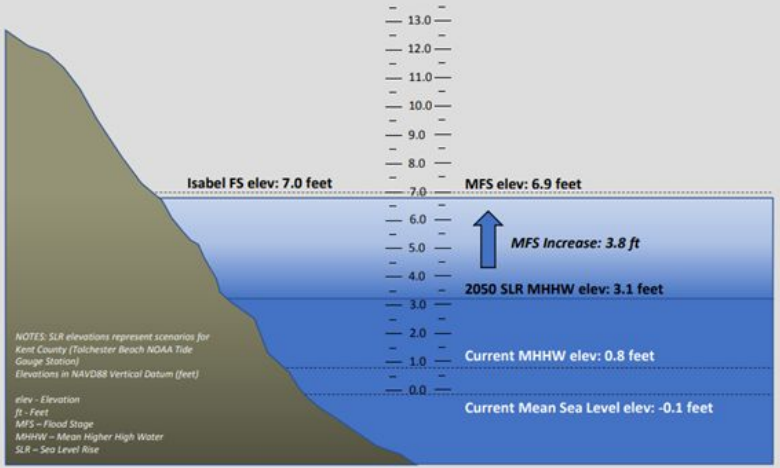
2050 Mid SLR Scenario – 1.2 ft increase

2050 High/2100 Mid SLR Scenario – 2.3 ft increase



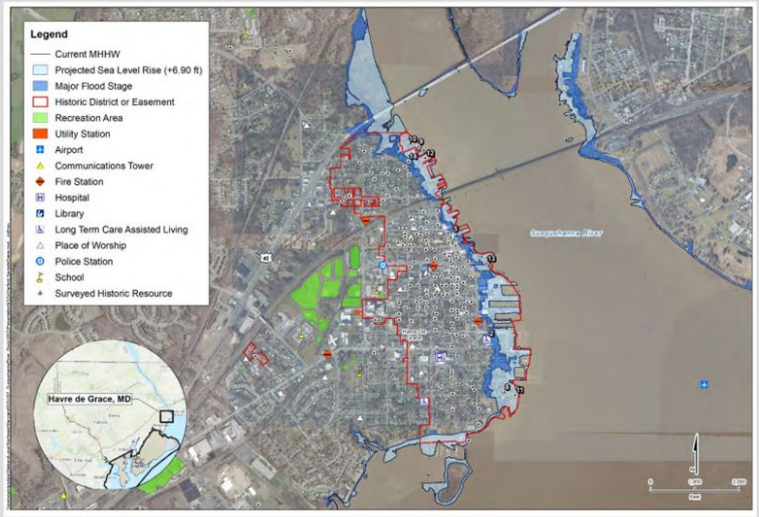
Scenarios

2050 High/2100 Mid SLR Scenario



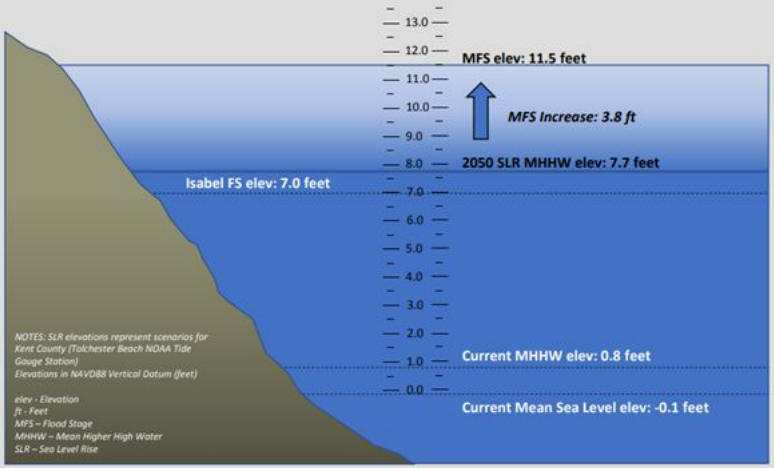
2050 High/2100 Mid SLR Scenario – 2.3 ft increase

2100 High SLR Scenario – 6.9 ft increase



Scenarios

2100 High SLR Scenario



2100 High SLR Scenario – 6.9 ft increase

9. Supporting resources

Technical documents as references, such as:

City of Havre de Grace Water System Hydraulic Model Update, Engineering Consultant, GHD January 2021

Harford County Water and Sewer Master Plan, updated biannually

Planning for Coastal Resiliency in the Northern Chesapeake Bay, Volumes 1 and 2, EA Engineering, Science, and Technology, February 2019

Other references such as Discharge Permits and City Ordinances [these are just to name a few]

Thank you!