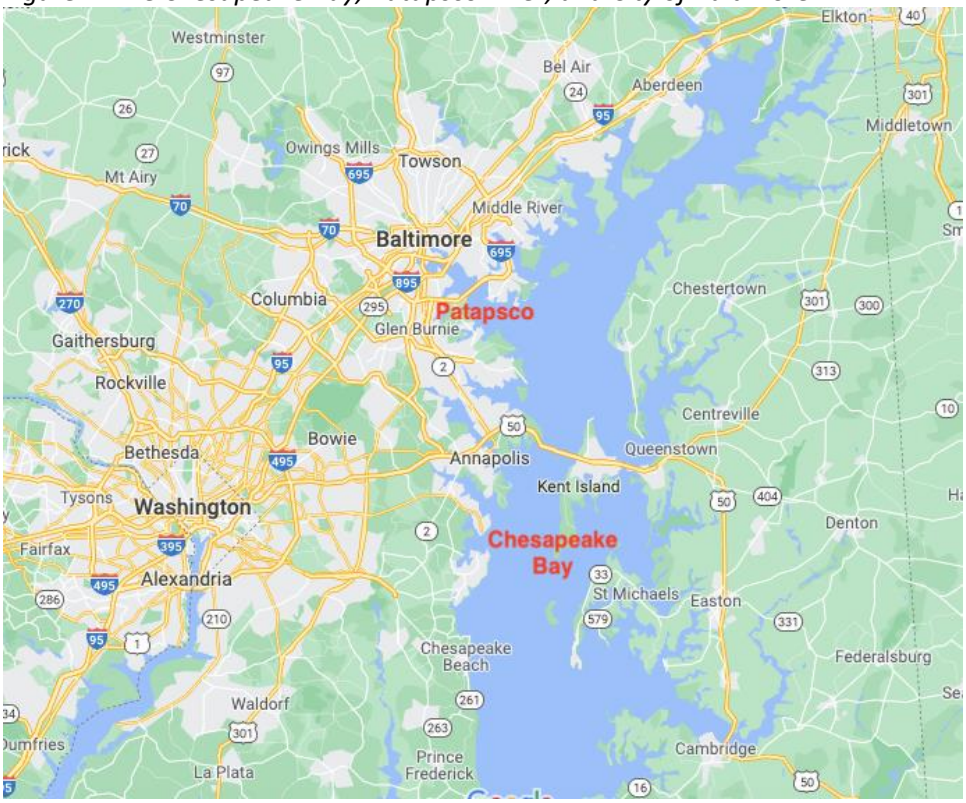
Provide a detailed description of the proposed project's location.

The Patapsco River is a tributary of Maryland's Chesapeake Bay (Figure 1). The City of Baltimore was founded on the banks of the Patapsco, with an economy tied to its role as the westernmost inland port along the Northeast corridor. To this day, the river is still the heart of the "Port of Baltimore" – a complex of public and private shipping facilities representing the 11th largest port in the United States in terms of foreign cargo tonnage and the 9th largest in terms of dollar value.

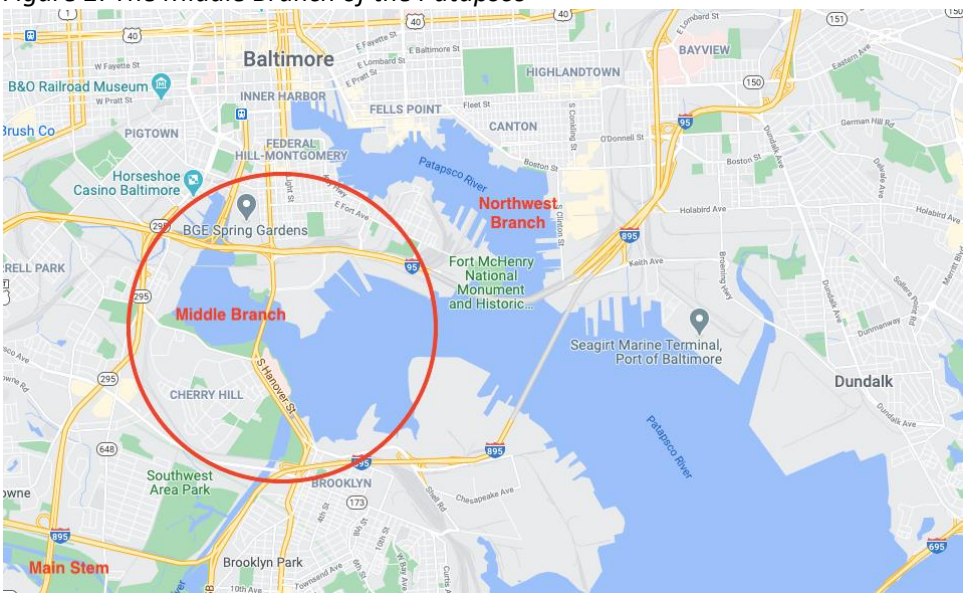
In 2019, the Port of Baltimore handled a record 43.6 million tons and $58.4 billion in goods, surpassing the previous record set the prior year. During that time, the Maryland Port Administration (MPA) alone handled a record 11.1 million tons of general cargo at State-owned marine terminals. 2019 was also the 10th straight year of growth in container shipping (with a record 1,073,749 TEUs of containers handled) and a record year for the shipping of auto units (with 857,000 vehicles handled).

Figure 1: The Chesapeake Bay, Patapsco River, and City of Baltimore



Within Baltimore City, the Patapsco River divides into three different branches: the Main Stem, the Northwest Branch (which becomes Baltimore's Inner Harbor and the heart of downtown), and the Middle Branch, which lies in between (Figure 2).

Figure 2: The Middle Branch of the Patapsco

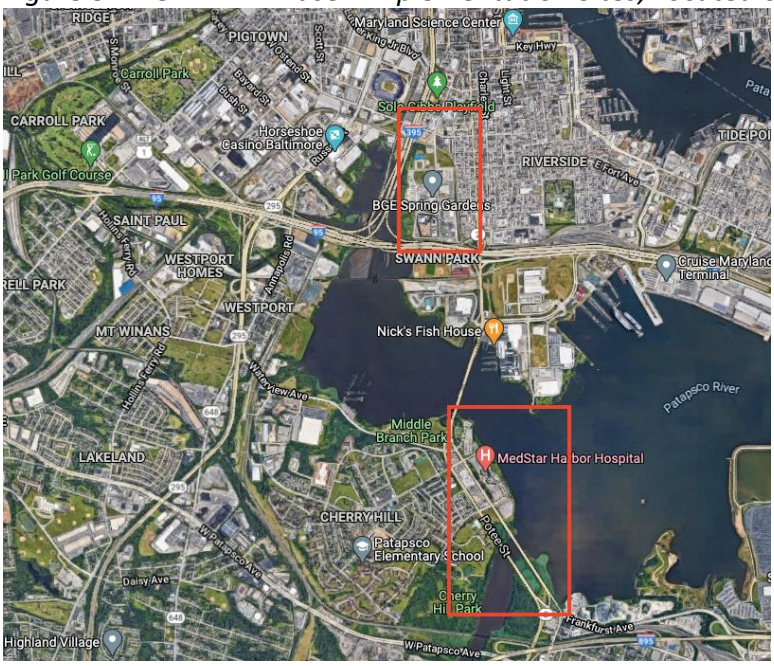


The Middle Branch coastline was developed between the mid-1800s and mid-1900s, before the advent of contemporary flood plain or coastal zone regulations. This development also destroyed most of the natural wetlands that historically protected the shoreline from storm and erosion.

Today, the Middle Branch is principally surrounded by low-lying properties, including of active industrial facilities, formerly-industrial brownfields in the process of redevelopment, institutional facilities, and former commercial sites that have been acquired and cleared by local government. The adjacent neighborhoods are principally low-income minority neighborhoods such as Cherry Hill, Westport, and Sharp-Leadenhall which have suffered for generations with contaminated soils and lack of access to the water.

As shown in Figure 3, MBRI Phase I focuses on increasing the resilience of two community lifelines located along the shoreline of Middle Branch – the BGE Spring Gardens LNG facility (BGE) and MedStar Harbor Hospital (MHH). This proposal will refer to both sites by these names for identification purposes, even though as a technical matter most of the nature-based resiliency features described herein will be constructed on adjacent subaqueous property controlled by the State of Maryland rather than by the named institutions.

Figure 3: The MBRI: Phase I Implementation Sites, Located on Either Side of the Middle Branch



The specific locations of nature-based infrastructure on each of these sites is outlined on Figure 4 on the next page.

Figure 4: Vicinity Map for the MBRI Phase I sites along the Middle Branch of the Patapsco River

Baltimore Gas and Electric (BGE) Spring Gardens Site

1899 Leadenhall S
Baltimore, MD 21230
Latitude: 39.267792
Longitude: -76.618233

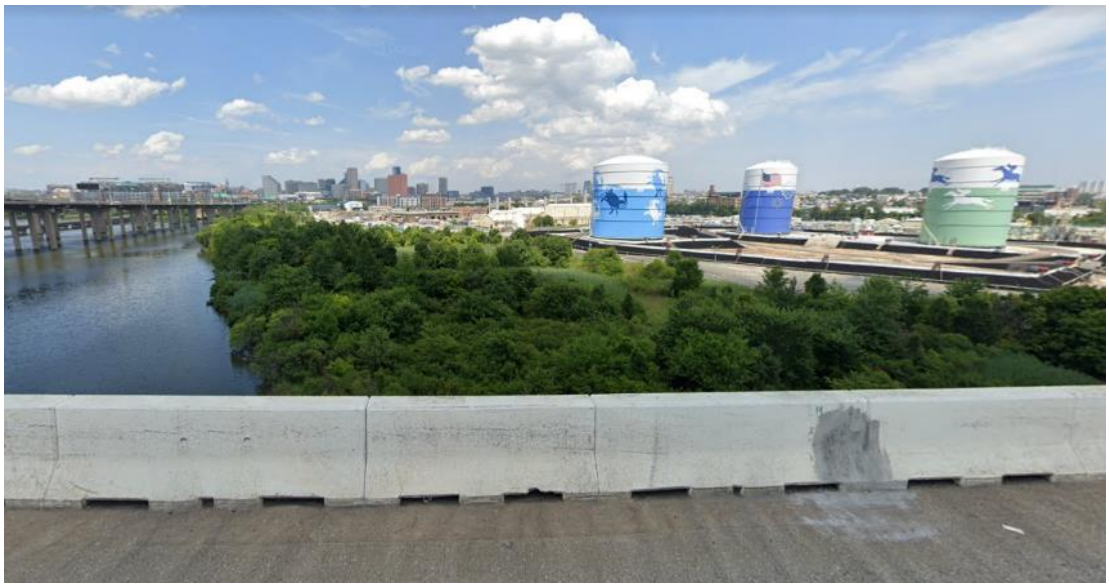
BGE is the largest electric and natural gas utility in Central Maryland, serving more than 1.3 million electric customers and more than 680,000 gas customers (130,000 served from Spring Gardens) in a diverse, 2,300-square-mile area encompassing Baltimore City and all or part of 10 central Maryland counties. The Spring Gardens complex located in South Baltimore along the Patapsco River's Middle Branch has been in continuous operation since 1855, when waterfront access was critical to receive large shipments by boat. Almost two centuries later – in an era of climate change, increased storm frequency, and sea level rise – that same waterfront now poses a risk to the Spring Gardens facilities and the customers who rely on them to satisfy their essential daily needs.

More specifically, the Liquified Natural Gas (LNG) plant at Spring Gardens is a critical element of BGE infrastructure, ensuring that customers receive a steady and affordable supply of gas through pipelines that traverse the campus. In addition, Spring Gardens is the main hub for BGE's natural gas and electric underground lines operations, and houses over 500 fleet assets, a fleet shop, a warehouse, and many other supporting facilities and utility functional areas.

BGE Spring Gardens is also the center of operations for Vicinity Energy, which operates a 23.5 km underground pipe loop providing steam, hot water, and chilled water to 255 buildings across downtown Baltimore. All told, Vicinity provides 635 metric tons of steam per hour to the Casino Entertainment District, Downtown Baltimore, public housing in East Baltimore, and the Orleans St corridor. Eight (8) on-site natural gas boilers that provide the steam for the steam loop.

We intend to protect the BGE Spring Gardens with an offshore vegetated berm, living shoreline and constructed wetland for stormwater management. This will have associated water quality improvement and ecological benefits including restoring damaged wildlife habitat, treating stormwater, and encapsulating any contaminated sediments that may be on site. It will also have the ancillary security benefit of protecting a sensitive utility facility from trespassing. Another significant ancillary benefit is that the installation of these resiliency features at BGE Spring Gardens will trigger the construction of additional offsite wetlands as compensatory mitigation under the Clean Water Act – wetlands that will be used to mitigate flood and storm hazards on the second MBRI Phase I site, Medstar Harbor Hospital.

Figure 1: Photograph of the BGE Spring Gardens Site



Medstar Harbor Hospital (MHH) Site

The Medstar Harbor Hospital Campus
3001 S Hanover St, Baltimore, MD 21225
Latitude: 39.251862
Longitude: -76.613922

This important regional hospital, serving Baltimore City, southwest Baltimore County, and northern Anne Arundel County, is located along the southern bank of Middle Branch waterfront. This means that large portions of the campus (including the parking lots, which are used for emergency staging and medivac helicopter landing) are located within the Inundation Zones for hurricane events. The southern parking lot experiences regular flooding, and long stretches of this shoreline show evidence of erosion from sea level rise and high wave energy.

Moreover, the MHH Campus is in Cherry Hill, a neighborhood that is physically divided from the surrounding city by highways, railroad tracks, and rivers. As a result, there are just three road connections linking Harbor Hospital with the regional transportation network. Of these, the Hanover Street corridor is already low-lying, and (like the Hospital's parking lots) subject to periodic flooding. As a result, there is a growing risk that patients from the south will be cut off from the hospital during flood events – precisely when access may be most important.

We intend to protect Harbor Hospital and the Hanover Street corridor with a complex of wetlands, living shorelines and vegetated berms to prevent further erosion, limit flooding, and maintain vehicular access. This will have the associated ecological benefits, including restoring damaged wildlife habitat, treating stormwater, and encapsulating any contaminated sediments that may be on site. It will also have the ancillary recreational benefit of improving the experience of the Middle Branch Trail, a public trail wraps around the hospital campus.

Figure 2: Photograph of MedStar Harbor Hospital