

CASE STUDIES: MARYLAND'S HISTORIC COMMUNITIES

- A. Fells Point - Baltimore
- B. Galesville
- C. Hoopers Island & Taylors Island
- D. Jones Falls - Baltimore
- E. North Brentwood
- F. Port Deposit
- G. Royal Oak
- H. Shady Side
- I. St. Michaels & Columbia Beach
- J. Westernport
- K. Whitehaven
- L. Williamsport

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FELLS POINT - BALTIMORE





PROFILE

County: City of Baltimore

Population:

- City of Baltimore: 620,961

Flood Risk: Tidal flooding, storm surge, sea level rise

Average household income: N/A

Owner-occupied housing: 24.8%

HISTORIC DESIGNATIONS

- Fells Point Historic District*
* National Register and local historic district

LOCAL HISTORIC PRESERVATION REGULATORY CONTROL

Baltimore City Commission for Historical & Architectural Preservation (CHAP)

A. FELLS POINT - BALTIMORE

HISTORICAL DEVELOPMENT

- Fells Point was settled in 1761 as the deepest harbor in the Baltimore, thus ensuring its place at the city's central port in the 18th and 19th centuries (*FPHD Nomination, 7-1*)
- Baltimore's growth can be attributed to the "flour mills and other processing businesses rather than from the tobacco culture that was the economic basis of the early Chesapeake society" (*FPHD Nomination, 8-67*)
- Historically a maritime center, Fells Point evolved from an industrial center into a commercial center, serving as the intersection for trade, shipping, food processing, and canning (*FPHD Nomination, 3*)
- The district is characterized by a mix of 19th and 20th century warehouses, industrial buildings, and rowhouses (*FPHD Nomination, 3*)
- Fells Point is at sea level and historic homes were often built with raised basements or in "the two-story-plus-attic style of row house" (*FPHD Nomination, 7-3*)

HISTORICAL SIGNIFICANCE

- Significant for its role in the evolution of the City of Baltimore, anchoring the city as an early industrial and commercial hub on the Chesapeake Bay (*FPHD Nomination, 7-1*)
- The harbor's deep bay attracted shipping and maritime-related activities, followed by industries including food processing and packing (*FPHD Nomination, 7-1*)
- The historic district's *Nomination* cites the significance of the dense mix of residential buildings that grew up along with the commercial and industrial use of the port, an early example of the mixed use streetscape (*FPHD Nomination, 7-1*)

BROAD INFRASTRUCTURE AFFECTING LOCAL AREA

- Modern sewers were introduced in the 20th century - Until that point, Fells Point struggled with public health problems caused by open sewers and cesspools (*FPHD Nomination*, 7-3)
- Several State facilities are located in Baltimore's 100-year floodplain in Fells Point (*CBDPP Project*, 123)
- The City estimates that, in the event of a 500-year flood, there would be \$10 billion in damage to critical facilities across the Baltimore (*CBDPP Project*, 123)

ACCESS TO ROADWAYS AND BRIDGES

- Within the City of Baltimore, 15.08 miles of major roads are located on 100-year floodplains, 22.93 miles are located on 500-year floodplains (*CBDPP Project*, 121)

POPULATION'S PROFILE

- Since the 1950s, Baltimore has experienced a decrease in population as individuals and families have left the city for more suburban areas (*CBDPP Project*, 26)

INDUSTRY

- Baltimore is the largest seaport in the country and is almost completely urbanized (*Flood Study*, 4)
- Primary industries in the city: primary metals, transportation equipment, food and kindred products, apparel, and fabricated metal products (*Flood Study*, 4)
- 35% of the city's major employers are located along the waterfront (*CBDPP Project*, 35)

RESOURCES

City of Baltimore Disaster Preparedness and Planning Project. (*CBDPP Project*) October 2013 <http://www.baltimoresustainability.org/plans/disaster-preparedness-plan/>.

Flood Insurance Study City of Baltimore, Maryland. (*Flood Study*) Federal Emergency Management Agency. 30 November 2012. https://www.rampp-team.com/county_maps/maryland/baltimore_city_coastal/baltimore_city_md_fis_tables_cpmr.pdf.

Thompson, Priscilla M. and Franklyn Thompson. *Fells Point Historic District Nomination.* (*FPHD Nomination*) The History Store. November 1985.

National Register of Historic Places Inventory Nomination Form Fells Point Historic District. March 1969.

HISTORY OF FLOODING

Major flood events in Baltimore are riverine in nature, caused by flooding of the Patapsco River and tributaries (*CCBDPP Project*, 52)

Flooding is caused by "urbanization, [...] stream channel encroachments, [...] undersized railroad and roadway bridges, [...] and inadequate storm sewer drainage" (*CBDPP Project*, 52)

Major floods have occurred in 1817, 1837, 1863, 1868, 1933, 1955, 1972, and 1975 (*CBDPP Project*, 52)

August 1817 - water levels rose 12 to 20 feet and damaged homes, bridges and killed livestock (*CBDPP Project*, 52)

July 1923 - recorded flood damage was immense (*CBDPP Project*, 52)

1966 - flooding in Baltimore resulted in 39 fatalities (*Flood Study*, 5)

June 1972 - flooding Tropical Storm Agnes was twice as high as "the 100-year recurrence interval" (*CBDPP Project*, 57)

September 2003 - Hurricane Isabel brought flooding to predicted 100-year tidal flood levels (*CBDPP Project*, 57)

There are 52 repetitive loss properties in Baltimore City (*CBDPP Project*, 55)

In addition to river flooding, Baltimore City experiences tidal flooding, following a storm event, which can be accompanied by high velocity flooding (*CBDPP Project*, 57)

A direct hit from a hurricane can result in severe flooding, pushing flood levels 15 to 20 feet above normal levels (*Flood Study*, 5)

MITIGATION MEASURES

The *CBDPP Project* recommends retrofitting existing buildings in designated flood area to increase resiliency including: installing backflow preventers; installing permeable paving; maintaining streams; providing redundancy in operating systems and critical facilities; strengthening zoning codes with regard to resiliency and flooding; amending floodplain requirements; purchasing repetitive loss properties; maintaining a current list of repetitive loss properties

COMMUNITY RATING CLASSIFICATION: 5



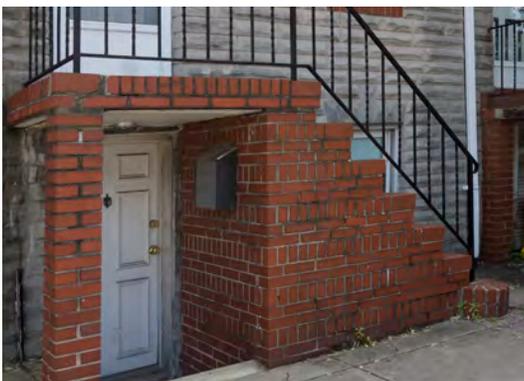
Two- to three-story rowhouses with commercial uses at the ground floor are along Thames Street.



The former Fells Point Recreation Pier is being redeveloped as a hotel.



Windows can provide a path for flood water entering a basement.



Although the primary floor is raised, the lower level, which appears occupied, is susceptible to flooding.

SITE VISIT - MAY 24, 2016

Attendees:

- Stacy Montgomery, CHAP
- Lauren Schiszik, CHAP
- Walter Gallas, CHAP
- Jennifer Sparenberg, MHT
- Anne Raines, MHT
- Nell Ziehl, MHT
- Dominique M. Hawkins, PDP
- Sarah Blitzer, PDP

Overview:

Fells Point is a waterfront neighborhood that historically served as the central port of the city and its boat building past. It has since been transformed into a popular tourist destination and residential neighborhood consisting primarily of brick rowhouses. The area along the waterfront is characterized by brick rowhouses with small scale commercial services on the inland side of Thames and Fell Streets, and larger scale buildings (e.g. warehouses) projecting out into the harbor. There were two distinct components to the site visit. The first portion of the visit included a meeting with the site managers for the hotel development located at the former Fells Point Recreation Pier, and the second component included a walking tour of the residential neighborhood.

Challenges:

- The majority of the neighborhood from Fleet Street to the harbor is in the 100-year floodplain and several buildings, particularly the commercial buildings along the waterfront, are prone to flooding
- The hotel redevelopment is seeking tax credits and resiliency measures needed to be balanced with preservation treatment and approach
- Many of the residential buildings have basements, some of which have occupied lower levels, areaways, or windows at or near grade

Approach / Observations:

General:

- The City of Baltimore is mandating higher resiliency requirements than found in the Flood Mitigation Plan and looking towards 500-year floodplain
- The City is currently requiring a 11-foot base flood elevation plus 7-feet of storm surge
- Sewage treatment plant is vulnerable to flooding

Redevelopment of the Recreation Pier: A dry flood proofing approach is being used in the redevelopment of the building, including:

- Installing waterproofed concrete flood walls to the 11-foot base flood elevation for the new addition, both at the exterior and within the courtyard, and flood doors at all grade locations - inspecting waterproofing 3 times by a third party reviewer during installation as part of the permitting process
- Raising the interior first floor height 3.5 feet above the 100-year floodplain, while maintaining the original window height dimensions - installing tempered glazing to address code concerns related to floor-level proximity
- Locating all mechanical equipment on the roof, running systems primarily along the ceilings, minimizing and waterproofing penetrations of the first floor slab, installing all electrical receptacles and devices at higher elevations
- Multiple hearings and approvals were required related to building within the 100-year floodplain, the historic designation, and the preservation tax credits
- The developer is aware that recovery from a flood has the potential to be very expensive regardless of steps to prevent damage

Fells Point Neighborhood:

- Ground floor commercial establishments and the lower levels of rowhouses south of Fleet Street are particularly prone to flooding, particularly those with occupied basements
- New development addresses flood mitigation by abandoning basements and treating ground floor areas as unoccupied space, and instead utilizing as parking accessed from rear alleys to maintain historic streetscape character

Potential Mitigation Strategies:

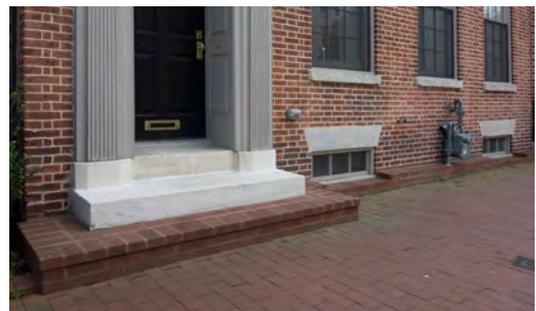
Rowhouse architecture provides a particular challenge related to flood mitigation in that buildings are generally built to property lines, limiting perimeter mitigation techniques, and because of shared party walls, individual buildings cannot be raised without cooperation from neighbors.

At residential buildings, mitigation measures can include:

- Raising systems and equipment out of vulnerable areas prior to a flood event
- Installing a sump pump system with a back-up power supply to remove any accumulated water
- Installing ventilation measures at lower levels to minimize the potential for mold growth
- Abandoning and wet floodproofing basements and lower levels, installing gravel / parking while retaining historic character



Mechanical and electrical equipment installed at grade is at risk for being damaged by flood waters.



The basement has been abandoned and 1st floor used for parking while maintaining historic appearance.

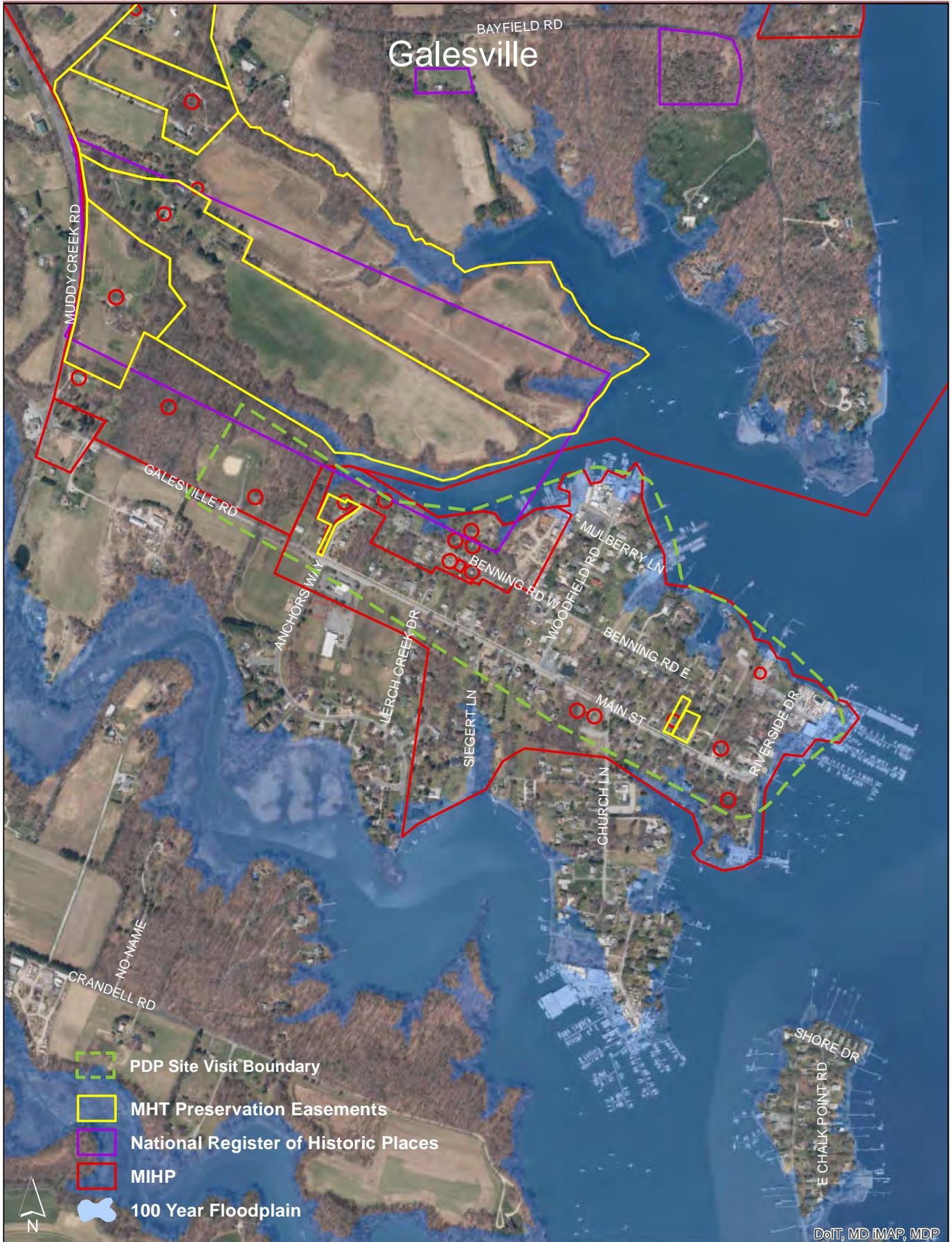


The parking for the building above is accessed from the rear, allowing the streetscape to retain its character.



Areaways, including those that service commercial buildings, provide a path for flood water to enter a basement.

B
GALESVILLE





PROFILE

County: Anne Arundel

Population:

- County: 537,656
- Town: 684

Flood Risk: Tidal flooding, storm surge, sea level rise

Average household income: Unavailable

Owner-occupied housing: 80.1%

HISTORIC DESIGNATIONS

- Galesville*
- West Benning Road Historic District
 - * Local historic district
 - ** National Register eligible historic district

LOCAL HISTORIC PRESERVATION REGULATORY CONTROL

- Cultural Resources Division, Anne Arundel County Planning and Zoning

B. GALESVILLE

HISTORICAL DEVELOPMENT

- “Galesville evolved as a water-related village from the 17th through the mid-19th centuries” (*Eligibility Review*, 1)
- Henry Wilson, a former slave, reportedly built his home as the focal point of a 27.5-acre property that he began to accumulate the land for in 1865, beginning with 2 acres and adding 25.5 acres in 1871 - The house remained in the family until 1970 (<http://galesville.org/wilsonhouse.shtml>) - He also purchased his wife’s freedom from a nearby plantation (*Site visit*)
- Several homes in the town were constructed by employees of the Woodfield Oyster Company in the first half of the 20th century (*Eligibility Review*, 2) - Some of the homes were also constructed by the company for use as worker’s housing (*Field Guide*)
- The Galesville Rosenwald School (1929, expanded 1931) was one of 23 Rosenwald Schools constructed in Anne Arundel County between 1921 and 1932 (www.historicgalesville.org)

HISTORICAL SIGNIFICANCE

- The Galesville Ball Field (also known as Wilson Field and adjacent to the Wilson Homestead) was the home of the Galesville Hot Sox who began playing on the field in 1929 and participated in the Negro Professional Baseball League (<http://galesville.org/wilsonfield.shtml>)
- Galesville is a historically African-American town supported by the Woodfield Oyster Company (*Eligibility Review*, 2)
- The Woodfield Oyster and Fish Company, founded by William F. Woodfield in 1917, was one of the largest fish and oyster oldest businesses on the bay, and employed many African Americans - The site was rebuilt following a fire (*Site Visit*)

BROAD INFRASTRUCTURE AFFECTING LOCAL AREA

- Public sewer system installed by the County in 1996 (Site visit)

ACCESS TO ROADWAYS AND BRIDGES

- The principal access road, Galesville Road, is not located within the 100-year floodplain

INDUSTRY

- Boatyard and Pirate's Cove restaurant are located on water

RESOURCES AND FLOOD IMPACT

- Anne Arundel County is in the process of participating in the Community Rating System (*Plan Update*, 5-10)

POTENTIAL IMPACT ON COMMUNITY

- Much of the property along the water is dedicated to maritime activities with residences located on higher elevations
- It can be difficult to get mortgages on historic homes that have not been improved to address resiliency (Site visit)

RESOURCES

Anne Arundel County, Maryland – 2010 Hazard Mitigation Plan Update. (*Plan Update*) www.aacounty.org/departments/office-of-emergency-management/forms-and-publications/2010HazardMitigationPlanSections.pdf.

Field Guide to Galesville, Maryland. (*Field Guide*) 2015. http://www.historicgalesville.org/Field_Guide_to_Galesville.pdf.

Galesville Community Center Organization, Inc. <http://www.historicgalesville.org>.

Ware, Donna M. *Maryland Historical Trust Internal NR-Eligibility Review Form; Town of Galesville.* (*Eligibility Review*) December 1992.

West River Improvement Association. <http://galesville.org>.

HISTORY OF FLOODING

The county has experienced 36 flood events (*Anne Arundel County, Maryland – 2010 Hazard Mitigation Plan Update*, 6-2)

The storm surge from Hurricane Isabel (2003) resulted in considerable flood damage in the area (Site visit)

Pirate's Cove flooded several feet following Hurricane Isabel, 8'-9' above creek (Site visit)

MITIGATION MEASURES

Coordinated response to Hurricane Isabel (2003) from FEMA to MEMA to the County which included financial assistance to homeowners affected by storm surge and elevation and improvements to housing compliant with flood requirements (Site visit)

COMMUNITY RATING CLASSIFICATION: N/A



The Henry Wilson House was elevated on brick piers. The front stair has yet to be installed.



Standing water is visible under the Henry Wilson House.



The Rosenwald School has been converted into the Galesville Community Center.



There is a variety of early-20th century housing in Galesville.

SITE VISIT - MAY 23, 2016

Attendees:

Bill Gibbons, Arundel Community Development Services, Inc.
Heather Barrett, MHT
Dominique M. Hawkins, PDP
Sarah Blitzer, PDP

Overview:

Galesville is a historically farming and maritime community that included oystermen and watermen, many of whom were African American. The principal industries of the area included servicing the Woodfield Fish and Oyster Company as well as the transportation of local produce to Baltimore via steamboats.

The site visit to Galesville included two distinct components. The first was a tour of Wilson Park, which includes the Henry Wilson House and adjacent ball field associated with the Negro League. The second component consisted of a driving tour of the housing and wharf associated with the Woodfield Fish and Oyster Company. The wharf is located in the 100-year floodplain while, in large part, the housing is located on the hill above the 100-year floodplain. The historic Rosenwald School, which has been converted into the Galesville Community Center, was also a stop during the visit. The driving tour included a brief conversation with a long-time Galesville resident, whose home is on West Benning Road.

Challenges:

- The Wilson Homestead and field, although at a relatively high elevation, were very wet with visible areas of ponding water and very wet, spongy soil although not located in 100-year floodplain
- Historically, many homes in the area, including the Wilson homestead, are wood-framed and were constructed at or near grade making them susceptible to rot, particularly sill beams and floor framing - Rot is generally exacerbated as residents limit air circulation under homes by closing vents or enclosing crawl spaces
- Many of the remaining older buildings associated with the Woodfield Fish and Oyster Company tend to flood and much of the property is now used as a boat yard
- Some abandonment of some historic buildings was visible - Primary residences are being elevated while accessory buildings, such as barns, are less likely to be addressed
- The Rosenwald School has been converted into the Galesville Community Center

Approach / Observations:

The Henry Wilson House was elevated and stabilized by the Arundel Community Development Services, Inc. with a grant from the MHT. The

elevation raised the height of the building 16” on brick piers, matching the location of the historic supports. Standing water was visible beneath the house suggesting site grading could improve drainage. Additional stabilization work completed with the remaining available funding included replacement of the majority of the wood sills, sistering of first floor joists, installation of clapboard on two elevations (some salvaged), and securing of window and door openings. The work did not include steps to door openings, which can present a challenge related to a building’s integrity when a building is raised.

Much of the housing formerly associated with the oystermen and watermen from the Woodfield Fish and Oyster Company had been previously rehabilitated by the Arundel Community Development Services, Inc. Previous improvements included the introduction of indoor plumbing in 1996 and the elevation of some of the homes. A former oysterman and long-time resident on West Benning Road indicated that previous improvements have greatly improved his quality of life and the homes generally did not flood, although the Woodfield site was very susceptible to flooding.

Possible Mitigation Strategies:

The majority of the residences are small, wood-framed cottages located above the 1% floodplain. For houses that are vulnerable, elevation by couple of feet could improve resilience without significantly impacting the overall neighborhood character. In addition, systems and equipment should be elevated out of vulnerable areas prior to a flood event.



Many of the buildings associated with the Woodfield Fish and Oyster Company are susceptible to flooding.



Standing water could be found in front of this store, whose first floor is slightly raised above grade.

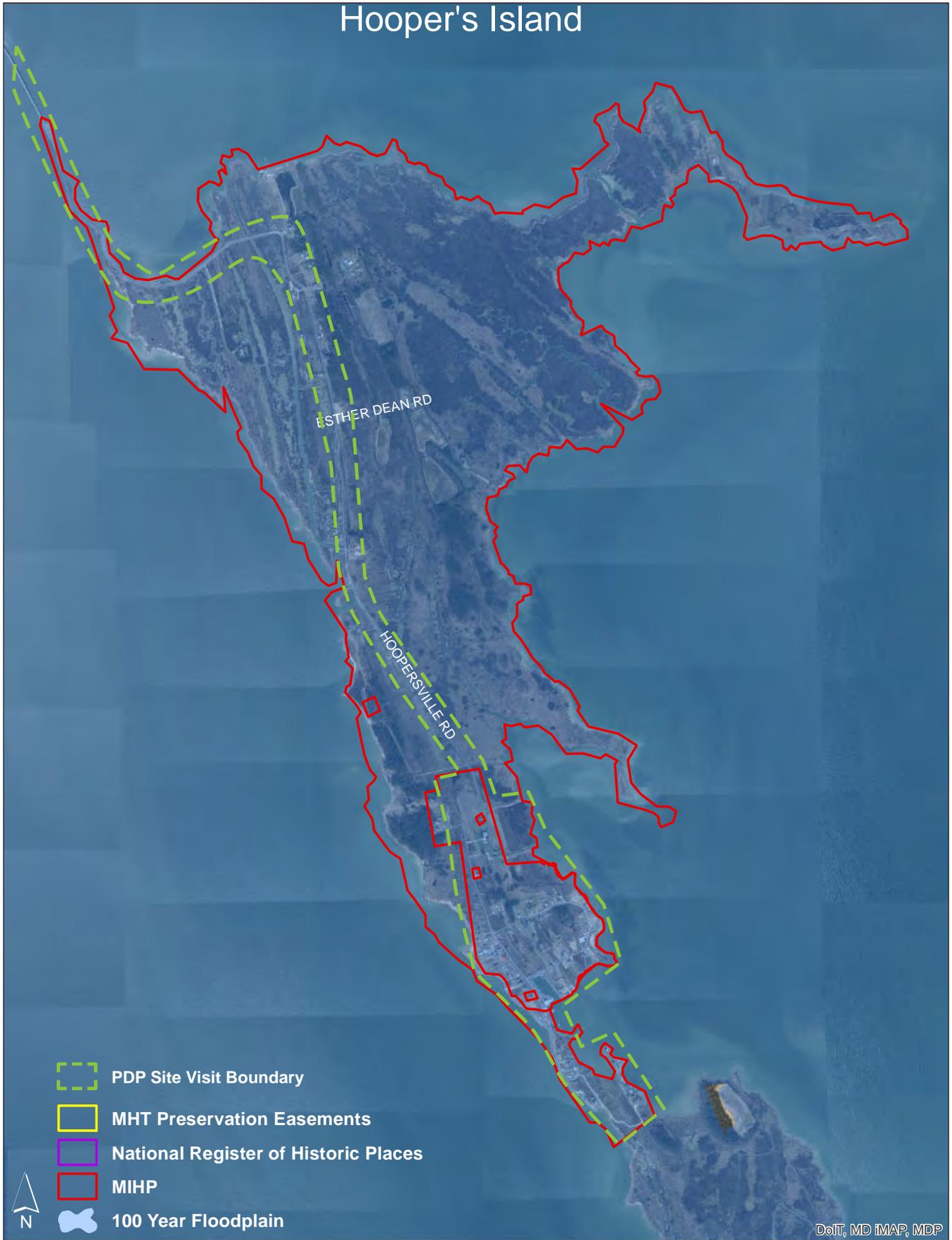


In 1996 indoor plumbing was installed in Galesville, including these homes on West Benning Road, improving the quality of life for its residents.

HOOPERS ISLAND & TAYLORS ISLAND



Hooper's Island





C. HOOPERS ISLAND & TAYLORS ISLAND

HISTORICAL DEVELOPMENT

Hoopers Island

- Hoopers Island is actually comprised of three islands with authentic working watermen villages (<http://visitdorchester.org/hoopers-island/>)
- Upper Hooper Island is comprised of four settlements (*Hoopers Island Nomination*, 2)

Taylors Island

- Taylors Island includes unique homes, schoolhouses, and three churches (<http://visitdorchester.org/taylors-island/>)

HISTORICAL SIGNIFICANCE

Hoopers Island

- Some properties have the earliest land grants in Dorchester County, issued in 1659, approximately 10 years before the County was established (<http://visitdorchester.org/hoopers-island/>)
- On Hoopers Island, most residents still make a living by working the water, catching and processing crabs, oysters, and fish (<http://visitdorchester.org/hoopers-island/>)

Taylors Island

- The tidal marshes of Taylors Island have been relatively untouched by the development of small towns and villages on the nearby shores and the island is a classic illustration of Chesapeake Bay tidal marsh habitat (<http://visitdorchester.org/taylors-island/>)

BROAD INFRASTRUCTURE AFFECTING LOCAL AREA

- Properties rely on well water and septic tanks (Site visit)

PROFILE

County: Dorchester

Population:

- County: 32,618
- Town:
Hoopers Island - 428
Taylors Island - 263

Flood Risk: Tidal flooding, storm surge, sea level rise

Average household income: Unavailable

Owner-occupied housing:

- Hoopers Island - 88.9%
- Taylors Island - 85.0%

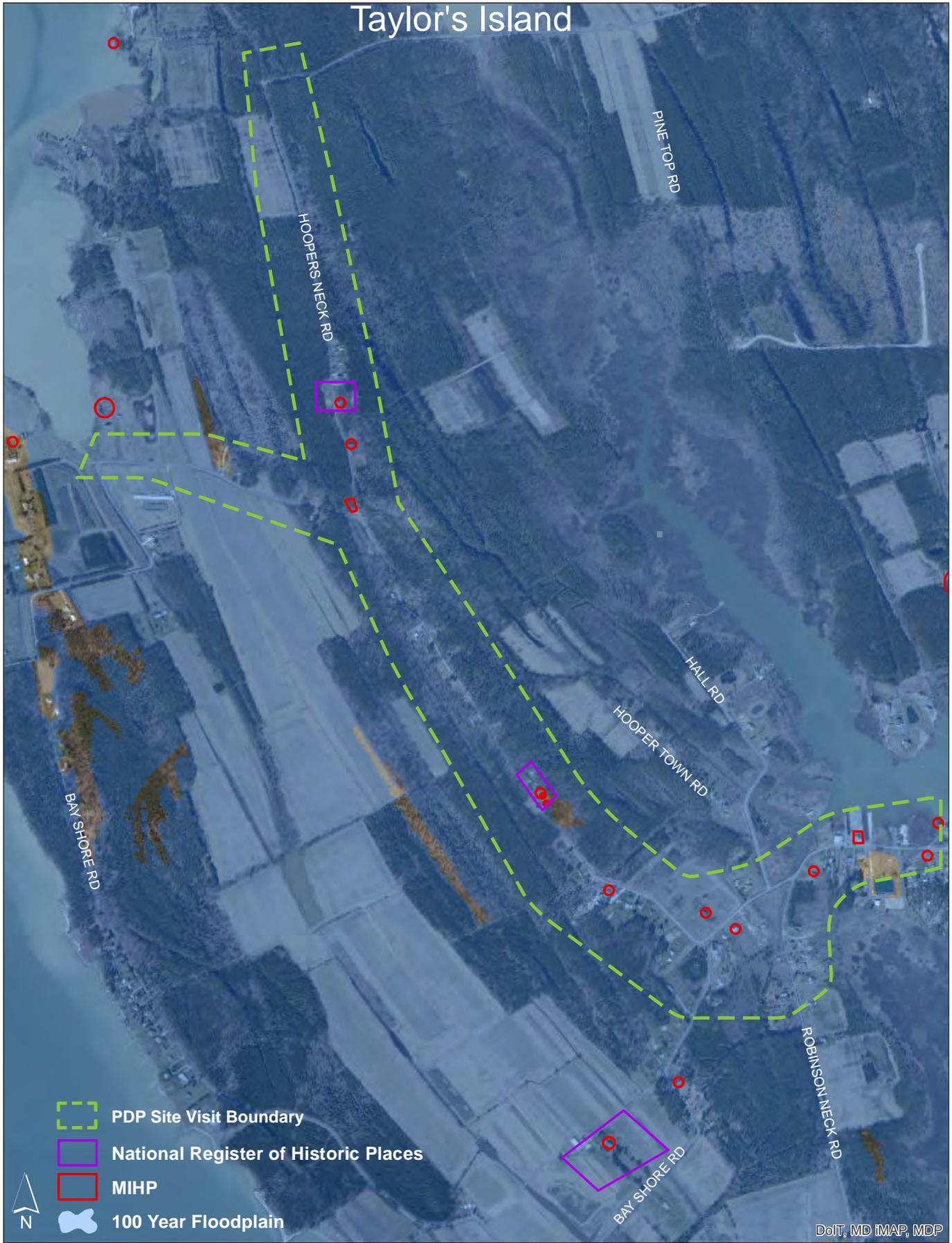
HISTORIC DESIGNATIONS

- Hooper Island Light Station*, Hoopers Island
- Bethlehem Methodist Episcopal Church*, Taylors Island
- Grace Episcopal Church Complex*, Taylors Island
- Ridgeton Farm*, Taylors Island

* Individually registered in the National Register of Historic Places

LOCAL HISTORIC PRESERVATION REGULATORY CONTROL

No review at the County level (*Dorchester County 1996 Comprehensive Plan*)





A single roadway, which is prone to flooding, provides vehicular access to Hoopers Island.



The two graves in the foreground of this Hoopers Island graveyard appear to have new concrete crypts.



This home on Hoopers Island was elevated a full story and includes a new concrete block lower level.



The efflorescence suggests water saturation at this Taylors Island church.

SITE VISIT - MAY 16, 2016

Attendees:

Amanda Fenstermaker, Dorchester County Department of Tourism
 Katie Clendaniel, Dorchester County Department of Tourism
 Margaret De Arcangelis, Preservation Maryland
 Anne Raines, MHT
 Nell Ziehl, MHT
 Jennifer Sparenberg, MHT
 Dominique M. Hawkins, PDP
 Sarah Blitzer, PDP

Overview:

Hoopers and Taylors Islands are located on the western coast of the Eastern Shore of the Chesapeake Bay. A combination of subsidence and sea level rise has altered the landscape as more brackish water encroaches further inland, impacting the loblolly tree stands and access to the bird sanctuary, as well as reducing the farmable land. The focus of the site visit was a driving tour of the northern two islands associated with Hoopers Island and Taylors Island.

Challenges:

- Access to Hoopers Island is by boat or a single roadway with connecting bridges that are often inundated
- Water supply is through well water, and properties rely on septic systems, both of which will be impacted as the water table continues to rise and encroach on the land
- Standing water was visible on the ground, particularly on Hoopers Island, and the soil was very wet and spongy
- Buildings are being impacted through contact with groundwater, although some buildings have been elevated and habitable areas of contemporary buildings are raised
- It appeared that graveyard crypts are experiencing upward displacement, with recent concrete replacement evident in at least one location
- There is limited documentation of the historic properties and landscapes on both Hoopers and Taylors Islands

ACCESS TO ROADWAYS AND BRIDGES

- A single road with bridge(s) provides access to each island with the road to Hoopers Island being prone to flooding (Site visit)

ACCESS TO PUBLIC SERVICES

- The public school on the road to Hoopers Island closes when the roadway is inundated (Site visit)

ACCESS TO PRIVATE SERVICES

- A general store is located on Hoopers Island (Site visit)

POPULATION'S PROFILE

- The population of the islands is aging with younger generations moving to other locations in the county, some abandoning properties, and few new residents (Site visit)
- One child resides on Hoopers Island (Site visit)

INDUSTRY

- The number of crab houses has declined and there is high resident unemployment - WT Ruark & Company is a remaining crab picking facility on Hoopers Island who reportedly relies on migrant labor (Site visit)

RESOURCES

Dorchester County 1996 Comprehensive Plan. (DCC Plan) <http://docogonet.com/uploads/Planning&Zoning/Dorchester%20County%20Comprehensive%20Plan%20LQ.pdf>.

Dorchester County Office of Tourism. (Office of Tourism) <http://visitdorchester.org/>.

Floodplain Management District. 8 Jan. 2015. <http://docogonet.com/uploads/File/Planning%20and%20Zoning/Floodplain%20Management/floodplainmanagementordinance3pdf.pdf>.

Hoopers Islands Maryland Historical Trust Worksheet Nomination Form. (Hoopers Island Nomination) http://msa.maryland.gov/megafile/msa/stagsere/se1/se5/027000/027600/027655/pdf/msa_se5_27655.pdf.

HISTORY OF FLOODING

1933 storm submerged entire island and washed out bridge connecting Upper and Middle Hooper Islands (Hoopers Islands Maryland Historical Trust Worksheet Nomination Form, 5)

Several properties were abandoned after Hurricane Isabel (2003) (Site visit)

Lower Hoopers Island is basically abandoned (Site visit)

MITIGATION MEASURES

In 2015, the County enacted the Floodplain Management District, which regulates new construction and improvements within the District (Floodplain Management District)

The District prescribes two feet of freeboard (Floodplain Management District, 9)

COMMUNITY RATING CLASSIFICATION: 8



Taylor's Island includes a number of historic churches and graveyards.

Approach / Observations:

Hoopers and Taylor's Islands represent important early communities in Maryland that are facing a changing landscape and habitat as industries in the form of oystermen, water men, crabbing, and farming disappear.

The majority of the buildings are of wood-framed construction, which are susceptible to rot in wet conditions.

There are significant infrastructure challenges associated with the long-term viability of both Hoopers and Taylor's Islands including access, fresh water supply and sewage, all of which would require significant financial investment to address.



This Italianate farmhouse suggests the historic prosperity of Taylor's Island.

Concluding Observations:

With the continued sea water encroachment, Hoopers and Taylor's Islands are faced with not only the loss of built heritage, but also the loss of its landscape and a way of life. In addition, their locations make them highly vulnerable to a major storm event.

The ability to document these aspects of the islands will diminish as existing businesses close, aging residents move on, or if a significant storm event has a dramatic impact on vehicular access or the ability to inhabit the islands.

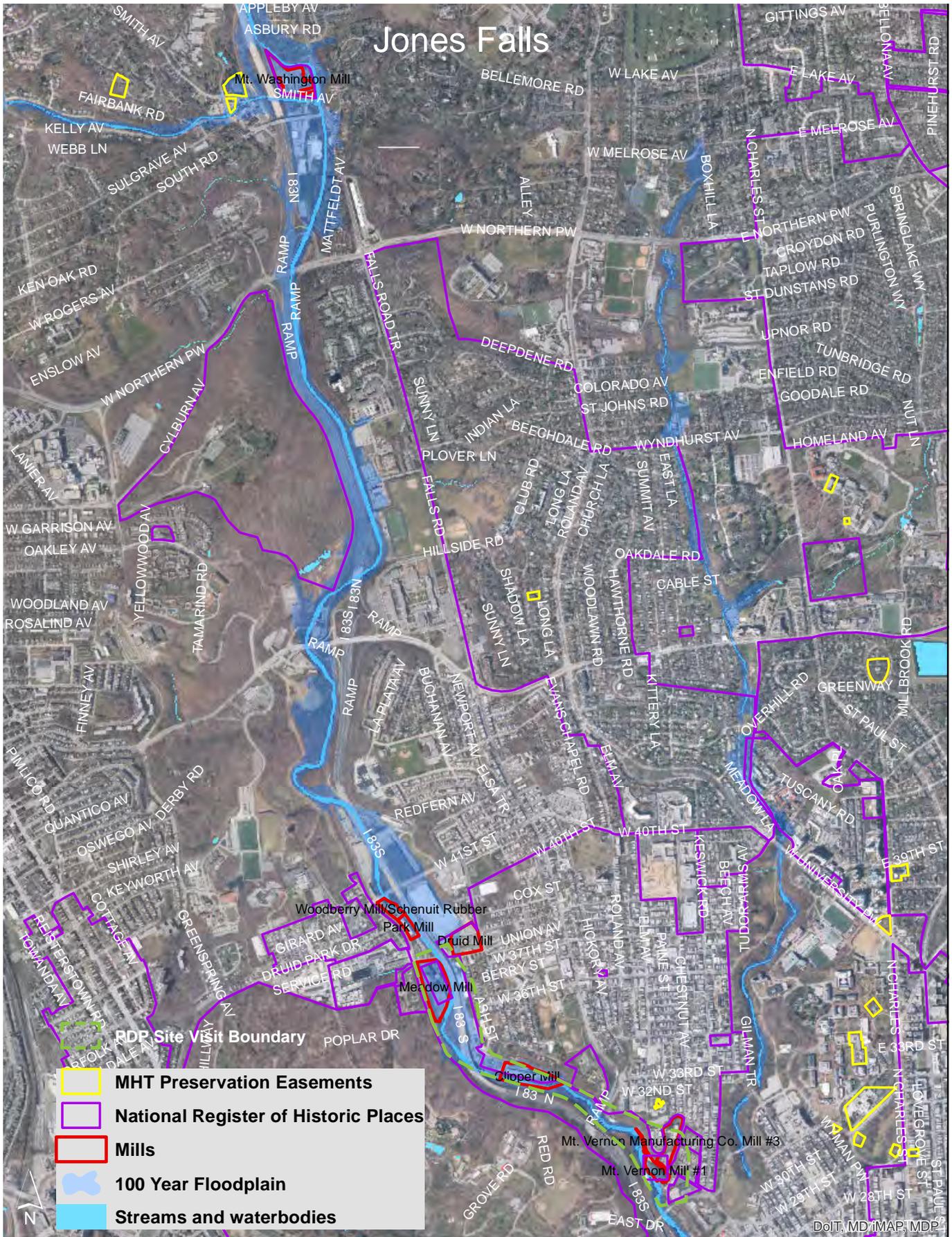


Standing water was present around many of the homes on Hoopers Island, which can cause significant damage to the wood-framed construction, particularly at buildings constructed close to the ground.

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JONES FALLS - BALTIMORE

D





D. JONES FALLS - BALTIMORE

HISTORICAL DEVELOPMENT

- Jones Falls became an industrial center as the region transitioned from agriculture to manufacturing (*Mount Washington Mill Nomination, 40*)
- Beginning in the early-19th century, water-powered mills developed along the river, away from the labor pool in Baltimore, which encouraged the construction of mill complexes, including worker housing (*MWMHD Nomination, 8-1*)
- These mills were initially constructed following Thomas Jefferson's foreign trade embargo in 1807, which opened up the market to domestic production of goods (*Mount Washington Mill Nomination, 40*) - Historically, industry in the Jones Falls area evolved from flour mills to textiles - in response to the embargo (*Clipper Mill Nomination, 1*)
- Built in 1810, the Washington Cotton Manufacturing Company's mill complex, known as "Washingtonville," developed around the mill in the 1830s and 40s - When it was sold, new owners expanded the mill, including two brick buildings during and after the Civil War (*Inventory Washington Mill, 115*)
- Meadow Mill, constructed in 1877 by the Hooper family as one of five mills belonging to the Woodberry Manufacturing Company, is "reminiscent of the grant [sic] New England textile mills of the period" (*Londontown Nomination, 3, 10*)
- The Hooper family was invested in the mills' community, and constructed numerous workers' housing and "established a building and loan association for the millhands" (*Londontown Nomination, 3*)
- A significant number of workers' houses were destroyed to make way for the Jones Falls Expressway (*Inventory Washington Mill, 118*)
- Despite the capacity of these mills, they were never used to their fullest capacity in the production of textiles (*Mount Washington Mill Nomination, 8-2*)
- The Jones Falls area was slow to develop until the arrival of the Baltimore and Susquehanna Railroad in 1830 (*Inventory Washington Mill, 118*)
- Mount Vernon Mill No. 1's four buildings were built between 1873 and 1918 (*Mill No.1 Nomination, 7-1*)
- In 1845, Mount Vernon Mill No. 1 was converted from water-power to steam (*Mill No.1 Nomination, 8-2*)
- In 1898, seven companies banded together and formed a cotton duck monopoly, known as the Mount Vernon-Woodberry Cotton Duck Company (*Mill No.1 Nomination, 8-6*)

PROFILE

County: Baltimore City

Population: 620, 961

Flood Risk: Flash flooding and riverine flooding

HISTORIC DESIGNATIONS*

- Mount Washington Mill Historic District
- Meadow Mill*
- Mount Vernon Mill No. 1*
- Poole and Hunt Company Buildings*

* Individually registered in the National Register of Historic Places

LOCAL HISTORIC PRESERVATION REGULATORY CONTROL

Baltimore City Commission for Historical & Architectural Preservation (CHAP)**

** Currently there are no locally-designated historic properties in Jones Falls

- Many, but not all, mills produced cotton duck, for the maritime and sailing ship trades (*Inventory Park Mill, 24*)
- Whitehall Mill, which burned down in the 1850s, was a water-powered flour mill - It was replaced by Clipper Mill, which milled cotton duck (*Inventory Clipper Mill, 4*)
- Woodberry Mill was constructed in 1845 as a cotton duck mill (*NR-E Woodberry, 21*)

HISTORICAL SIGNIFICANCE

- Jones Falls is significant as a center of industry in Baltimore with several historic mills located along the Jones Falls, mills involved in milling flour and later manufacturing textiles, usually maritime industry textiles - The mills are also significant individually (*Inventory Washington Mill, 115*)
- The Washington Cotton Manufacturing Company’s mill building is one of the oldest in the country and is also one of the first mills to be operated by water power (*Inventory Washington Mill, 115*)
- Meadow Mill is likely the only existing mill in the state of Maryland constructed between 1877 and World War I (*Londontown Nomination, 2*)
- Mount Vernon-Woodberry Mills is significant for its place in the workers rights movement where, in April 1923, workers went on strike protesting pay and the length of the work week, forever changing “the paternalistic system that governed mill operations” (*Mill No. 1 Nomination 8-7*)

BROAD INFRASTRUCTURE AFFECTING LOCAL AREA

- The City estimates that, in the event of a 500-year flood, there would be \$10 billion in damage to critical facilities across the Baltimore (*CBDPP Project, 123*)

ACCESS TO ROADWAYS AND BRIDGES

- Within the City of Baltimore, 15.08 miles of major roads are located on 100-year floodplains, 22.93 miles are located on 500-year floodplains (*CBDPP Project, 121*)

INDUSTRY

- Baltimore is the largest seaport in the country and is almost completely urbanized (*Flood Study, 4*)
- Primary industries in the city: primary metals, transportation equipment, food and kindred products, apparel, and fabricated metal products (*Flood Study, 4*)
- 35% of the city’s major employers are located along the waterfront (*CBDPP Project, 35*)

HISTORY OF FLOODING

Major flood events in Baltimore are riverine in nature, caused by flooding of the Patapsco River and tributaries (*CCBDPP Project, 52*)

Flooding is caused by “urbanization, [...] stream channel encroachments, [...] undersized railroad and roadway bridges, [...] and inadequate storm sewer drainage” (*CBDPP Project, 52*)

Major floods have occurred in 1817, 1837, 1863, 1868, 1933, 1955, 1972, and 1975 (*CBDPP Project, 52*)

August 1817 - water levels rose 12 to 20 feet and damaged homes, bridges and killed livestock (*CBDPP Project, 52*)

July 24, 1868 - Jones Falls flooded with heavy loss of life (*Flood Damage, 10*)

July 1923 - recorded flood damage was immense (*CBDPP Project, 52*)

1966 - flooding in Baltimore resulted in 39 fatalities (*Flood Study, 5*)

June 1972 - flooding Tropical Storm Agnes was twice as high as “the 100-year recurrence interval” (*CBDPP Project, 57*)

- Following flooding after tropical storm Agnes in 1972, “industrial operation was choked in mud and silt [...]” (*Mount Washington Mill Nomination, 8-5*)

- The American Chain and Cable Company, occupant of the former Washington Cotton mill in 1972, was forced to shut down its factory in the wake of damage from the storm (*Inventory Washington Mill, 119*)

April 30, 2013 - last flood at Whitehall Mill (*Site visit*)

There are 52 repetitive loss properties in Baltimore City (*CBDPP Project, 55*)

A direct hit from a hurricane can result in severe flooding, pushing flood levels 15 to 20 feet above normal levels (*Flood Study, 5*)

Jones Falls is the most flood-prone floodplain in the city and the country, the result of the convergence of three rivers and the increased impervious surface that drains into it, and its channelization/impervious bed (*Site visit: Baltimore Meadow Mill*)

Jones Falls is “a recurrent flood threat to the adjacent structures [...]” with severe flooding in 2004, 2006, and 2008 (CBDPP Project, 55)

Jones Falls 100-year flood plain is 10 feet high, plus 2 feet of freeboard (Site visit: Baltimore Whitehall Mill)

A description of current conditions for Jones Falls from the *Flood Study*: “[...] Jones Falls flows through an underground triple-celled concrete box storm sewer. This sewer lacks adequate conveyance capacity to carry the major [...] floodwaters [...]” (*Flood Study*, 5)

The three bridges that span Jones Falls exacerbate flooding (*Flood Study*, 5)

Regular flash floods Falls Road

MITIGATION MEASURES

The CBDPP Project recommends retrofitting existing buildings in designated flood area to increase resiliency including: installing backflow preventers; installing permeable paving; maintaining streams; providing redundancy in operating systems and critical facilities; strengthening zoning codes with regard to resiliency and flooding; amending floodplain requirements; purchasing repetitive loss properties; maintaining a current list of repetitive loss properties

Portions of Jones Falls has paved channel beds to “facilitate passage of flood flows” (*Flood Study*, 6)

Several mill structures have been demolished as a flood mitigation measure (Mount Washington Mill Nomination, 8-5)

June 1972 - following Hurricane Agnes, the windows on Clipper Mill’s bottom two stories were sealed and the cupola was removed (Clipper Mill Nomination, 1)

COMMUNITY RATING CLASSIFICATION: 5

RESOURCES

Bird, Betty and Rebecca Plant. *Mount Vernon Mill No. 1 Nomination*. (Mill No. 1 Nomination) Betty Bird & Associates. 30 June 2000.

Black, Catharine F. *Londontown Manufacturing Company, Inc. Nomination Form*. (Londontown Nomination) Maryland Historical Trust. 1 November 1972.

City of Baltimore Disaster Preparedness and Planning Project. (CBDPP Project) October 2013 <http://www.baltimoresustainability.org/plans/disaster-preparedness-plan/>.

Clipper Mill Nomination.

Culhane, Kerri. *Maryland Historical Trust NR-Eligibility Review Form Mount Vernon Mill No. 1*. (NR-E Mill No. 1) John Milner Associates, Inc. February 2000.

Culhane, Kerri. *Maryland Historical Trust NR-Eligibility Review Form Park Mill*. John Milner Associates, Inc. August 1999.

Culhane, Kerri. *Maryland Historical Trust NR-Eligibility Review Form Woodberry Mill/Schenuit Rubber*. John Milner Associates, Inc. August 1999.

Culhane, Kerri. *Maryland Historical Trust NR-Eligibility Review Form Woodberry Mill/Schenuit Rubber #B-1035/B-1308*. (NR-E Woodberry) John Milner Associates, Inc. August 1999.

Flood Insurance Study City of Baltimore, Maryland. (Flood Study) Federal Emergency Management Agency. 30 November 2012. https://www.rampp-team.com/county_maps/maryland/baltimore_city_coastal/baltimore_city_md_fis_tables_cpmr.pdf.

Joyce, John M. *An Assessment of Maryland’s Vulnerability to Flood Damage*. (Flood Damage) Maryland Department of the Environment. August 2005. [http://www.prattlibrary.org/uploadedFiles/www/locations/central/business_science_and_technology/subject_guides/An%20Assessment%20of%20Marylands%20Vulnerability%20to%20Flooding-1%20\(1\).pdf](http://www.prattlibrary.org/uploadedFiles/www/locations/central/business_science_and_technology/subject_guides/An%20Assessment%20of%20Marylands%20Vulnerability%20to%20Flooding-1%20(1).pdf).

Maryland Historical Trust Inventory Form for State Historic Sites Survey; Clipper Mill. (Inventory Clipper Mill)

Maryland Historical Trust Inventory Form for State Historic Sites Survey; Park Mill. (Inventory Park Mill)

Maryland Historical Trust Inventory Form for State Historic Sites Survey; Mt. Vernon Mill #1. (Inventory Mill #1)

Maryland Historical Trust Inventory Form for State Historic Sites Survey; Washington Mill. (Inventory Washington Mill)

Mount Washington Mill Historic District (Boundary Increase) Nomination. (MWMHD Nomination)

Shoken, Fred. *Mount Washington Mill Nomination*. 6 December 1989.



The lower sashes of the ground floor windows at Whitehall Mill are constructed using aquarium glass supported by a heavy-duty steel frame that is secured into the masonry, with a standard upper sash.



As viewed from the exterior, the replacement sash with the aquarium glass looks similar to a typical replacement window with applied muntins, with a slight difference occurring at the meeting rail, where the offset between the upper and lower sashes is minimized.



The majority of the ground floor windows were not re-opened as part of the Whitehall Mill rehabilitation, particularly those at the garage.



Attachments for flood gates are located at door jambs and embedded in paving.



Flood gates must be carried to correct location and installed after the building has been evacuated.



Storm water from the roof drains to grade. Also note the permeable parking pavers.

SITE VISIT - MAY 24, 2016

Attendees:

- David Tufaro, Terra Nova Ventures, LLC (Whitehall Mill)
- Johns Hopkins, Baltimore Heritage (Whitehall Mill)
- Betty Bird, Betty Bird & Associates, LLC (Whitehall Mill)
- Stacy Montgomery, CHAP (Meadow Mill)
- Lauren Schiszik, CHAP (Meadow Mill)
- Walter Gallas, CHAP (Meadow Mill)
- Jennifer Sparenberg, MHT
- Anne Raines, MHT
- Nell Ziehl, MHT
- Dominique M. Hawkins, PDP
- Sarah Blitzer, PDP

Overview:

Water power was instrumental in the historical development of mills in Jones Falls, many of which are historically designated. Given their proximity to the water, these mill buildings are also highly susceptible to flooding. The mill buildings have become desirable locations for redevelopment, both for residential and commercial uses. Recent and ongoing redevelopment projects require compliance with more and more rigorous flood resiliency measures, in addition to compliance with preservation standards as reviewed by the city and in association with the pursuit of historic tax credits.

The site visit included two distinct components. The first portion of the visit included a meeting with the development team associated with the Whitehall and Mount Vernon Mill No. 1, and the second meeting was with representatives of CHAP, who addressed concerns about redevelopment in Jones Falls as a whole.

Challenges:

- The Jones Falls area is one of the most flood-prone areas in the county - With the confluence of three waterways and restricted drainage, a minor rain event can result in flooding
- The redevelopment of the Whitehall Mill was required to meet the most rigorous requirements outlined in the 2013 *City of Baltimore Disaster Preparedness and Planning Project* as well historic preservation standards to be eligible for tax credits - New resiliency requirements caused confusion from the development side about the process and what would ultimately be required for approvals

Flood Mitigation Approach / Observations:

Redevelopment of Whitehaven Mill

A wet and a dry flood proofing approach is being used in the redevelopment of the building, including:

- Adopting mandated evacuation and flood response flood
- Limiting the use of the ground floor to parking and commercial uses including a farmer's market and a restaurant while locating office and residential space on the second floor - Provisions for flood gates at all 15 ground floor door openings with the exception of the garage area
- Locating all mechanical, electrical, and other equipment on the roof or on the second floor - sump pumps were installed to address storm water ingress
- Limiting first floor window openings (historic openings not necessarily reopened) - installing aquarium glass with a structural steel frame designed to match historic configuration at lower sash where installed - natural light supplemented by skylights through first floor
- Preparing ground floor openings for the installation of flood gates in anticipation of a flood
- City required second means of egress resolved through installation of a bridge from 2nd floor residential wing to higher ground across the roadway



The waterway is highly restricted and prone to flooding in a minor rain event.



The parking area is repaved approximately every 3 years at the Meadow Mill due to flood-triggered subsidence.

Meadow Mill

A previously redeveloped mill building which is prone to regular flooding and has the following issues:

- The parking area is prone to regular flooding with a minor rain event and subsidence - it is re-paved approximately every 3 years
- A 2014 flood forced many businesses to close - new flood walls and flood gates have been installed at door openings, and some window sill heights have been raised
- Several ground floor tenants in the mill complex have been displaced by flooding, some of whom have not returned - repairs after flood events can be very costly

Flood mitigation may require wet floodproofing the ground floor and limiting its use to parking and potentially elevated storage. All commercial uses should be relocated to upper floors or accept the disruption and costs associated with repairs following a flood event. The reduction in leasable space will have a financial impact on property owners.



"Temporary" flood protection can be found on this rear door at the Meadow Mill.



Following loss from a 2014 flood, the window sills were raised and flood walls installed at the Meadow Mill.

NORTH BRENTWOOD

E



PROFILE

County: Prince George’s

Population:

- County: 909,535
- Town: 518

Flood Risk: Storm surge, storms Category 3 and above

Town Average Household Income: \$74,167

Town Owner-occupied housing: 84.4%

HISTORIC DESIGNATIONS*

- North Brentwood National Register Historic District

* Several properties outside of the National Register Historic District are locally designated

LOCAL HISTORIC PRESERVATION REGULATORY CONTROL

Prince George’s County Historic Preservation Commission

E. NORTH BRENTWOOD

HISTORICAL DEVELOPMENT

- The Randall family were the first to build homes in the late-19th century and the community continued to expand outward in several phases (NBHD Nomination, 1)
- By 1904, a one-room schoolhouse had been constructed, which was replaced by a Rosenwald school in 1924 (NBHD Nomination, 7-2)
- Contemporaneously with the schoolhouse, the community erected the Baptist Church and the Brentwood African Methodist Episcopal Zion Church (NBHD Nomination, 7-2)
- Before World War II, the community continued to build, often relying on the bungalow style to construct homes (NNBHD Nomination, 7-3)
- After World War II, an undeveloped plot of land was purchased and Cape Cod style homes were constructed (NBHD Nomination, 7-3)
- The existing built fabric illustrates the growth of the community, 75% of which was built between 1891 and 1950 (NBHD Nomination, 7-3)
- Historically, North Brentwood is a working class community from all trades and professions (NBHD Nomination, 8-14)

HISTORICAL SIGNIFICANCE

- The town is significant as community planned for African American families by Captain Wallace A. Bartlett, a commander of the U.S. Colored Troops during the Civil War (NBHD Nomination, 8-1)
- Families who settled in North Brentwood purchased their own homes and, over time, developed a community that could support its own social and political institutions (NBHD Nomination, 8-1)
- It is the first black community incorporated in the county and it exhibits a variety of domestic styles of architecture (NBHD Nomination, 8-2)

BROAD INFRASTRUCTURE AFFECTING LOCAL AREA

- Public water and sewer service provided through Prince George’s County (Plan 2035, 235)

ACCESS TO ROADWAYS AND BRIDGES

- Located just off Rhode Island Avenue/Route 1 and within the Beltway, North Brentwood is within the Washington metropolitan area (*Plan 2035*, 54)
- The county is linked to Washington, D.C. by a dense transit system, with the second highest number of Metrorail stations in the region - and extensive roadways I-95/495 and I-295 (*Plan 2035*, 72-3)

ACCESS TO PUBLIC SERVICES

- In cooperation with the municipalities within the county, residents have access to “police, code enforcement, parks and recreation, public works, social services, solid waste and recycling and planning and economic development” (*Plan 2035*, 232)

ACCESS TO PRIVATE SERVICES

- Private services available along Rhode Island Avenue, which borders North Brentwood to the southeast

POPULATION’S PROFILE

- The county’s population is expected to increase, and its median age has increased (*Plan 2035*, 55)

INDUSTRY

- Located within the Washington metropolitan area, the county has access to the area’s 3.9 million jobs (*Plan 2035*, 54)
- 71% of the county is employed in the private sector, with healthcare as the largest employment sector (*Plan 2035*, 65-6)

RESOURCES

North Brentwood Historic District Nomination. (NBHD Nomination)

Plan 2035 Prince George’s Approved General Plan. (Plan 2035) 6 May 2014. https://issuu.com/mncppc/docs/plan_2035_approved_general_plan_boo.

US Census. 2010 <http://www.census.gov/prod/cen2010/cph-1-22.pdf>.

Review Plan Approval for Prince George’s County Levee System Evaluation Reports, Prince George’s County, Maryland. (Review Plan) 3 July 2013. <http://www.nad.usace.army.mil/Portals/40/docs/CW%20Review%20Plans/E%20AND%20C/Review%20Plan%20Approval%20-%>

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HISTORY OF FLOODING

Potential for severe flooding from Northwest Branch (*NBHD Nomination*, 8-1)

Flood risk made the land upon which North Brentwood is constructed less desirable (*NBHD Nomination*, 8-6)

Historically, heavy rain could raise the Northwest Branch up to 8 feet (*NBHD Nomination*, 8-6)

The town continued to deal with repeated flooding until the construction of the Bladensburg Pump Station in the 1950s (*NBHD Nomination*, 8-7)

MITIGATION MEASURES

In the 1890s, Bartlett dug ditches for drainage (*NBHD Nomination*, 8-6)

In the 1950s, the United States Army Corps of Engineers built a levee designed “to be substantially higher than the maximum flood of record at the time of construction [...]” (*Review Plan*, 2)

COMMUNITY RATING CLASSIFICATION: 5



View from the top of the levee towards Rhode Island Avenue.



Residential properties are located along the base of the levee.



Late-19th century wood-framed residences are located throughout North Brentwood.



The Bladensburg Pump Station is located at the base of the levee adjacent to the basketball court.

SITE VISIT - MAY 26, 2016

Attendees:

Dominique M. Hawkins, PDP
Sarah Blitzer, PDP

Overview:

A levee is located along the northeast border of North Brentwood, and Rhode Island Avenue forms the southeastern edge at the height of the levee along the Northwest Branch of the Anacostia River. The neighborhood topography is essentially forming a basin for storm water collection and appears lowest along the levee edge, generally rising towards the southwest. Much of the historic district is composed of late-19th century wood-framed residences on regularly spaced lots, with some mid-20th century brick homes located along Windom and Wallace Roads.

The site visit was conducted without the benefit of a local guide and included a walking and driving tour of the neighborhood.

Challenges:

- The neighborhood is built at the base of the a 1950s Army Corps of Engineers levee that appears to be approximately 20 feet tall
- It was clear that any breach of the levee could result in significant flooding of the residential area, particularly along Allison Street
- Although the houses retain their historic character, significant deferred maintenance was observed, which could make the houses more prone to damage in the event of a flood

Approach / Observations:

- A significant portion of the neighborhood is located within a National Register Historic District, most of which is also located within the bounds of the 100-year floodplain
- The river's water level was well below the top of the levee at the time of the site visit - as well as below the historic 8-foot water level rise associated with heavy rainfall
- The levee has vegetated banks - the top of the levee includes a walking / biking trail - a basketball court, playground and picnic pavilion are located at the North Brentwood base of the levee, providing a neighborhood amenity
- A Bladensburg Pump Station, constructed in the 1950s, is located at the base of the levee at the termination of Banner Street - It is assumed that it serves to pump out collected water at he base of levee, although not confirmed

Possible Mitigation Strategies:

The levee and pump station provide North Brentwood with protection from flooding. A breach in the levee or failure in operation of the pump station could be devastating to a large number of residences. Maintaining these mitigation measures is critical to the buildings in this community.



Mid-20th century brick homes are located along Windom and Wallace Roads.



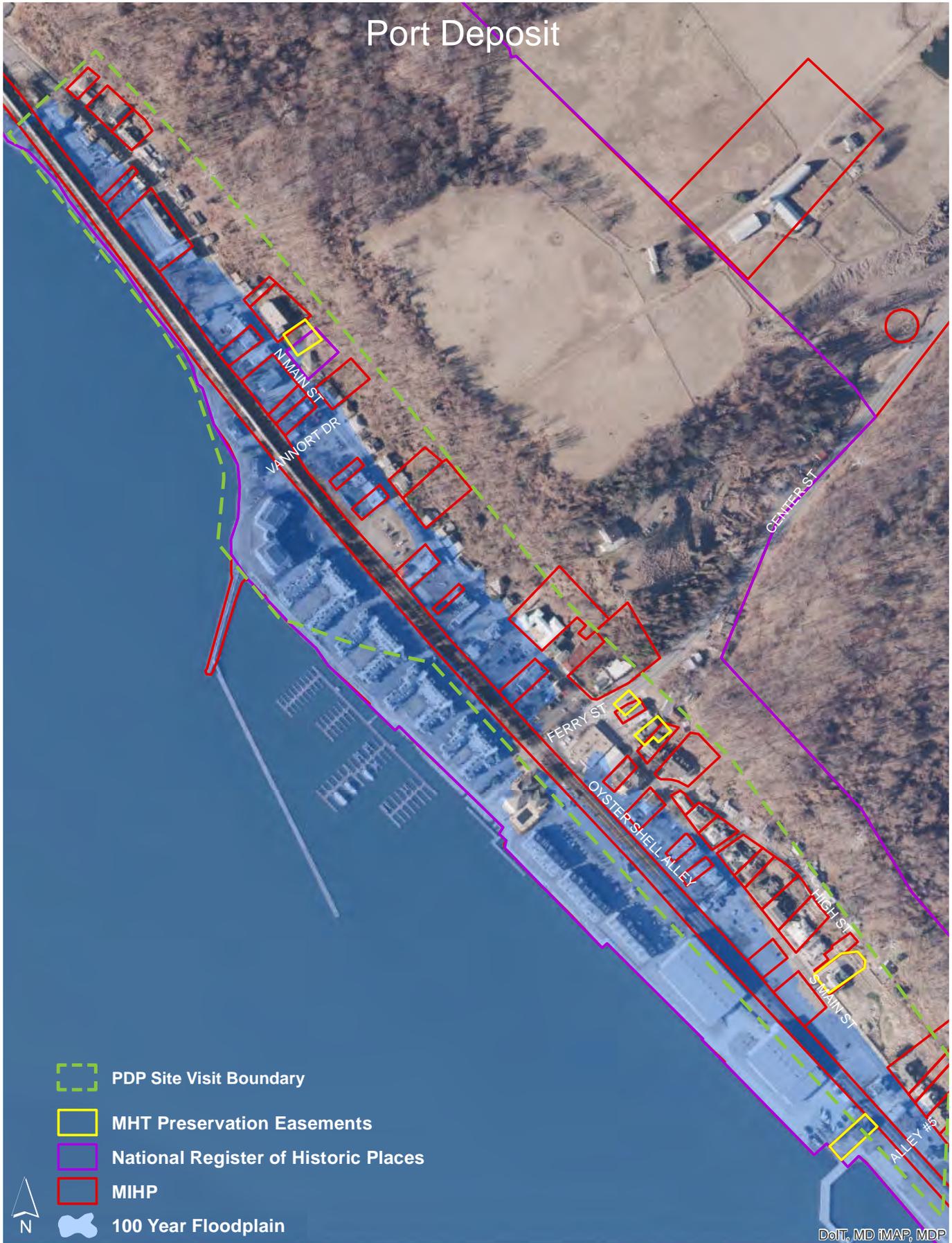
The North Brentwood AME Zion Church is an important locally designated landmark.



Although of varying form and style, there is a consistency in the scale, form, mass, setbacks and fenestration patterns of the residential buildings along the streetscape.

F
PORT DEPOSIT

Port Deposit





PROFILE

County: Cecil

Population:

- County: 101,108
- Town: 653

Flood Risk: Heavy rains, riverine, dam release

Average household income: Unavailable

Owner-occupied housing: 48.3%

HISTORIC DESIGNATIONS

- Port Deposit National Register Historic District

LOCAL HISTORIC PRESERVATION REGULATORY CONTROL

Cecil County Historic District Commission (HDC)

F. PORT DEPOSIT

HISTORICAL DEVELOPMENT

- Port Deposit’s location on the banks of the Susquehanna River attracted industry, which also supported the town (*PDHD Nomination, 2*)
- The Town of Port Deposit was essentially developed linearly along Main Street between the railroad line and river to the southwest and the face of the granite hill to the northeast
- In 1812, the town was renamed Port Deposit and prospered as the “port of deposit for raw materials including flour, potatoes, whiskey, lumber, grain and coal” - These raw materials, shipped down the Susquehanna River, were deposited in Port Deposit and then transferred to ships en route to Baltimore (*PDHD Nomination, 8*)
- Port Deposit’s quarry produced granite, which was shipped throughout the region, can be found throughout the town (*PDHD Nomination, 2*)
- Historically, buildings were built with high basements and retaining walls were constructed to protect against flood (sometimes using Port Deposit granite) (*PDHD Nomination, 3*)
- The town benefitted from Jacob Tome, a resident of Port Deposit during the 19th century, who owned businesses in lumber, grain, and finance - In addition to his economic support and the buildings associated with his home, Tome’s estate established the Tome Institute, a boys’ school and a gymnasium for Port Deposit (*PDHD Nomination, 5*)
- Due to its nature as a point of transfer, many inns were established in Port Deposit, some of which have been converted into apartments (*PDHD Nomination, 4*)

HISTORICAL SIGNIFICANCE

- Port Deposit, known as Creswell’s Ferry, flourished “as an exchange point for travelers” between ferry and stage coach (*PDHD Nomination, 2*)
- Historic district exhibits a variety of domestic architectural styles, including Second Empire, Eastlake, Queen Anne as well as simple rowhomes (*PDHD Nomination, 3-4*)
- The presence of the Tome Institute, which educated white children regardless of class, including orphans, made Port Deposit a center of education in the 19th century (*PDHD Nomination, 11*)

BROAD INFRASTRUCTURE AFFECTING LOCAL AREA

- Water is sourced from the Susquehanna River - There have been system upgrades of drinking water infrastructure, though the county notes that water quality is a concern in Port Deposit (CCC Plan, 6-5)
- County operates one public wastewater collection and treatment system: Seneca Point Advanced Wastewater Treatment Plant (CCC Plan, 6-1)
- Bainbridge, a former U.S. Navy Training Center located on the former Tome School campus and overlooking historic Port Deposit, is a 1,200 acre site, of which 350 acres have been reserved for development for “employment uses” and Cecil College - The remaining 850 acres are earmarked for residential development (CCC Plan, 4-13)

ACCESS TO ROADWAYS AND BRIDGES

- Route 222 [Main Street] runs through the center of Port Deposit and is “the only traffic corridor [...] and is too narrow to handle the level of certain types of automobile and truck traffic” (*The Town of Port Deposit Comprehensive Plan*, 28) with lane reconstruction identified as a county priority (CCC Plan, 5-7)

ACCESS TO PUBLIC SERVICES

- The county operates 17 elementary schools, 6 middle schools, and 5 high schools (CCC Plan, 8-1) - None of which are in Port Deposit
- County plans to move the Port Deposit/Bainbridge Branch of the public library to a permanent facility in Bainbridge (CCC Plan, 8-17)

ACCESS TO PRIVATE SERVICES

- Port Deposit’s commercial area primarily serves the local community, with more significant retail activity located in Perryville (CCC Plan, 4-13)

POPULATION’S PROFILE

- County population is expected to increase 49% by 2030 (*Cecil County Comprehensive Plan*, 2-6) - In contrast, Port Deposit experienced a drop in population between 1970 and 1980 and has remained flat since the 1980s (PDC Plan, 5)
- As of 2000, 68% of homes in Cecil County were owner-occupied (*Cecil County Comprehensive Plan*, 9-2) - In Port Deposit, 48.9% are owner-occupied (PDC Plan, 9)
- Following the Bainbridge re-development, the town estimates 300% growth, thus encouraging further development, including infill (TPDC Plan, 5)

HISTORY OF FLOODING

Built on the Susquehanna River’s floodplain, Port Deposit has experienced flood many times throughout its history (PDHD Nomination, 3)

Major flooding in 1886 destroyed the town’s records (PDHD Nomination, 3)

August 18, 1955, Hurricane Connie: flooding of the Susquehanna (*Flood Insurance*, 5)

August 1969: Port Deposit flooded following heavy thunderstorms, which caused washouts on the Susquehanna - Unconfirmed reports that Port Deposit received 6” of rain in 2 hours (*Flood Insurance*, 6)

January, 1996, an ice jam formed on the Susquehanna River and the Conowingo Dam crested at 34.18 feet

September 2011; Combination of heavy rainfall and swelled waterways led to a voluntary evacuation of the town - The Susquehanna River crested at 33 feet

MITIGATION MEASURES

Many buildings were elevated when first constructed and many are set back from the street and the river (PDHD Nomination, 3)

Cecil County’s Floodplain Overlay District does not allow residential structures to be developed on floodplains and any non-commercial structures must be floodproof (CCC Plan, 7-5)

As of the publication of the FEMA Floodplain Study, “no major flood control structures exist in Cecil County” - The only flood protection measures that exist in the county are small ponds and channelization projects - Port Deposit relies on upstream dams to reduce flooding (*Flood Insurance*, 7)

Port Deposit’s 2015 floodplain overlay zone outlines Special Flood Hazard Areas, BFEs, Floodplain Administrator responsibilities and flood hazard area requirements (*Floodplain Zoning*)

Ground floor spaces recommended for commercial use (PDC Plan, 61)

COMMUNITY RATING CLASSIFICATION: 8



Port Deposit features a large variety of architectural styles, and the residences are generally of wood-framed construction atop a granite foundation.



The institutional buildings, including the churches, were typically constructed of masonry, most often local granite.



The hill northeast of Main Street is very steep incorporates some designed drainage.

INDUSTRY

- Tourism, agriculture and manufacturing provide significant employment in the county (CCC Plan, 4-7 – 4-9)
- Port Deposit is cited as a historic site that attracts tourism (CCC Plan, 4-8)
- The town has a higher unemployment rate, 6.4%, than the rest of the county at 2.8% - The poverty rate is also three times the county's rate of poverty (PDC Plan, 7)
- Based on the 2000 U.S. Census, educational, health and social services is the largest industry of employment in Port Deposit, followed by: (a) Professional, scientific, management, administrative, and waste management services, (b) Manufacturing and (c) Arts, entertainment, recreation, accommodation, and food services (PDC Plan, 8)

RESOURCES

Andreve, George J. *Port Deposit Historic District Nomination*. (PDHD Nomination) Spring 1976.

Cecil County Comprehensive Plan. (CCC Plan) 13 April 2010. www.ccgov.org/uploads/PlanningAndZoning/General/2010ComprehensivePlan.pdf.

Federal Emergency Management Agency. *Flood Insurance Study; Cecil County, Maryland and Incorporated Areas*. (Flood Insurance) 8 July 2013.

Federal Emergency Management Agency. *Proposed Flood Insurance Rate Map Revision Determination*. (Map Revision) 1 August 2016. www.portdeposit.org/uploads/ckfiles/files/16_08_01_FloodMap_Revision_15-03-2779P-240025.pdf.

Ordinance 2015-02 Floodplain Zoning. (Floodplain Zoning) www.portdeposit.org/uploads/ckfiles/files/2015_02_Floodplain_Zoning.pdf.

Port Deposit Flood Insurance Rate Map. (Port Deposit FIRM) 4 May 2015. www.portdeposit.org/uploads/ckfiles/files/PortDeposit_FM24015C0126E_2015.pdf.

Town of Port Deposit Comprehensive Plan. (PDC Plan) August 2009. www.planning.maryland.gov/PDF/OurWork/CompPlans/Cecil/PortDeposit/09_CMP_PortDeposit.pdf.



The elevation of the primary floor above the sidewalk can pose accessibility challenges.

Retail is typically at the ground floor with residential above. This building includes a side elevation, lower level entrance that is more vulnerable to flooding. Also note the new residential construction beyond the railroad tracks at the bottom left corner of the photograph.





The primary floor of this brick, multi-family residence is elevated above the sidewalk level.



Some homes have been rehabilitated, highlighting their architectural character.



Some homes have been abandoned and have lost important features such as a front porch.



Most residences are located close to the sidewalk on narrow lots. Although there is variety in materials and architectural style, there is streetscape continuity.

SITE VISIT - 17 MAY 2016

Attendees:

- Vicky Rinkerman, Port Deposit
- Jennifer Sparenberg, MHT
- Dominique M. Hawkins, PDP
- Sarah Blitzer, PDP

Overview:

Historic Port Deposit is uniquely situated between the north western bank of the Susquehanna River and a steep granite embankment. The historic district is approximately 1-mile in length, centered on Main Street, and generally is one property deep on each side of the street. A raised railroad line separates Main Street from the river. Two openings can be found along the railroad line that provide access to elevated, contemporary, residential development front on the river. The site visit included a meeting at Town Hall and a walking tour along Main Street by PDP.

Challenges:

- The historic town is subject to flooding from heavy rains coming down the face of the granite hill as well as riverine flooding
- The riverine flooding is exacerbated by discharges from the Conowingo Dam, which typically includes significant sediment and leaves a muddy residue
- The town has not recovered from extensive flooding in 2011
- The Bainbridge Navy Base located on the hill above the historic town was abandoned in 1976, a former economic driver of the town - The site was found to be contaminated with asbestos and PCBs in the 1980s - Now awaiting a remediation and a redevelopment plan
- The wastewater treatment plant is located on river and is subject to flooding - A temporary repair is scheduled for the summer of 2016, but plant is in need of general maintenance and upgrading
- Employment opportunities in the area have declined, depressing real estate values, reinvestment and the local tax base - Houses available for \$10,000-\$20,000 with owner abandonment for high mortgages or flood insurance rates
- Approximately 650 residents, with approximately 60% renter occupied housing
- Commercial offerings generally geared towards tourists, including restaurants and small shops - Lack of local grocery stores or banking

Approach / Observations:

The former prosperity of the community is reflected in the quality and range of architectural styles of its buildings. The majority of the buildings, primarily residences, were constructed with raised primary floors. Today, many of the buildings, particularly the lower levels, appear to be under-utilized. The possibility of elevating the handful of buildings that were constructed at grade is being explored.

The proximity to I-95 and quality housing stock have increased the redevelopment potential, although the current low population and depressed tax base make it challenging to provide a full range of essential infrastructure improvements and services.

The Town includes an active Historic Area Commission.

The discharges from the Conowingo Dam are driven by internal concerns, reportedly without concern for the effect on downstream communities. The transported silt reportedly forms a muddy crust as it dries, exacerbating clean-up.

Based upon a study conducted by the US Army Corps of Engineers, a storm water drainage project is currently being undertaken that will include backflow preventers, larger pipes and new outfalls. To address riverine flooding from encroaching onto Main Street, negotiations are ongoing with the railroad regarding the possibility of installing gates to allow the temporary closing of the railroad underpasses, which potentially includes installation of a slurry wall along the rail line.

Port Deposit is currently conducting a Hazard Mitigation Plan in conjunction with the Town of Elkton, Maryland.

Possible Mitigation Strategies:

- Improving stormwater management in the upper reaches of the watershed above the town (if possible), to alleviate flooding in town
- Increasing capacity of stormwater facilities in town
- Adding and/or improving floodproofing of the wastewater treatment plant in the course of its maintenance and upgrading
- Raising systems and equipment out of vulnerable areas prior to a flood event



A handful of homes were constructed with the first floor level at about the same elevation as the sidewalk.



This is one of two railroad underpasses that provide access between Main Street and the river.



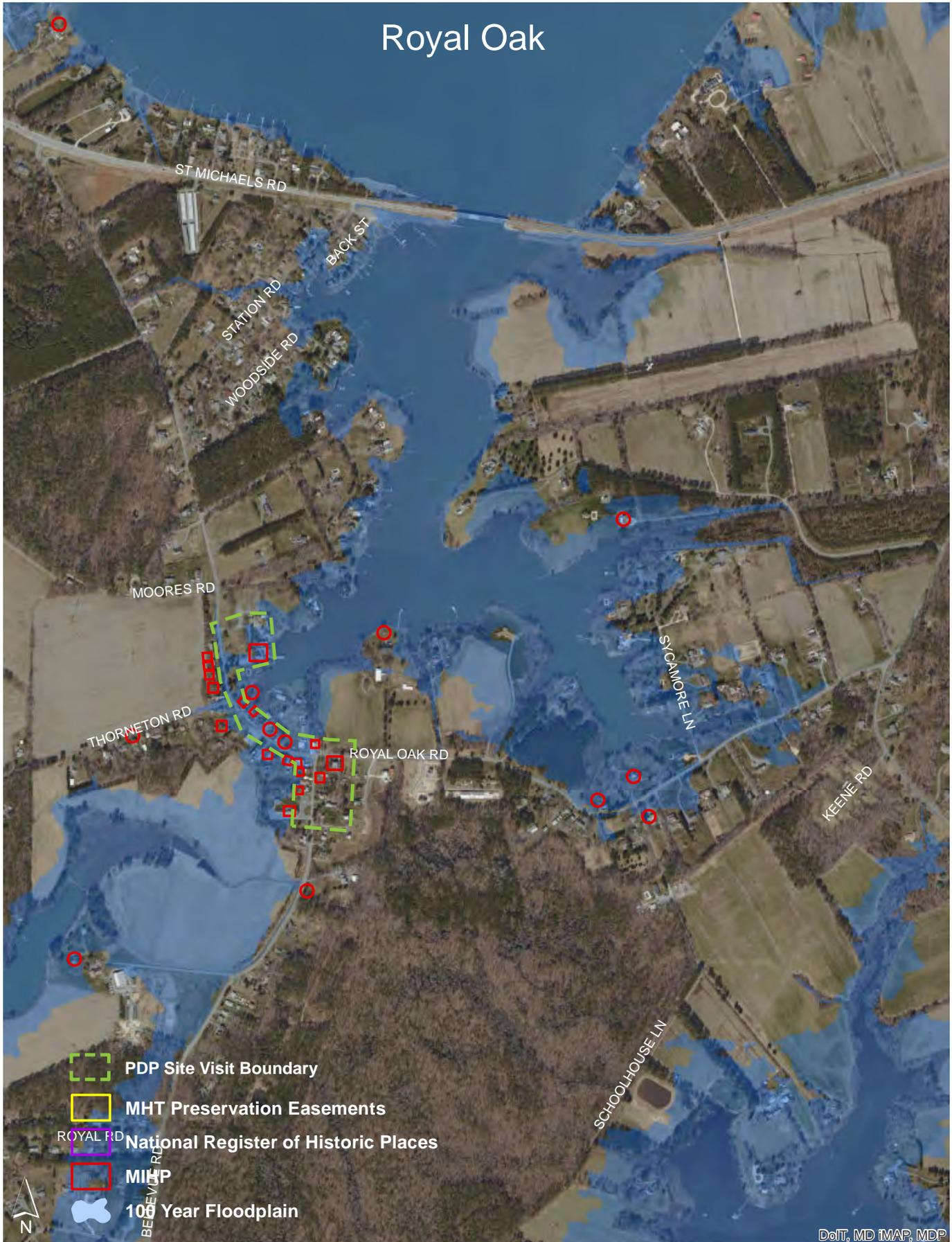
The terraced landscape directs storm water runoff down the hill towards Main Street.



Stormwater drainage from buildings generally discharges to grade.

G
ROYAL OAK

Royal Oak





PROFILE

County: Talbot

Population:

- County: 19,577
- Town: Approximately 250

Flood Risk: Tidal flooding, storm surge, sea level rise

Average household income: Unavailable

Owner-occupied housing: Unavailable

LOCAL HISTORIC PRESERVATION REGULATORY CONTROL

Talbot County Historic Preservation Commission - Limited Review

G. ROYAL OAK

HISTORICAL DEVELOPMENT

- Area known for its quality farmland - Village surrounded by plantations and farming that relied on water for shipping of goods (Site visit)
- Royal Oak is comprised of a mixture of lot sizes, home styles, agricultural uses, various commercial enterprises, and public facilities (*Royal Oak Village Plan*)
- Royal Oak is a stable community and had 29 new homes built within the past 15 years - Several decrepit homes have been demolished and replaced with new homes - Currently there are 25 vacant lots (*Royal Oak Village Plan*)
- As you approach “downtown” from Easton on Royal Oak Road, the area is characterized by small lot (i.e., 0.10 to 0.25 acre) single family homes, some rentals, and commercial enterprises (*Royal Oak Village Plan*)

HISTORICAL SIGNIFICANCE

- Settlement in the area that is now Royal Oak dates back to land grants made in 1659 (prior to Easton and St. Michaels) because of its proximity to Oxford, a major shipping port (*Royal Oak Village Plan*)
- Royal Oak recognized by the US government in 1837 as a town (*Royal Oak Village Plan*)
- Many lots and homes date back to 1800’s (*Royal Oak Village Plan*)

BROAD INFRASTRUCTURE AFFECTING LOCAL AREA

- The village has a public sewer system available to all properties within its boundaries as well as some peripheral areas outside the village zoning (*Royal Oak Village Plan*)

ACCESS TO ROADWAYS AND BRIDGES

- Village roadways are subject to flooding and standing water, particularly where drainage ditches are absent (Site visit)

ACCESS PRIVATE SERVICES

- A “Tea barn” is located in the former general store and antique and collectables stores are located at the village center (Site visit)
- The Royal Oak House Bed & Breakfast and The Oaks Inn & Conference Center host a number of events (*Royal Oak Village Plan*)

POPULATION’S PROFILE

- The population of Royal Oak is approximately 220 adults and 30 children, in 114 households, the majority of the children attend the St. Michaels’ public schools (*Royal Oak Village Plan*)
- The majority of homes are filled with full time residents and of those most are second or third generation residents - There are a few homes that are occupied by part-time or weekend occupants (*Royal Oak Village Plan*)

INDUSTRY

- Most village residents work service jobs in the county, while some work entirely in the village - Twenty-six homes have a commercial component (*Royal Oak Village Plan*)
- Royal Oak is unusual for Talbot County, in that there has been very few demographic changes or growth in the number of households over the years, owing in part to the opportunities afforded within Royal Oak and the surrounding area (*Royal Oak Village Plan*)

RESOURCES

Federal Emergency Management Agency. *Flood Insurance Study: Talbot County, Maryland and Incorporated Area.* (Flood Insurance) 5 August 2013. <http://www.talbotcountymd.gov/uploads/File/P&Z/flood%2013.pdf>.

Talbot County, Maryland. *Royal Oak Village Plan* - <http://www.talbotcountymd.gov/index.php?page=village-plans>.

HISTORY OF FLOODING

Royal Oak is in a low lying area, with a high water table and poor drainage (*Flood Insurance*, 8)

Major flood events in the county happened in: 1876, 1933, 1935, 1954, 1955, 1960, 1962, 1967, 1972, and 1975 (*Flood Insurance*, 9)

MITIGATION MEASURES

In 2013, Talbot County updated its Floodplain Management Ordinance and adopted Federal Emergency Management Agency riverine Digital Flood Insurance Rate Maps and updated Flood Insurance Study - These actions resulted in the county’s rating upgrade (http://www.talbotcountymd.gov/index.php?page=FEMA_CRS)

COMMUNITY RATING CLASSIFICATION: 8



The former general store at the Village crossroads is now a tea house.

SITE VISIT - MAY 26, 2016

Attendees:

- Jeremy Rothwell, Talbot County
- Michael Day, MHT
- Anne Raines, MHT
- Nell Ziehl, MHT
- Jennifer Sparenberg, MHT
- Dominique M. Hawkins, PDP
- Sarah Blitzer, PDP



There is a great diversity of architectural styles. Many homes in the village have been rehabilitated.

Overview:

Royal Oak was the historic center of the surrounding farming community. The “downtown” or center of the village is located at the crossroads of Royal Oak and Bellevue Roads, which includes a concentration of historic buildings, primarily residences, of varying architectural styles, located on relatively small lots. Reportedly, there is has been an influx of wealthy retirees and seasonal residents in downtown over the last 20 years, while the farming land and population has declined. Many homes have been rehabilitated by new owners, with the only known building elevation occurring at the Nesbitt House. The focus of the site visit was a walking tour along Royal Oak and Bellevue Roads, primarily reviewing the village’s character and roadway drainage issues.



Several homes have water frontage at their rear yards.

Challenges:

- There are roadway drainage issues where flanking ditches are not present, with standing water collecting at the intersection of Royal Oak and Thorton Roads - There is nowhere for the water to drain
- Flooding could be significant in a major storm or hurricane
- The county can require Historic Preservation Commission review for commercial projects

Approach / Observations:

- The County has adopted a strict Floodplain Management Ordinance (2013) that currently requires buildings in the 100-year floodplain undergoing substantial rehabilitation be elevated to a height that includes 2’ of freeboard
- There is no local historic preservation review body, and property owners must request designation - 30 properties are registered as historic and can apply for an exemption from elevation requirements, although it is not clear that the exemption will remain
- Although many of the houses have been rehabilitated, there are several historic properties that suffer from deferred maintenance and if rehabilitated, might be subject to the new Floodplain Management Ordinance



Debris was clogging some of the storm water drains, impeding water flow.

Possible Mitigation Strategies:

- Improving roadway drainage including providing continuous drainage ditches that drain to waterways flanking roads
- Supplementing drainage ditches with stormwater pipes and underground storage/retention structures
- Providing the framework for review of proposed historic building elevations to encourage sensitive design appropriate for historic character
- Raising systems and equipment out of vulnerable areas prior to a flood event



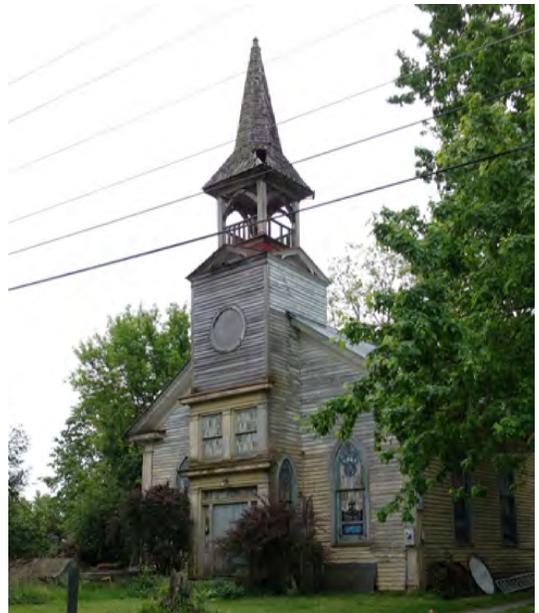
The ditches at the side of the road are not continuous.



Both piped and surface storm water is directed towards this drainage channel, which often backs-up, flooding the roadway surface.



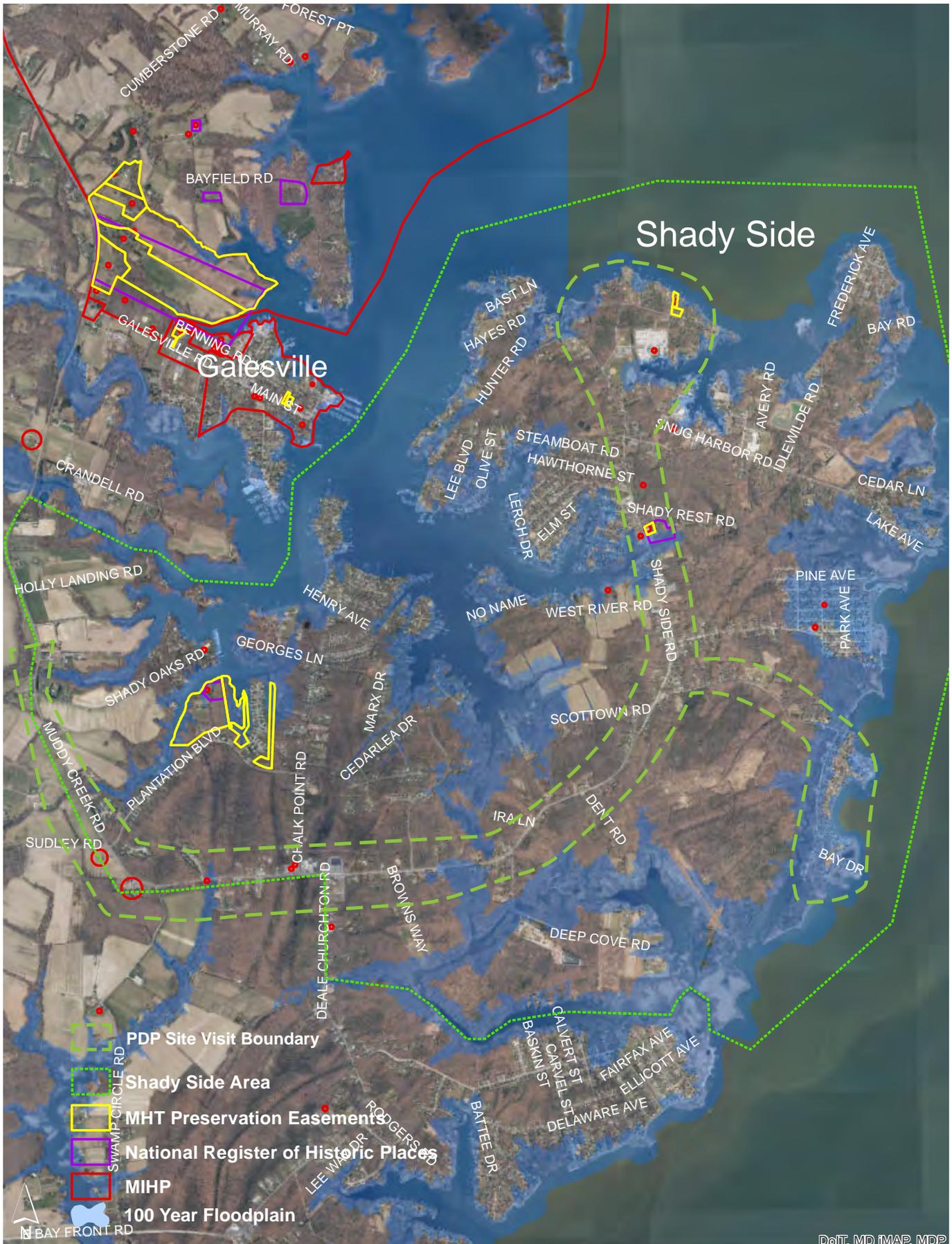
Although many homes in the Village have been rehabilitated, there are several properties that appear to be abandoned.



This historic church is showing signs of deterioration related to deferred maintenance.

SHADY SIDE & COLUMBIA BEACH





DoIT, MD iMAP, MDP





H. SHADY SIDE & COLUMBIA BEACH

HISTORICAL DEVELOPMENT

Shady Side

- Once known as “The Great Swamp” for its wetlands, the Shady Side area was important to Native Americans as fishing and hunting grounds - Traces of these activities can still be found along the coast, such as shell middens (SAP, 14)
- Following settlement by Europeans in the 17th century, many inhabitants converted to Quakerism and erected a meeting house (SAP, 15)
- Historically, the area’s settlers relied on agriculture - including tobacco and grain - and shipped goods along the peninsula’s many creeks and inlets (SAP, 15)
- In the 19th century, commerce focused on the water and the majority of the population were watermen and boatbuilders, harvesting as Native Americans had done in the past (SAP, 16)
- In the 20th century, oysters harvested along the peninsula could be brought to a number of processing plants that developed in the area, including Leatherbury’s in Shady Side - Captain Salem Avery was part of this “community of oystermen and watermen [...]” (SAP, 16)
- By the 1920s, the area’s fishing-related industries and agriculture had waned and today the main attraction is recreation (SAP, 18)

Columbia Beach

- Established in 1941, Columbia Beach is a historically African American beach community within Shady Side, founded to escape the summer heat and segregation of Washington, D.C. and Baltimore (“A Welcoming Enclave”; CBCIA)
- Families constructed summer cottages in the gated community and enjoyed private access to the shoreline (CBCIA)
- The community has evolved into a more diverse population, with an increase in year-round residents and new families, alongside the descendents of Columbia Beach’s original families (“A Welcoming Enclave”; CBCIA)

PROFILE

County: Anne Arundel

Population:

- County: 537,656
- Town:
Shady Side and associated communities:
5,803

Flood Risk: Tidal flooding, storm surge, sea level rise

Average household income: Unavailable

Owner-occupied housing: 87.1%

HISTORIC DESIGNATIONS

- Captain Salem Avery House*
- Lula G. Scott Community Center*

* Individually registered in the National Register of Historic Places and locally designated

LOCAL HISTORIC PRESERVATION REGULATORY CONTROL

Cultural Resources Division, Anne Arundel County Planning & Zoning Department

HISTORICAL SIGNIFICANCE

Shady Side

- Shady Side is significant for its role in agriculture, fishing, and oystering industries (SAP, 15)
- The peninsula's 17th century shipbuilding industry produced many of the ships for Trans-Atlantic and West Indies trade (SAP, 15)
- In 1781, Shady Side was the only Revolutionary War battleground in the county (SAP, 15-16)

Columbia Beach

- Much of the built fabric that exists today, almost entirely residential, was constructed by these black families and the intangible sense of community is highly valued by current residents
- Known as a "A Welcoming Enclave" on a peninsula of the Chesapeake Bay

BROAD INFRASTRUCTURE AFFECTING LOCAL AREA

- Public sewer and associated facilities completed in 1999 - Shady Side is not covered by County water facilities and relies on well water (SAP, 21)

ACCESS TO ROADWAYS AND BRIDGES

- Existing roads are narrow, lack shoulders, and are bordered by drainage ditches (SAP, 11)
- It is easy to become stranded following a flooding event, due partly to the many one-way roads - The only means of egress from the community is via MD 468 (SAP, 84)
- Issue of access to neighborhood during flooding of major access (Site Visit: Columbia Beach)
- Major roads for access are MD 468 and MD 256, for which the *Small Area Plan* recommends constructing shoulders and traffic circles to improve safety (SAP, 11)

INDUSTRY

- Overall, Anne Arundel County has experienced an increase in jobs since 1990 (GDP, 13)
- Shady Side benefits economically from commercial seafood harvesting, recreational fishing, and boating (SAP, 13)
- Many residents reside in Shady Side and commute to Annapolis, Baltimore or Washington, D.C. (SAP, 13)

HISTORY OF FLOODING

The community contends with a high water table, hydric soils, and wetlands (SAP, 10)

Shady Side has six repetitive loss properties (Plan Update, 7-6)

MITIGATION MEASURES

Refer to Site Visit Section

COMMUNITY RATING CLASSIFICATION: N/A

ACCESS TO PUBLIC SERVICES

- Shady Side’s children are served by Shady Side Elementary (SAP, 68)

ACCESS TO PRIVATE SERVICES

- As of the publication of the *Small Area Plan*, Shady Side has two grocery stores, a gas station, and several restaurants (68)

POPULATION’S PROFILE

- Since the 1930s, the county’s total population has grown, making it one of the fastest growing counties in the region (GDP, 11)
- Shady Side’s population experienced a 14% growth, between 1990 and 2000, following the completion of the public sewer and the subdivision of lots (SAP, 13)

RESOURCES

Anne Arundel County General Development Plan. (GDP). Anne Arundel County. 19 October 2009. http://planning.maryland.gov/PDF/OurWork/CompPlans/AnneArundel/09_CMP_AnneArundel.pdf.

Anne Arundel County, Maryland – 2010 Hazard Mitigation Plan Update. (Plan Update) <http://www.aacounty.org/departments/office-of-emergency-management/forms-and-publications/2010HazardMitigationPlanSections.pdf>.

“Columbia Beach Citizens Improvement Association.” (CBCIA) <http://www.cbcia.org/>.

Deale / Shady Side Small Area Plan. (SAP) Anne Arundel County. June 2001. http://www.aacounty.org/departments/planning-and-zoning/long-range-planning/small-area-planning/forms-and-publications/DealeShadysideSAP_Final.pdf.

Meyer, Eugene L. “A Welcoming Enclave With Roots in a Snub.” (“A Welcoming Enclave”) *The New York Times*. 3 Sept. 2009. <http://www.nytimes.com/2009/09/04/greathomesanddestinations/04Highland.html>.

SITE VISIT - MAY 23, 2016

Attendees:

Jane Cox, Anne Arundel County (Captain Salem Avery House)
Anastasia Poulos, Anne Arundel County Trust for Preservation, Inc. (Captain Salem Avery House)
Stephanie Sperling, Anne Arundel County
Heather Barrett, MHT
Dominique M. Hawkins, PDP
Sarah Blitzer, PDP

Overview:

Shady Side is a peninsula situated on the western shore of the Chesapeake Bay that includes the communities of Columbia Beach, Idlewilde, Snug Harbor, and Avalon Shores. The only access to the peninsula is via Shady Side Road (MD 468).

The site visit to Shady Side included two distinct components. The first was a visit to the Captain Salem Avery House located at the northern end of Shady Side. The site visit was limited to an exterior of the building, primarily along the waterfront, and a group discussion to the overall flood-related challenges in Shady Side. The second portion of the site visit was a walking tour of Columbia Beach to review the mid-20th century and new housing, as well as shoreline and landscape improvements.

Challenges:

- Shady Side is a relatively flat and low land area with 6 to 8 “high spots” where beach developments were constructed in the 1910s - 1940s, some of which were segregated for African American and Jewish communities
- Flood threats include erosion, high water table, hydric (clay) soils, wetlands and water being pushed from bay towards shoreline due to changes in pressure
- There is resistance to historic designation of early-20th century architecture and developments - as a result, documentation is poor
- With the completion of the public sewer service in 1999, several homes have been rehabilitated and winterized to allow for year-round occupancy, and new infill development has proliferated
- Although the installation of public sewer has addressed the treatment of waste water, Shady Side continues to rely on well water which can be compromised by brackish water
- Recent construction is generally infill, raised from the ground (not significantly elevated) and of a larger scale and different architectural character than early- to mid-20th century housing - Housing built in the last 15 years tends to be subject to more repetitive loss flooding
- Shoreline erosion threatens the shoreline and buildings in addition to archaeological sites, particularly those associated with Native American occupation



The Captain Salem Avery House was used as a Jewish fishing club.



Permeable paving facilitates storm water absorption into the soil.



Rain gardens at the Avery House can provide an educational opportunity.



Proper ventilation of crawl spaces is important to minimize deterioration of wood floor framing.



The entrance to Columbia Beach has a divided roadway flanked by 1-story cottages.



Cottages are being rehabilitated and winterized for year-round use.



The cottages in Columbia Beach are generally one-story, wood framed buildings.



Recent construction tends to be incompatible with the historic character of neighboring buildings.

Approach / Observations

General

Following Hurricane Isabel, riprap was installed on a property by property basis. It has been found that this pushes erosion problems to adjacent sites, and does not necessarily address archaeological sites. “Living shorelines” and bioswales are encouraged by town planners as an alternative to riprap.

Roadways are flanked by drainage ditches that had significant standing water in sunny conditions. The drainage ditches are maintained by the County.

Local preservationists have begun the process of broadly documenting existing buildings with the aid from the 2016 Cultural Resources Hazard Mitigation Planning Grant.

The Beach Resorts Project is an ongoing oral history documentation project attempting to capture the history and sense of place of the beach communities. It includes an effort to collect personal photographs and memorabilia from long-time residents, as well as document racial discrimination.

Archaeological remains of native settlements are being lost through shoreline erosion faster than can be professionally excavated. Local residents have been trained to collect exposed artifacts when found, documenting their location, in an effort to collect information before it is lost. This balance between public and professional involvement in archaeology takes a SWAT approach and is similar to the Site Stewardship Program in Virginia. There are also partnerships between non-profits and communities that encourage community involvement.

Captain Salem Avery House

The c. 1860 Captain Salem Avery House was used as a Jewish Fishing Club. As the shoreline eroded, the house has been relocated further inland. Riprap has been installed along the shoreline, protecting from further erosion. A rain garden and permeable paving have been installed on the inland side of the house.

Columbia Beach

Columbia Beach was constructed as a gated community with a collection of approximately 150 wood-framed summer cottages built for African Americans. Many of the legacy families associated with the community gather at their cottages during summer holidays for family reunions, greatly increasing the population. Properties include yards, and street parking is prohibited, protecting water access from daily visitors. Standing water was observed in several yards.

Although many of the homes are still used by summer occupants, approximately 50% of the cottages have been rehabilitated and winterized to allow for year-round occupancy after the completion of the sewer system in 1999. There was also visible deferred maintenance at numerous properties, potentially linked to the limited summer occupancy, making them more vulnerable in the event of a storm.

Following significant damage by Hurricane Isabel, homes along the northeastern portion of the community were replaced with new structures which are out of character with their early- to mid-20th century neighbors.

These homes tend to be elevated with parking underneath, have a significantly larger footprint thus reducing the yard, and are constructed in a stylistically incompatible manner with non-traditional fenestration patterns and materials including concrete block and stucco.

Approximately 400 feet of shoreline have been lost in the last 50 years. Riprap was installed to minimize erosion after Hurricane Isabel, using a combination of low interest loans and a special tax in the community. More recently, rain gardens have been installed as well as a bioswale.

Possible Mitigation Strategies:

- Limiting future development of the area and establish buffer zones around existing properties
- Establishing incentives property owners to implement infrastructure improvements including storm water management
- Raising systems and equipment out of vulnerable areas prior to a flood event



A marsh is located across the roadway from Columbia Beach.



Rain gardens have been installed in Columbia Beach.



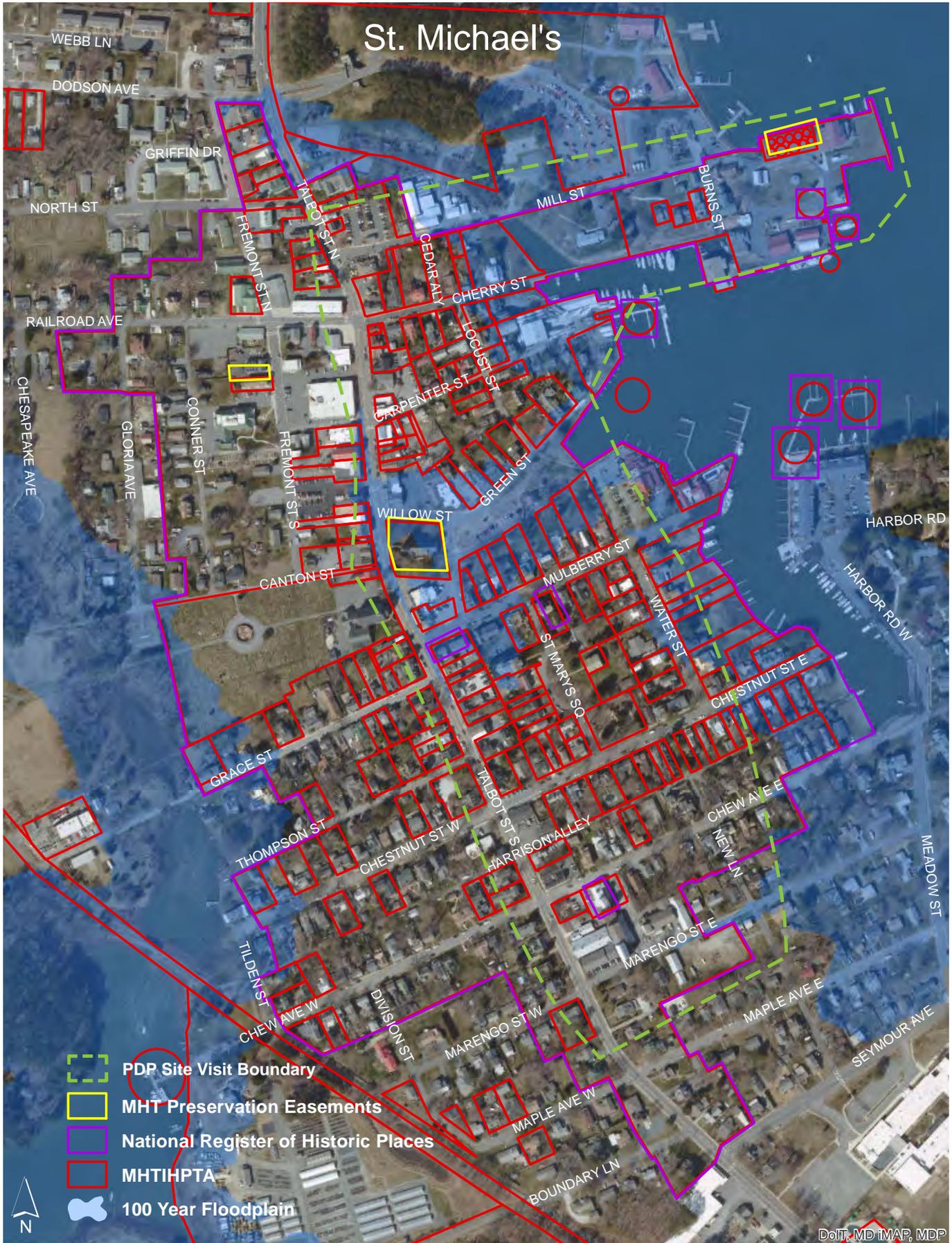
Riprap along a shoreline protects the property but can increase erosion at neighboring sites.



Standing water was observed at several locations, including under this building.

ST. MICHAELS







PROFILE

County: Talbot

Population:

- County: 37,782
- Town: 1,029

Flood Risk: Tidal flooding, storm surge, sea level rise, high water table

Average household income: Unavailable

Owner-occupied housing: 58.9%

HISTORIC DESIGNATIONS

- St. Michaels Historic District*

* National Register and locally designated historic district

LOCAL HISTORIC PRESERVATION REGULATORY CONTROL

Town of St. Michaels Historic District Commission

I. ST. MICHAELS

HISTORICAL DEVELOPMENT

- St. Michaels was established in 1778 “as a speculative development for a Liverpool merchant firm”, planned on a grid with a green in the center of the town (*SMHD Nomination*, 2)
- Located on peninsula between Miles River and Back Creek (*SMHD Nomination*, 7-1)
- The town grew around its Anglican church, St. Michaels (*SMC Plan*, 7)
- Historically, St. Michaels was a “watermen’s and agrarian-based” community (*SMHD Nomination*, 8-15)
- The town’s boat-building industry ensured the town’s success following the Revolutionary War (*SMHD Nomination*, 20)
- In the 18th century, St. Michaels benefitted economically from the oyster trade as well as agriculture from the surrounding area (*SMHD Nomination*, 8-17)
- By the late-18th century, St. Michaels was remarkable for the variety of “craftsmen, commercial ventures, and industry” found in the town (*SSMHD Nomination*, 8-18)

HISTORICAL SIGNIFICANCE

- St. Michaels is significant as an example of “18th-century town planning in Tidewater Maryland” - The original town remained as the town expanded outward and is notable for this growth pattern (*SMHD Nomination*, 17)
- The *St. Michaels Historic District Nomination* also cites the variety of architecture styles as significant (17)
- St. Michaels offers examples of Federal style domestic architecture as well as a “one-room-wide by two-rooms-deep houses,” a style unique to the Eastern Shore (*SMHD Nomination*, 17)

BROAD INFRASTRUCTURE AFFECTING LOCAL AREA

- Town draws its water from an aquifer (*SMC Plan*, 30)
- Talbot County provides wastewater treatment services (*SMC Plan*, 37)
- St. Michaels does not operate any public utilities, with the exception of the water system (*SMC Plan*, 6-3)

ACCESS TO ROADWAYS AND BRIDGES

- St. Michaels lies along MD Route 33, the only route between Tilghman Island and Easton (*SMC Plan*, 46), which is maintained by the Maryland State Highway Administration

ACCESS TO PUBLIC SERVICES

- St. Michaels offers an elementary and middle/high school for students (*SMC Plan 2008*, 23)
- A branch of the Talbot County Public Library is located in town (*SMC Plan*, 23)

ACCESS TO PRIVATE SERVICES

- Hospitals are located in Easton (approximately 10 miles), Cambridge (approximately 26 miles) and Salisbury (approximately 56 miles) (*SMC Plan*, 42)

POPULATION'S PROFILE

- Total population has been shrinking since 1980 (*HHM Plan*, 8)
- Citing the 2000 US Census, secondary homeowners have outnumbered primary homeowners and year-round occupancy has declined (*SMC Plan*, 62)
- Population largely retirees and second homes (Site visit)

INDUSTRY

- Tourism is currently St. Michaels' main industry (*SMC Plan*, 51)

RESOURCES AND FLOOD IMPACT

- There are 127 Flood Insurance Policies filed in St. Michaels (*SMC Draft Plan*, 45)
- In St. Michaels, 82 critical and public facilities are located in a flood zone including the following: St. Michaels Elementary School, Municipal Public Works, Office of the Town of St. Michaels, the Housing Authority (*SMC Draft Plan*, 46-9)

RESOURCES

Hazard Mitigation Plan Talbot County, Maryland. (*HM Plan*) 2011. http://www.talbotdes.org/uploads/file/2011_Talbot_Hazard_Mitigation_Plan.pdf.

Touart, Paul. *St. Michaels Historic District Nomination.* (*SMHD Nomination*) 28 March 1986.

St. Michaels Comprehensive Plan 2008. (*SMC Plan*) http://www.mdp.state.md.us/PDF/OurWork/CompPlans/Talbot/StMichaels/08_CMP_StMichaels.pdf

St. Michaels Draft Comprehensive Plan 2015. (*SMC Draft Plan*) https://issuu.com/kimberlyweller/docs/2015_comprehensive_plan_for_st_mic.

HISTORY OF FLOODING

Lies approximately 10 feet above sea level, has a high water table and poor surface drainage (*SMC Plan*, 29)

Significant threats are: winter storms, mass power outages, flash floods, tropical storms, and shore erosion (*SMC Draft Plan*, 5-2)

Hurricanes Isabel and Sandy inflicted considerable damage (*SMC Draft Plan*, 14-1)

A Category 1 hurricane is expected to flood "small portions" while a Category 3 will inundate the majority of town (*HM Plan*, 12)

The entire county's risk for flash floods and flooding is "high" (*HM Plan*, 14)

July 15, 2000 - Roads flooded during a flash flood event (*HM Plan*, 18), July 28, 2000 - East side of town flooded (18)

September 2003 - Hurricane Isabel flooded packing warehouse (Site visit)

October 27, 2006 - St. Michaels Road was closed due to flooding (*HM Plan*, 19)

September 6, 2008 - Tropical Storm Hanna flooded streets (*HM Plan*, 30)

Two properties (on Mulberry Street and East Maple Street) are classified as repetitive loss properties (*SMC Draft Plan*, 45-6)

MITIGATION MEASURES

Comprehensive master plan includes an extensive chapter on water resources and stormwater management (*HM Plan*)

Complies with MD Stormwater Management Regulations, requiring 20% percent impervious surface coverage reduction for redevelopment areas (*SMC Draft Plan*, 25)

The town has introduced "duck bills in some storm drains that terminate in areas of high tide" (*SMC Draft Plan*, 14-1)

Elevation of homes is occurring (*SMC Draft Plan*, 14-1)

Adopted code requirements regarding freeboard venting in the floodplain (*SMC Draft Plan*, 14-1)

Town adopted a Hazard Mitigation Plan and developed an evacuation route (*SMC Draft Plan*, 14-1)

COMMUNITY RATING CLASSIFICATION: 8



This brick building was moved to its current site.



Adjacent to the Maritime Museum is a living shoreline.



Several of the small wood-framed workers homes have been relocated onsite, away from the street.



Several buildings associated with the Maritime Museum have been elevated, including the brick buildings to the left.

SITE VISIT - MAY 26, 2016

Attendees:

- Sarah Abel, Town of St. Michaels
- Roy Myers, Town of St. Michaels
- Pete Leshner, Chesapeake Bay Maritime Museum
- Michael Day, MHT
- Anne Raines, MHT
- Nell Ziehl, MHT
- Jennifer Sparenberg, MHT
- Dominique M. Hawkins, PDP
- Sarah Blitzer, PDP

Overview:

St. Michaels is located on a peninsula between Miles River and Back Creek on the Eastern Shore and is essentially surrounded by water. Its sole vehicular access is via Talbot Street (MD 33), which provides the commercial spine through the center of town. The Chesapeake Bay Maritime Museum houses a large collection of Chesapeake Bay boats and artifacts. Several residents have elevated their homes with the guidance provided by a preservation review process. Apparently there have also been several buildings relocated over time either on or off their original sites. The site visit included an initial tour of the grounds of the Chesapeake Bay Maritime Museum followed by a tour of the town.

Challenges:

- The town tends to be most impacted by gradual rising of the tide rather than storm surge, in addition to seasonal high tide and a high water table
- Recently, the county floodmaps were revised, lowering the 100-year floodplain - Freeboard requirements will rise to 2 feet

Approach / Observations:

St. Michaels follows FEMA guidelines related to flood mitigation for all buildings, including those within historic districts. Substantial improvements to buildings triggers meeting floodplain requirements, as well as providing for the required 2-feet of freeboard. Some homeowners are proactively elevating above the minimum requirements. The historic review process provides some flexibility when traditional materials need to be replaced with non-traditional alternatives.

The town is currently applying for a Community Rating System classification.

In 2002, buildings at the Chesapeake Bay Maritime Museum were elevated to meet hurricane requirements just prior to Hurricane Isabel, and some

regrading was completed to better direct storm water. Hurricane Isabel flooded the cove and some boat yard facilities; however, the historic buildings were spared as a result of mitigation measures.

Much of the shoreline is hardened with docks. Bioswales and living shorelines have been installed near the shoreline in the area of the Museum to facilitate storm water runoff. A small park on Green Street near Locust Street is prone to flooding.

Several of the small, wood-framed homes on Locust Street have been relocated away from the roadway.



Elevating commercial buildings presents accessibility challenges and may require installation of a ramp.

Possible Mitigation Strategies:

- Elevating the small, wood-framed cottages above the 1% floodplain and could improve their flood resilience without significantly impacting the overall neighborhood character
- Raising systems and equipment out of vulnerable areas prior to a flood event
- Regrading streets and raising inlets to facilitate unimpeded stormwater drainage



These two homes were recently elevated. The entrance stair for the home on the right was modified.



This home was elevated as part of a rehabilitation project. Concrete block piers were clad in brick for a more historically appropriate appearance.



Storm water drainage is gravity-fed along the street edge to a storm drain.

WESTERNPORT

A large, light grey, serif letter 'J' is positioned on the right side of the page. A thin, dark red horizontal line crosses the middle of the letter.



PROFILE

County: Allegany

Population:

- County: 75,087
- Town: 1,888

Flood Risk: Flash flooding and riverine flooding; Backwater effects Georges Creek

Average household income: \$51,700

Owner-occupied housing: 72.6%

HISTORIC DESIGNATIONS

- Westernport Historic District *
- Waverly Street Bridge**

* National Register eligible historic district

** Individually registered in the National Register of Historic Places

LOCAL HISTORIC PRESERVATION REGULATORY CONTROL

None

J. WESTERNPORT

HISTORICAL DEVELOPMENT

- From the town's inception, transit has been Westernport's primary driver due to its location at the confluence of the Georges Creek and the Potomac River (*WHD Nomination, 1*)
- Flatboats carrying coal, departing from Westernport, have been recorded in 1810 (*WWHD Nomination, 48*)
- Upon arrival of the railroad, Westernport became a significant outlet for coal mined in the region (*WHD Nomination, 48*)
- As coal production improved, the railroad expanded to meet demands for shipping coal (*ACC Plan, 2-2*)
- Between 1880 and 1920, the town experienced considerable population growth, attracted by the employment opportunities offered by local industries, thus forcing the West Virginia Pulp and Paper Company to build its housing on a floodplain - This pressure to develop as well as topographic restrictions forced the Company to construct as efficiently as possible in the form of rowhouses (*SWHD Nomination, 6*)
- Beginning in the late-18th century, plans developed to improve navigation of the Potomac, thus attracting new residents to Westernport (*WHD Nomination, 48*)

HISTORICAL SIGNIFICANCE

- Town exhibits an eclectic variety of architectural styles, many popular during the 19th century, including Second Empire, Queen Anne, and Stick styles (*WHD Nomination, 47*)
- Westernport claims the only rowhouse development in the county (*WHD Nomination, 42*)
- In addition to its unique character, the rowhouse neighborhood in Westernport is significant in that there are three blocks of continuous rowhouses, creating a streetscape that "is quite uncommon for its non-metropolitan setting" (*SWHD Nomination, 6*)
- Other contemporaneous company housing is typically detached frame housing (*SWHD Nomination, 6*)

BROAD INFRASTRUCTURE AFFECTING LOCAL AREA

- Water is sourced from Savage River Reservoir (*ACWS Plan, 14*), and a water treatment plant is located at the end of Maryland Avenue

ACCESS TO ROADWAYS AND BRIDGES

- Westernport is traversed by State Highways 36, 135, and 825 with connecting bridges traversing the Georges Creek and North Branch of the Potomac River to West Virginia
- State Highways 36 and 135 are currently undergoing improvements (*ACC Plan*, 5-7 - 5-8)
- Historically, an electric trolley line connected Westernport to Cumberland and Frostburg - Discontinued after World War II (*ACC Plan*, 5-12)
- Westernport marks the southern-most point on CSX's southern route that follows the Potomac River Valley (*AACC Plan*, 5-11)

ACCESS TO PUBLIC SERVICES

- County has 3 high schools, 4 middle schools, and 14 elementary schools (*ACC Plan*, 6-4)
- Westernport Town Hall, Police Department, Fire Department, and Post Office are located along Main Street in the 100-year flood plain (Site visit)
- Supermarket in Keyser, WV, 9 miles from Westernport (Google)

INDUSTRY

- Historically, town depended on the coal industry and the railroad (*WHD Nomination*, 45)
- In the 1950s and the 1980s, the county experienced a decline in manufacturing, impacting job opportunities - The return of "energy-related jobs" as well as increased opportunities in healthcare and social services is projected (*ACC Plan*, 3-1)
- A decline in manufacturing jobs, industries such as construction is anticipated, while administrative and waste services will expand (*ACC Plan*, 3-6)

RESOURCES

Allegany County Comprehensive Plan. (ACC Plan) Jan 29 2014. http://www.mdp.state.md.us/PDF/OurWork/CompPlans/Allegany/14_CMP_Draft_Allegany.pdf.

Allegany County Water and Sewer Plan. (ACWS Plan) http://www.gov.allconet.org/plan/docs/water_sewer/WaterSewer2007_080608.pdf.

Dorsey, David. *South Westernport Historic District Nomination. (SWHD Nomination) May 1982.*

Lewis, C. Andrew. *Westernport Historic District Nomination. (WHD Nomination) June 10 2004.*

HISTORY OF FLOODING

Flooding in 1996, caused by Hurricane Fran, significantly damaged existing structures, eliminating eligibility for a historic district in central Westernport due to lack of continuity and "unsympathetic infill construction" (*WHD Nomination*, 32)

The nomination highlights the lack of continuity along Front Street, also the result of past flooding

MITIGATION MEASURES

A concrete levee was constructed along the North Branch of the Potomac southwest of Maryland Avenue in the 1930s as part of a WPA project

Following significant flooding in 1984 and 1996, Allegany County pursued a land acquisition program, particularly along Georges Creek (*ACC Plan*, 8-6)

14 properties were purchased and razed between 2005 and 2011, largely along Georges Creek (*ACC Plan*, 8-6)

COMMUNITY RATING CLASSIFICATION: N/A



A view looking north across the raised railroad tracks towards the elementary school.



Several buildings on Main Street have been razed leaving vacant lots, some of which are parking lots.



The brick worker's housing in the South Westernport Historic District is unusual for this part of the State.



The South Westernport Historic District also includes stucco rowhouses.

SITE VISIT - 13 MAY 2016

Attendees:

Mayor Daniel Laffey
 Fred Pritts
 Kevin Wagner, Maryland Department of the Environment
 Jennifer Sparenberg, MHT
 Dominique M. Hawkins, PDP
 Sarah Blitzer, PDP

Overview:

Westernport is located at the confluence of Georges Creek and the North Branch of the Potomac River. The focus of the site visit was to review the condition of the National Register eligible historic district and Main Street following the demolition of numerous buildings after flooding during Hurricane Fran in 1996. The site visit was conducted as a walking tour along Main Street, Maryland Avenue, a portion of the North Branch of the Potomac, and River Road east of Main Street.

Challenges:

- Significant deterioration of underground piping in town including rusting and internal build-up, restricting flow
- A raised railroad line runs north of and parallel to Maryland Avenue with a branch extending north along Georges Creek
- The area along Georges Creek and between River Road and the railroad line east of Main Street is located within the 100-year floodplain and is prone to flooding on a regular basis
- Numerous buildings along Main Street and Front Street were demolished in the aftermath of Hurricane Fran (1996) resulting in several vacant lots, providing the opportunity for the creation of a new park at the northern end of town but limiting retail services including local access to groceries and other necessities - Local economy makes rebuilding costs prohibitive
- Locally significant buildings and institutions located in the 100-year floodplain are abandoned including the Catholic School on River Road (demolished following the site visit)
- Employment opportunities in the area have declined, depressing real estate values, reinvestment, and the local tax base

Approach / Observations:

Previous efforts to address the effects of past flood events included the razing of buildings impacted by flooding principally along Main and Front Streets as well as the construction of a concrete levee along the North Branch of the Potomac southwest of Maryland Avenue as a WPA project in the 1930s. The flood wall was not breached in the 1996 flooding from Hurricane Fran.

The loss of buildings in the commercial core of the Town have altered the center of the community. Several vacant lots are present, some of which are used for parking. A small, elevated commercial building has been constructed on Main Street with parking along the street frontage which is inconsistent with the town's previous development patterns.

An elementary school, located on Church Street and within the 1% floodplain, was recently constructed to include flood protection at windows and door openings.

The rail line between Maryland Avenue and River Road is elevated approximately 2-3 feet above adjacent grade without apparent connecting drainage between the north and south sides.

Standing water was noted in a storm drain. A public piping replacement program is anticipated.

The remapping of the area removed the South Westernport Historic District from the 1% floodplain. Although there have been some alterations, the continuity of the workers housing remains intact.

Possible Mitigation Strategies:

- Adding piping beneath the railroad tracks to allow water to flow back out of lower areas on one side as floodwaters recede
- Increasing capacity of stormwater piping in existing facilities to accommodate flooding and to act as storage
- Regrading streets and raising inlets to facilitate unimpeded stormwater drainage
- Raising systems and equipment out of vulnerable areas prior to a flood event



The Catholic school, now abandoned, was a focal point of the community. The school was demolished after the site visit.



A concrete levee is located along Georges Creek approaching the North Branch of the Potomac.



Standing water was noted at this storm drain, indicating a clogged drain.



This elevated commercial building was constructed on Main Street.

IK
WHITEHAVEN

Whitehaven





K. WHITEHAVEN

HISTORICAL DEVELOPMENT

- Ferry across the Wicomico River has been operating since 1688 (*WHD Nomination, 5*)
- Majority of existing buildings date to 19th century (*WHD Nomination, 5*)
- Located along the Wicomico River, the town historically relied on fishing and served as a shipping point - Some residents continue to make a living from the river through fishing and crabbing (*WHD Nomination, 5*)
- The community thrived in the 19th century but then went into decline when the river was dredged to Salisbury and the automobile was introduced (*WHD Nomination, 12*)

HISTORICAL SIGNIFICANCE

- One of the oldest communities in this part of Maryland (*WCC Plan, 10*)
- It is the only surviving village in the county that was authorized by the General Assembly in the 17th century (*WHD Nomination, 10*)
- Home to oldest, publicly owned ferry in the United States (*WCC Plan, 9-8*)

BROAD INFRASTRUCTURE AFFECTING LOCAL AREA

- Source of water and sewage treatment is unknown

PROFILE

County: Wicomico

Population:

- County: 98,733
- Town: 43

Flood Risk: Tidal flooding, storm surge, sea level rise

Average household income: Unavailable

Owner-occupied housing: 95.5%

HISTORIC DESIGNATIONS*

- Whitehaven Historic District*
- Whitehaven Hotel**

* National Register and local historic district

** Individually designated on the National Register of Historic Places

LOCAL HISTORIC PRESERVATION REGULATORY CONTROL

Wicomico County Historic District Commission

ACCESS TO ROADWAYS AND BRIDGES

- Whitehaven is located off Route 352, which supplements the network of primary routes in the county (WCC Plan, 8-4)
- Most come in through Whitehaven Road with ferry traffic bypassing historic village core (Site visit)

ACCESS TO PUBLIC SERVICES

- Significant amount of health care services can be found in Salisbury, approximately 15 miles from Whitehaven (WCC Plan, 9-16)

ACCESS PRIVATE SERVICES

- No commercial activity with the exception of the hotel (Site visit)
- No apparent governmental services in the town (Site visit)

POPULATION'S PROFILE

- Mostly vacation homes, few full-time residents (Site visit)
- The county estimates that its overall population will continue to grow, with growth focused on towns and cities, as will the number of housing units (WCC Plan, 3-1 - 3-2)
- Approximately 88% of housing units are owner-occupied in the county, compared to 95.5% owner-occupied housing units in Whitehaven (WCC Plan, 3-4; US Census)

INDUSTRY

- Historic hotel only commercial enterprise in town

RESOURCES

2016 Wicomico County Comprehensive Plan. (WCC Plan) 15 March 2016. <http://www.wicomicocounty.org/DocumentCenter/View/4424>.

US Census. 2010 <http://www.census.gov/prod/cen2010/cph-1-22.pdf>.

Whitehaven Historic District Nomination. (WHD Nomination) 5 November 1979.

Wicomico County Floodplain Regulations. (WCF Regulations) 5 May 2015. <http://www.wicomicocounty.org/DocumentCenter/Home/View/4220>.

HISTORY OF FLOODING

When river floods, water backs into marsh and floods town (Site visit)

Flooding can come from the river to the south and marsh land to the north (Site visit)

MITIGATION MEASURES

The county “regulates development in designated flood hazard areas” through its County Floodplain Management Ordinance (WCC Plan, 4-6)

Historic structures are subject to the Floodplain Management Ordinance if work is determined a “substantial improvement” (WCF Regulations, 25)

COMMUNITY RATING CLASSIFICATION: N/A



The hotel, located adjacent to the ferry landing, is a focal point of the community.



This house was elevated and now includes substantial brick piers. The setback allows a straight-run stair.



A small opening is located in the rusticated block wall, potentially restricting site drainage.



A concrete bulkhead has been installed along the river, and new houses along the water are being constructed at a higher elevation.

SITE VISIT - 16 MAY 2016

Attendees:

Gloria Smith, Wicomico County Historic District Commission
 Anne Raines, MHT
 Nell Ziehl, MHT
 Jennifer Sparenberg, MHT
 Dominique M. Hawkins, PDP
 Sarah Blitzer, PDP

Overview:

Whitehaven is a relatively compact, geographically defined, historic town located on the southern Eastern Shore of Maryland. The majority of the buildings are of wood-framed construction and are located along the street edge on relatively small lots. The primary focus of the site visit was to see first-hand the elevation of three buildings along River Street, namely the historic hotel adjacent to the ferry landing and two residences near Church Street.

Challenges:

- The entire town is historically designated and located within the 100-year flood plain
- Flooding can come from the river and the marsh land bordering the town northeast of Whitehaven Road
- With the open access to river's edge, building elevation is one of the few mitigation alternatives
- The buildings are located on narrow lots relatively close to the street, limiting options for mitigation of building elevation through landscaping and creating a design challenge to provide historically appropriate foundations and access to front porches and doors through extended steps and ramps
- The historic district includes at least one repetitive loss structure

Approach / Observations:

The flood mitigation approach includes some efforts by individual property owners as well as those benefiting the town as a whole.

- Completed work includes the elevation of two residences and the hotel - although it is unclear whether the elevated height meets current flood plain requirements
- Potential work includes the elevation of an additional house, which has received required approvals, but had not commenced by the time of the site visit

- A bulkhead has been installed along the length of River Street in the town, and the ferry landing area has been reinforced

New construction south of River Road is elevated and more contemporary than the remainder of the historic district

The Wicomico County Historic Preservation Commission provides a rigorous review process for proposed alterations in the historic district.

Possible Mitigation Strategies:

One of the difficulties with elevating individual historic buildings is that they were generally constructed at approximately the same first floor height along a streetscape. As a result, individual building elevations have the potential to appear out of scale relative to their neighbors.

However, given the wood framed construction and relatively compact nature of the Whitehaven Historic District, with property owner concurrence it might be possible to elevate all of the buildings to maintain the relationship between the buildings while maintaining continuity of scale.

This approach could be taken one step further to include the elevation of all of the streets in the town to maintain the same relative height to grade. This strategy was employed in Galveston, Texas, following a hurricane in 1900 in which the city thoroughfares were raised as much as 17', followed by the raising of buildings by individual property owners. A similar approach is currently being undertaken in Miami Beach, Florida. This strategy would:

- Maintaining the relative height between the buildings with pedestrians and the street
- Providing guidance to maintain the historic appearance of the building foundation, entrance steps and ramps
- Providing additional protection/fortification against future flooding and erosion



A marshy landscape is located across Whitehaven Road from the community.



The first floor of this residence is close to grade, and it has suffered repeated damage from flooding.



The elevation of the central residence altered the relationship between the porch and the street and required modification of the entrance stair. Also note the concrete foundation has been tinted a brick color.

WILLIAMSPORT

A large, light gray, stylized letter 'L' logo is positioned in the lower right quadrant of the page. The letter has a thick vertical stem and a horizontal base that curves slightly upwards at the end. A thin, dark red horizontal line crosses the middle of the 'L'.



PROFILE

County: Washington

Population:

- County: 147,430
- Town: 2,137

Flood Risk: Flash flooding, riverine flooding, ice jams, winter storms

Average household income: Unavailable

Owner-occupied housing: 39.3%

HISTORIC DESIGNATIONS

Williamsport Historic District

* National Register historic district

LOCAL HISTORIC PRESERVATION REGULATORY CONTROL

Washington County Historic District Commission

L. WILLIAMSPORT

HISTORICAL DEVELOPMENT

- Located at the confluence of the Potomac River and the Conococheague Creek, Williamsport's success has relied upon its location as a crossroads for transit: river, highway, and canal (*WHD Nomination*, 4)
- Historically, Williamsport was located at a ferry crossing and at the crossroads of an 18th century highway (*WHD Nomination*, 8)
- Operating between 1828 and 1924, the Chesapeake and Ohio Canal ran through the town (*WHD Nomination*, 8)
- Williamsport was also the final stop along the Cumberland Valley Railroad (*WHD Nomination*, 8)
- With easier access to transit and thus a wider market for selling produce, the region's mostly agricultural economy flourished (*CPC*, 8)
- Williamsport's proximity to transit encouraged other industries to settle in the town in the 19th century, including a "tannery [...], lumber and coal dealing, and brickyards" (*WHD Nomination*, 8)
- During the Civil War, Union troops were stationed in Williamsport to defend the Potomac (*WHD Nomination*, 9)

HISTORICAL SIGNIFICANCE

- Only functional water aqueduct in North America (Site visit)

BROAD INFRASTRUCTURE AFFECTING LOCAL AREA

- The county operates two water treatment plants: the Wilson Plant in Williamsport and the Conococheague Wastewater Treatment Plant (*CCPC*, 44 - 45)
- Williamsport is served by the Hagerstown Water Department (*CPC*, 147)

ACCESS TO ROADWAYS AND BRIDGES

- Williamsport is considered a hub along Maryland's interstate roadways system (CPC, 46)

ACCESS TO PUBLIC SERVICES

- The county operates the Washington County Health System, which includes the Williamsport Family Medical Center (CPC, 46)
- County operates 7 high schools, 7 middle schools, and 25 elementary schools (CPC, 43)

POPULATION'S PROFILE

- County predicts that the population will steadily grow (CPC, 17)

INDUSTRY

- Historically, the county sustained itself through agriculture, though the county predicts that farming is in decline (CPC, 20)
- Currently, the largest job market is in services (CPC, 20)
- Employment in the county is at an all-time low (CPC, 57)
- The presence of the National Park Service in Williamsport provides employment opportunities and stimulates tourism as an economic driver (CPC, 66)

RESOURCES

Comprehensive Plan for the County 2002. (CPC) http://www.washco-md.net/county_attorney/pdf/comp_plan/Main_pdf_doc.pdf.

Hobbs, Thomas R. *Williamsport Historic District Nomination.* (WHD Nomination) May 26 1983.

US Census. 2010 <http://www.census.gov/prod/cen2010/cph-1-22.pdf>.

HISTORY OF FLOODING

The *Nomination* highlights Williamsport's multi-faceted relationship with the river, which has historically brought the town success but has also destroyed the town during floods (*WHD Nomination*, 6)

Hurricane Agnes shut down sections of canal (Site visit)

No floods since 1996 (Site visit)

Flooding tends to result from precipitation, snow melt, and ice damming (Site visit)

MITIGATION MEASURES

County enacted its Floodplain Management Ordinance in 1992, which does not allow new construction on a floodplain, unless construction is intended for water-related activities. Any additions or alterations to existing structures must meet flood-proofing specifications. With this Ordinance, the County does not plan to expand mitigation measures. (CPC, 102)

Flood mapping has recently been revised, modifying boundaries – Some areas shrank, others grew (Site visit)

COMMUNITY RATING CLASSIFICATION: N/A



A hiking and biking trail is located along the canal, as are remnants of an abandoned railroad bridge.



Plans to restore the aqueduct require the rebuilding of the east wall. Also note the debris in the river.



To allow water to be available for the aqueduct, a pipe inlet is undergoing repair.



Completed work includes the restoration of Lock 44 in front of the lock tender's house.

SITE VISIT - 13 MAY 2016

Attendees:

Donnie Stotelmayer, Town Clerk/Treasurer, Williamsport
 Ben Helwig, National Park Service
 Jennifer Sparenberg, MHT
 Dominique M. Hawkins, PDP
 Sarah Blitzer, PDP

Overview:

The historic town of Williamsport is located at the top of a hill overlooking the Chesapeake and Ohio Canal National Park. The primary focus of the site visit was to review ongoing efforts within the National Park to celebrate the historic canal system. The site visit was conducted as a walking tour along the canal from the aqueduct to the restored lock and lock tenders house.

Challenges:

- The area along the river and canal is located within the 1% floodplain and is prone to flooding on a regular basis
- Employment opportunities in the area have declined, depressing real estate values and reinvestment
- An abandoned back-up power plant is located between the canal and the river, providing an eyesore to the Park, and there is also an abandoned wastewater treatment plant

Approach / Observations:

The town is easily accessed by highways and has the potential to be more of a tourist destination.

With an understanding of the importance of the canal as part of its historical development, the Town of Williamsport, working with the National Park Service, actively sought to promote the canal as an attraction rather than a liability. With that in mind, work in the canal area has been completed and is ongoing to allow interpretation of the canal to the 1920s, when the canal flourished prior to the dominance of the railroad.

- Completed work includes the restoration of Lock 44 and the lock tender's house
- Ongoing work includes the restoration of the canal and rebuilding of the aqueduct
- Related efforts include the centralization of the National Park Service canal offices including the communications center and incident command in Williamsport

The work along the canal is continuing to draw visitors and tourists to the Park and is viewed as a means of “jump-starting” the community. In addition, the Town has developed various programs to encourage year-round tourism rather than focusing on a single-purpose, canal-related visitor experience.

The centralization of the National Park Service’s canal-related functions to Williamsport will increase local jobs as well as include local investment in the rehabilitation of the former lumber yard building into offices as well as associated housing and services for relocated employees.

The abandoned power plant is visually intrusive within the historic context of the Park. Retaining the plant on-site allows future replacement with a gas facility without requiring a wavier from the Federal government.

The Town of Williamsport currently has an active Planning and Zoning Board. It is anticipated that Board will help guide anticipated future development.

Possible Mitigation Strategies:

- Maintaining clear openings under bridges and viaduct to allow unimpeded water flow
- Utilizing dry floodproofing on non-residential structures if they will not be elevated (sealants, retrofit flood openings, flood barriers, and gates)



The NPS currently occupies the Cushwa building, and have located sensitive equipment on the 2nd floor.



The white markers on the Cushwa building indicate the heights and dates of past flood events.



The abandoned power plant is located between the canal and the river.



The center of the town, centered on Conococheague Street, is located above the floodplain.