

Norfolk, Virginia

NORFOLK THRIVE PROJECT | U.S. EPA Brownfields Area-Wide Plan

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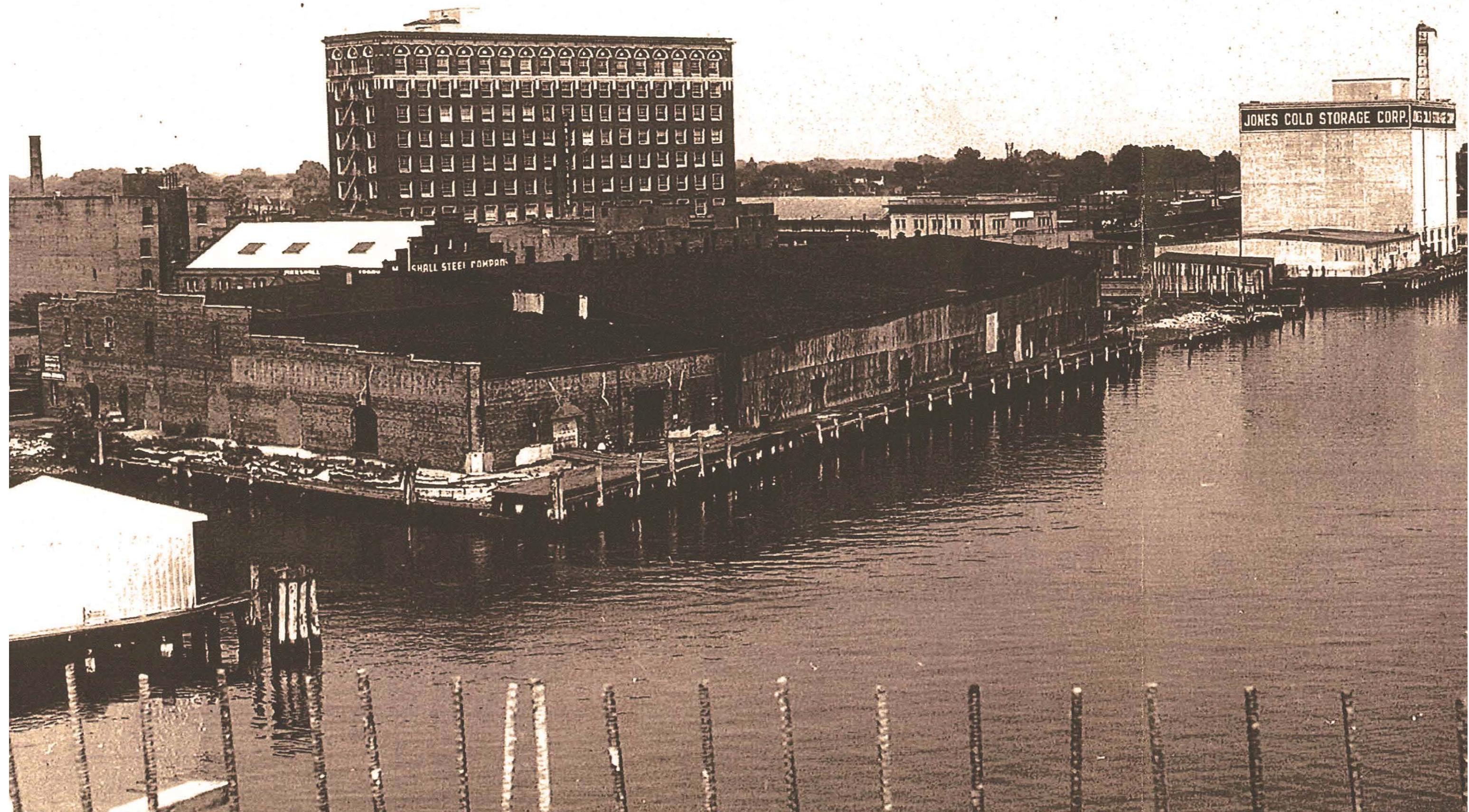




Photo Credit: Image depicting the study area's industrial history from the City of Norfolk.

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EXECUTIVE SUMMARY

The Value of this Area-Wide Plan – What is it?

This U.S. EPA Brownfields Area-Wide Plan (AWP) is focused on an area that includes Harbor Park as well as contextual connections. The ability for the core area of Harbor Park to connect to the St. Paul's Area, Norfolk State University, and Downtown are all critical to the success of the redevelopment. In addition, these areas all have groupings of brownfields properties. The planning aspects of the project are not limited solely to brownfields properties, but evaluate a larger area that likely influences if and how development will likely occur at Harbor Park. This area-wide approach includes considering multiple factors, including the presence of environmental contaminants, other environmental-related constraints such as resilience and flooding, connectivity and accessibility, and the interplay of economic development opportunities (Figure ES-1).

In order to promote redevelopment activities that are context sensitive and mesh well with their surroundings, the City of Norfolk took the lead in undertaking the preparation of the AWP to advance initiatives that integrate resilience, transportation, and economic development elements to create a comprehensive urban redevelopment strategy for Harbor Park.

The AWP is implementation focused, therefore the AWP:

1. QUANTIFIES THE KEY LIMITING FACTORS THAT HAVE IMPEDED DEVELOPMENT ACTIVITIES IN THE PAST

With the exception of the construction of the Harbor Park Ballpark, no new land development activities have occurred in the area since its opening. Why is this? The AWP, through a combination of evaluating the physical conditions and the assessment of the market potential, draws specific conclusions of the hurdles that exist and must be overcome to attract substantial new development investment.

2. OUTLINES THE STRATEGIC LONG-TERM OPPORTUNITIES

The AWP utilizes market dynamics and ground factors to define developable lands and expand the ability to market sites to the private sector once infrastructure investments are made.

3. DEFINES INTERIM USES TO BE CONSTRUCTED IN THE NEXT 3 TO 5 YEARS

The ballpark is a great asset and clearly animates the area during events, but is mostly underused during off-season periods of the year. The ability to engage a new and different activity dynamic in the area is critically important. The AWP advocates for relatively simple, short-term actions and projects that can support redevelopment. This approach also will attract residents and potentially increase the real and perceived value of the place to the City of Norfolk and its residents.

4. ADVANCES THE RESILIENCE ASPECTS OF THE RIVERFRONT

The 2017 Harbor Park Elizabeth River Preliminary Constructability Plan provided an extensive baseline for viable resilience improvements to Harbor Park. The AWP builds upon and refines those recommendations and illustrates how incremental investments can be made to ensure that true resilience can be achieved.

5. IDENTIFIES THE CRITICAL MISSING LINKAGES NEEDED TO RECONNECT THE AREA BACK TO THE REST OF THE CITY

Harbor Park has essentially functioned as an isolated island that can be seen but not easily reached from most directions. Ironically, even with a dedicated light-rail station, the site is still physically detached. Equally important, it may be viewed by most private investors as too hard to get (beyond ballpark events) to make it a wise area to invest in.

6. SERVES AS AN INVALUABLE TOOL FOR NEGOTIATING WITH PRIVATE DEVELOPERS

The AWP provides a comprehensive development strategy that aids potential negotiations and ensures project cohesiveness between various assets.

Figure ES-1: U.S. EPA Brownfields Area-Wide Plan



Area-Wide Plan: Promise and Potential

If this plan is followed, it will allow the City of Norfolk to unlock the nascent value of the land in serving the residents and providing value to the tax base. Although this plan requires significant capital investments in addressing environmental, resilience, and infrastructure needs, those expenditures in turn create and recover increased value through private investment in and around the area. Furthermore, when the reinvestment in the St. Paul's Area and the connections to Downtown and Norfolk State University are pulled into the equation, the return on investment is even greater.

As with many plans, the challenge lies in execution. There are several major principles of this plan that are important to emphasize from the outset.

NOW IS THE TIME TO MOVE BEYOND PLANNING

The AWP is about focusing on the incremental steps required to implement the various elements identified. Projects need to move from concept to reality and, in most cases, that means committing to moving ahead with real design, engineering, and permitting.

ALTHOUGH THE PLAN INCORPORATES FLEXIBILITY, IT ALSO MAKES CLEAR RECOMMENDATIONS

Public infrastructure recommendations are universally necessary and inform design decisions that respond to the current market demand.

THIS AWP PERFECTLY COMPLEMENTS THE ST. PAUL'S AREA CNI PLAN

Today, most people would not think that Harbor Park and the St. Paul's Area have an important relationship to each other. What the AWP illustrates is the potential that exists if the two are really thought of as one. Both are part of a whole idea of creating real places out of isolated areas. Harbor Park has the potential to be the riverfront connection for residents of the St. Paul's Area, as well as for residents in Downtown. The St. Paul's Area Choice Neighborhood Initiative (CNI) Plan can provide the needed source of additional resident-driven community vibrancy to support economic activity at Harbor Park, supplementing the residential development that will occur with Harbor Park. Building on this notion, the AWP also shows how a much stronger connection can be achieved with the students and academic population at Norfolk State University. Again, university populations are proven to aid in creating active and vibrant communities, and this economic driver could further support economic vibrancy at Harbor Park.

How to Make it Happen

- Assign a highly experienced economic development project manager with a significant track record leading complex public-private development projects.
- Identify a project design lead for the duration of implementation to be the project's ambassador or champion who is invested in the project's success and also preserves the City of Norfolk's vision for the project.
- Allocate highly experienced designers to pinpoint and oversee opportunities for placemaking and economic development.
- Focus on funding efforts by establishing a two- or three-year Capital Improvement Program focused on advancing the primary recommendations of this plan.
- Identify key discipline leads in each key department.
- Form a Harbor Park Development Action Committee that can provide regular updates to the City of Norfolk's Development Action Team (DAT).
- Distribute the AWP Implementation Action Plan in writing to all members, with names attached to specific tasks.
- The project manager's responsibilities should include making sure that all timelines for tasks (with due dates) are complete, clear, and current.
- Ensure that counteractions that fundamentally violate the recommendations of this plan do not occur.
- Celebrate the accomplishment of tasks.

How Do Market Conditions & Opportunities Drive the Plan?

The conclusion of the market analysis work performed as a part of the AWP planning process determined that there is a long-term opportunity for mixed-use development at Harbor Park, the scale of which is contingent upon destination anchors and coordination with other City projects.

What is more important is understanding what opportunities exist in the more immediate future. In this regard, the market analysis finds that there is an opportunity for small-scale residential and retail development today at Harbor Park, even considering the relatively modest market demand and competing priority development projects across the City of Norfolk. Larger-scale development at Harbor Park would require a destination anchor to truly reposition the site and achieve greater capture of regional growth. A phased approach to development at Harbor Park is required, given limited market demand and other priority City projects advancing today. Interim uses will be critical to a successful redevelopment at the site in order to increase activity at Harbor Park today and begin site repositioning before development occurs. This analysis provides guidance on two development scenarios within the Harbor Park area:

CURRENT CONDITIONS

Determining a feasible development program based on current market dynamics without a destination anchor developed at the site (Table ES-1).

Table ES-1

Supportable Development Program - Current Conditions			
Residential	Retail	Office & Light Industrial	Hotel
80 multifamily rental units/year	Up to 30,000 square feet in convenience retail	Limited Demand	Limited Demand

WITH DESTINATION ANCHOR

This approach estimates a development program if a casino, hotel, and spa are developed within the Harbor Park area. The scale and mix of a proposed mixed-use development may shift as greater information is available regarding the scale and mix of a casino complex planned for Harbor Park, which could impact the estimate of supportable demand highlighted below (Table ES-2). In both cases a phased approach to development is required given limited demand and other priority City projects.

Interim uses represent another opportunity that can be implemented to activate the Harbor Park area, advance land repositioning, and support longer-term phased development. While the Harbor Park area is being stabilized and prepared for future development with necessary resilience, stormwater, and transportation infrastructure improvements, an interim use strategy may be implemented to position Harbor Park as a destination for more than baseball stadium events. These can help “rebrand” and reinvigorate the area and create activity in the near term to support later phases of development.

A range of interim uses may be considered for Harbor Park that build on the area's existing assets and the network of City partners. Identification of viable interim uses should consider revenue potential, site activation potential, cost from a capital and operating perspective, and ability to accommodate future phases of development without major cost or modification.

Regardless of the interim uses ultimately selected for the site, effective governance and management is crucial to successful implementation. Key considerations for successful interim use governance include dedication of staff to manage the site, funding to support operations and capital improvements, and partnering with local organizations to provide resource and promotional support, as well as coordination with future uses planned for the site that could impact interim use strategies.

Table ES-2

Supportable Development Program - With Destination Anchor			
Residential	Retail	Office & Light Industrial	Hotel
80 multifamily rental units/year	Up to 75,000 square feet in retail coordinated with on-site casino anchor	Up to 60,000 square feet office space if connected to Downtown Norfolk	100 – 120 additional hotel rooms coordinated with new casino hotel



Figure ES-2: Bird's-eye view of Harbor Park west waterfront short-term, interim use, pop-up community destination.



KEY RECOMMENDATIONS & ACTIONS

Due to the complex nature of the interrelated factors and considerations needed to develop an economically and structurally viable list of project recommendations, it is important to have a focused set of actions needed to support moving the plan from concept to reality. The following is a list of suggested high-priority projects and actions that can serve as a roadmap for what needs to happen first, who is needed to lead each effort, and a potential strategy for how to undertake each effort. Emphasis is placed on those aspects that will significantly change the perception of the economic opportunity of the area, the ability to attract more activity in the near-term, and the public infrastructure that will be needed to attract and support private investment.



Figure ES-3: Bird's-eye view of Harbor Park west waterfront long-term mixed-use residential/retail redevelopment with fully integrated resilience flood protection, living shoreline, public access, and waterfront recreation amenities.

**1. ADDRESS UNDERLYING BROWNFIELDS CONDITIONS BY
UNDERTAKING ENVIRONMENTAL SITE ASSESSMENTS AND
REMEDIAL PLANS NEEDED TO MAKE SITES SHOVEL-READY FOR
REDEVELOPMENT OR REUSE**

Although several properties in the study area have been assessed over the years, more potential brownfields sites have been inventoried through this planning effort. In addition, now that preferred end uses have been determined, remedial strategies can be developed that respond to the desired end uses and site configuration. This provides a pathway for determining the most effective and efficient remedial strategies to receive regulatory sign-off for environmental compliance and receiving a decision of no-further-action. The City of Norfolk can utilize its existing U.S. EPA Brownfields Assessment grant funding to support some of these activities, especially focusing on developing remedial action plans that directly integrate site reuse plans.

**2. IMPLEMENT INTERIM USE STRATEGIES TO IMPROVE PERCEPTIONS-
OF-PLACE AND ATTRACT A WIDER USER GROUP**

The City of Norfolk can use funding in hand to begin to change perceptions of the place, re-engage the community with this stretch of the Elizabeth Riverfront, and create vibrancy. The AWP shows how, using secured U.S. EPA and VADEQ funds, the west Harbor Park area can be improved by razing a degraded and unattractive building, addressing environmental issues, and creating an interim use in the form of a flexible riverfront community public space, supporting changes that can be realized as quickly as within one year.





Figure ES-4: View from HRT Tide Light Rail NSU station. Looking toward the proposed Park Avenue thoroughfare and greenway.



3. UNDERTAKE A COMPREHENSIVE TRAFFIC STUDY AND TRAFFIC MODEL FOR PROPOSED TRANSPORTATION IMPROVEMENTS

Connectivity is one of the primary themes of the AWP's recommendations. In order to achieve the level of connectivity between Harbor Park, the St. Paul's Area, Norfolk State University, and Downtown, modifications to the ramp system of the limited access highway network is needed. The AWP provides a detailed overview of the physical feasibility of the proposed improvements. However, the ability to make these modifications will also rely on a full understanding of the existing and projected traffic conditions. An area-wide traffic count data collection and modeling effort will preview how certain improvements will increase land values. The area should include

not only the Harbor Park area, but Waterside Drive and the interface of Downtown, the St. Paul's Area, and east to Brambleton Avenue and its interchange with I-264. This model would also incorporate the future street grid and roadway connections from the St Paul's Area CNI Plan.



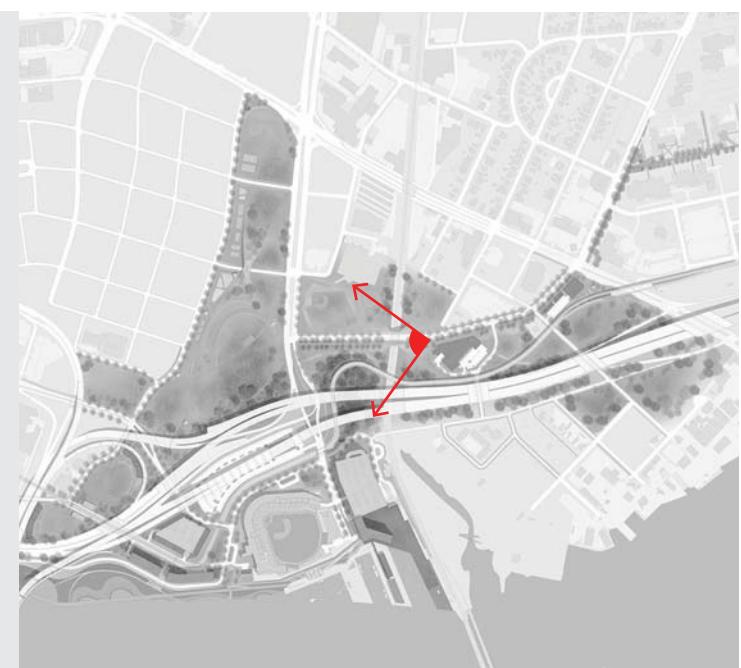
Figure ES-5: Bird's-eye view above the new Park Avenue thoroughfare and greenway. Looking toward St. Paul's Area Resilient Park, St. Paul's Area CNI Plan proposed redevelopment and Downtown beyond.

4. ADVANCE EFFORTS WITH VADOT TO REMOVE THE CITY HALL AVENUE TO TIDEWATER DRIVE HIGH SPEED FLY-BY RAMP CONNECTION AND THE I-264 EASTBOUND ON-RAMP

In terms of the overall transportation connectivity recommendations, this is possibly the most critically important action to undertake. Part of this highway ramp connects one City street to another City street in the form of a completely unnecessary short high-speed highway connection. Removing this ramp opens up the opportunity to connect Harbor Park to its surrounding context. This low-level on-ramp is an impediment to the multi-modal connections that could be made from Harbor Park to the north, and the existing Waterside Drive eastbound ramp already serves as an efficient access point to the downtown area.

5. UPGRADE AND CONSOLIDATE UTILITIES WITHIN TRANSPORTATION RIGHTS-OF-WAY IN ORDER TO MAXIMIZE EFFICIENCY AND DEVELOPMENT POTENTIAL

Currently the Harbor Park area is crisscrossed by a spiderweb of underground utilities. Although not visually apparent, the current configuration of the various utility routings through the area greatly complicates the ability to efficiently and impactfully redevelop the area. The AWP illustrates how utilities can be upgraded to support new development with transportation rights-of-way in order to minimize their constraints on building structures in the area and serve the needs of new development demands.



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Figure ES-6: Bird's-eye view of St. Paul's Area Resilient Park. Looking south toward Harbor Park.



6. UNDERTAKE CONCEPTUAL DESIGN OF A ST. PAUL'S AREA RESILIENT PARK FOCUSING ON MERGING RESIDENTIAL RECREATIONAL NEEDS, AREA-WIDE STORMWATER MANAGEMENT REQUIREMENTS, AND IMPROVING ENVIRONMENTAL QUALITY

The AWP shows how the solution to some or all of these local factors can be achieved in one central public facility. It is a community park for the St. Paul's Area and City residents as a whole. It is a highly effective stormwater management facility consisting of multiple interconnected large and small stormwater green infrastructure interventions that functions as one hydrologic management system. In order to achieve these two functions, it will require in-depth environmental assessment and remedial action plans to address underlying environmental contamination issues. Significant regrading of the area, in some respects undoing more than a century of filling activities of the former Dun-in-the Mire Estuary and the Newton Creek watershed, is necessary to achieve the desired end results. This will require an extensive understanding and expertise in how best to handle historic fill materials to meet regulatory requirements for human health and public safety and also be cost-efficient.

7. MODEL THE NEWTON CREEK COMPREHENSIVE STORMWATER PARK STRATEGY LINKING THE ST. PAUL'S AREA AND THE HARBOR PARK AREA AS ONE HIGHLY FUNCTIONAL HYDROLOGIC SYSTEM

Consideration of stormwater dynamics is necessary to ensure that true green infrastructure solutions will function properly and effectively within the proposed design. Accurately modeled data is needed to evaluate stormwater management techniques of varying sizes and combinations. The AWP advocates decentralization and localizes stormwater management, rather than concentrating it into one centralized facility.



Figure ES-7: Elevated view of I-264 teardrop area. Community active recreation, health, and fitness destination connecting Harbor Park, the St. Paul's Area, and Downtown Norfolk.

8. ADVANCE THE FIRST PHASES OF RESILIENCE IMPROVEMENTS

The resilience strategies defined in the AWP require multiple layers of investment to achieve full effectiveness. This does not mean, however, that they are all-or-nothing approaches. First steps, such as environmental preparation, interim grading efforts and uses, and integrated approaches to overlapping components such as transportation infrastructure will together provide both diverse funding and constructed mechanisms to advance resilience efforts. Dedicated efforts to secure funding to fully design and engineer the living shoreline resilience strategies may be considered a high priority, along with requiring the integration of resilience components in all other applicable projects, public and private.

9. UTILIZE THE SITE-SPECIFIC RECOMMENDATIONS TO INFORM PRIVATE DEVELOPER AGREEMENT NEGOTIATIONS

The AWP provides extensive, detailed information related to the investments required to support both the overall desired development outcome, as well as what is necessary on a development parcel-by-parcel basis. It cannot be over-emphasized that private development must be required to contribute to the necessary common infrastructure components. This means that all developments along the river's edge must provide public access to and along the riverfront. Developments must accommodate and ideally contribute toward their respective component of resilience infrastructure. The hybrid hard- and soft-engineered approach for flood control is only functional if the entire system can ultimately be implemented. If even a small gap is ceded, the entire system is ultimately compromised, potentially for a very long time.







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OVERALL AREA-WIDE PLAN AND DESIGN PERFORMANCE CRITERIA

Introduction

The reuse strategies described in the AWP reflect the continued evolution of the principles developed through the Elizabeth Riverfront and Harbor Park Brownfields Resilience Infrastructure Preliminary Constructability Plan. From those principles, a set of five primary value statements that incorporate the overall intentions of the AWP were defined. For each value statement, associated performance and/or design criteria were established. They reinforced the notion that in order to achieve the full potential of the Harbor Park area, emphasis needs to focus on the big picture and the details. Attention to details at each step in the process will ensure the most desirable outcome, so decisions made now will have long-standing impacts, both good and bad.

Integration of Multiple Needs into One Cohesive Resilience Framework Design Strategy

- Establish a resilience framework plan that is focused on feasibility and implementation with proposed and future development.
- Develop a short-term interim reuse strategy for Harbor Park to provide public access along the Elizabeth River and initiate the implementation of Harbor Park's long-term resilience infrastructure and redevelopment priorities.
- Maximize and integrate opportunities for landside green infrastructure and stormwater storage as well as the Elizabeth River Living Shoreline.
- Establish stormwater management facilities and flood protection assemblies that provide the most flexibility for the integration of other public facilities and amenities.
- Multi-modal transportation upgrades and improvements are recommended to include fully integrated green infrastructure to build stormwater redundancy and localized stormwater treatment and storage capacity prior to reaching the implementation stage of larger resilience infrastructure stormwater facilities.
- The flood protection assembly should not act as a psychological barrier (wall) to public access along the Harbor Park waterfront. Consideration of the flood protection performance elevation range from 11 to 16 feet above current sea level is recommended
- The resilience infrastructure solution should integrate a left-in-place creosote piling policy.
- The resilience infrastructure should be responsive to landside flooding and sea-level rise.
- Prevent direct infiltration -- establish a comprehensive "closed" green infrastructure stormwater solution for Harbor Park on the landside of the resilience infrastructure where environmental conditions warrant it.
- The flood protection should be separated structurally from Berkeley Bridge, I-264 highway, and VDOT structures.

Ensuring Multi-modal Transportation Connectivity

- Reconnect Harbor Park to the St. Paul's Area, South Brambleton, and Downtown neighborhoods with dedicated multi-modal transportation connections. This includes investigating opportunities and the feasibility of extending City Hall Avenue and Tidewater Drive to Harbor Park.
- To maximize development potential of Harbor Park, the street grid within the study area may be reconfigured and upgraded for more efficient traffic distribution, promote walkability, and provide safety upgrades to at-grade crossings.
- Provide and integrate multi-modal transportation connections to the St. Paul's Area CNI Plan.
- Establish a significantly upgraded multi-modal transportation connection from Harbor Park to Norfolk State University that overcomes the physical and psychological barriers of I-264 and the railroad.
- Evaluate separating local vehicular traffic circulation and connections from the I-264 Downtown interchange.
- Consider I-264 interchange upgrades to improve level of service with increased connectivity to Harbor Park that can support and attract medium-to high-density redevelopment. I-264 interchange upgrades should further accommodate the St. Paul's Area CNI Plan.
- Provide secondary roadway connections that address inter-neighborhood connectivity and reestablish the street grid that has been fragmented by several decades of transportation improvements.
- Reconnect Harbor Park's E. Main Street segment to Downtown Norfolk.
- Accommodate parking counts currently dedicated for Norfolk Tides Baseball Stadium, Amtrak Station, and Hampton Roads Transit light rail in redevelopment plans.
- Establish a utility relocation plan coordinated with transportation improvements.

Expand Visibility and Access to the Adjacent Neighborhoods with Community-Desired Recreation Amenities

- Establish a significantly upgraded and expanded greenway connection between Harbor Park and Norfolk State University that incorporates the Elizabeth River Trail, promoting bicycle and pedestrian connectivity and access.
- Establish a supporting network of multiuse trails that provide opportunities for recreation, fitness, and education that interconnects Harbor Park to adjacent neighborhoods and the Elizabeth River Trail.
- Integrate opportunities for recreation, education, health, fitness, and the arts within identified resilience infrastructure open spaces that incorporate community identified needs found in the City of Norfolk's Parks, Recreation, and Open Space Master Plan as well as address quality-of-life deficiencies that currently exist in Harbor Park, St. Paul's Area, and South Brambleton areas of the City.
- Create an interconnected network of greenspaces that strongly links neighborhoods together.
- Seamlessly integrate recreation facilities and amenities into the resilience infrastructure solutions. The recreation amenities should be responsive to sea-level rise as well as landside flood events.
- Integrate environmental education and place "living with water" on display.
- Activate open space along the north side of I-264 with recreation programming opportunities.
- Establish a multi-neighborhood community recreation destination.
- Overlay and densely pack recreation opportunities to create a multi-season destination park. Incorporate recreation revenue-generation opportunities.
- Incorporate enhanced universal design and egress.
- Ensure public facilities are accessible to emergency and service vehicles.
- Provide opportunities along the Elizabeth River for fishing, wildlife observation, and nonmotorized recreation boating, such as kayak launches and small boat slips.

Private Development Potential Should Always Be Considered

- The resilience infrastructure is advised to accommodate and allow proposed or future development to "plug into" the flood protection solution seamlessly.
- USACE proposed flood protection berm effort should ultimately be merged with AWP and Resilience Constructability Plan efforts to ensure that the potential reuse of the land is not hindered by a design that doesn't respond to the context.
- The public amenities and destination redevelopment features of Harbor Park are not intended to compete with Town Point Park, the Waterside District, and Downtown commerce or revenue-generation activities, or important economic development goals.
- Development pads may be enlarged and/or reconfigured to maximize redevelopment potential and allow for a more flexible/mixed development yield.
- Waterfronts and park fronts are encouraged to have maximized views and preserved public access. Informal privatizing should be prevented.
- Orient development away from I-264.

Maintain and Incorporate the Ballpark

- The study area resilience infrastructure should accommodate and protect the existing baseball stadium.
- The ballpark should be considered a low-usage destination anchor. The stadium needs a multi-use function immediately adjacent to the stadium or wrapped around the stadium's exterior with a strong civic space to activate the stadium frontages on non-game-day activities (300 ± days annually).
- The ballpark stadium presents a rare opportunity to have an urban Downtown stadium much like Camden Yards in Baltimore or Great American Ball Park in Cincinnati. Its close proximity presents an opportunity to extend the existing neighborhoods and Downtown through redevelopment to wrap the ballpark. Employ a Norfolk to the Park approach to achieve multiple redevelopment goals.
- Parking opportunities below I-264, such as vertical and expanded parking, are encouraged to open up real estate for redevelopment surrounding the ballpark.





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INFRASTRUCTURE FRAMEWORK PLAN RECOMMENDATIONS

2.1 Transportation Recommendations

For the past 25-30 years, Harbor Park has grappled with the visionary possibilities of attracting private investment and attracting medium- to high-density mixed-use redevelopment to accompany the Norfolk Tides minor league ballpark. The Harbor Park area of Norfolk has been underutilized since the decline of industrial businesses in the 1970s and 1980s. This economic decline happened to correspond with the construction expansion and upgrades to the I-264 Downtown interchange and the Berkley Bridge. There have been several potential contributing reasons for this lack of redevelopment, including addressing the environmental stigma from the area's industrial legacy, the flood prone nature of the area, and lack of connectivity to the rest of the City.

At the inception of the U.S. EPA Area-Wide planning project, the City of Norfolk prioritized the need to address the considerable visual, physical, and psychological barrier the Interstate 264 interchange has created, which has severed Harbor Park from the adjacent neighborhoods and surrounding community. Although Harbor Park is served by multiple modes of travel, including mass transit, transportation connectivity remains limited as a result of circuitous connections, hidden routes, and unknown access points (Water Street, E. Main Street, Holt Street, Park Avenue). One of the key desired outcomes from the area-wide planning process was focusing on vehicular access and greater neighborhood connectivity between Harbor Park and its adjacent neighborhood. This includes re-establishing multi-modal transportation connections between Harbor Park, St. Paul's Area, Norfolk State University, and Downtown Norfolk as one unified and interconnected community (Figure 2.1).

Through the analysis of the transportation network based on available traffic data, fieldwork, and site analysis, a series of improvements was identified aimed at effectively connecting Harbor Park to its surrounding context.

The proposed improvements achieve three primary principles that are necessary to reposition Harbor Park as a place people want to live, work, and recreate:

- **Untangle and reduce the number of local road connections currently integrated with the I-264 Downtown interchange. This will eliminate the need for local traffic to access the interchange in order to go from one area of the City to another, and further allows the City of Norfolk to re-establish a street grid that effectively distributes local traffic and allows traffic to be routed through Harbor Park.**
- **Greatly improve and enhance neighborhood interconnectivity and access. The redevelopment success of Harbor Park is potentially tied to its ability to reconnect St. Paul's Area, Norfolk State University, and Downtown Norfolk in a way that promotes the unified community vision long desired.**
- **Reconfigure/Upgrade the Downtown and Brambleton interchanges to provide greatly improved access to Harbor Park from I-264, thus eliminating the "walled off" or isolated condition the highway creates.**

To achieve these principles, the transportation framework recommendations are broken out into packaged projects to reposition Harbor Park for redevelopment and to achieve the larger community goal of reconnecting Harbor Park to its surrounding community. The project packages approach divides the transportation framework plan recommendations into achievable projects that can be incrementally implemented, managed, and prioritized to allow the City of Norfolk to achieve its short-term and long-term redevelopment goals. A breakdown of each transportation project and its associated component pieces follows in this section.

Transportation Implementation Action Strategy

To advance the transportation recommendations and project packages found in this section through design and implementation, it is crucial to have a clear next-steps strategy. The City of Norfolk is advised to work with applicable agencies, key property owners, and potential developers to prioritize transportation improvements for implementation, including proper analysis, feasibility study, preliminary engineering, and funding from master plan to final design and construction implementation. In conjunction with those efforts to develop and refine the improvements into a final design, the City of Norfolk must also refine and finalize funding and financing strategies and execute them.

Priorities and Next Steps

COMPREHENSIVE TRAFFIC STUDY

The City of Norfolk is advised to engage an appropriate design professional to carry out a comprehensive multi-modal traffic study of the existing transportation network that includes I-264 Brambleton and Downtown interchanges, the Berkley Bridge, and the complete local road network from Brambleton Avenue to St. Pauls Boulevard. The comprehensive traffic study data should be utilized to model proposed transportation improvements in the U.S. EPA Brownfields AWP to evaluate impacts to the existing transportation network. The traffic study data should also be utilized to model impacts to the transportation network from long-term redevelopment scenarios being proposed for Harbor Park, St. Paul's Area CNI Plan, and in the vicinity of the City Hall complex.

LAND SURVEY AND INTERCHANGE AS-BUILTS

In conjunction with the comprehensive traffic study being performed, the City of Norfolk could advance feasibility and preliminary engineering design if they undertake necessary site survey work and obtain I-264 as-built documentation for identified priority projects.

ESTABLISH PRIORITY PROJECTS

The City of Norfolk may benefit from identifying the transportation improvement projects in the U.S. EPA Brownfields AWP that are considered the highest priority to promote multi-project redevelopment efforts. Utilizing the comprehensive traffic study, the transportation priority projects should be modeled with long-term redevelopment in mind to ensure proper roadway cross sections can be accommodated and right-of-way delineated. Prioritizing key projects and determining traffic engineering feasibility are the critical next steps to move from planning into preliminary engineering.

FUNDING/FINANCING STRATEGY

The City of Norfolk may work with a funding and financing specialist to fully implement a state and federal funding and financing campaign to undertake full design and construction implementation of proposed transportation improvements. There is an opportunity to capitalize on local funding strategies to cover funding gaps and expedite the implementation process where necessary.

Figure 2.1 Proposed Transportation Framework Plan Improvements



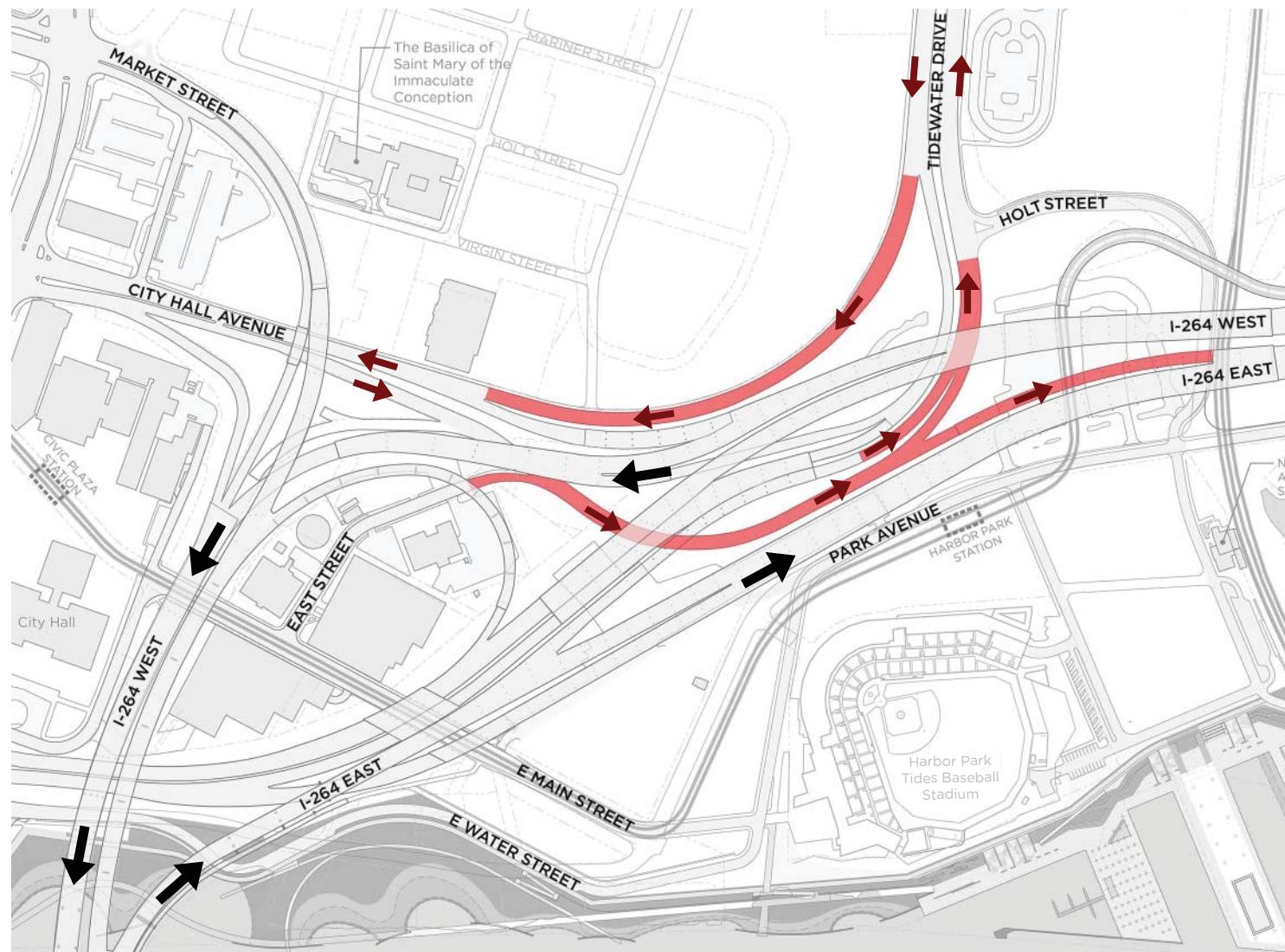


Figure 2.2: Eliminate and remove City Hall Avenue and Tidewater Drive interchange connectors as well as City Hall Avenue on-ramp to I-264 eastbound.

Project Package A

This package of improvements reconnects Harbor Park to the adjacent neighborhoods and directly addresses the significant transportation challenges that have plagued the redevelopment efforts at Harbor Park for the past several decades. The proposed solution realigns and extends City Hall Avenue and Tidewater Drive to Harbor Park and re-establishes a fully operational local road network into and out of Harbor Park. The proposed solution further illustrates the feasibility of making these roadway connections without impacting I-264 eastbound and westbound through-traffic and the highway structures supporting I-264.

In order to extend City Hall Avenue and Tidewater Drive to Harbor Park, the removal of superfluous local road connection ramps as well as the City Hall Avenue I-264 eastbound on-ramp in the I-264 interchange are likely required. City Hall Avenue access to the interchange would be eliminated in this location, making it possible for City Hall Avenue to be realigned under the interchange. Tidewater Drive would be partially untangled from the interchange via the demolition of the ramps leading to northbound Tidewater Drive as well as the elimination of the bypass to City Hall Avenue, a feature that frequently experiences flooding and treats the local road connection like a high-speed highway bypass. Without removing these ramp connections, the linkages from Harbor Park to the St. Paul's Area, Norfolk State University, and existing connections in Downtown Norfolk such as the Elizabeth River Trail would be very difficult, if not impossible. The existence of these ramps will physically impede the ability to extend the roadway below the highway (Figure 2.2).

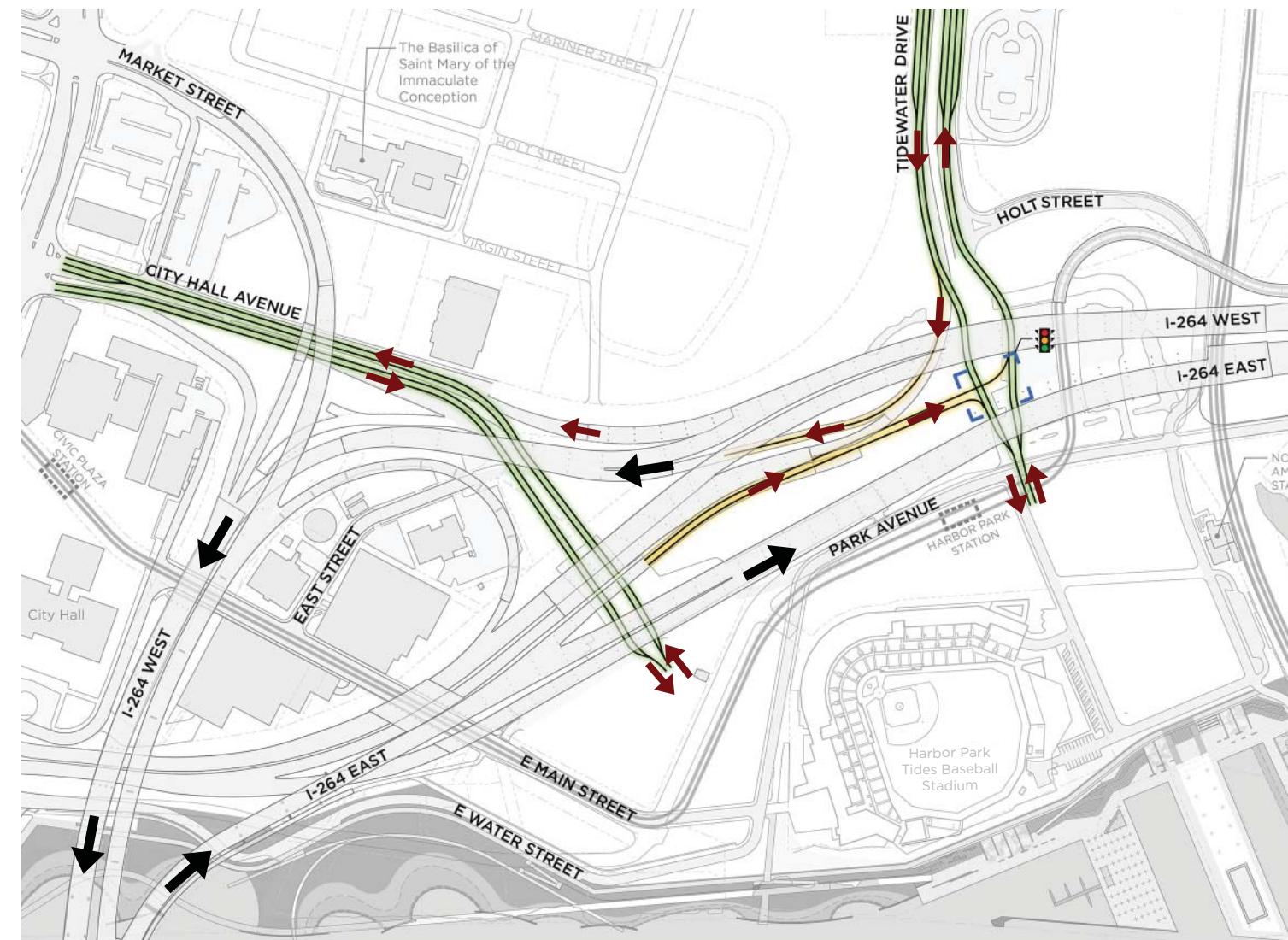


Figure 2.3: City Hall Avenue and Tidewater Drive extensions to Harbor Park.

With the realignment and extension of City Hall Avenue via a new connection to Harbor Park underneath I-264, a direct multi-modal connection is achieved to Downtown Norfolk. The City Hall Avenue connection has the ability to provide immediate impact to dramatically shorten the real and perceived distance between the Downtown's economic center and Harbor Park's redevelopment (Figure 2.3).

ELIMINATE AND REMOVE INTERCHANGE CONNECTORS (FIGURE 2.2):

- Tidewater Drive to City Hall Avenue south/ westbound connector
- City Hall Avenue on-ramp to I-264 eastbound & Tidewater Drive northbound connector

CITY HALL AVENUE EXTENSION (FIGURE 2.3):

- Maintain split-lane boulevard w/multi-modal complete street components and integrated green infrastructure (GI)
- Clearances below I-264 exceed 16'-0" allowing for new roadway connections
- Does not require structural modification to I-264 eastbound or westbound
- May require a 25-mph maximum design speed for City Hall Avenue extension

TIDEWATER DRIVE EXTENSION (FIGURE 2.3):

- Maintain split-lane boulevard w/multi-modal complete street components
- Does not require structural modification to I-264 eastbound or westbound
- Maintains a “free right” on-ramp connection to I-264 westbound
- May require a 25-mph maximum design speed of Tidewater Drive extension
- Clearances below I-264 exceed 16'-0" allowing for new roadway connections
- May be difficult to reconfigure I-264 East off-ramp to connect to Tidewater Drive, but could provide I-264 eastbound access directly to Harbor Park
- Opportunity exists to employ a “Continuous Green T” intersection improvement at I-264 off-ramp and Tidewater Drive intersection to improve level of service and reduce vehicle stacking on I-264 off-ramp

With the realignment and extension of Tidewater Drive underneath I-264, this new connection to Harbor Park provides a direct connection to the St. Paul’s Area as well as the proposed St. Paul’s Area Resilient Park discussed later in this report. The connection provides direct neighborhood and broader city-wide access to Harbor Park and Elizabeth River waterfront recreation amenities. The Tidewater Drive extension also provides a direct connection to Brambleton Avenue that opens up vehicular connections to important community amenities, such as Norfolk State University, the Scope Arena, Sentara Norfolk General Hospital, Eastern Virginia Medical School, and the Brambleton I-264 Interchange. The reconfiguration of the I-264 East off-ramp connection to Tidewater Drive provides additional direct eastbound traffic access to Harbor Park, further increasing connectivity, which will support attracting private investment and end users.

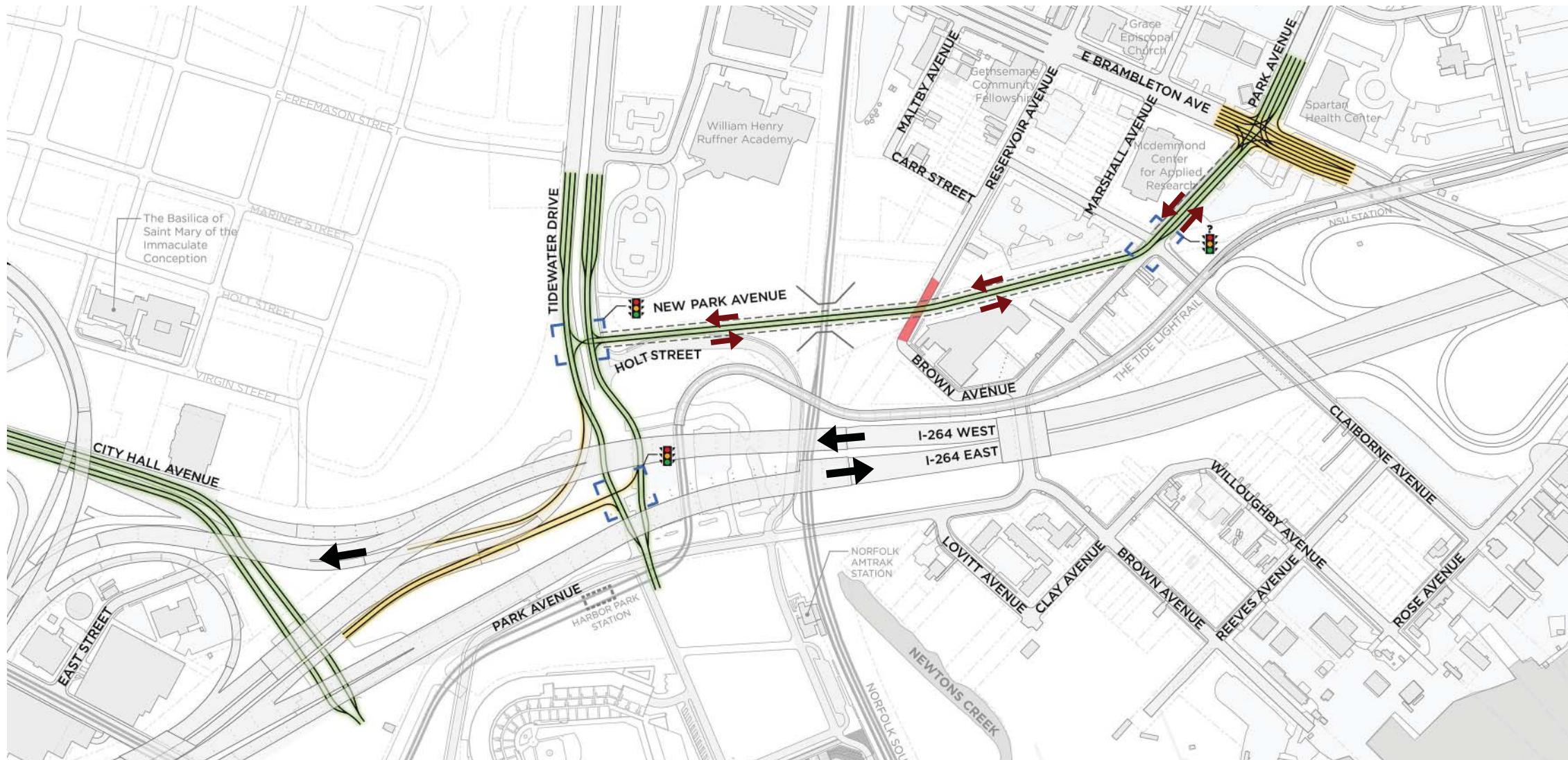


Figure 2.4: Park Avenue realignment and connection to Tidewater Drive.

Project Package B

Significantly upgrading the multi-modal connectivity between Norfolk State University and Harbor Park is the focus of this package of improvements. Utilizing existing public right-of-way and properties owned by the City of Norfolk and the Norfolk Redevelopment & Housing Authority, the proposal realigns and extends Park Avenue as a multi-modal/multi-purpose complete street thoroughfare between Norfolk State University and proposed St. Paul’s Resilient Park, positioning Harbor Park at the “front door” of this important community connection.

The Park Avenue thoroughfare connection would also become a greenway that not only provides a valued transportation connection but also extends Norfolk State University to the proposed St. Paul’s Area Resilient Park and vice versa through the extension of a parallel 20 ft-wide bike and pedestrian promenade. This feature would also include park programming elements that promote public health, fitness, and education opportunities. The design of Park Avenue Greenway is recommended to include streetscape amenities, such as street trees, architectural lighting, benches, banners, and integrated green infrastructure (Figure 2.4).

PARK AVENUE REALIGNMENT AND CONNECTION TO TIDEWATER DRIVE (FIGURE 2.4):

- Create a separated grade crossing over Norfolk Southern railroad ROW
- The ability to meet height clearances and VDOT’s roadway grading standards without a design exception appears to be feasible
- Park Avenue would become a “greenway” thoroughfare connecting Norfolk State University to the St. Paul’s Area CNI Plan’s proposed stormwater/recreation open space area (proposed St. Paul’s Area Resilient Park)

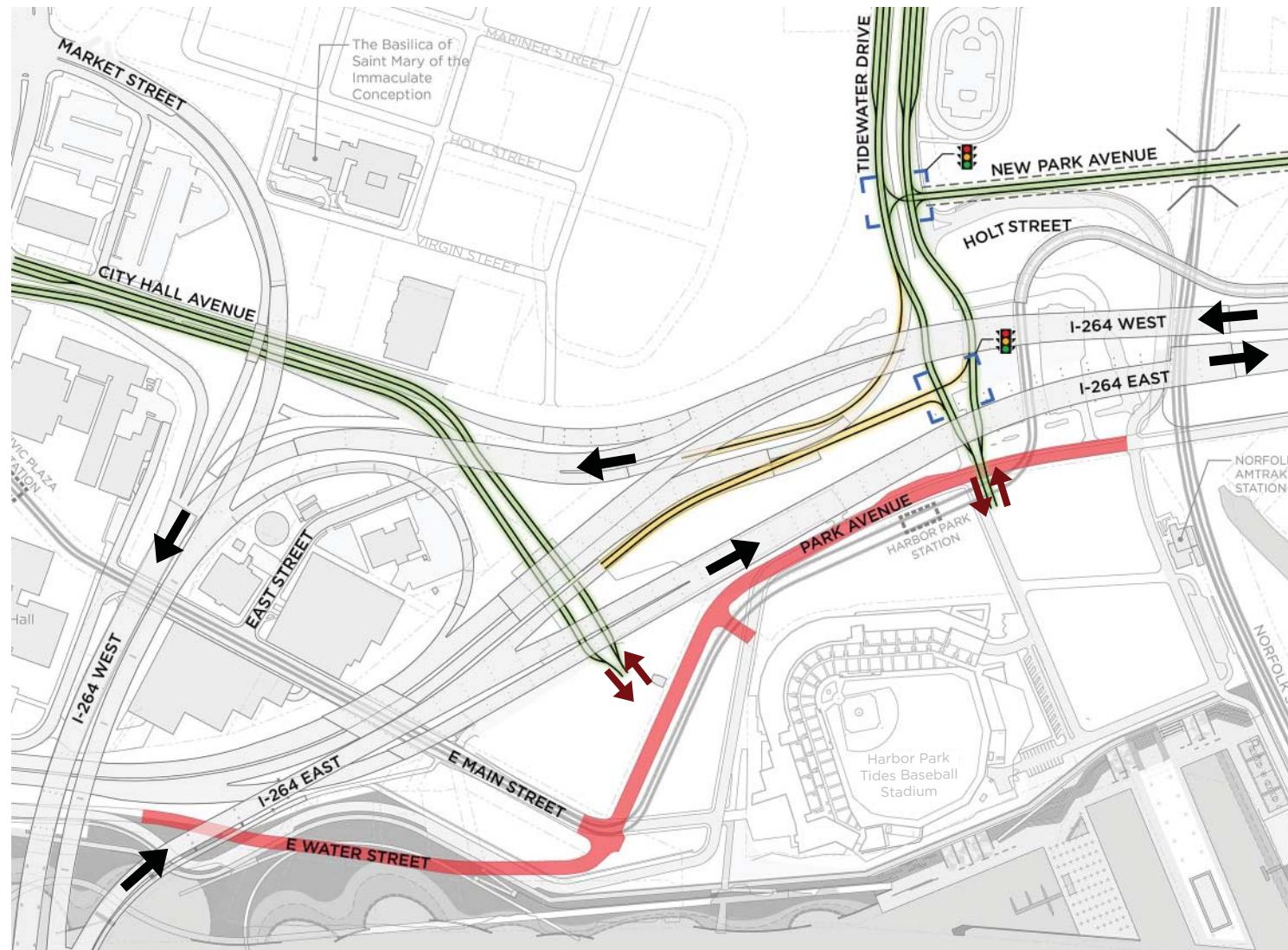


Figure 2.5: Eliminate and remove existing roadway right-of-way and alignments of E. Water Street and Park Avenue at Harbor Park.

Project Package C

Harbor Park suffers from an awkward and inefficient roadway configuration that limits the redevelopment potential on the western side of the ballpark and impedes access to the eastern side. The proposed reconfiguration of the roadway network at Harbor Park seeks to establish an interconnected street grid where priority is placed on enlarging the development parcels, improving access, and accommodating City Hall Avenue and Tidewater Drive roadway connections to the area, unlocking the redevelopment potential of the waterfront.

The elimination of inefficient roadway alignments allows for improved access, eliminates potential safety concerns at HRT light rail crossings, especially during game-day events, and increases/improves developable parcel sizes and configurations (Figure 2.5).

The realignment of East Water Street and Park Avenue and the re-establishment of the street grid prioritizes multi-modal connections to Harbor Park. It strongly promotes community access and movement through the area to establish Harbor Park as part of one interconnected community (Figure 2.6).

ELIMINATE AND REMOVE EXISTING ROADWAY RIGHTS-OF-WAY AND ALIGNMENTS (FIGURE 2.5):

- Existing Park Avenue
- East Water Street along the west side of Harbor Park to the I-264 underpass

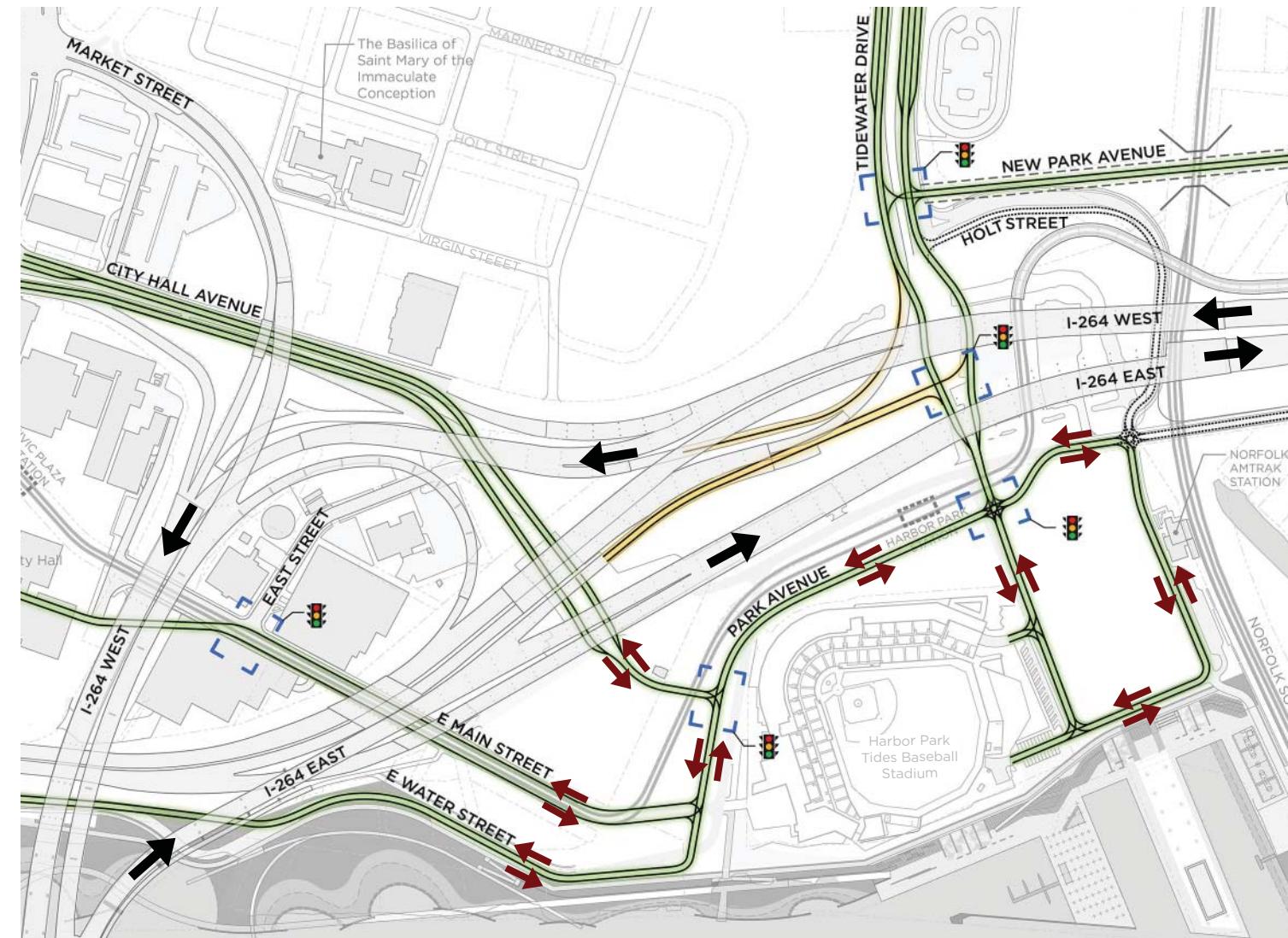


Figure 2.6: Upgrade Harbor Park circulation and connections that maximize development parcel size and efficient configuration.

UPGRADE HARBOR PARK CIRCULATION AND CONNECTIONS (FIGURE 2.6):

- Realign Park Avenue to south side of HRT light rail alignment
- Realign East Water Street to accommodate resilience infrastructure grading along Elizabeth River and connect to the new alignment of Park Avenue
- Extend East Main Street, City Hall Avenue, and Tidewater Drive to connect to the proposed Park Avenue alignment
- Addresses observed pedestrian/vehicular safety concerns with current signalized HRT light rail crossings, during game-day events
- Holt Street would become a controlled access/egress connection for maintenance and emergency vehicles
- The proposed Park Avenue alignment would share ROW w/the Virginia Natural Gas pipeline location
- As much as possible, all other service utilities should be realigned with old Park Avenue alignment to establish a shared ROW utility corridor
- The efficient layout of public roadway infrastructure and service utilities allows for increased development parcel sizes

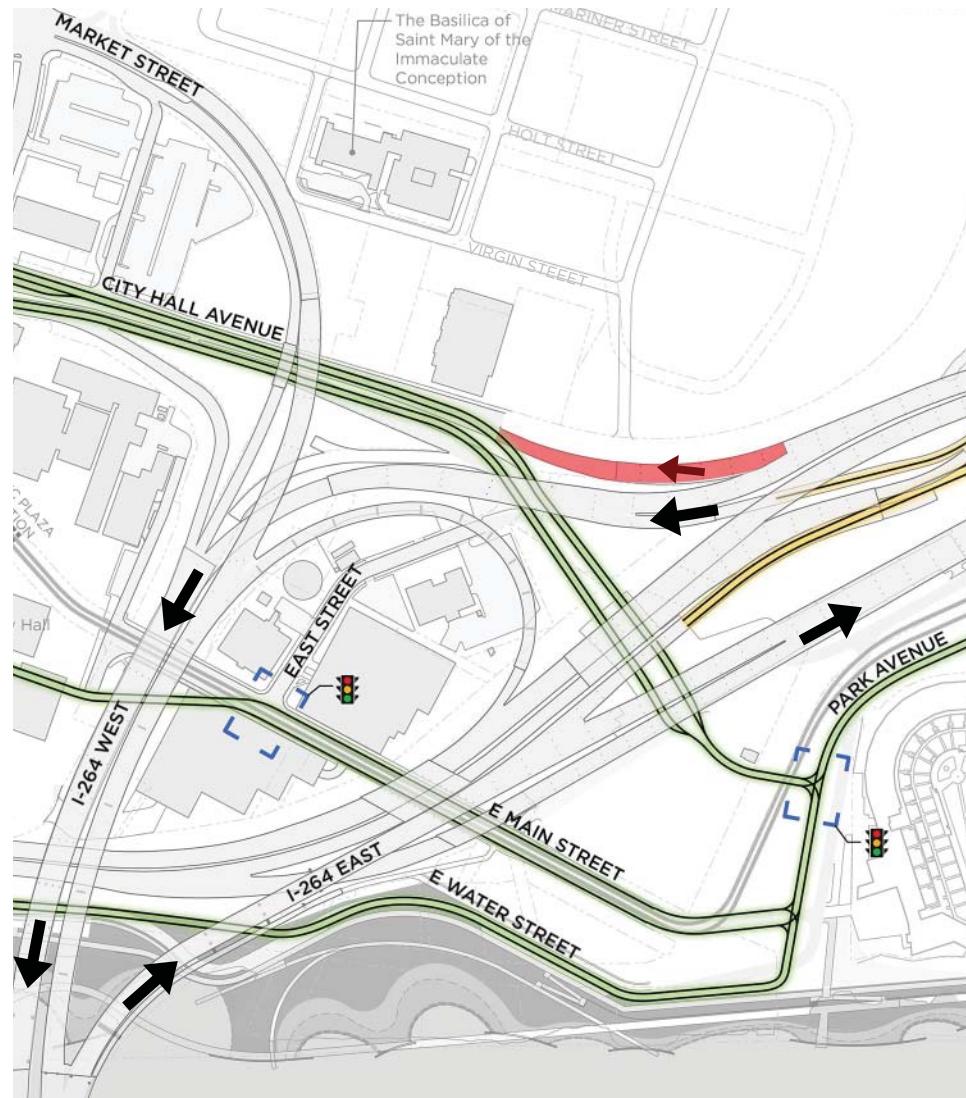


Figure 2.7: Eliminate and remove I-264 westbound Exit 10 to City Hall Avenue.

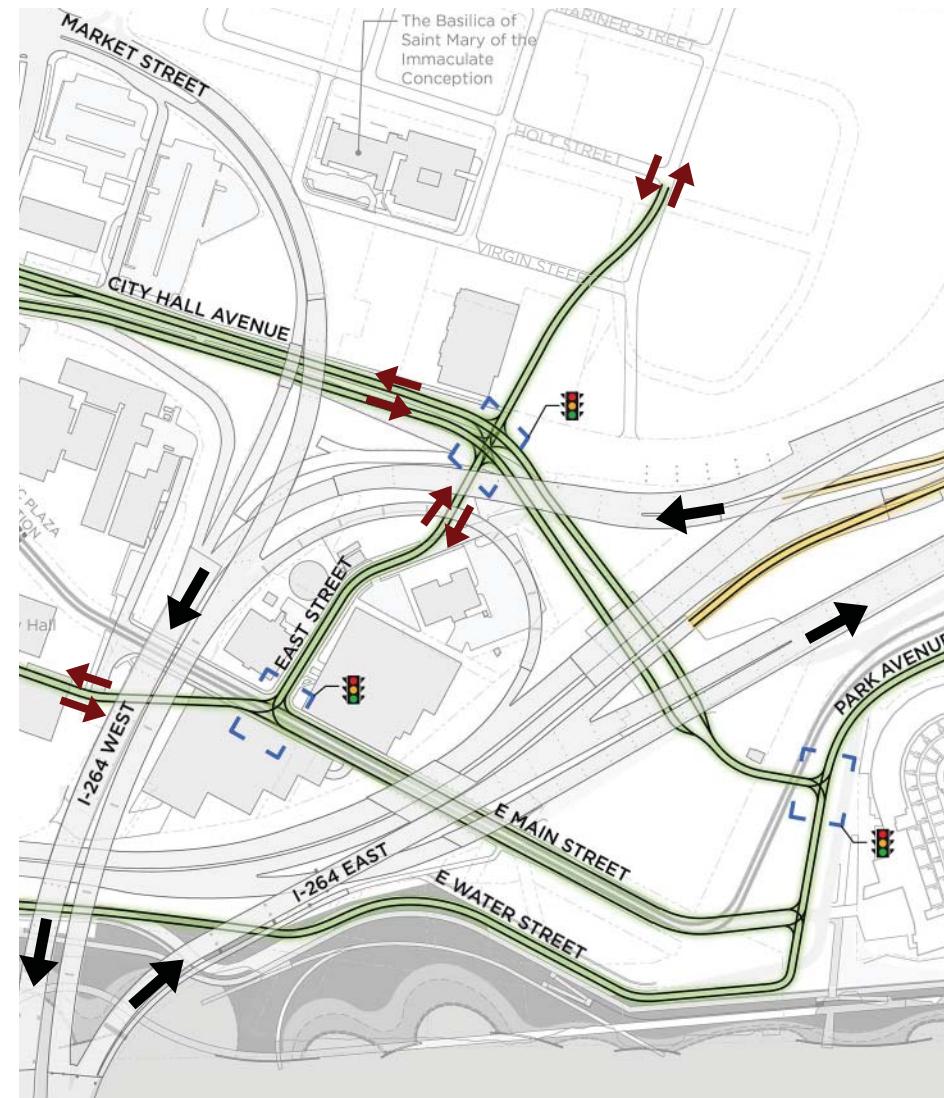


Figure 2.8: Alternative A East Street extension to St. Paul's Area.

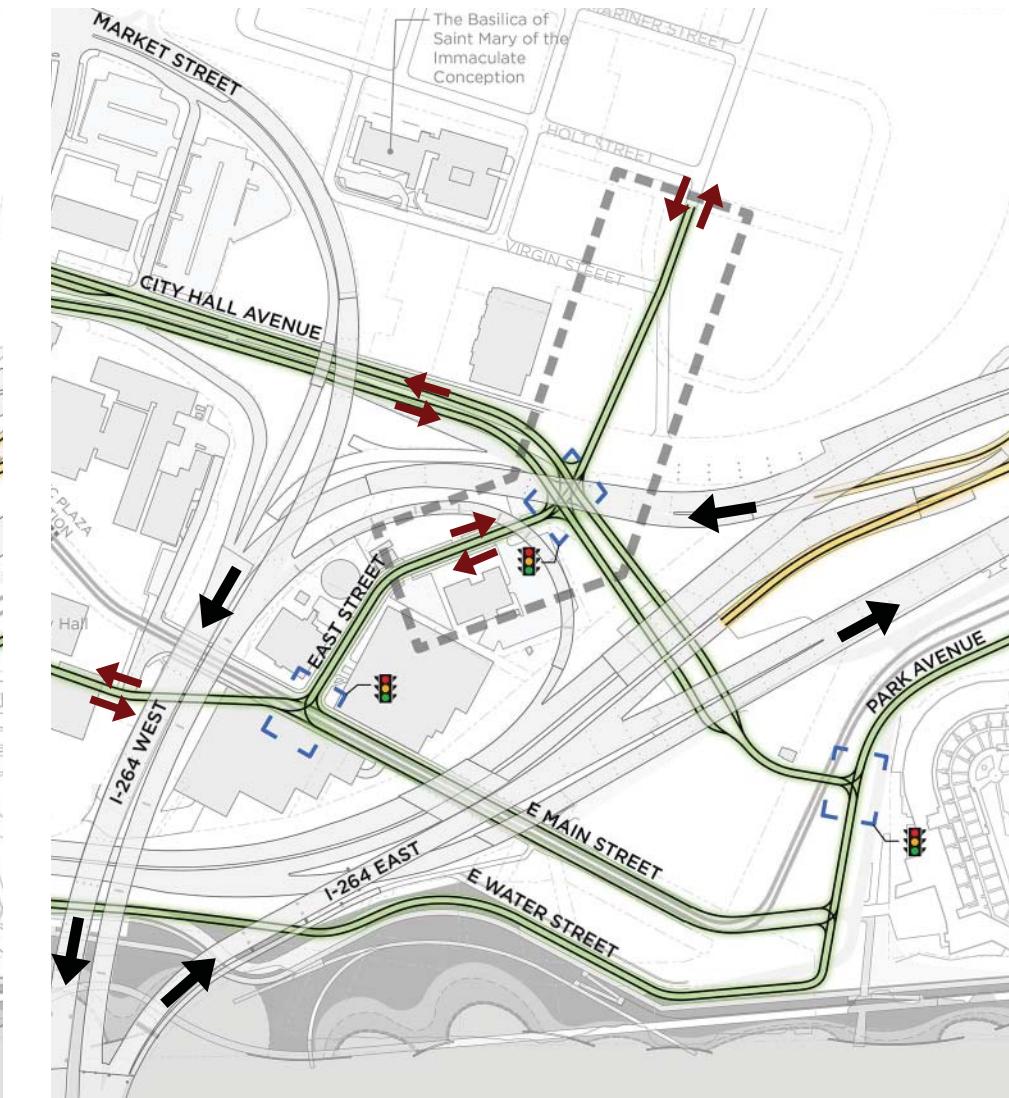


Figure 2.9: Alternative B East Street extension to St. Paul's Area.

Project Package D

This set of improvements reinforces community interconnectivity between City Hall, St. Paul's Area CNI Plan proposed street layout, and City Hall Avenue's roadway connection to Harbor Park. East Street is recommended to be realigned and extended to establish secondary community connections underneath and through the I-264 interchange.

In order to make the East Street connections, it is likely that the I-264 westbound off-ramp to City Hall Avenue would need to be eliminated. The elimination of Exit 10 to accommodate this connection would require thorough and detailed traffic analysis and investigation that may include interchange upgrades in other areas in order to obtain VDOT's approval, potentially increasing the capital cost to make this connection viable (Figure 2.7).

The extension of East Street establishes a direct connection between the City Hall complex, St. Paul's Area CNI Plan's proposed street layout, Downtown Norfolk, and Harbor Park. Re-introducing local road connections that re-establish an interconnected street grid between areas of the City that have been historically isolated or cut off by the I-264 interchange promotes a renewed sense of community by tying places together and strengthening the viability of the City's overall redevelopment priorities (Figure 2.8 and Figure 2.9).

ELIMINATE AND REMOVE I-264 EXIT 10 (FIGURE 2.7):

- I-264 westbound off-ramp to City Hall Avenue (Exit 10)

EAST STREET EXTENSION - ALTERNATIVE A (FIGURE 2.8):

- Extend East Street to connect to St. Paul's Area CNI Plan's proposed street layout
- Create a four-way intersection w/City Hall Avenue
- This proposal would impact the Miller Heating & Cooling property, but moves intersection out from under I-264

EAST STREET EXTENSION – ALTERNATIVE B (FIGURE 2.9):

- Extend East Street to connect to St. Paul's Area CNI Plan
- Create a four-way intersection w/City Hall Avenue
- Does not impact Miller Heating & Cooling property, but requires the intersection w/City Hall Avenue to be directly under I-264

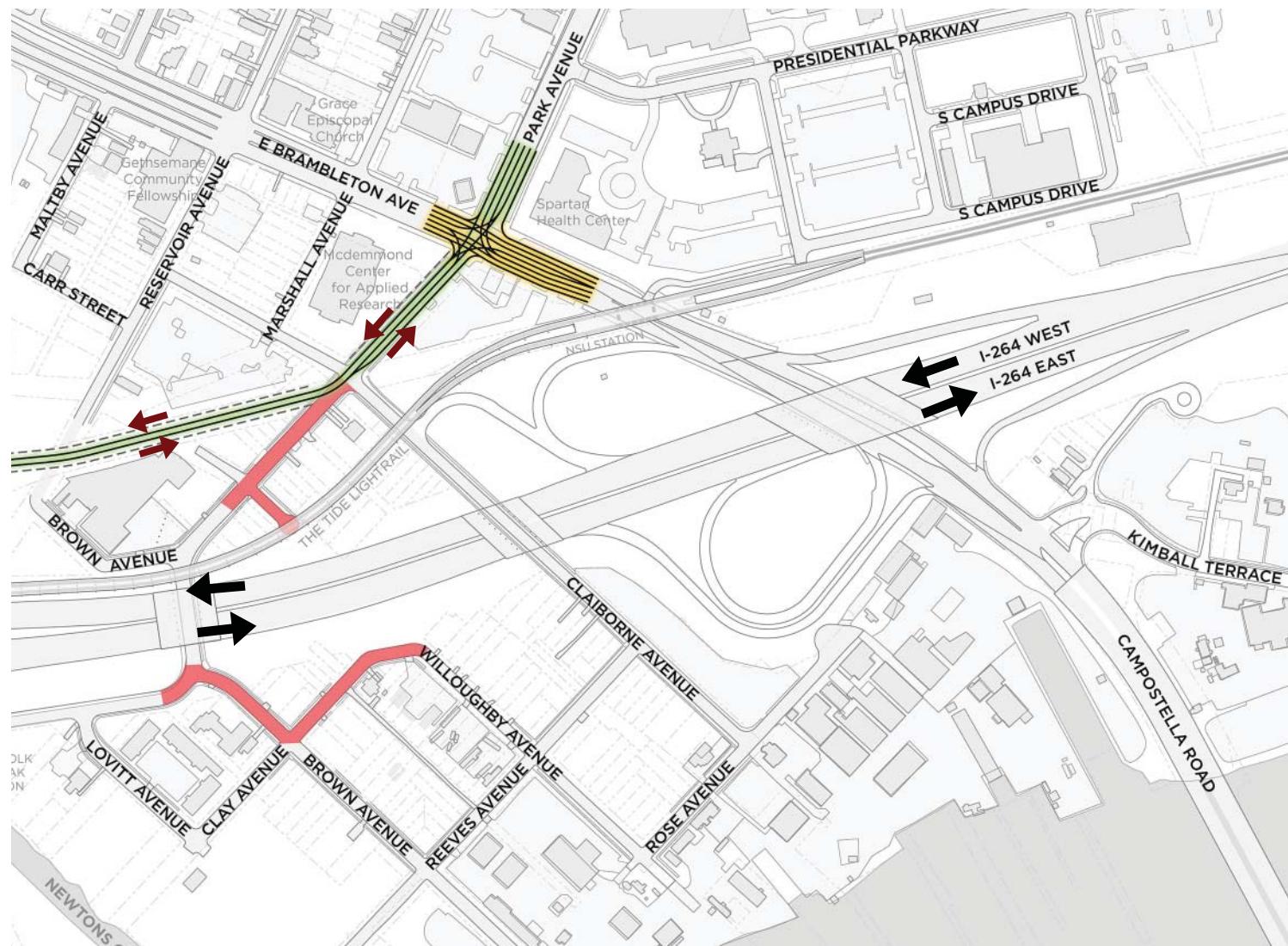


Figure 2.10: Eliminate and remove inefficient/dead-end roadways.

Project Package E

There will likely be a need to mitigate impacts from the modifications to I-264 City Hall Avenue access as a result of Project Packages A and D. This set of improvements focuses on potential upgrades to the I-264 Brambleton Interchange area.

The South Brambleton local road network has been fragmented since I-264 was built. The area contains remnants of an interconnected street grid that was cut off with dead-end streets and incomplete block structures. The western cloverleaf access ramps are outdated and do not conform to current design standards. The interchange connections that do not provide access to I-264 westbound further limit access to the South Brambleton industrial waterfront and Harbor Park. The removal of these local roadway and highway access connections provides the opportunity to upgrade the Brambleton Interchange and address the South Brambleton neighborhood's connectivity issues (Figure 2.10).

The success of reconnecting the South Brambleton neighborhood is tied to the overall success of the transportation framework plan recommendations. The roadway connections through South Brambleton create an interconnected community between Harbor Park, St. Paul's Area Resilient Park, St. Paul's Area CNI Plan proposed street layout, and Norfolk State University. Addressing the transportation access needs of the South Brambleton neighborhood also addresses the needs of one interconnected community (Figure 2.11).

The upgrade to the Brambleton Interchange provides I-264 westbound on-ramp access as well as providing potential service upgrades to improve the distribution of traffic further away from the Berkley Bridge, as a result of the proposed elimination of City Hall Avenue access to I-264. The urban diamond interchange configuration provides left-hand

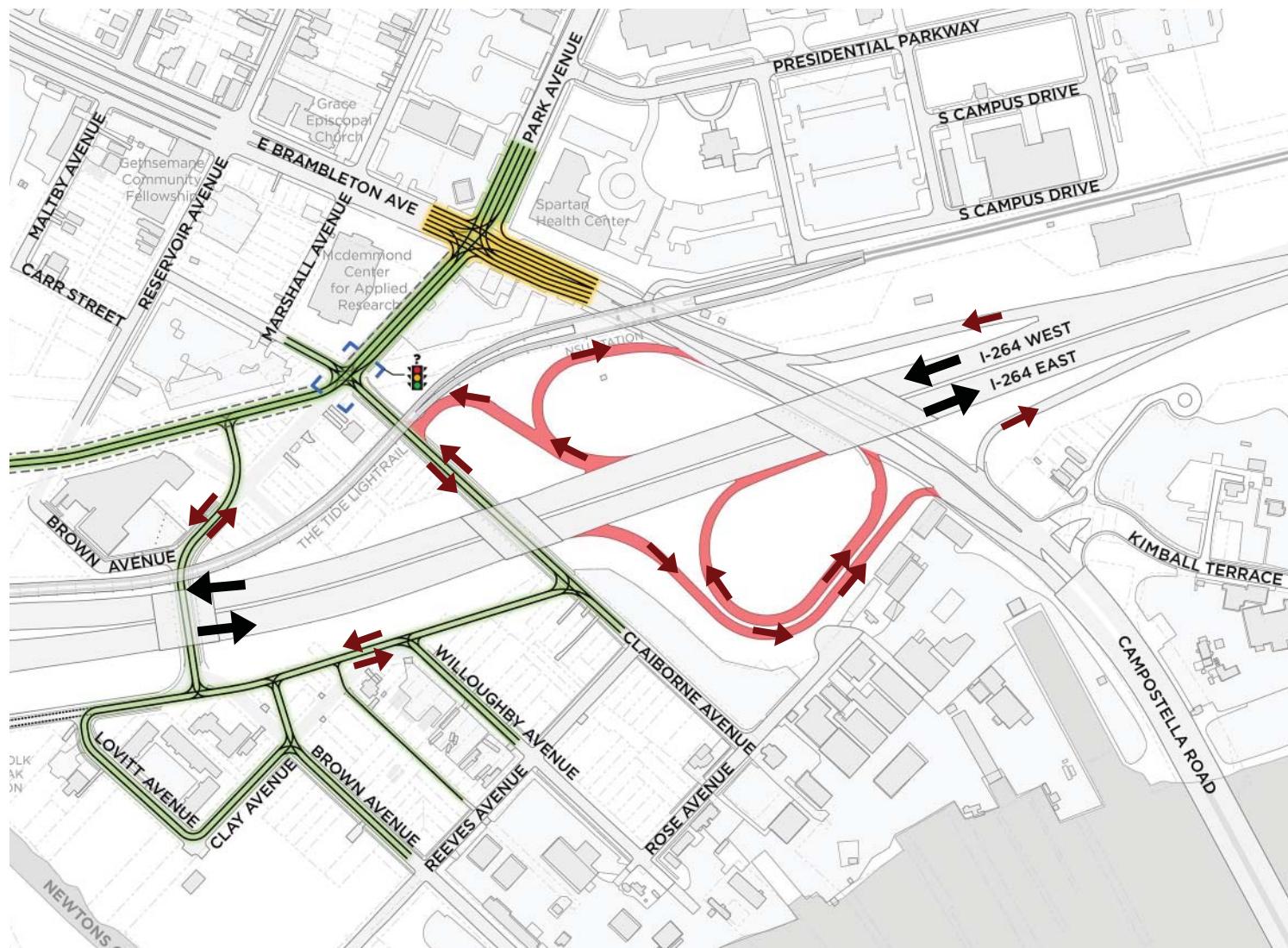


Figure 2.11: Eliminate and remove nonconforming interchange connections. Re-establish the grid and reconnect the South Brambleton neighborhood north and south of I-264.

RE-ESTABLISH THE GRID AND RECONNECT CUT OFF SOUTH BRAMBLETON AREA OF THE CITY (FIGURE 2.11):

- Establishes paralleling service roads on the north and south side of I-264
- Improves access to residences and businesses on the south side of I-264

ELIMINATE AND REMOVE INEFFICIENT/DEAD-END ROADWAYS AND NONCONFORMING INTERCHANGE CONNECTIONS (FIGURE 2.10):

- Allows for access and circulation improvements
- Allows for the reconnection to neighborhoods and properties cut off by past I-264 improvements
- Upgrades nonconforming and outdated portions of the Brambleton Interchange

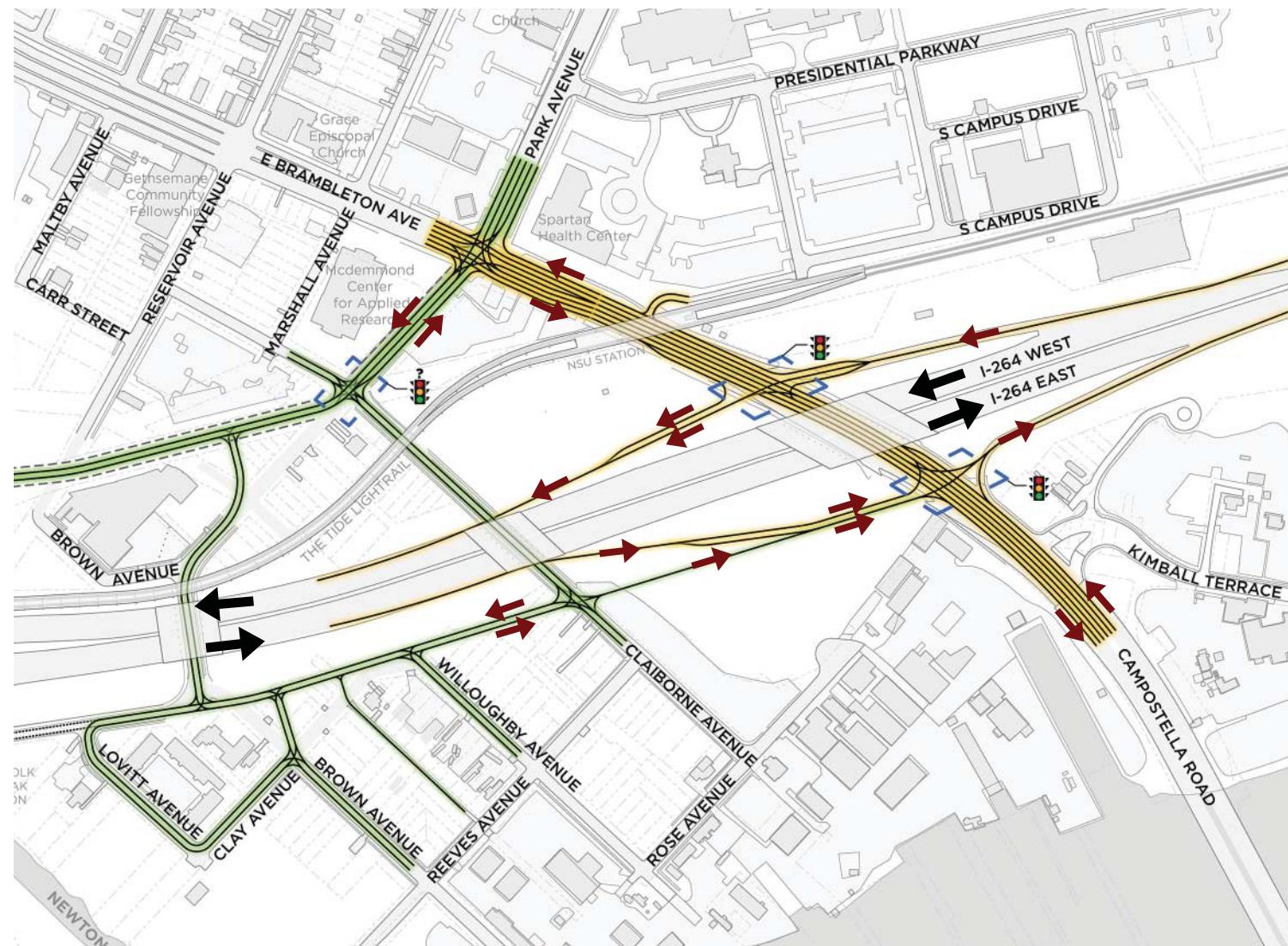


Figure 2.12: Alternative A upgrade Brambleton interchange as a full "urban" diamond interchange.

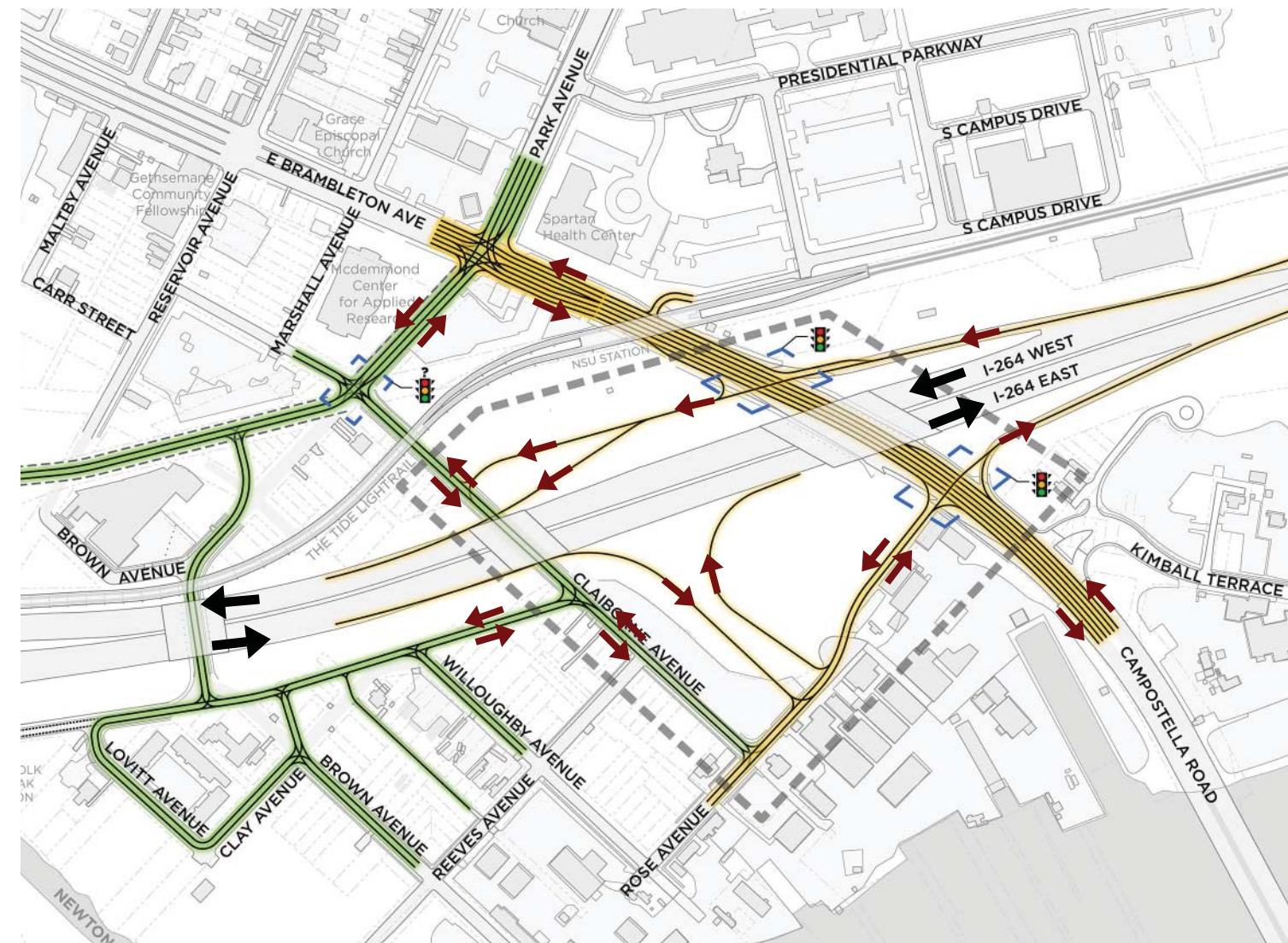


Figure 2.13: Alternative B upgrade Brambleton interchange as hybrid urban diamond interchange w/ quadrant intersection roadway.

Project Package E (Continued)

UPGRADE BRAMBLETON INTERCHANGE – ALTERNATIVE A (FIGURE 2.12):

- Establish the Brambleton Interchange as a complete "urban" diamond interchange
- This scenario would require two signalized intersections and left-hand turning movements on Brambleton Avenue, at the ramp ends
- VDOT's minimum stacking lengths can be met for the proposed I-264 westbound on-ramp and eastbound off-ramp (contingent upon traffic model demand)
- Direct access from Park Avenue to the service road and on-ramp connection to I-264 eastbound is established
- Interchange upgrades could be a negotiating tool for reconfiguring I-264 access to/from City Hall Avenue, providing a greatly enhanced overall transportation network

UPGRADE BRAMBLETON INTERCHANGE – ALTERNATIVE B (FIGURE 2.13):

- Establish Brambleton interchange as a hybrid urban diamond interchange w/ quadrant intersection roadway
- Roadway configuration potentially minimizes Brambleton Avenue left-hand turning movements at the interchange
- VDOT's minimum stacking length for proposed I-264 westbound on-ramp & eastbound off-ramp is met (contingent upon modeled demand)
- The interchange establishes direct access to/from old Park Avenue to service road as well as off-ramp and on-ramp connections to I-264
- Further upgrades and establishes direct on-ramp and off-ramp access to industrial area on southside of I-264
- Appears to meet VDOT grading standards without design exception
- On-ramp westbound stacking could pose a functional limitation

2.2 Stormwater and Community Recreation Resilience Recommendations

Utilizing a holistic design approach that merges the opportunities of the Harbor Park U.S. EPA Brownfields Area-Wide Plan, the St. Paul's Area CNI Plan, Norfolk's Resilience Strategy, and Norfolk's Downtown Plan Update 2030, the City of Norfolk has the rare opportunity to reposition a significant area of the city for redevelopment as one unified and cohesive resilient community. This is a desire that has been envisioned for a better part of the past decade, or longer. It is a resilient community story that builds on the great success of the revitalized Downtown, including the waterfront destination at Town Point Park, the Nauticus, the Waterside District, and the cruise terminal.

Resilience is defined by the City of Norfolk as “the capacity to adapt to stress and change.” It builds a better environment, community, and City for the future. Community resilience can be defined and redefined by competing sets of priorities, benefits, and challenges. What is most important is that all factors are framed holistically within the context of how decisions are made. The City of Norfolk’s Office of Resilience compiled the Norfolk Resilient City Strategy that addressed economic vitality at the neighborhood scale and adaptivity to the increased severity of sea level rise and coastal changes.

In accordance with this strategy, the Harbor Park U.S. EPA Brownfields Area-Wide Plan is about implementing and rebuilding a community that interconnects Harbor Park, the St. Paul's Area, Norfolk State University, Downtown Norfolk, and South Brambleton neighborhood as one unified resilient community that lays the foundation for a better, stronger Norfolk.

The Harbor Park U.S. EPA Brownfields Area-Wide Plan conducted extensive research to further support this document. The Background Conditions Report located in Appendix A presents findings from existing multimodal traffic conditions, environmental and hydrologic conditions, economic considerations, service utilities, land use, and the history and current vision for the project. The Elizabeth Riverfront and Harbor Park Brownfields Resiliency Infrastructure Preliminary Constructability Plan (Appendix D) demonstrates carefully planned solutions to construct a viable living shoreline and resilient river edge with flood protection for the city context. The AWP appendices identify key findings that were used to inform the approaches taken towards Harbor Park and its surrounding context.

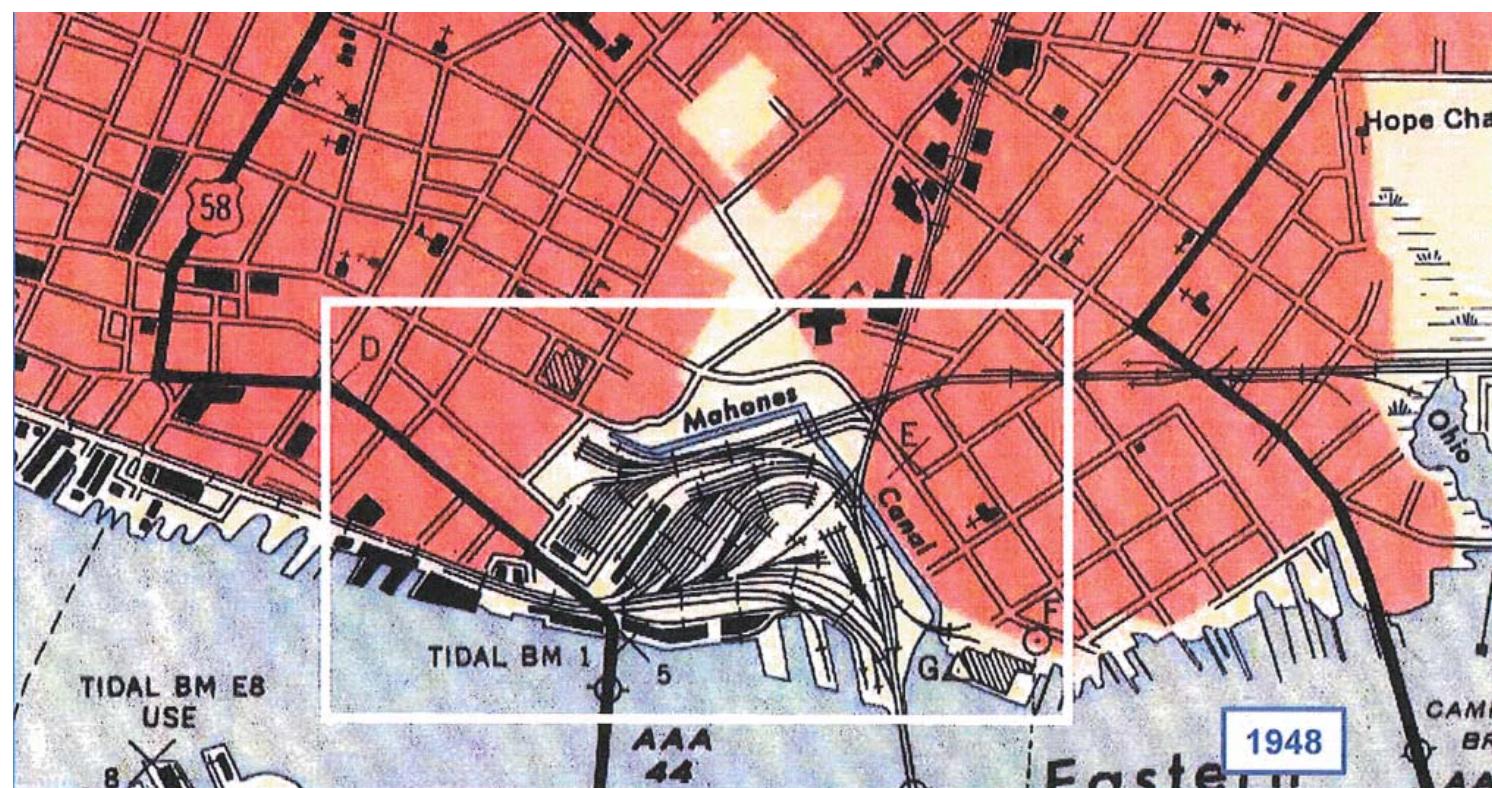


Figure 2.14: 1948 image of Newton's Creek and Dun-in-the-Mire Estuary completely filled in, channelized, and encapsulated with the City's stormwater conveyance system.

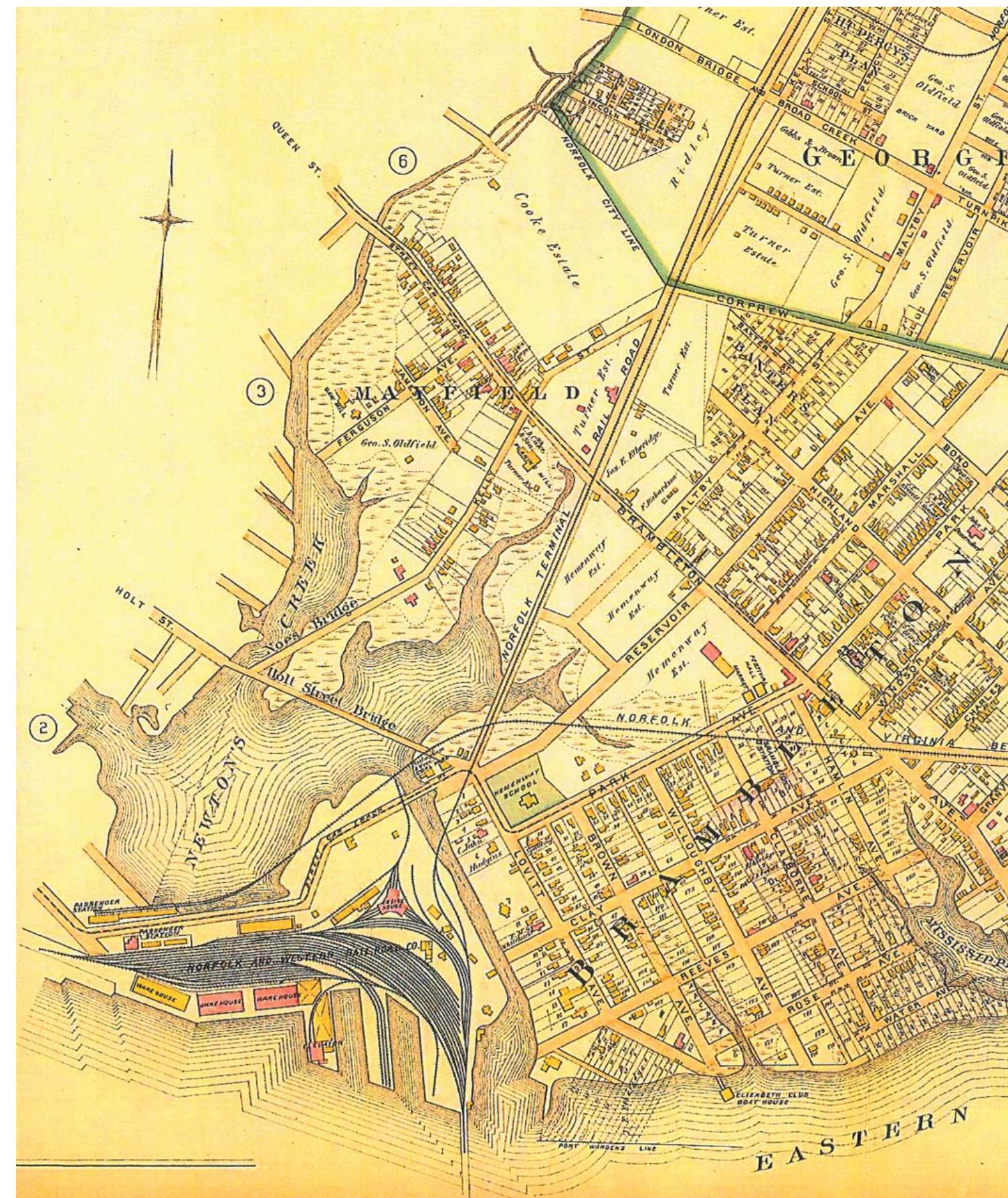


Figure 2.15: 1894 image of the mouth of Newton's Creek and Dun-in-the-Mire Estuary filled in and channelized. Images sourced from the Harbor Park Shoreline Considerations to the City of Norfolk for NDRC's Grant Application prepared by Mcneilan & Associates.

Figure 2.16 Existing Stormwater Conveyance Infrastructure, FEMA Delineations, and Historic Shoreline Analysis

The need for a stormwater-focused central green space was first proposed during the 2015 100 Resilient Cities and the Dutch Dialogues Virginia: Life at Sea Level planning processes. This idea has been carried through several later planning efforts with the latest being the St. Paul's Area CNI Plan prepared in the late summer of 2018. Although the notion of a stormwater-focused central green space was carried through these planning efforts, the functions and benefits as a community anchor and public space remained mostly undefined.

In order to harness the full resilience potential in the area and provide the greatest public benefit to the community, a holistic approach to stormwater management is important. Stormwater and natural processes cannot be evaluated following arbitrary boundaries, but instead must be considered in the functional entirety. From a stormwater and drainage pattern perspective, this means that what happens with the Harbor Park area is intrinsically linked to "upstream" conditions, i.e., what is proposed in the St. Paul's Area and beyond must be all thought of as one functional stormwater strategy. The AWP recommends an approach that creates a centralized stormwater facility on the north side of I-264. This facility would act a central green space with "layers" of functionality, including both stormwater management and civic public space.

The basis of this approach is to create a central green facility that serves as the nexus to bring together both an underlying infrastructure need, stormwater management, and the need to link together multiple neighborhoods and community anchors. In essence, this space would function as an "interchange" of civic interaction, linking together residents in all of the surrounding areas, the university population, and other drivers of activities. In order to achieve this outcome, the proposed stormwater and resilience infrastructure must be designed to fully integrate infrastructure elements with community recreation facilities to become a new large community park, to be called St. Paul's Area Resilient Park. The name St. Paul's Area is one that is grounded in historical significance of the neighborhood and also speaks to the idea of community resilience over the past several centuries. St. Paul's Area Resilient Park will provide trails, walkways, civic recreation amenities, fitness, civic art, and environmental education. It has the potential to become the "front door" for all of the adjacent neighborhoods that have been historically disconnected and underserved by desperately desired quality-of-life opportunities.

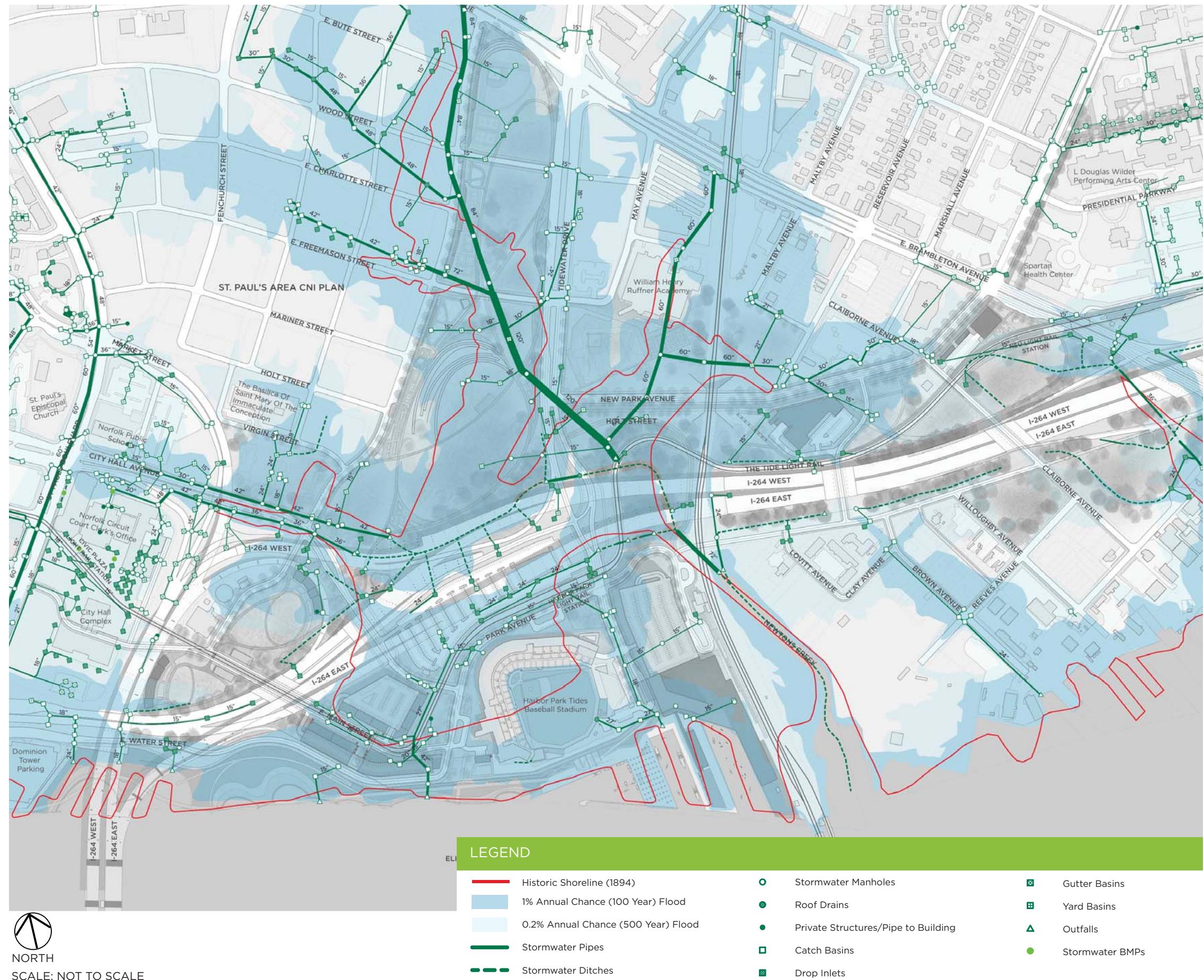
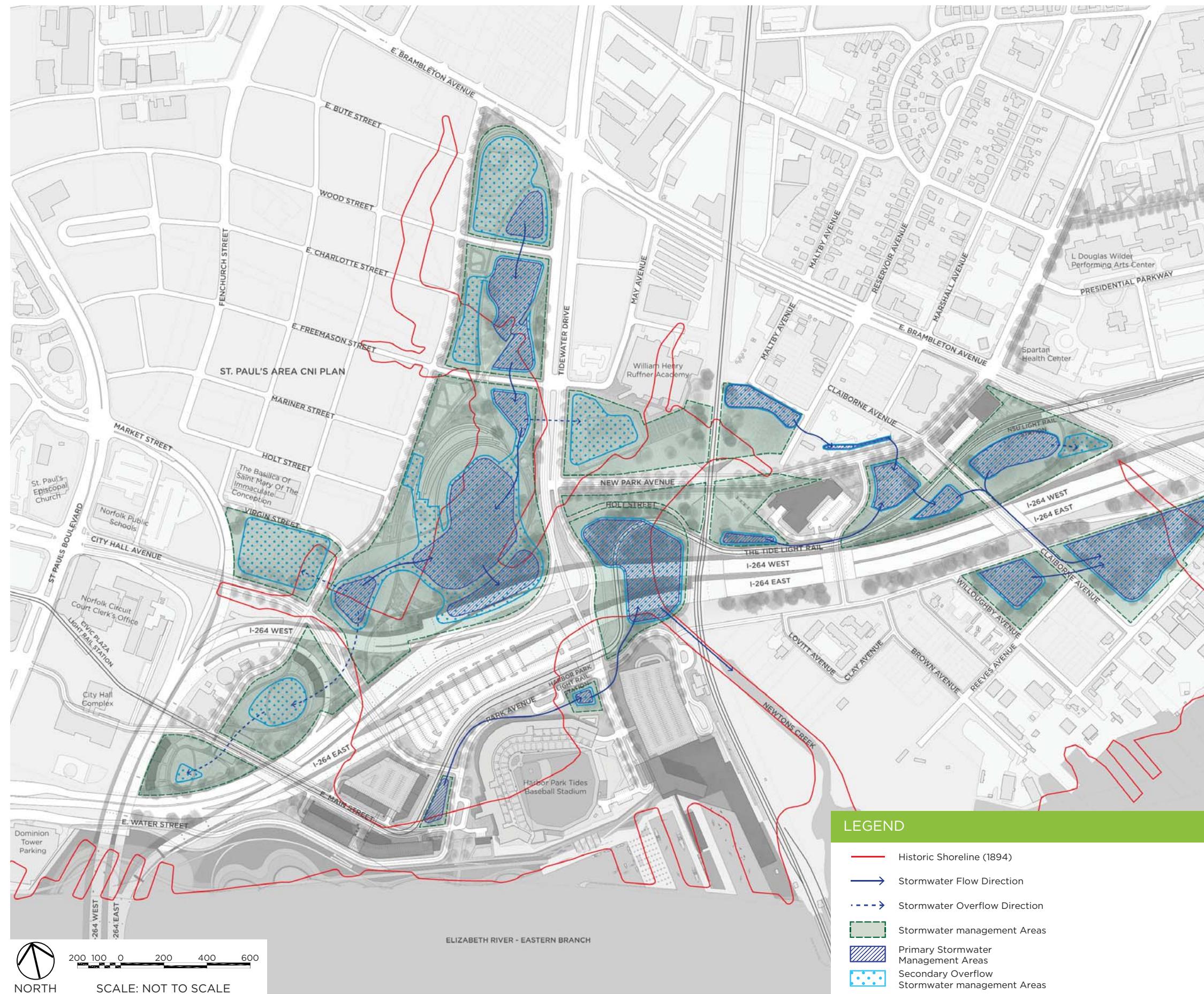


Figure 2.17 Proposed Stormwater Resilience/Management Area and Historic Shoreline Analysis



As mentioned in Appendix A: Background Conditions, a significant portion of the study area was originally submerged as a part of the Dun-in-the-Mire Estuary and the downstream portions of Newton's Creek. In the 1870s and 1880s, the mouth of the estuary was filled and Newton's Creek was channelized (Figure 2.15). By the 1920s all evidence of the former estuary and creek had been eradicated from the landscape (Figure 2.14). This “man over nature” approach of the 19th and 20th centuries was considered progress and created an economic boon for the City of Norfolk for most of the 20th century. The full impacts to this approach have only been realized and understood in the past several decades with the increased frequency and severity of storm events coupled with sea-level rise and filled land subsidence. Harbor Park, St. Paul's Area, and South Brambleton neighborhoods are in locations where vulnerability and challenges to mitigate impacts from storm- and tidal-based flooding only continue to increase. As a result, the U.S. EPA Brownfield Area-Wide Plan asked the question, “What were these areas of the City historically and what do these areas of the City currently want to be?”

Using available GIS data and historic mapping, the 1894 Harbor Park shoreline and the Dun-In-The-Mire Estuary were evaluated. A historic composite overlay analysis of the historic and existing shorelines, neighborhood development patterns, and existing gray infrastructure networks was performed (Figure 2.16). The analysis demonstrates how much the Norfolk shoreline has changed and the extent to which the estuary has been almost entirely filled in and funneled into gray infrastructure pipe and gutter conveyance systems. The outcome of this analysis provided a deeper understanding of the historic land-making process that was once the estuary. The conclusion of this exercise also proves that opportunities exist to restore some of the most desirable and functional elements of the original natural systems. The plan does not recommend, though, that a purist approach to natural restoration be employed. Instead, a hybrid approach is advocated. The approach is one that partially deconstructs some of the historic filling activities, where the positive impacts would be greatest, and integrates cutting-edge design as a merger of hard- and soft-engineering approaches. This tactic would echo aspects of natural processes such as water quality pre-treatment through vegetative system and logical stormwater flow patterns, intermingled with public spaces as civic landscape amenities, the culmination of which the public will view mostly as a great public park.

Figure 2.18 Walking Distance and Recreation Access and Opportunities Analysis

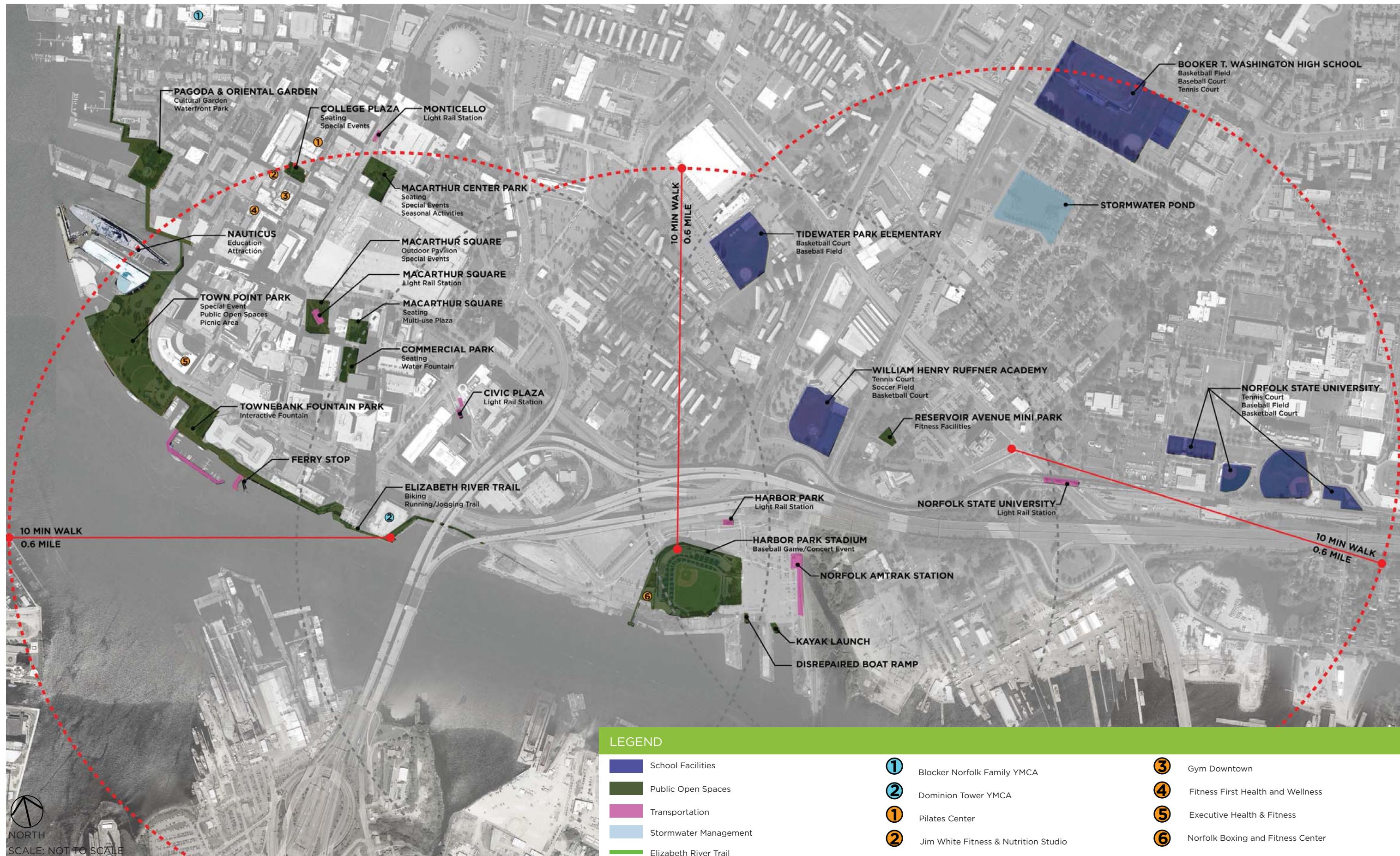
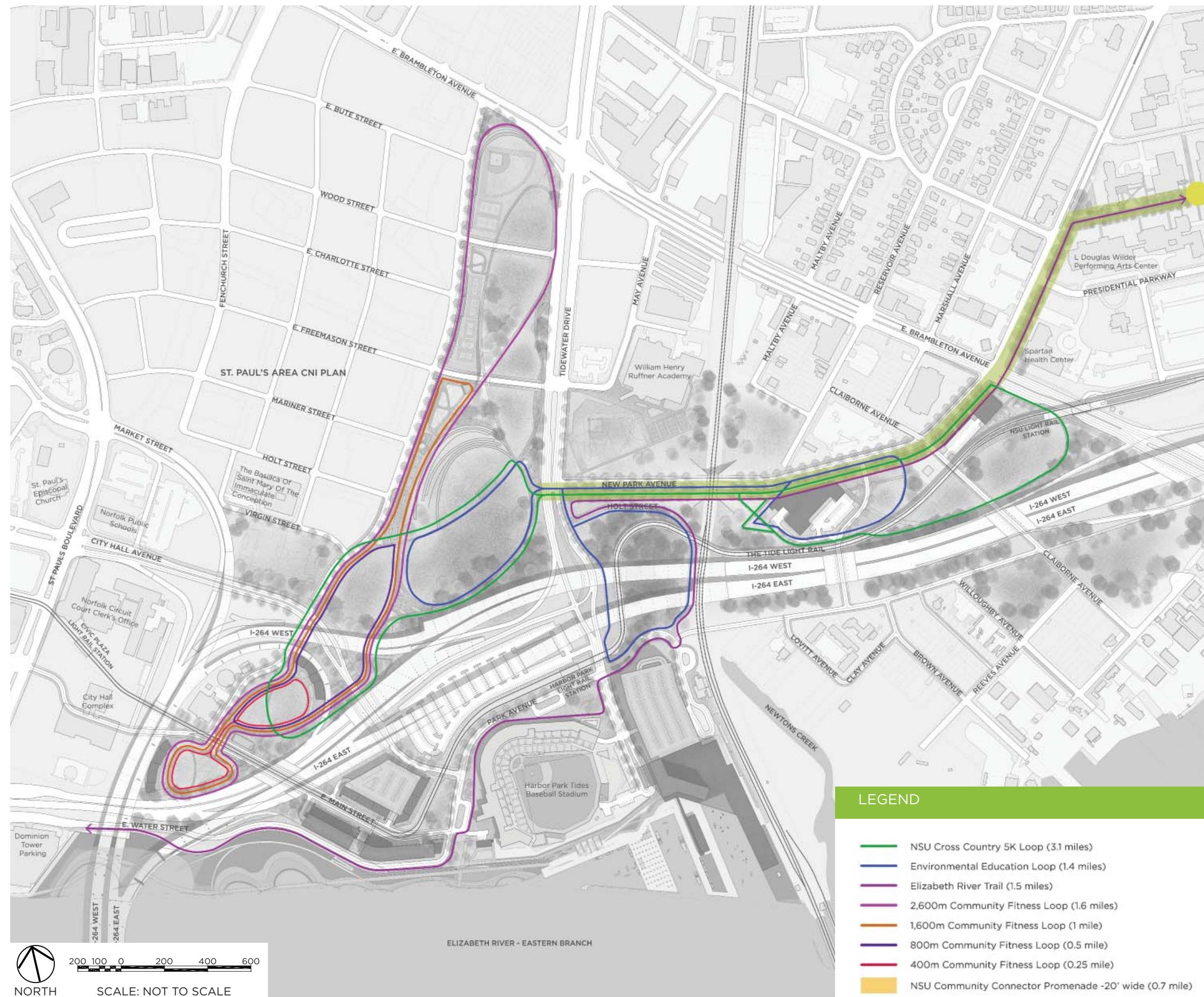


Figure 2.19 Community Bicycle, Pedestrian, and Fitness Connectivity



The stormwater resilience infrastructure sets out to establish a baseline quantifiable goal for stormwater resilience that is intrinsically tied to the history of place. In 1894, the Dun-In-The-Mire Estuary shoreline was approximately a 50-acre shallow water body that provided considerable capacity to withstand storm and tidal events. Using this historic benchmark, the AWP set a goal for storage capacity of 50 acre-feet (50 acres of stormwater storage at 1 foot of stormwater pooling depth) for the stormwater infrastructure framework. This would be achieved by an interconnected “chain” of topographically depressed areas that would provide adaptable stormwater capacity during varying-scaled stormwater events (Figure 2.17). The equivalent capacity would be approximately 16.3 million gallons of water storage or 24.7 Olympic-size swimming pools. This same area would also serve as a water quality facility that provides opportunities for habitat restoration, biodiversity, and environmental education.

Taking a similar intuitive approach to the community resilience framework, a 10-minute (0.6 miles) walking distance analysis was performed from three key locations (Figure 2.18). The walking distance analysis inventoried all existing public, private, and institutional recreation facilities and amenities within the area. Although Downtown is well serviced with a good mix of public and private recreation facilities as a result of decades of redevelopment efforts, much of the surrounding area, including Harbor Park, the St. Paul’s Area and South Brambleton neighborhoods, and Norfolk State University, is underserved with quality-of-life resident-oriented recreation opportunities. The community resilience aspects of the plan provide a comprehensive network of interconnected bike and pedestrian trails, walkways, and programmed fitness and walking loops (Figure 2.19). De-emphasizing the need for inter-neighborhood vehicular connectivity further promotes access to community recreation and open space while walking or biking between neighborhoods. The recreational success of St. Paul’s Area Resilient Park will be tied to how well it is connected to the neighborhoods and communities it serves. Elements that will influence this success include: how the Elizabeth River Trail connects as a regional connection to other parts of the City; the ability to physically and visually

Stormwater Management and Community Recreation Implementation Action Strategy

connect Norfolk State University to St. Paul's Area Resilient Park and the neighborhood through a generous extension of the campus bike and pedestrian network as a promenade along Park Avenue; and the ability to integrate valuable civic amenities that serve the health and fitness needs of a historically underserved population, including all age groups and diverse interests.

To address identified gaps in recreation opportunities and amenities, the City of Norfolk Recreation, Parks, and Open Space Master Plan was utilized to establish preliminary park programming elements that align with community-driven recreation priorities. The proposed St. Paul's Area Resilient Park has the potential to provide recreation opportunities for:

- **Biking/walking/jogging facilities**
- **Water access (physical/visual)**
- **Multi-purpose fields/sport courts**
- **Community/recreation centers**
- **Therapeutic recreation facilities**
- **Fitness/exercise facilities**
- **Neighborhood park**
- **Large community park**
- **Nature/environmental center**
- **Open green space**
- **Picnic areas**
- **Playground/tot lots**
- **Community art opportunities**
- **Outdoor adventure program**

The stormwater and community resilience framework is one that systematically integrates and layers water storage, water quality, habitat restoration, biodiversity, open space, neighborhood connectivity, recreation, fitness, and health to create a community asset that is truly resilient and will serve as a model for city-wide resilience.

As the City of Norfolk undertakes implementation redevelopment efforts at Harbor Park and in the St. Paul's Area and South Brambleton neighborhoods, a rare prospect emerges: There is the opportunity to provide significant upgrades to stormwater management infrastructure and community recreation opportunities as part of the identified resilience infrastructure and open space designations shown in the AWP. The opportunity presented is truly significant where major changes and upgrades are possible through innovative soft- and hard-engineering stormwater management techniques. They can be layered and fully integrated with community access, connectivity, and recreation features as well as environmental education, biodiversity, and open space opportunities that are woven into the fabric of the community. In order to advance the U.S. EPA Brownfields Area-Wide Plan Stormwater & Community Recreation Resilience Recommendations it is advised that the City of Norfolk perform the necessary targeted master planning and feasibility study and analysis to define desired level of stormwater quality and volume performance, community recreation features, civic amenities, and neighborhood connectivity.

Priorities and Next Steps

STORMWATER FEASIBILITY AND CONSTRUCTABILITY ANALYSIS

The City of Norfolk is in the process of obtaining funding and undertaking a comprehensive park and stormwater master plan with feasibility analysis and schematic design. Numerous efforts have already been pursued by the City, including an extensive Norfolk Resilient City Strategy and a Coastal Resilience Strategy. These and other efforts may incorporate and layer stormwater management and flooding, water quality, community access, connectivity, recreation features, environmental education opportunities, biodiversity, and open space as one unified design.

SECURING AGENCY BUY-IN

Engage appropriate agencies to present the regional stormwater management strategy presented in the AWP to spearhead the inter-agency coordination and obtain agency support early in the process. Most notably, the City of Norfolk is recommended to engage the VA DEQ and determine its expectations and what guidance and support it could potentially provide as part of this effort. A regional stormwater management facility of the scale proposed would have a significant impact on the City's overall MS4 permitting and TMDL goals, so project coordination early between the City of Norfolk and overseeing agencies is a highly recommended first step.

WATERSHED IMPACT ANALYSIS

The stormwater management strategy proposed in the AWP is advised to align with the ongoing hydrology and hydraulics (H&H) study being performed for the City of Norfolk for the Newton's Creek drainage shed. The City of Norfolk is recommended to ensure that the H&H study considers and potentially accommodates proposed facilities and evaluates potential level of benefit for capacities identified. The H&H analysis should account for both the new potential stormwater storage facilities proposed in the AWP as well as the proposed Harbor Park flood protection system. By incorporating these newly proposed facilities, the City of Norfolk can then recalibrate the system-wide priorities for capital improvements for the resilience-focused storm management system.

FUNDING/FINANCING STRATEGY

Work with funding and financing specialists in order to identify potential grant funding opportunities to support the design and construction of the proposed stormwater management components, recreation facilities, civic amenities, and flood protection features.

ENVIRONMENTAL DUE DILIGENCE

Perform the necessary environmental assessment due diligence for properties identified for redevelopment as outlined in the environmental recommendations section of this report. Once completed, a comprehensive parcel consolidation/subdivision and soil management strategy should be developed to explore soil excavation, relocation, regrading, and on-site and off-site soil management alternatives.

COORDINATION WITH COASTAL FLOOD PROTECTION EFFORTS

Discuss with U.S. Army Corps of Engineers (USACE) and address the ongoing Pre-construction Engineering Design (PED) effort in conjunction with the City of Norfolk under the Coastal Storm Risk Management (CSRM). The PED should incorporate the Elizabeth Riverfront and Harbor Park Brownfields Resilience Infrastructure Preliminary Constructability Plan (Constructability Plan) and U.S. EPA Brownfields Area-Wide Plan redevelopment proposed for Harbor Park, as outlined Resilience Infrastructure Technical Next Steps section of this report.

TOPOGRAPHIC ANALYSIS AND PRELIMINARY STORMWATER ENGINEERING

An extensive topographic analysis and preliminary engineering of the stormwater management facilities would be necessary to confirm the viability of all of the stormwater management areas proposed in the AWP. These early engineering steps would serve to establish the potential contributing sources and routing paths of the proposed stormwater management and flood mitigation features. This preliminary engineering would undertake constructability analyses similar to what was performed for the Constructability Plan.



Figure 2.20: St. Paul's Area Resilient Park - reconnection of neighborhoods through resilience and the creation of a large destination.



Figure 2.21: Bird's-eye view of St. Paul's Area Resilient Park. Looking south toward Harbor Park.

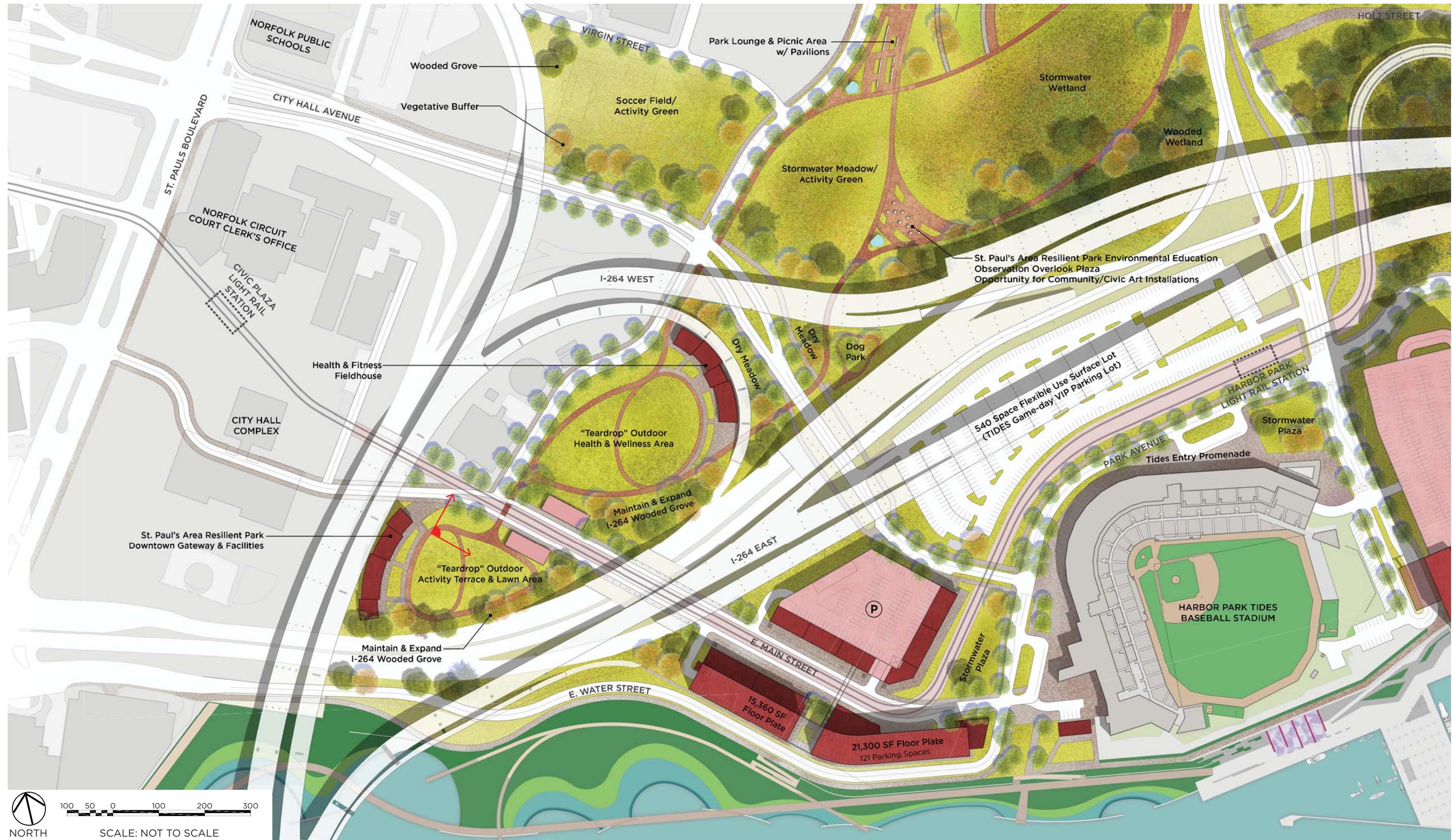


Figure 2.22: I-264 “teardrop” active recreation, health, and fitness destination connecting Harbor Park, the St. Paul’s Area, and Downtown Norfolk



Figure 2.23: Elevated view of I-264 teardrop area. Community active recreation, health, and fitness destination connecting Harbor Park, the St. Paul's Area, and Downtown Norfolk.



Figure 2.24: New Park Avenue greenway connecting Norfolk State University to Harbor Park and the St. Paul's Area.



Figure 2.25: Bird's-eye view above the new Park Avenue thoroughfare and greenway. Looking toward St. Paul's Area Resilient Park, St. Paul's Area CNI Plan proposed redevelopment, and Downtown beyond.

Resilience Infrastructure Constructability Plan Recommendation Updates

The 2017 Elizabeth Riverfront and Harbor Park Brownfields Resilience Infrastructure Preliminary Constructability Plan (Constructability Plan) evaluated the potential for integrating a resilience-focused flood protection system into the future development of the Harbor Park area. Through this effort, an integrated flood protection solution was identified that included a combination and composite assembly of a sheet pile cantilever floodwall, "I" floodwall, berm grading and reinforcement, and living shoreline to preserve and protect the riverfront and the Harbor Park area as a whole.

The effort identified an "I" wall style floodwall is coupled with significant grading efforts to create a flood protection system that fits within the constraints of the Harbor Park area. This system incorporates a riverfront park, public recreation features, and the preservation of transportation connections and access to Harbor Park and the waterfront. The height of the wall was established at 11 feet based on the 1% annual exceedance probability, with the ability to increase up to 15 feet to accommodate rising sea levels in the future. The "I" wall proposed in the plan is limited to exposed locations where existing constraints require an "I" wall assembly. A buried sheet pile cantilever flood wall is proposed in all other areas to accommodate grading, transportation connections, and access transitions from inside to outside of the flood protection system and create a welcoming public space rather than a stark barrier along the shoreline.

Also included within the constructability plan is the introduction of a living shoreline along the riverfront to promote habitat for marine life in the Elizabeth River and help mitigate pollution. The living shoreline proposed includes a system of breakwaters and sills to disrupt wave action and is fully incorporated into the public space and flood protection system. The grading and generous cross sections of the proposed living shoreline allow for ecosystem adaptability and micro-migration due to sea-level rise.

Coastal Resilience Infrastructure Implementation Action Strategy

The need for resilience infrastructure in the form of flood protection is well established for the Harbor Park area. With the work the City of Norfolk has already performed through the Constructability Plan and the ongoing USACE work through the Costal Storm Risk Management (CSRM) effort, flood protection strategies are already being developed for area. It is now crucial for the City of Norfolk to ensure that ongoing design development with the USACE builds on the goals and analyses already commissioned by the City, rather than designing in a vacuum and potentially hindering other City efforts, including the community economic development goals outlined in this AWP. Along with immediately establishing active coordination between the USACE Pre-Construction Engineering Design (PED) effort and other ongoing City planning and design efforts for Harbor Park area, the City of Norfolk must also continue gathering the necessary supporting data to advance the resilience infrastructure toward final design.

Priorities and Next Steps

FLOODWALL ALIGNMENT ANALYSIS AND COORDINATION WITH USAGE

In conjunction with the Pre-Construction Engineering Design (PED) effort under the Coastal Storm Risk Management (CSRM), the City of Norfolk has the opportunity to evaluate the alignment and configuration of the flood protection system based on the needs of the area and the goals set forth in both the Constructability Plan and in the AWP document. The design put forth in Figure 2.26 does not appear to consider or accommodate previous recommendations in the Constructability Plan and could prove detrimental to the City of Norfolk's long visioned redevelopment goals for Harbor Park. It is absolutely crucial for the City of Norfolk to raise concerns with proposed flood protection configurations and alignment that do not consider the Harbor Park redevelopment efforts before the CSRM PED progresses further.

COMPREHENSIVE TOPOGRAPHIC, BATHYMETRIC, AND UTILITY SURVEYS

An in-depth series of surveys must be completed for the project study area so design documentation and drawings can be created based on current and accurate information. The survey work will include determining metes and bounds, topography, locations of structures, and legal encumbrances existing on the Harbor Park study area. A full bathymetric survey is also required that provides detailed information of the relevant underwater conditions in the Elizabeth River adjacent to Harbor Park. This will be crucial for the living shoreline engineering and construction in particular. The surveys should locate all underground and overhead utilities, environmental features, structures, roads, transit lines, special features, rights-of-way, and property boundaries.

GEOTECHNICAL SURVEY AND ANALYSIS

A comprehensive geotechnical survey and study must be conducted for the project area to determine in-situ soil conditions and engineering properties for the design of a floodwall. This investigation must include physical characterization and analysis of the current geotechnical conditions within the study area as well as the review of any historic data available from past projects in the area. Characterization of the site-specific soil and bedrock conditions will allow for sound and economical design of proposed retaining structures and foundations for the redevelopment project, chief among them being the proposed floodwall structure.

HAZARDOUS MATERIALS/ENVIRONMENTAL ASSESSMENT

While significant environmental investigations have already occurred within the Harbor Park area, additional characterization activities are recommended. The main areas of analysis are where the living shoreline and programming elements are proposed and where the creosote timber pilings located along much of the shoreline. The characterization of the living shoreline areas has the opportunity to include the sampling of soils to determine the presence and level of contaminants. This will allow the design to respond to potential environmental constraints and better address any human health and safety concerns during and after construction. The analysis of the creosote pilings would include a full inventory of all pilings existing along the Harbor Park waterfront and allow for a plan to be developed to address them through removal, cutting off, or reuse.

WETLANDS DELINEATION/TIDAL ZONE ANALYSIS

Additional studies need to be performed in order to completely design, install, and create a living shoreline along the Elizabeth River. The living shoreline elevations will need to be determined prior to construction and will need to reflect the current changes to sea-level rise and projected stillwater elevations in order to construct the most durable and resilient environment for the Harbor Park shoreline. Additional soil borings should be performed for proper soil excavation and vegetation preparation, and supplementary permits and government regulations will also need to be followed and completed during design and construction, including dredge soil management.

HYDROLOGY AND HYDRAULICS STUDIES

A full analysis of the hydrologic conditions of the riverfront will be necessary to complete the design of the flood protection system and living shoreline as well as the hydraulic performance of existing infrastructure within Harbor Park and the Newton's Creek drainage shed. The H&H studies necessary for the flood protection system may be able to be partially satisfied by the City's ongoing H&H efforts in the Newton's Creek watershed. The City of Norfolk is encouraged to coordinate efforts between the evaluation of the storm sewer system and the flood protection in order to most efficiently allocate resources and ensure all factors are being considered.

Measure	Structure	Approx. Length
15	T-wall, Gates	3,300 LF
16	Berm	2,500 LF
17	T-wall, Gates	3,500 LF

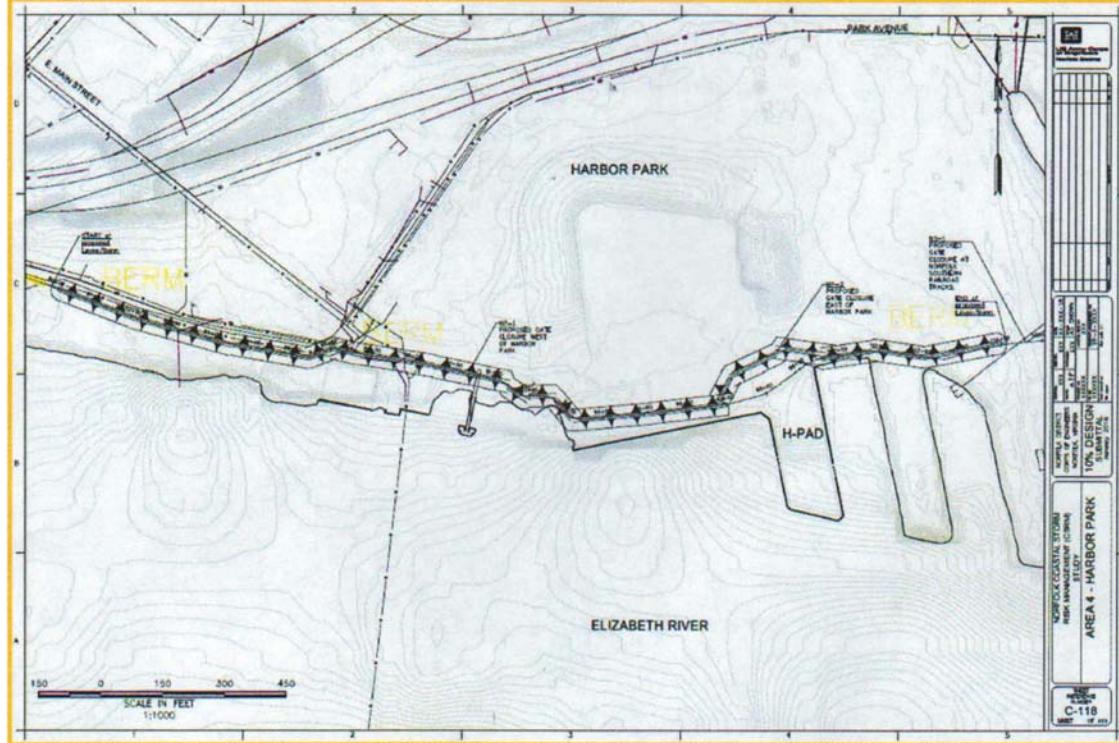
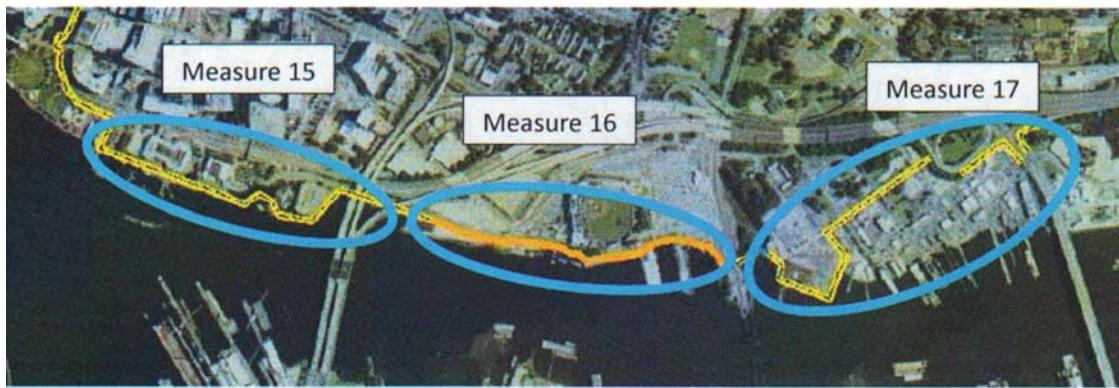


Figure 2.26: Norfolk CSRM Pre-Engineering Design (PED) 10% Design does not currently appear to incorporate any of the recommendations in the September 2017 Elizabeth River and Harbor Park Resilience Infrastructure Constructability Plan. The economic development recommendations in the AWP are not possible with this CSRM PED 10% Design.

Figure 2.27 Constructability Plan "Living Shoreline Retreatment"
Axonometric assembly study of resilience infrastructure flood protection, living shoreline, and community recreation destination

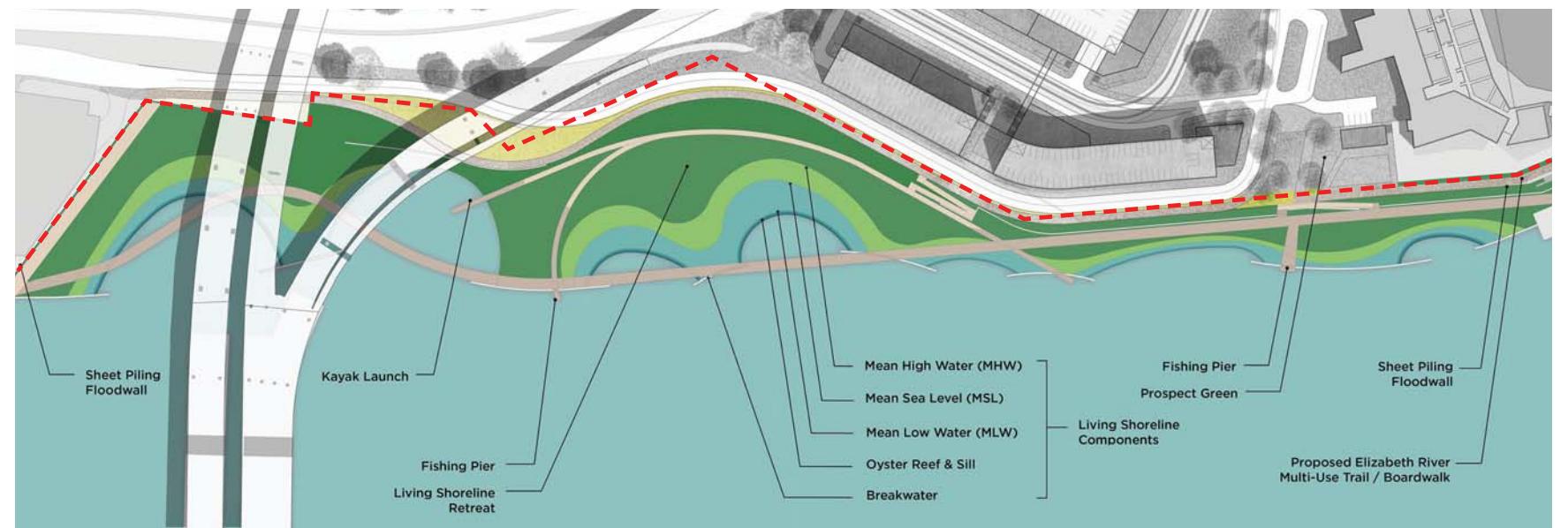
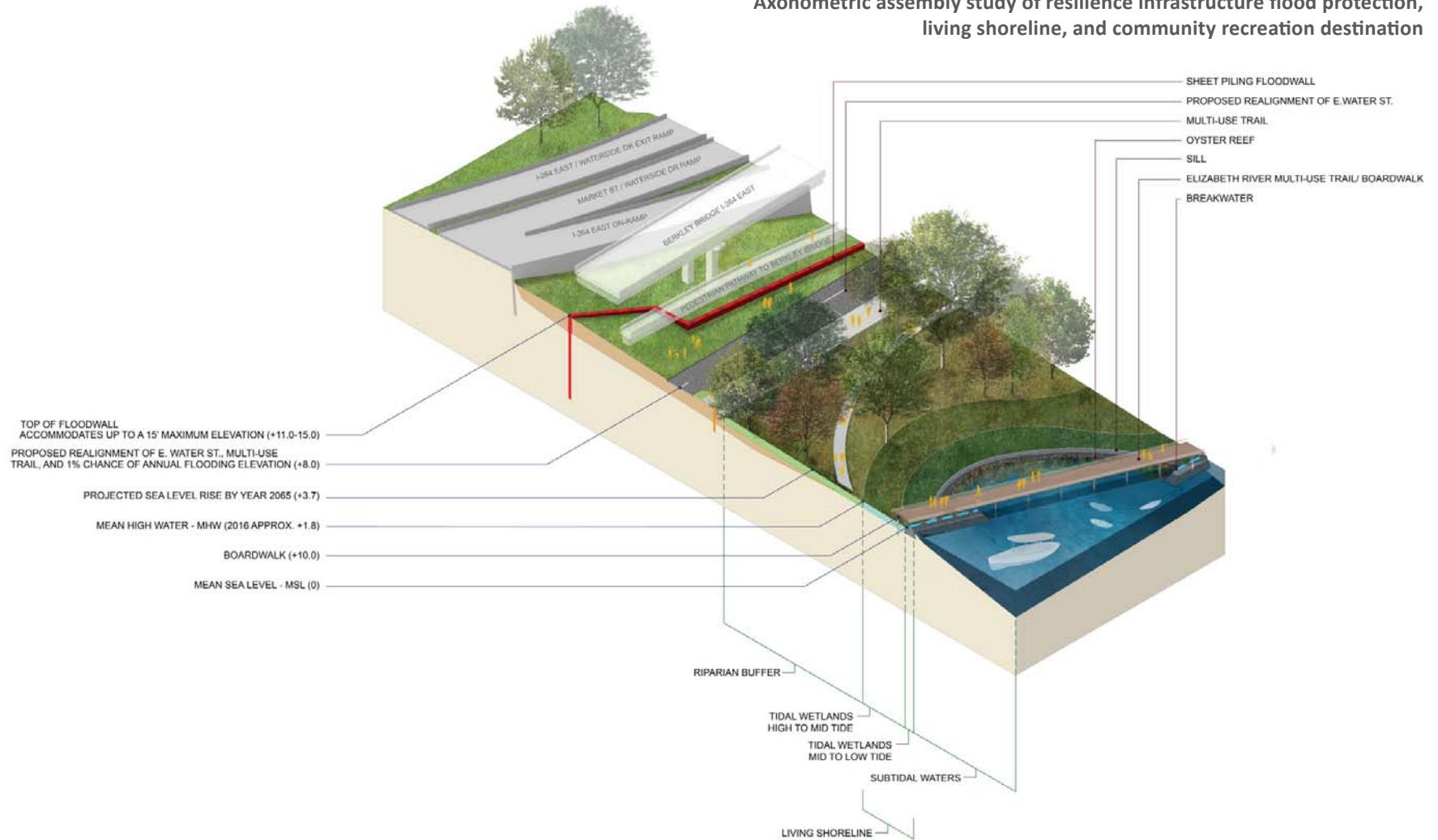


Figure 2.28: Elizabeth Riverfront and Harbor Park Brownfields Resilience Infrastructure Preliminary Constructability Plan.

2.3 Service Utility Recommendations

Underground utilities in the Harbor Park Area are especially challenging. As Figures 2.29 through Figure 2.32 illustrate, there is a complex web of underground utilities in this area. The City of Norfolk must identify, with a field survey level of accuracy, the current state of each utility service within Harbor Park. Once the existing conditions are fully established, the utilities are recommended to be evaluated for level-of-service needed to support redevelopment efforts. The best way to approach this effort is for the City of Norfolk to undertake a comprehensive utility plan.

Service Utility Implementation Action Strategy

A comprehensive utility plan will evaluate each utility type and determine its best location, including if each utility can remain in its current state, or if utilities should be relocated. This can only be performed once street rights-of-way are finalized. The site reuse plans will also provide guidance as to the level of utility service needed to support each individual lot and building, based on the likely end use and density. The comprehensive utility plan should include and consider the following as part of this effort:

Priorities and Next Steps

WATER AND SANITARY SEWER ANALYSIS

Water and sanitary sewer services (Figure 2.31) are encouraged to be evaluated by the City of Norfolk as part of the comprehensive utility plan effort from both a location and service capacity perspective. Water and sewer mains that are in conflict with the proposed redevelopment sites should be identified, and the size/capacity of the services should be evaluated to determine if they can support the proposed build-out. A water and sewer main routing, relocation, and service upgrade capital improvement plan may be developed to support redevelopment.

DRY UTILITY ANALYSIS

Confirm the location of all underground electrical/telecom utilities (Figures 2.29 and 2.30) within the Harbor Park area. Determine, based on the reuse plan, what (if any) portions of the electrical/telecom utilities must be relocated or adjusted to avoid impeding the redevelopment potential of the site. Evaluate and determine if electrical/telecom utility services should be upgraded to support the proposed density and yield of redevelopment.

FUNDING/FINANCING STRATEGY

The comprehensive utility plan should include a funding and financing strategy for utility improvements, whether it is through grant funding sources, the City of Norfolk's capital improvement budget, or some combination of those and other sources.

PHASING AND SEQUENCING STRATEGY

The comprehensive utility plan may also include a phasing implementation strategy and sequencing of the utility upgrades. From a sequencing perspective, service utility improvements should be fully coordinated with transportation infrastructure upgrades to minimize construction times and reduce conflicts and overlapping construction costs. Utility improvements can either be rolled into a larger infrastructure improvement project or be coordinated as a separate but concurrent effort.

SCGP SERVICE UTILITY CORRIDOR COORDINATION

The City of Norfolk must consider the final location of the Southside Connector Gas Pipeline (SCGP) (Figure 2.32) and ensure that all plans accommodate the SCGP easement. The relocation of other service utilities should be properly coordinated with the location and easement of the SCGP. It is strongly advised that the City of Norfolk consider creating a full-service utility corridor based around the SCGP location as part the comprehensive utility plan to maximize redevelopment potential.



Figure 2.29: Verizon telecommunication mapping, photo credit: City of Norfolk

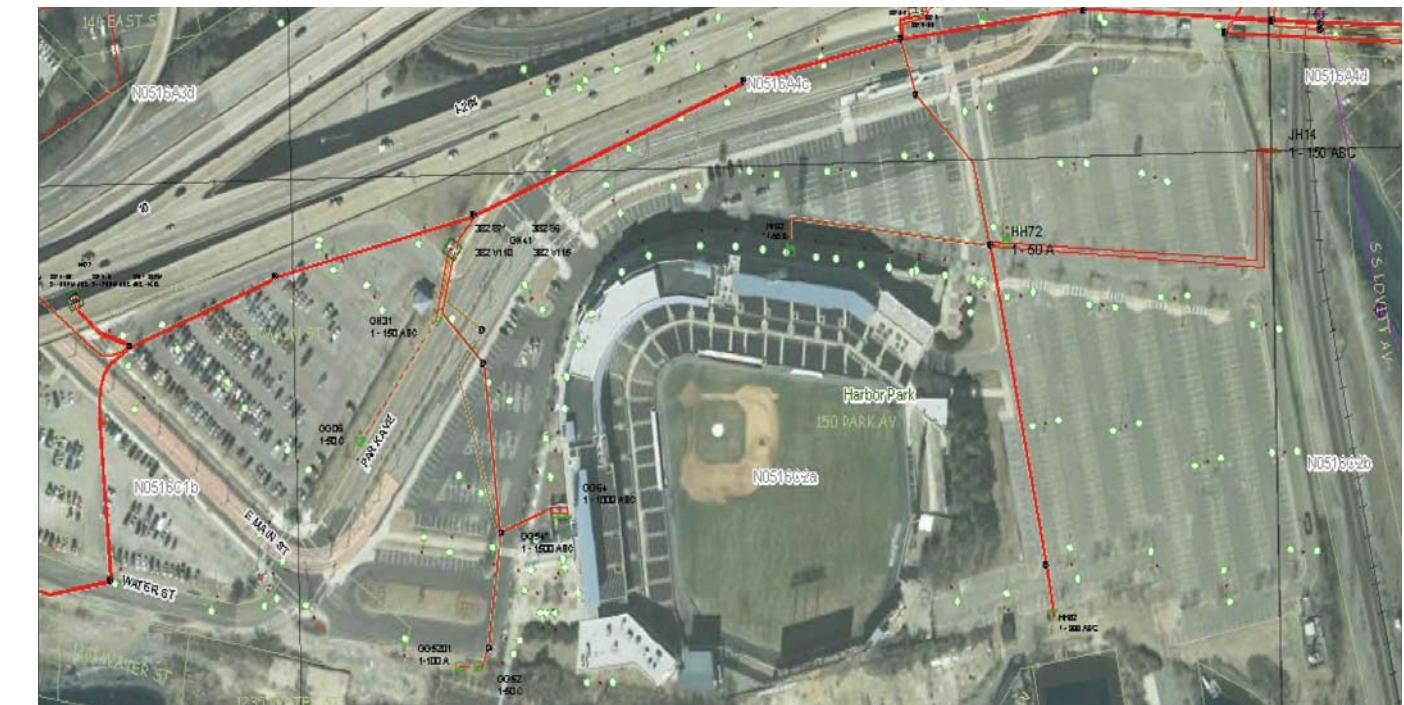
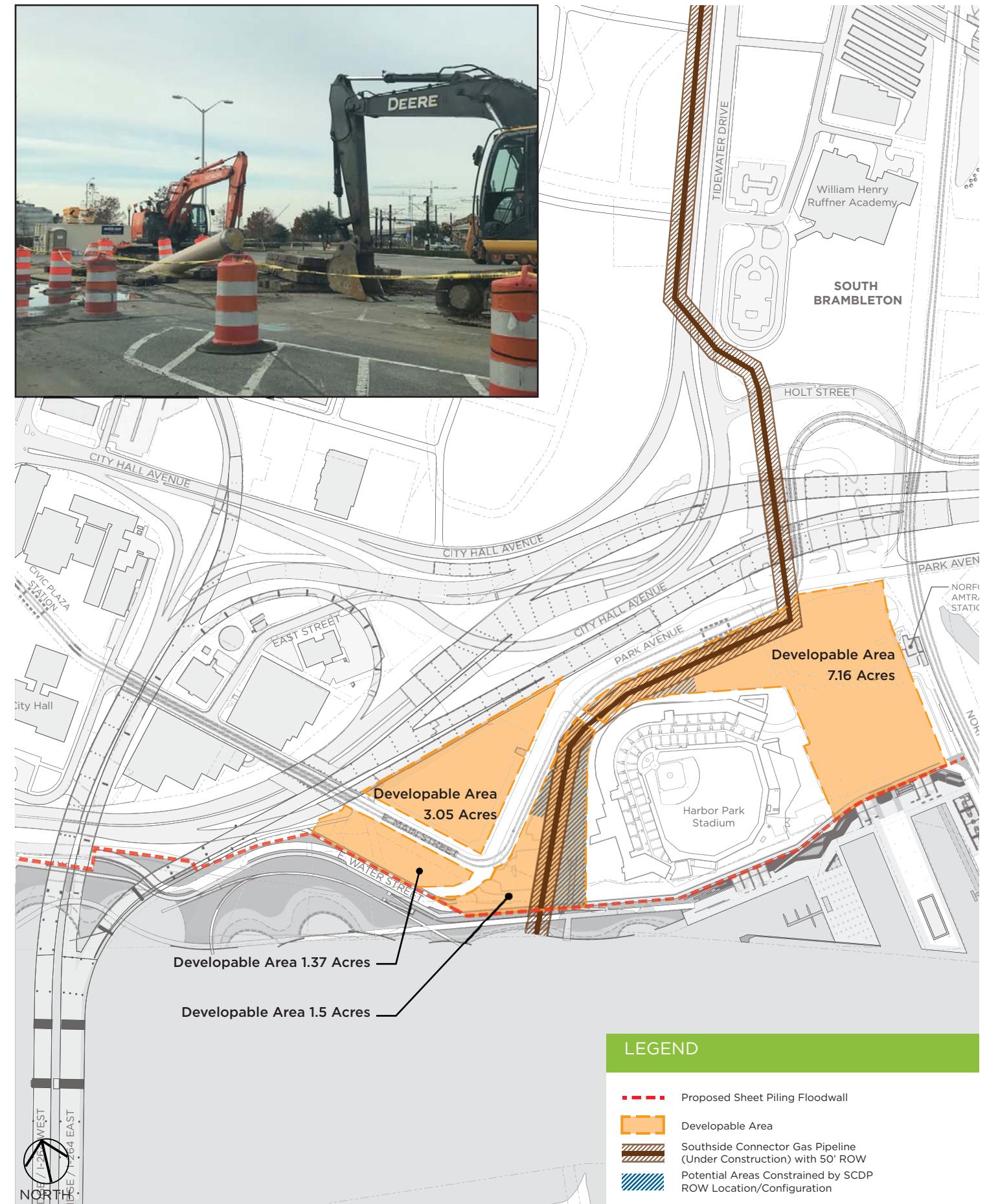


Figure 2.30: Dominion Virginia Power mapping, photo credit: City of Norfolk

Figure 2.31 Existing Sanitary Sewer & Water Supply Map



Figure 2.32 Developable Area With Virginia Natural Gas SCDP Pipeline Right-Of-Way







03

ES Executive Summary

01 Overall Area-Wide Plan & Design Performance Criteria

02 Infrastructure Framework Plan Recommendations

03 Land Use Recommendations

- 3.1 Short-Term Interim Use Redevelopment Plan
- 3.2 Long-Term Redevelopment Plan
- 3.3 Environmental Next Steps

04 Resource Roadmap

Appendix A: Background Conditions Report

Appendix B: Transportation Network Considerations

Appendix C: Existing Conditions Market Assessment

Appendix D: Elizabeth Riverfront and Harbor Park
Brownfields Resilience Infrastructure
Preliminary Constructability Plan

Appendix E: Public Outreach Summary

LAND USE RECOMMENDATIONS

3.1 Short-Term Interim Use Redevelopment Plan

The majority of the AWP recommendations are a continuation and refinement of the City of Norfolk's long-established vision and priorities, with the focus being on redevelopment implementation. However, many of the long-term buildout goals for public infrastructure and medium- to high-density redevelopment still have implementation timelines of 5 to 10 years or more. The City of Norfolk stressed that it is important for the AWP to develop an interim use strategy that is also tied to the market analysis that is achievable in 1 to 5 years. The City of Norfolk understood the necessity of transforming public perception, using the Harbor Park waterfront as a catalyst for real and visible change. Through the establishment of an interim use pop-up destination amenity, Harbor Park can attract the interest of private developers to unlock the long-term development potential of the area.

The short-term interim use plan focuses on establishing a publicly accessible waterfront destination node that provides a sense of arrival when entering Harbor Park via E. Water

Street and the Elizabeth River Trail from Downtown Norfolk. Activating the waterfront potential with economically viable public amenities transitions Harbor Park into a place where the community can access, gather, and recreate. The goal of the interim use plan is to establish Harbor Park as a community asset where local citizens want to be for the remaining 300+- non-ballpark game days of the year.

Harbor Park West

This area is located between Downtown and the ballpark, along E. Water Street. The first construction implementation phase of the interim use plan is focused on six (6) waterfront parcels on the southside of E. Water Street between I-264 and HRT Ferry Terminal adjacent to the ballpark (Figures 3.1 & 3.2). The first phase of the interim use plan would establish a visible gateway and sense of arrival into Harbor Park from Downtown, along the Elizabeth Riverfront (Figure 3.3).

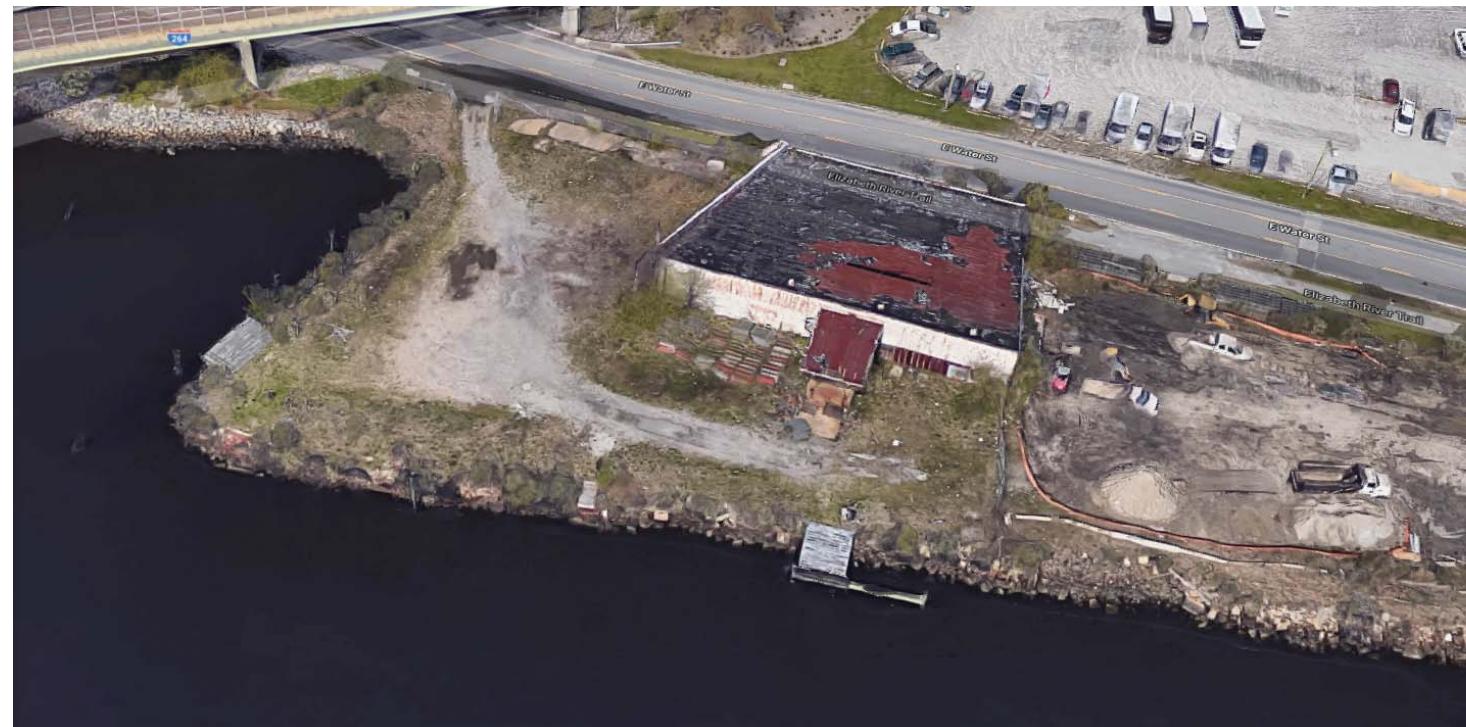


Figure 3.1: Existing condition bird's-eye view photo of 1115, 1119, and 1125 Water Street. Photo Credit: ©Google Inc.

Short-term Interim Use Redevelopment Plan Implementation Action Strategy

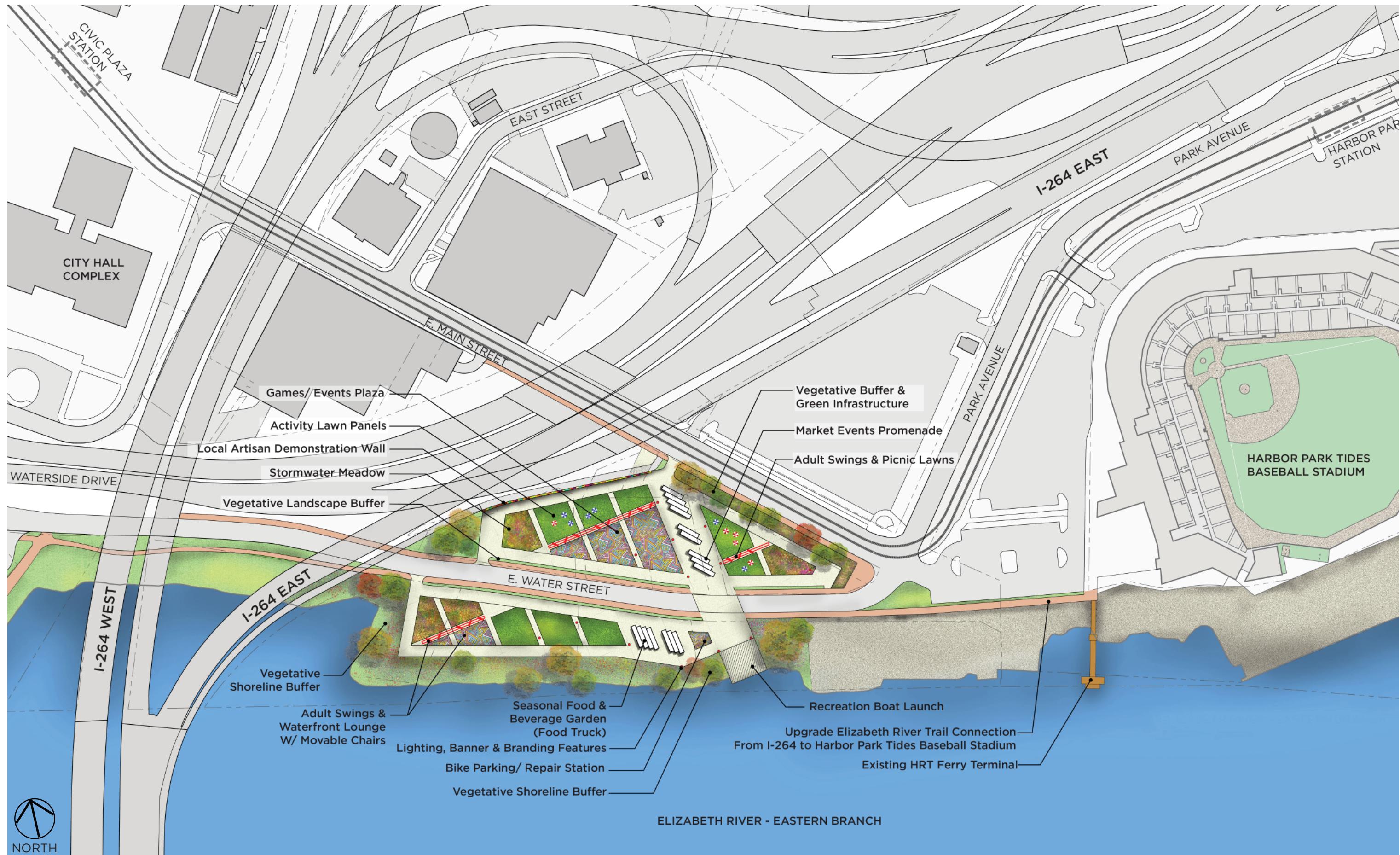
Prior to the conclusion of the U.S. EPA Area-Wide Plan Project, the City of Norfolk has already undertaken an aggressive effort to start implementing the interim use plan strategy. The City has identified and secured funding from the Virginia Department of Environmental Quality and the U.S. Environmental Protection Agency. This funding will be used to perform necessary environmental assessment due diligence and remediation for the first phase of the interim use plan. The City of Norfolk has engaged with key agency partners, city departments, and stakeholders to advance the interim use plan design and construction. While the environmental assessment, design, and engineering process takes place during the summer and fall of 2019, the City has already procured and mobilized asbestos abatement, demolition, trash and debris disposal, and site survey work concurrently during the summer and/or fall of

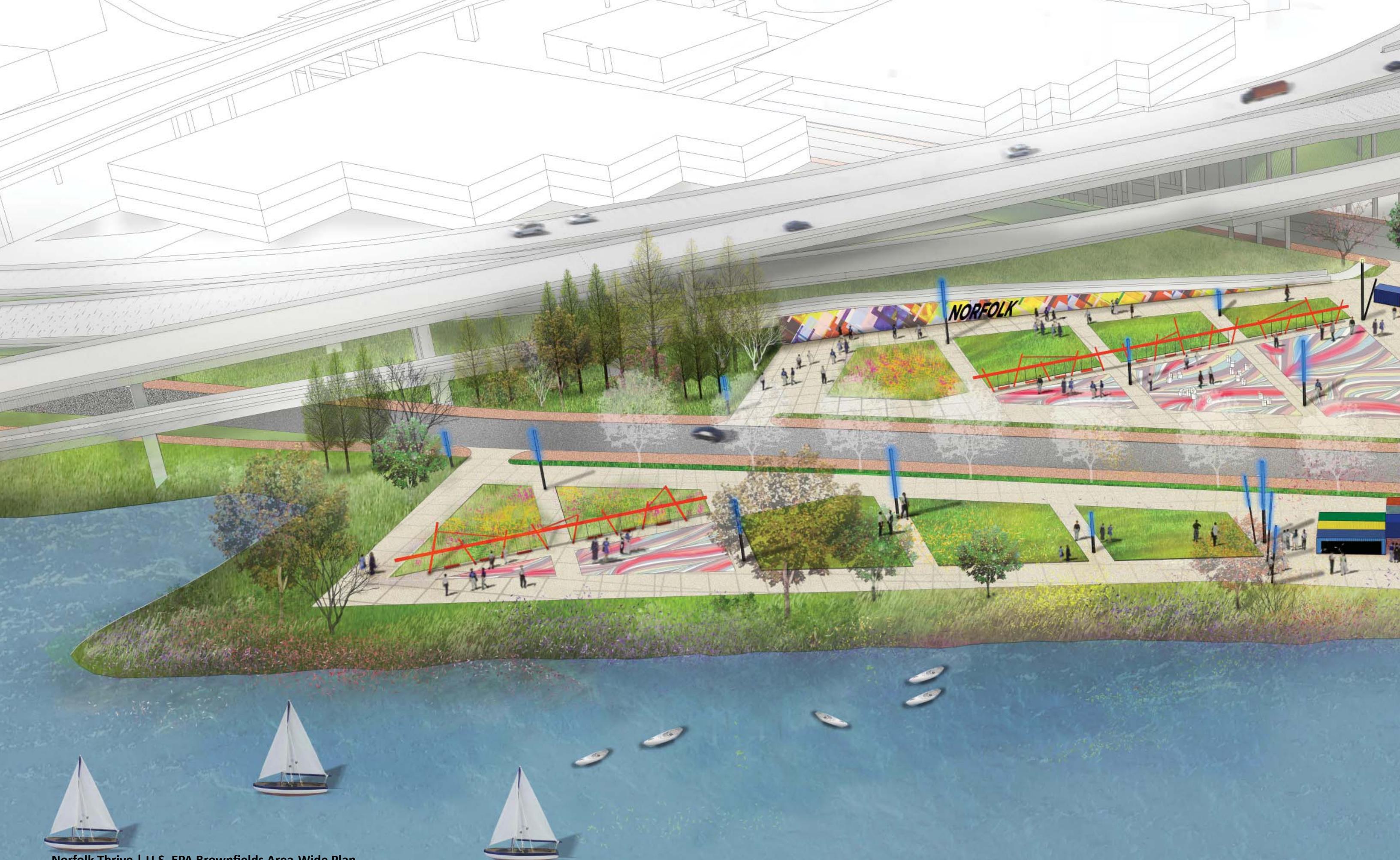
2019. The interim use plan design, engineering, and remediation plans are tentatively scheduled to be completed in fall of 2019 and winter of 2019/2020. It is anticipated that interim use plan site remediation and construction is to take place the spring and summer of 2020, with the goal to have the first phase of the interim use plan completed and open for public use in mid to late summer 2020.



Figure 3.2: Existing condition site photo of 1119 Water Street.

Figure 3.3: Short-Term Interim Use Redevelopment Plan





Harbor Park West Short-Term Interim Use Redevelopment Rendering

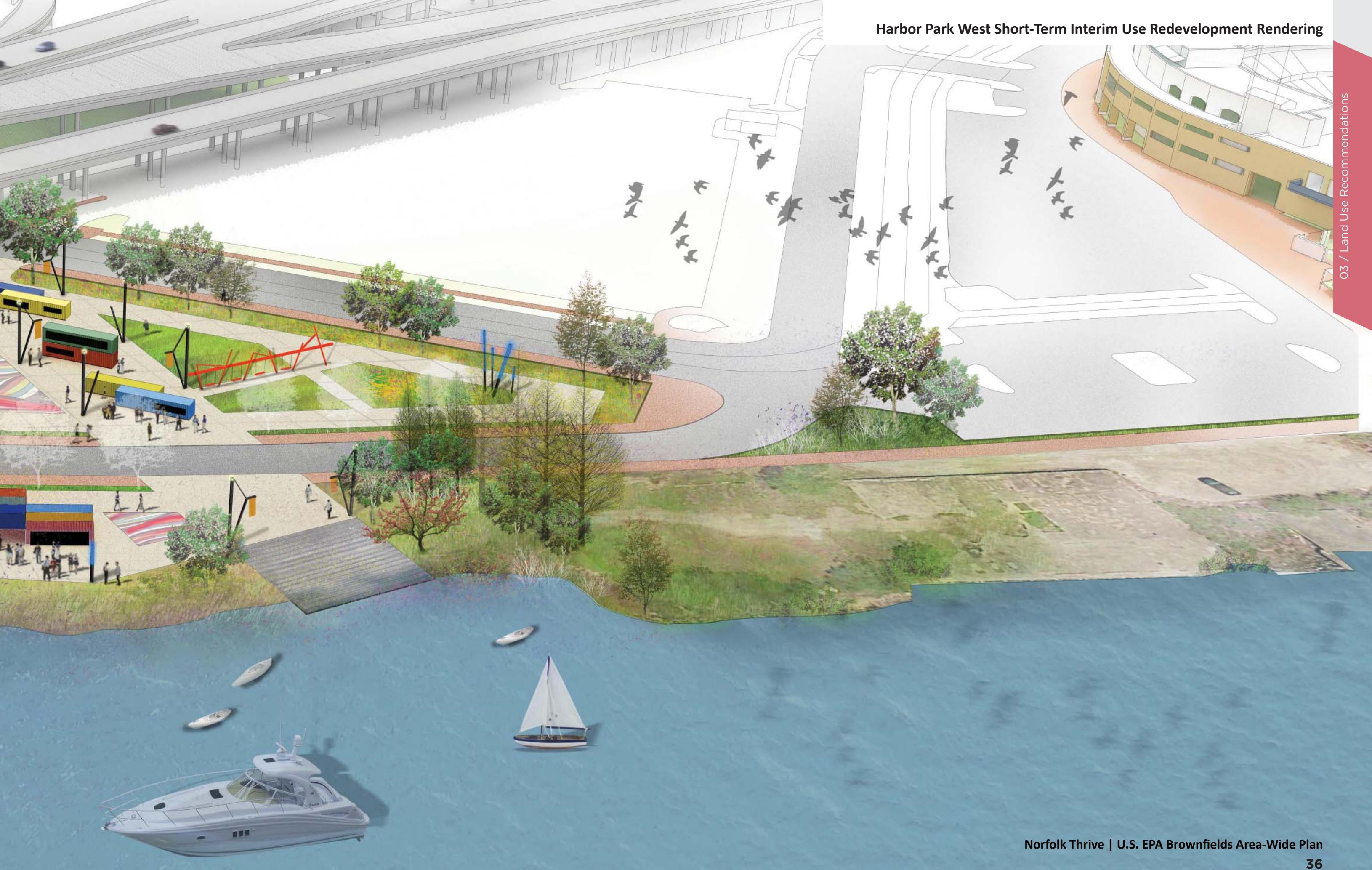


Figure 3.4 : U.S. EPA Brownfields Area-Wide Plan

3.2 Long-Term Redevelopment Plan

There are various factors that influence the ability to fully build-out the Harbor Park area. The first is the need to improve the existing transportation infrastructure in order to provide ample access to and from the area. The second is the ability to implement required resilience infrastructure improvements so that private developers are assured that new development investments will not be substantially at risk for significant storm damage. The AWP assumes that incremental improvements will occur and that new development can also proceed in phases, as public capital improvements are completed.

The AWP's long-term redevelopment plan (Figure 3.4) focuses on a few distinct areas. There are relatively unique conditions within the study area that significantly diminish the practical ability to develop market-supportive development. Working from the overall goal that the City of Norfolk would like to promote as much development as is reasonably possible within the study area, the AWP carefully evaluates what lands are supportive of development. In addition, it identifies other adjacent locations that may have not been considered previously as potential locations for redevelopment. In all cases, the ability to promote a "mix of uses" to create more diverse and vibrant places is advocated, acknowledging the market opportunities and constraints. The ability to provide development projects and products at reasonable price points that the market can support also influenced the design approach. Creating marketable product, i.e., rental units at a market-competitive rent, will be challenging, since some factors are fixed, such as the shape and configuration of parcels. The redevelopment parcels being considered are constrained as result of fixed objects such as the HRT light rail lines, elevated highway structures, circulation requirements to the ballpark, and required elevations for flood control devices. These are just a few factors that will potentially drive up construction costs.



Harbor Park West

This area is located between Downtown and the ballpark, along E. Water Street. It would be the first major development gateway into Harbor Park from Downtown, along the Elizabeth Riverfront.

Overall Development Approach

There are benefits to promoting residential development within Harbor Park, with a primary one being the creation of 24-hour vibrancy through permanent residency, which does not exist today. The market analysis identified the potential for a very modest demand for residential units in the area. Because of its geographic proximity to the riverfront and the desirable waterfront views it affords, Harbor Park West is by far the most attractive for market-rate residential units of all of the development locations within the study area. The development approach for this area creates a block-long, double-loaded mixed-use street along E. Main Street. Residential units would be located in two buildings with double-frontage, facing both E. Main Street and E. Water Street with broad vistas of the Elizabeth River. Retail commercial uses would exist at the street level along Main Street, and at building corners facing the riverfront along E. Water Street.

One-story retail/commercial will wrap a parking garage located between E. Main Street and City Hall Avenue. The retail is not integrated into the parking structure but is added in front of the structure and faces E. Main Street and the frontage facing the ballpark. Depending on the final overall parking allocation and demands within the Harbor Park area, the structure could have multiple levels, ranging from approximately 287 spaces for a two-level deck to 737 spaces within a five-level garage (Figures 3.5 & 3.6).

Urban Design Parameters/Character-Defining Features

A. CAPITALIZE ON RIVERFRONT VIEWS

Buildings A and B are oriented to maximize views up and down the river. The opposite side of these buildings will not be afforded equally desirable views. Although there will be some views of Downtown and the ballpark, it will be important to focus on placemaking aspects of E. Main Street in order to provide a visual interest for the residential units looking down at E. Main Street.

B. WRAP PARKING WITH COMMERCIAL/RETAIL

The ground level of the parking garage must be wrapped with commercial/retail uses. Since there is available space beyond the efficient layout of the garage, buildings are proposed to be placed in front of the core parking structure, in order to reduce the cost of construction and to provide greater architectural flexibility. Although depicted on the plans as flat-fronted buildings, this approach would allow for a greater flexibility in terms of creating undulating facades, and even public spaces between commercial/retail stores. The critical aspects are to create a highly engaged ground-level streetscape, with extensive use of glass and full-frontage opening walls to create an indoor/outdoor experience for dining and entertainment.

C. ARCHITECTURAL CHARACTER SHOULD CONSIDER SCALE AND CONTEXT

Buildings A and B are elongated to maximize value from the river frontage. It is important to break up the mass of these buildings, however, with interesting pedestrian spaces. These connections would funnel pedestrian activity between the riverfront park and retail/commercial activity along E. Main Street. The building forms may be architecturally enhanced with a base form, middle floor treatments, and building caps. This will be important to overcome the monotonous massing of modern multi-family box buildings. The buildings may have architectural elements that interact with physical elements occurring along the riverfront park.

D. ACCOMMODATE RESIDENTIAL PARKING NEEDS

Parking for residents in buildings A and B provides one dedicated parking space per residential unit at the ground floor of buildings A and B that is tucked behind the E. Main Street frontage commercial/retail. Additional and secondary parking spaces for residential units could be provided as part of the 287-space parking deck on the opposite side of E. Main Street.

E. ENSURE THE PARKING DOES NOT VISUALLY DOMINATE

The parking garage could be a dominant feature in the landscape. However, its location between the development and eastbound I-264, depending on the number of levels, has the potential to provide sound deadening separation between I-264 and the Harbor Park West development cluster. If the garage is more than a two-level deck, however, sensitivity should be placed on the architectural treatment of the upper decks. The garage could function as a large branding element for Harbor Park from the highway side and include vertical architectural elements, possibly with green façade components, on the riverside.

F. BUILDINGS SHOULD ENGAGE BOTH E. WATER STREET & E. MAIN STREET

As result of the top elevation of the sheet pile floodwall buried within the overall living shoreline treatment, the opportunity exists to create a stacked retail condition within buildings A and B. This means that ground floor commercial/retail could occur at the E. Main Street elevation and on a floor above, which is the ground floor for the frontage along E. Water Street.

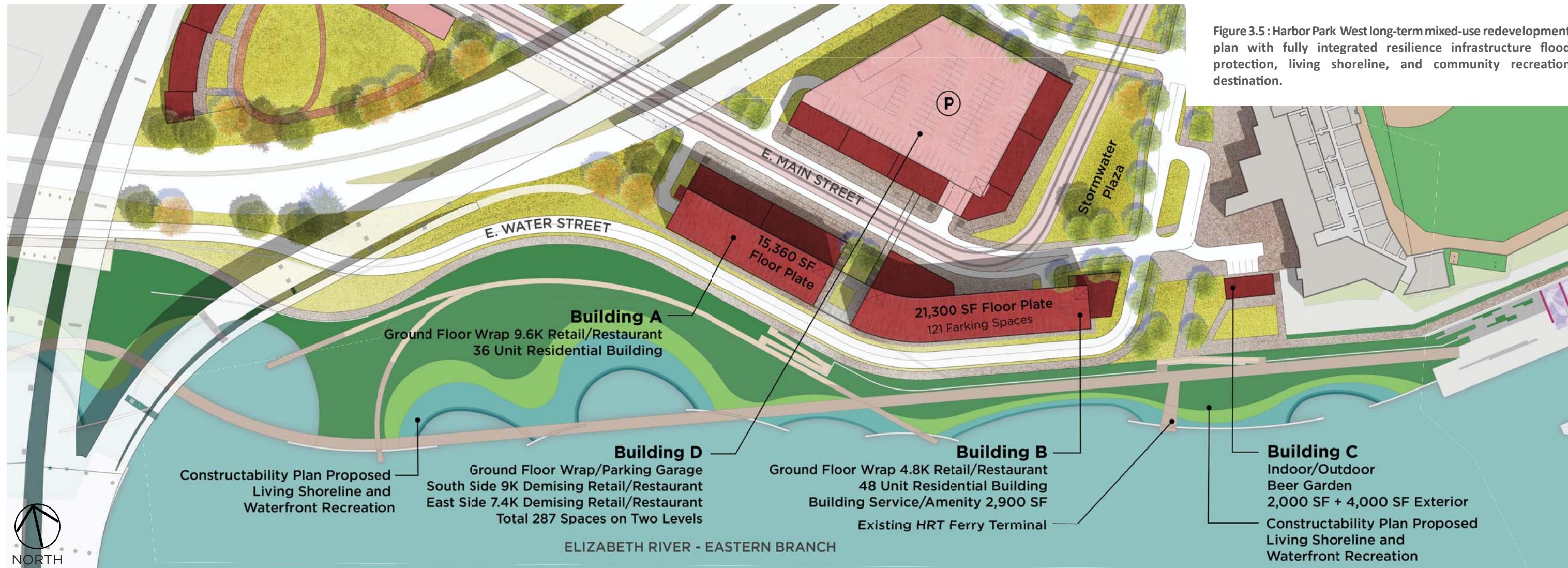


Figure 3.5 : Harbor Park West long-term mixed-use redevelopment plan with fully integrated resilience infrastructure flood protection, living shoreline, and community recreation destination.

Table 3.1: Waterfront/ Main Street development yield table.

Map Key	Uses	Building Footprint S.F.	Stories/ Levels	Commercial S.F.	Total S.F.	Dwelling Units	Notes	Restaurant Parking	Retail Parking	Residential Parking	Other Parking	Total Parking
WATERFRONT/MAIN STREET DEVELOPMENT							PARKING GENERATION					
A	Mixed-Use: Multi-Family Housing & Commercial/Retail	24,960										
	Ground Floor Retail	9,600	1	9,600	9,600	0	Street-level flexible retail frontage connected to residential tower	19	5	0	0	24
	Residential Tower	15,360	5	3,000	76,800	36	5-story building with ground-level parking. First floor amenities and corner retail/restaurant component	6	2	54	0	62
B	Mixed-Use: Multi-Family Housing & Commercial/Retail	26,100										
	Ground Floor Retail	4,800	1	4,800	4,800	0	Street-level flexible retail frontage connected to residential tower	10	3	0	0	13
	Residential Tower	21,300	5	3,000	106,500	48	5-story building with ground-level parking. First floor amenities and corner retail/restaurant component	6	2	72	0	80
C	Indoor/Outdoor Commercial/Restaurant	2,000	1	6,000	2,000	0	Beer garden-type restaurant with additional approx. 4,000sf outdoor seating area	17	0	0	0	17
D	Parking Structure with Commercial/Retail Wrap	16,360	1	16,360	16,360	0	Street-level flexible restaurant/retail swapped around 2 story parking structure	33	9	0	0	42
<i>Subtotals for Harbor Park Waterfront/Main Street</i>		69,420	-	42,760	216,060	84		91	21	126	0	238

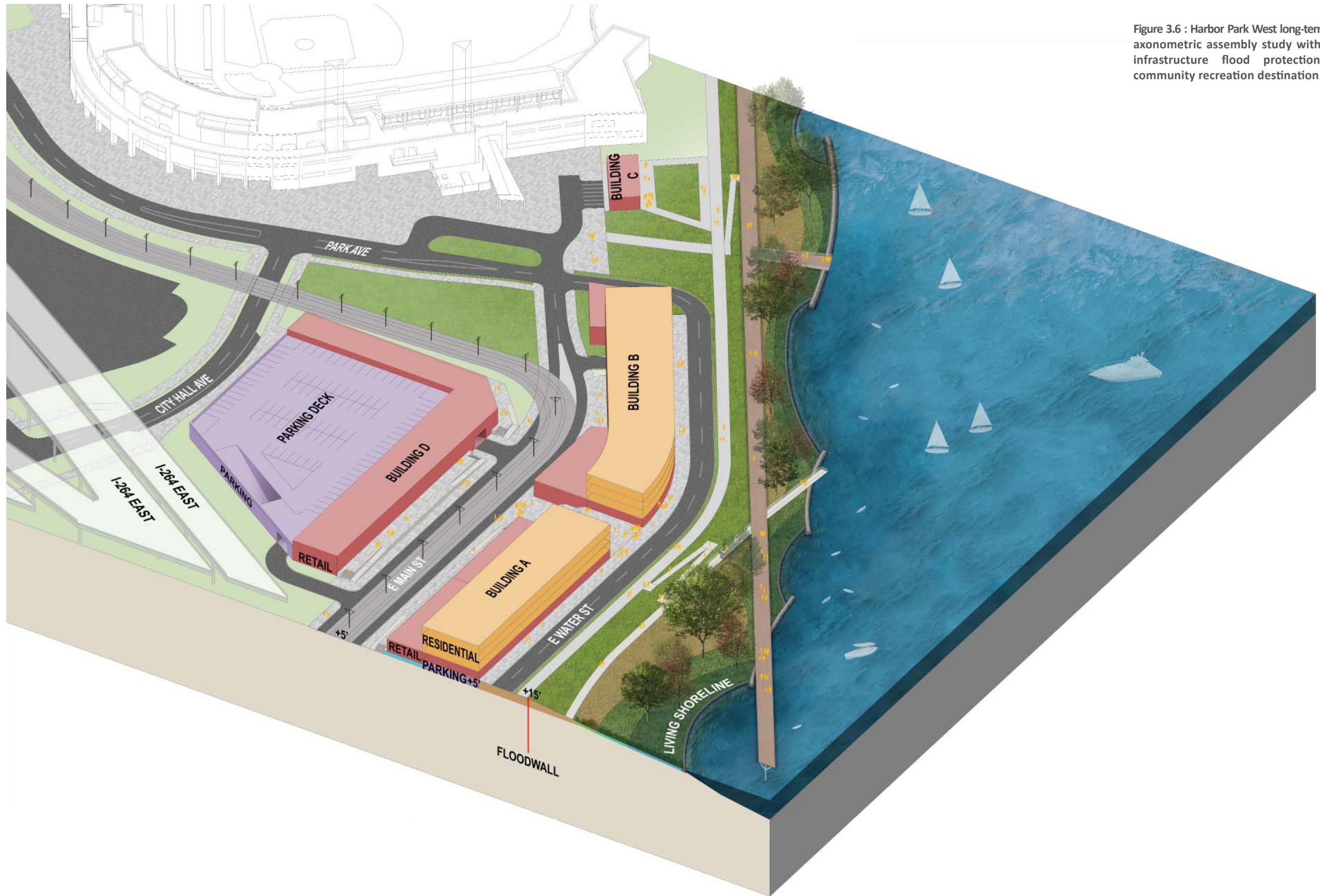


Figure 3.6 : Harbor Park West long-term mixed-use redevelopment axonometric assembly study with fully integrated resilience infrastructure flood protection, living shoreline, and community recreation destination.





Harbor Park East

This area is located east of the ballpark and extends to the active Norfolk Southern rail line. It includes the Amtrak passenger rail station and the existing pier structures into the Elizabeth River.

Overall Development Approach

The development program for this area was provided by the City of Norfolk, based on extensive negotiations that were ongoing with a national resort, casino, spa and events center developer and operator. Since those discussions are ongoing and the final program and project needs are likely to evolve significantly as developer due diligence is performed, the AWP planning process followed some basic assumptions based on other facilities of similar scale and contexts. The overall approach focuses the events, restaurant, and conference facilities along the waterfront frontage, including portions of the piers. The main gaming operations are placed at the core of the development parcel with adjacent hotel and services behind and above. An efficient parking garage layout, based on the circulation requirements and constraints, is depicted to illustrate the general relationship of how such a facility could be placed inland from the primary development elements (Figures 3.7 & 3.8).

Urban Design Parameters/Character-Defining Features

A. DEVELOPMENT SHOULD BE ORIENTED TO THE RIVER'S EDGE

The starting basis for the development configuration is the notion that focuses the orientation of the development toward the riverfront. With the proposed resilience infrastructure and public recreational connectivity along the river's edge, the resort, casino, spa, and events center (hotel/casino complex) become the anchor terminus of the Downtown riverfront. The Elizabeth River starts at Harbor Square in the Freemason District, and extends to the Nauticus museum, Town Point Park, the Waterside, the Waterside Promenade, the West Harbor Park neighborhood, and Harbor Park stadium. The Harbor Park East development is the logical eastern bookend point of Norfolk's grand, public-accessible waterfront. Through the continuous band of resilience infrastructure and public space improvements, combined with development nodes along the way, this plan creates the complete riverfront improvement strategy the City of Norfolk has been advancing for more than four decades. It is critically important that a band of truly public space remains along the river's edge.

B. EAST HARBOR PARK DEVELOPMENT SHOULD FUNCTION AS A SIGNATURE BOOKEND TO THE RIVERFRONT

The "built" elements of the hotel/casino complex may benefit from extending as a band, parallel to the Norfolk Southern rail line, toward the river. This will create a visual backdrop element for a great distance as one travels from Downtown along the river, either as pedestrian or bicyclist along the Elizabeth Riverwalk or for motorists travelling eastbound over the Berkeley Bridge and along E. Water Street. This will also visually connect the buildings to the pair of bascule railroad bridges, which are often in their raised position. The ability for people to see portions of the hotel/casino complex is critically important because it serves as a visual draw that will beckon people to continue walking to the anchor destination.

C. SERVICE FACILITIES SHOULD BE DESIGNED TO MINIMIZE THEIR IMPACT TO THE PUBLIC REALM

Service access to the hotel/casino complex should be accessible from the circulation roadway that also provides a vehicular drop-off for the Amtrak Passenger rail station. Service access to the ballpark will need to be carefully addressed since it currently circulates from what is proposed to be the riverfront terminus of Tidewater Drive. Access can be maintained by treating service drives with special hardscape treatments and architectural and landscape buffers so they visually resemble public spaces and not driveways and truck turnarounds.

D. THE PLACEMENT AND DESIGN OF STREETS SHOULD CONSIDER URBAN DESIGN OPPORTUNITIES SUCH AS VIEWS AND VISTAS

The area-wide transportation improvements create a new direct connection between the St. Paul's Area, the new Park Avenue Greenway, the Brambleton Corridor, and Norfolk State University. This is achieved by extending Tidewater Drive underneath I-264 to the riverfront. The extension would be constructed as a complete street for its entire length. The main entrance of the hotel/casino complex is proposed to be located near the terminus of the Tidewater Drive extension. However, it is critically important that the view down Tidewater Drive to the waterfront not be obstructed with buildings. Instead, a major public art and light sculpture may be located at the water's edge to act as a beacon to the riverfront. Major public art can be an effective tool when developing a waterfront, especially in the early stages. A great example of how effective this technique can be is Battery Park City. When the initial plan was implemented and there were very few buildings constructed along the Hudson River promenade, public sculpture and art installations created defining nodes along the way that promoted a sense of identity for each segment. See the summary of all of the art installations on the Battery Park City Authority's website: <https://bpca.ny.gov/places/public-art/>

E. GREENING AND BRANDING ELEMENTS SHOULD BE CREATIVELY INTEGRATED

The parking structure will be a major architectural element due to its size and height. The resort, casino, and spa operators will likely desire to wrap the building with large-scale digital signing and graphics. It is recommended that the parking structure incorporate greening elements, both from a sustainability and a visual landscape standpoint. From a physical form, it should not appear as a giant monolithic concrete mass, but incorporate other materials, including glass or metals, and potential landscape plantings. There are some excellent examples of what is possible, including the parking garages at Ronald Reagan National Airport in Washington, D.C., and the Santa Monica, CA, Civic Center. The provision of solar arrays on the rooftop and grey water capture and reuse may also be considered.

F. INCORPORATE GREENING AND BRANDING THROUGH BOLD AND INNOVATIVE DESIGN

The public realm along the river's edge must incorporate the resilience components that link the rest of the riverfront through Harbor Park. The proposed resilience structures terminate into the elevation of the railbed to complete the enclosure.

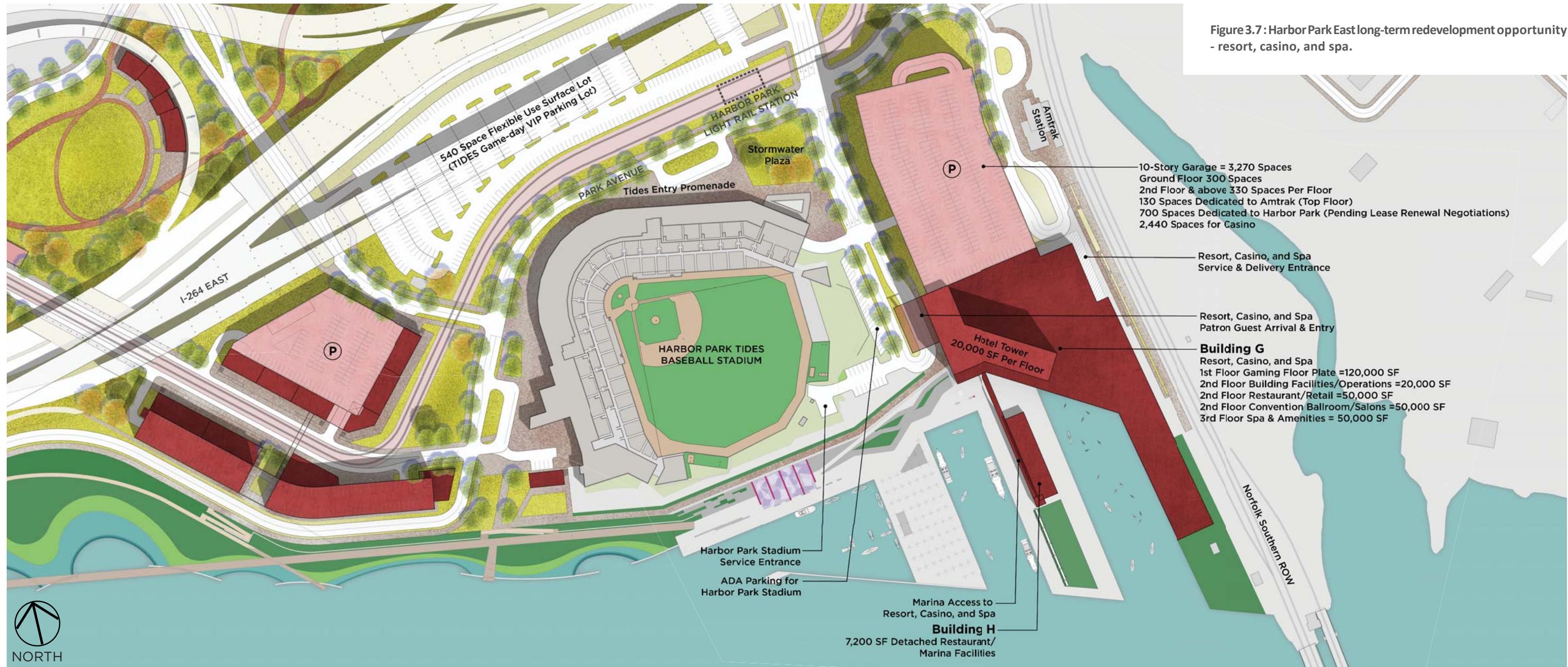
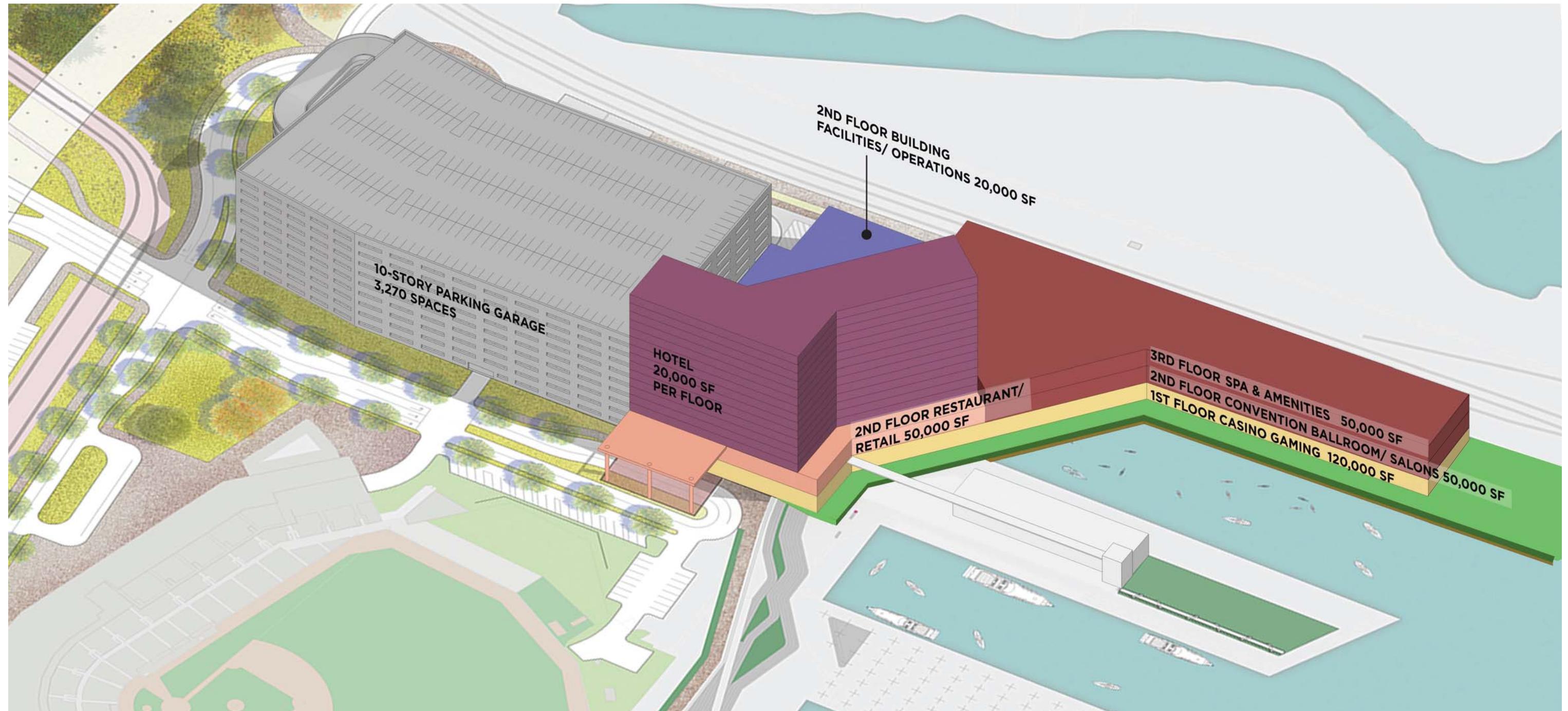


Figure 3.7: Harbor Park East long-term redevelopment opportunity - resort, casino, and spa.

Table 3.2: Harbor Park resort, casino, spa complex yield table.

Map Key	Uses	Building Footprint S.F.	Stories/Levels	Commercial S.F.	Total S.F.	Dwelling Units	Notes	Restaurant Parking	Retail Parking	Residential Parking	Other Parking	Total Parking
RESORT, CASINO, SPA COMPLEX										PARKING GENERATION		
G	Casino Floor	120,000	1		120,000	0	Total casino gaming space, situated on the ground level of the casino complex (11' el.)	0	0	0	2000	2000
	Hotel Tower	20,000	8		160,000		8-story hotel tower over amenities, assuming 500sf per room for total of 320	0	0	0	160	160
	Restaurant/Retail Space	50,000	1	50,000	50,000	0	Restaurant/retail promenade on second floor of casino complex	98	25	0	0	123
	Conference/Ballroom/Meeting Space	50,000	2		100,000	0	Conference/meeting/events space on second and potentially third floors of complex	0	0	0	0	167
H	Marina Commercial/Restaurant/ Casino Annex	7,200	1	7,200	7,200	0	Disconnected restaurant/marina-associated services building potentially affiliated with casino	15	4	0	167	19
<i>Subtotal for Resort, Casino, Spa Complex</i>		127,200	-	57,200	437,200	0		113	29	0	2327	2469

Figure 3.8: Harbor Park East axonometric programming community desired configuration study of long-term mixed-use redevelopment opportunity- resort, casino, and spa.



New Park Avenue Greenway

This linear area is created by the AWP's proposed extension and relocation of existing Park Avenue between Tidewater Drive and E. Brambleton Avenue. The focus of this critical transportation corridor is the creation of a direct connection that brings together many close-by but currently detached community anchors and bringing them into the redevelopment fold of Harbor Park. These anchors include the St. Paul's Area, Norfolk State University and its campus core, and the Brambleton Avenue corridor. This is achieved by creating a new complete street connection that is not only an efficient vehicular thoroughfare, but is also a generous 20-foot-wide multi-use pedestrian and bicycle "greenway" incorporated into the overall design of the corridor, which further dramatically upgrades the Elizabeth River Trail extension to Norfolk State University.

Overall Development Character

The overall design character of this linear development area is more like a parkway with development nodes. Due to the angled configuration of the existing street grid in relationship to the proposed Park Avenue alignment, combined with the sweeping configuration of the HRT Tide light rail alignment, there are only two primary development blocks. The first, referred to as Building E, is an adaptive reuse of an existing complex of city-owned industrial buildings. The proposed reuse for this facility focuses on fostering resilience-related industries within the City and environmental education. The second building area is located at the southwest corner of the intersection of Park Avenue and Brambleton Avenue. This building, referred to as Building F, is the Norfolk State University Gateway Plaza. Located at the NSU HRT Tide light rail station, it is envisioned as a food cooperative common on many college campuses, and as an indoor/outdoor market. This concept would serve as a food venue that would serve multiple markets, including the local residents of South Brambleton and student, staff, and faculty populations at NSU. Its location at the HRT Tide light rail station makes it a convenient transit-oriented development (TOD) amenity (Figures 3.9 & 3.10).

Urban Design Parameters/Character-Defining Features

A. PROMOTE ADAPTIVE REUSE WITH RESILIENCE AS A PART OF ECONOMIC BRANDING

Building E, the RISE Resilience Accelerator, should be a funky industrial complex with modern amenities that supports a mix of light industrial/manufacturing spaces with office, meeting, and even limited retail spaces. The exterior of the building is advised to be treated with signing and branding elements that promote the City of Norfolk's overall efforts in the realm of resilience and how it is capitalizing on an issue that would otherwise be considered solely as a limitation to create a new industrial sector for the City.

B. EMPHASIZE GATEWAYS

The intersection of Park Avenue and Brambleton Avenue is a critical gateway, including for the NSU campus, South Brambleton neighborhood, and Park Avenue Corridors, as well as the HRT Tide light rail station. As a result, the opportunity for a major public plaza with signing and branding treatments emerges at the corner and extends to the entrance of the HRT station.

C. PROMOTE THE TRANSPORTATION NODES THROUGH COMMUNITY SERVICES AND COMMERCIAL AMENITIES

Building F, the NSU or community food co-op, takes full advantage of the opportunity to capture a localized market that connects Norfolk State University to the light rail station. This small-scale development can be an inexpensively constructed and flexible open space or "shed" for food vendors. The interior could accommodate food vendor stalls common at farmer's markets, along with sit-down dining areas and possibly one or two full-time food establishments. The NSU community food co-op is an expertly located "healthy food incubator" that can generate revenue from pedestrians as they travel to and from the light rail station. The idea is it could function similar to a food court during weekdays and as a farmer's markets on Fridays and Saturdays. The exterior parking area could include covered canopies to accommodate outdoor food vendors as well. Alternative commercial uses are encouraged to be evaluated, so long as the suggested uses fall in line with Transit Oriented Development (TOD).

D. FOSTER CONNECTIVITY BETWEEN MAJOR COMMUNITY ANCHORS THROUGH SIGNATURE PEDESTRIAN AND BICYCLE NETWORKS

Each of the buildings along Park Avenue are proposed to maximize engagement with the pedestrian/bicycle greenway multi-use path. This means that entrances should face or at least directly connect to the greenway.

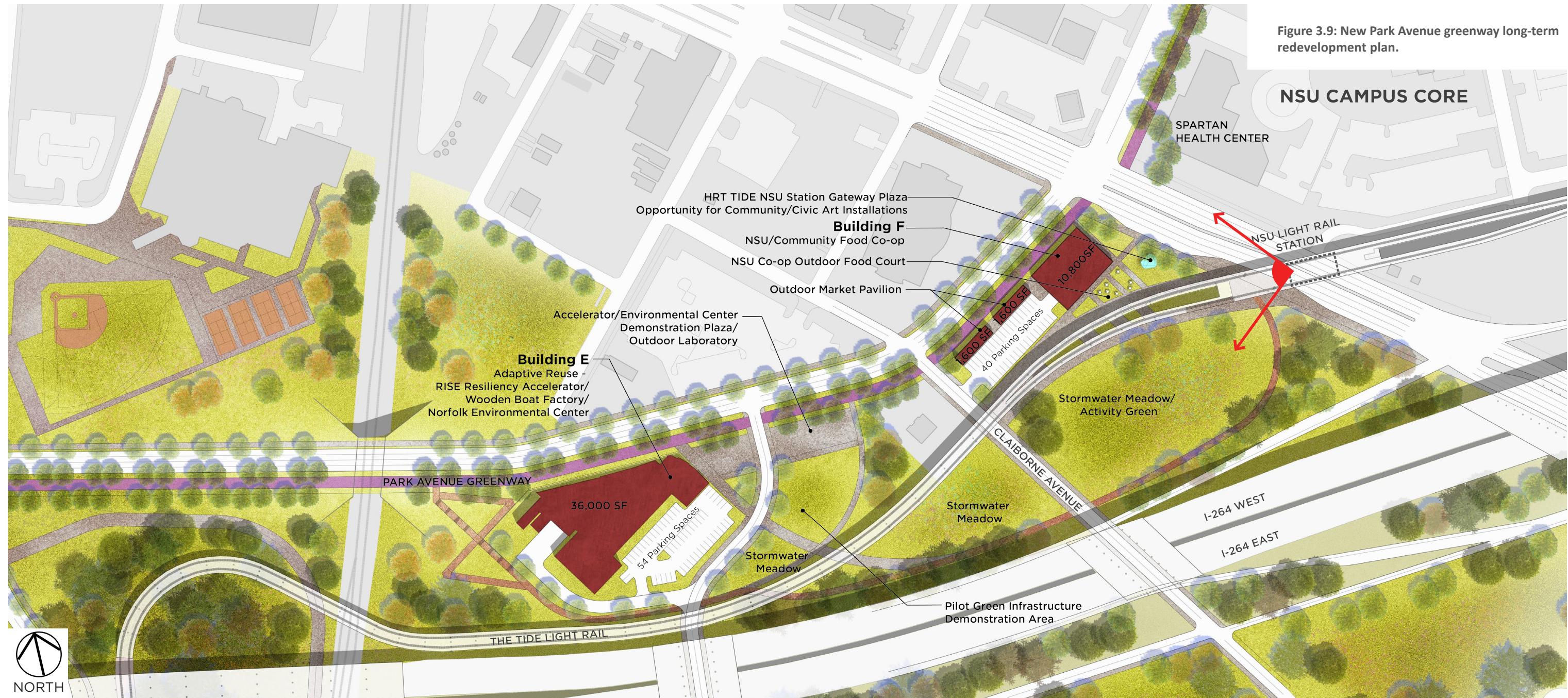


Figure 3.9: New Park Avenue greenway long-term redevelopment plan.

Table 3.3: New Park Avenue greenway development yield table.

Map Key	Uses	Building Footprint S.F.	Stories/Levels	Commercial S.F.	Total S.F.	Dwelling Units	Notes	Restaurant Parking	Retail Parking	Residential Parking	Other Parking	Total Parking
PARK AVENUE NSU CONNECTION								PARKING GENERATION				
E	Environmental/Resilience Accelerator Space	36,000	1	-	36,000	0	Accelerator for resilience startups and environmental services	0	0	0	43	43
F	Food Co-op and Indoor/Outdoor Market Space	14,000	1	14,000	14,000	0	NSU Food Co-op and market. 10,800sf indoor space and 3,200 outdoor pavilions	0	24	0	0	24
<i>Subtotal for Park Avenue NSU Connection</i>		50,000	-	14,000	50,000	0		0	24	0	43	67

Figure 3.10 : View from HRT Tide Light Rail NSU station. Looking toward the proposed Park Avenue thoroughfare and greenway.



3.3 Environmental Next Steps



Figure 3.11 : 1714 historic aerial photo of Harbor Park industrial waterfront. Photo Credit: City of Norfolk

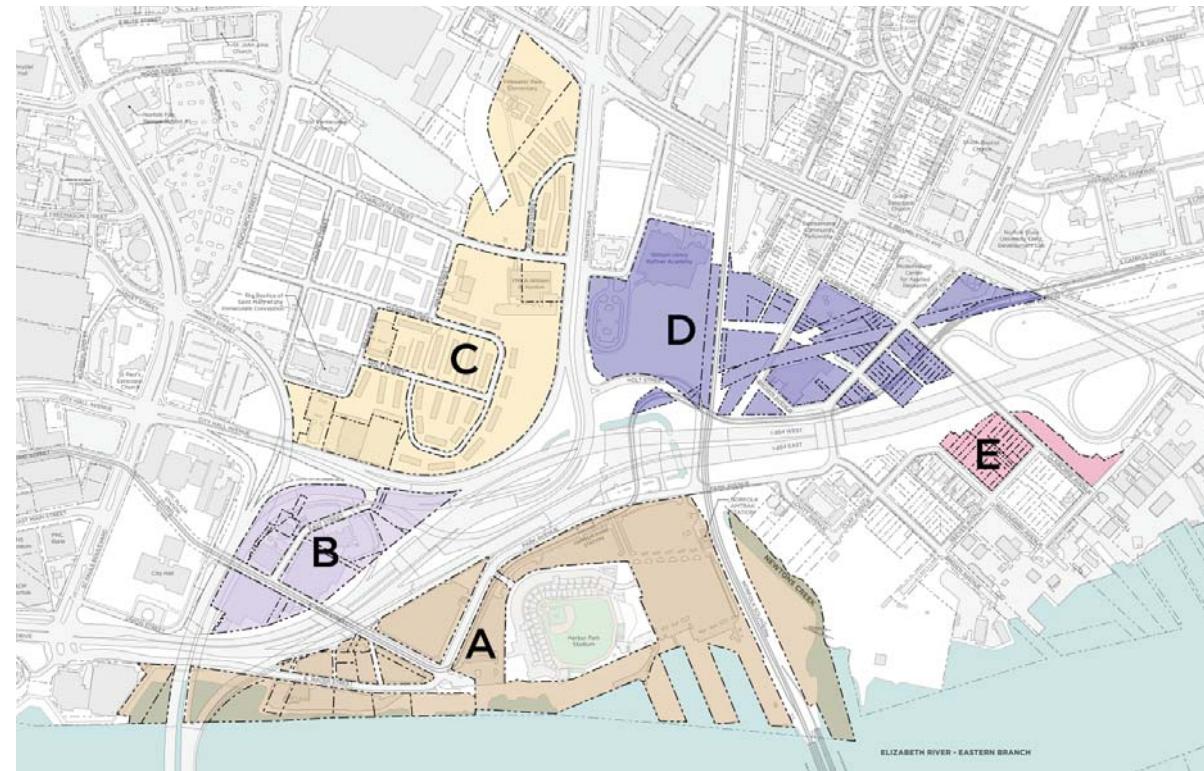


Figure 3.12 : Parcels Inventory & Environmental Status key map.

Environmental Due Diligence Action Strategy

Based on the environmental studies and investigative work that have been performed to date, many of Harbor Park's Recognized Environmental Conditions (RECs) and associated environmental constraints are apparent, but further study and investigation will likely be required. Below is a list of recommendations that has been compiled in preparation for potential redevelopment, infrastructure improvements and restoration.

A. INVENTORY AND QUANTIFY ALL BROWNFIELDS PROPERTIES

Utilizing Figures 3.12 - 3.17, the City of Norfolk would benefit from undertaking and establishing a multi-project comprehensive environmental status and brownfields parcel inventory for Harbor Park, St. Paul's Area and South Brambleton neighborhoods that are planned for redevelopment. This environmental due diligence is necessary to unlock public funding streams for public infrastructure projects and redevelopment efforts.

B. PERFORM ENVIRONMENTAL DUE DILIGENCE AND ASSESSMENTS

The Harbor Park, St. Paul's Area, and South Brambleton areas of Norfolk have an extensive mapped history of historic filling of the Dun-in-the-Mire Estuary with significant pockets of former industrial operations. Undertake Phase I Environmental Site Assessments (ESA) for all parcels identified for redevelopment where the current environmental status is unknown.

C. ADDRESS HISTORIC MARITIME STRUCTURES

Creosote timber piles along the Eastern Branch of the Elizabeth River will need further evaluation to determine the best solution for removal and to minimize site disturbance. Additional site evaluation and environmental site assessments should be performed to ensure that the proper and the most desired method of removal for creosoted timbers along the Eastern Branch is undertaken. Methods of removal should coincide with proposed development, living shoreline installation, and associated amenity improvements.

D. EVALUATE HISTORIC FILL MATERIALS

Additional sediment sampling is advised to be performed at the extents of the proposed Harbor Park living shoreline restoration to determine potential environmental impacts, depths of historical fills, and if any additional contaminants are found that may require other remediation strategies. Additionally, the Harbor Park shoreline will likely require waterside sediment sampling to properly remediate and receive the proposed living shoreline.

E. SUPPORT NECESSARY DEMOLITION ACTIVITIES

A Hazardous Material Inspection (HMI) for the 6,163 square-foot existing masonry and steel frame building constructed circa 1957 that is located on parcel #7 (GPIN 1437134718, Tax ID 44768600) should be performed. If it is determined hazardous materials are present within the building, hazardous material abatement work must be performed prior to the demolition of the building.

F. PERFORM DETAILED SITE ASSESSMENTS AND REMEDIAL ACTION PLANS

Once preliminary redevelopment site plans are established, Phase II ESAs are encouraged to be performed on inventoried Brownfield sites that have RECs to assist in informing reuse site design and engineering and to determine the level of remediation necessary for specific redevelopment components.

G. CONSIDER SPECIAL SOIL MANAGEMENT STRATEGIES

It is recommended that contiguous brownfield parcels be evaluated for consolidation in order to increase the flexibility in reuse of excavated material from contaminated sites (Outlined in "Management and Reuse of Contaminated Media variance No. LPR-SW-04-2012). This report evaluates the potential on-site reuse of excavated soils, in lieu of off-site disposal. By consolidating parcels, this can potentially minimize the number of individual variances that would need to be issued in order to properly reuse soil on-site.

H. CONTINUE AGENCY COORDINATION WITH VIRGINIA DEQ

Determine eligible sites that qualify for the DEQ's voluntary remediation program.

FIGURE 3.13 : PARCEL INFORMATION AREA A

Map Key	Parcel GPIN	Tax Account	Property Address	Current Owner	Previous Owner	Phase I ESA	Phase II ESA	Property Use	Parcel Area Acreage	Current Land Use	Zoning	Overlay District
1	1437241069	32269112	NSE Main St	City Of Norfolk	N&W Railway Co			Non-Taxable	3.0135	Parking Lot	D-W	Coastal Resilience Overlay
2	1437139869	32266310	1115 E. Main st	City Of Norfolk	Eliz River Land Co	4/8/2003	6/13/2003	Non-Taxable	0.2777	Parking Lot	D-W	Coastal Resilience Overlay
3	1437147041	42071600	1105 E Main St	City Of Norfolk	Eliz River Land Co	4/8/2003	6/13/2003	Non-Taxable	0.0794	Parking Lot	D-W	Coastal Resilience Overlay
4	1437147013	42071500	1101 E Main St	City Of Norfolk	Eliz River Land Co	4/8/2003	6/13/2003	Non-Taxable	0.061	Parking Lot	D-BC	Coastal Resilience Overlay
5	1437130839	32117200	1115 Water St	City Of Norfolk	Eliz River Land Co	4/8/2003	6/13/2003	Non-Taxable	1.0734	Waterbody	D-W	Coastal Resilience Overlay
6	1437132883	44768700	1119 Water St	City Of Norfolk	Upton Storage Assoc	4/8/2003	6/13/2003	Non-Taxable	0.3739	Vacant Land	D-W	Coastal Resilience Overlay
7	1437134718	44768600	1125 Water St	City Of Norfolk	Upton Storage Assoc	4/8/2003	6/13/2003	Non-Taxable	1.0195	Abandoned Building	D-W	Coastal Resilience Overlay
8	1437136859	32118100	1150 Water St	City Of Norfolk	Eliz River Land Co	4/8/2003	6/13/2003	Non-Taxable	0.2367	Parking Lot	D-W	Coastal Resilience Overlay
9	1437136753	60051300	1155 Water St	City Of Norfolk	Eliz River Land Co	4/8/2003	6/13/2003	Non-Taxable	0.662	Underutilized	D-W	Coastal Resilience Overlay
10	1437137837	05285800	1170 Water St	City Of Norfolk	Eliz River Land Co	4/8/2003	6/13/2003	Non-Taxable	0.3432	Parking Lot	D-W	Coastal Resilience Overlay
11	1437139846	02701000	1200 Water St	City Of Norfolk	Eliz River Land Co	4/8/2003	6/13/2003	Non-Taxable	0.5237	Parking Lot	D-W	Coastal Resilience Overlay
12	1437138658	32266300	1201 Water St	City Of Norfolk	Eliz River Land Co	4/8/2003	6/13/2003	Non-Taxable	0.5482	Underutilized	D-W	Coastal Resilience Overlay
13	1437231613	23251300	1235 Water St	City Of Norfolk	Eliz River Land Co			Non-Taxable	0.8848	Underutilized	D-W	Coastal Resilience Overlay
14	1437146073	32116900	ES Hutchins La (Address ?)	State Highway & Transportation	NorBaltCarolina	4/8/2003	6/13/2003	Non-Taxable	0.089	Vegetated Buffer	D-BC	Coastal Resilience Overlay
15	1437136967	05285100	ES Hutchins La (Address ?)	City Of Norfolk	Eliz River Land Co	4/8/2003	6/13/2003	Non-Taxable	0.1307	Parking Lot	D-W	Coastal Resilience Overlay
16	1437330842	79792000	140 Park Ave CO1 & CO2	City Of Norfolk				Non-Taxable	28.0837	Parking Lot waterbody & vacant land	D-W	Coastal Resilience Overlay
17	1437339770	33935210	SS Lovitt Ave	City Of Norfolk	Peck Iron & Metal			Non-Taxable	5.4543		I-L	Coastal Resilience Overlay
18	1437332459	60069000	119 Park Ave	City Of Norfolk	River Door Boathouse Inc			Non-Taxable	0.9159		D-W	Coastal Resilience Overlay
19	1437134985	19572900	N S Water St (Address ?)	City Of Norfolk	Haynsworth	9/5/2007		Non-Taxable	0.5108	Parking Lot	D-W	Coastal Resilience Overlay
20	1437133958	19572906	N S Water St (Address ?)	City Of Norfolk	Haynsworth	9/5/2007		Non-Taxable	0.0544	Vacant Land - Vegetated	D-W	Coastal Resilience Overlay
21	1437145060	84894160	SS Waterside Dr (Address ?)	State Highway & Transportation				Non-Taxable	0.004	Vegetated Buffer	D-BC	N/A
22	1437036919	72550024	1101 Water St	City Of Norfolk	Eliz River Land Co			Non-Taxable	0.9642		D-W	Coastal Resilience Overlay
23	1437036965	02701500	SS Water St (Address ?)	City Of Norfolk	Eliz River Land Co			Non-Taxable	0.4225		D-W	Coastal Resilience Overlay
24	1437048051	84894150	SS Water St (Address ?)	State Highway & Transportation	NorBaltCarolina			Non-Taxable	1.5623	Highway Structure	D-W	Coastal Resilience Overlay

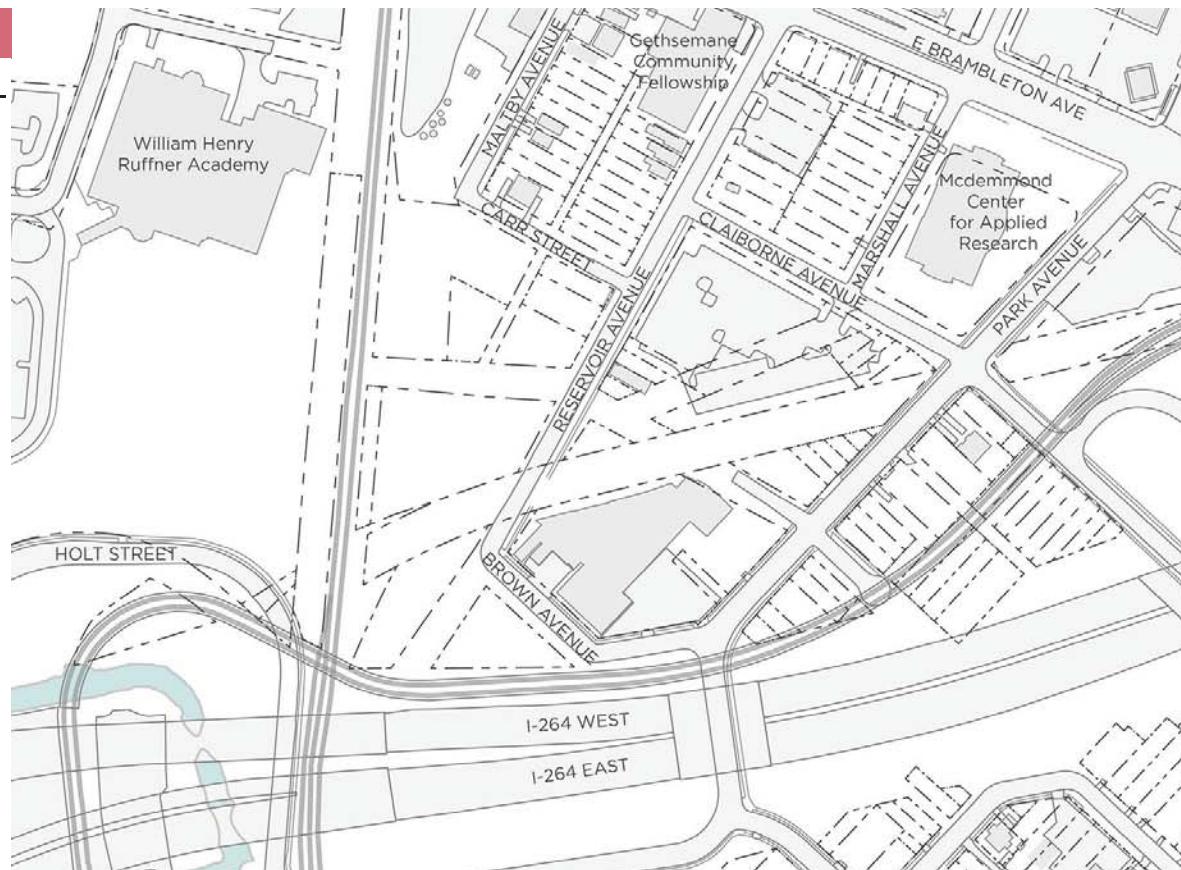
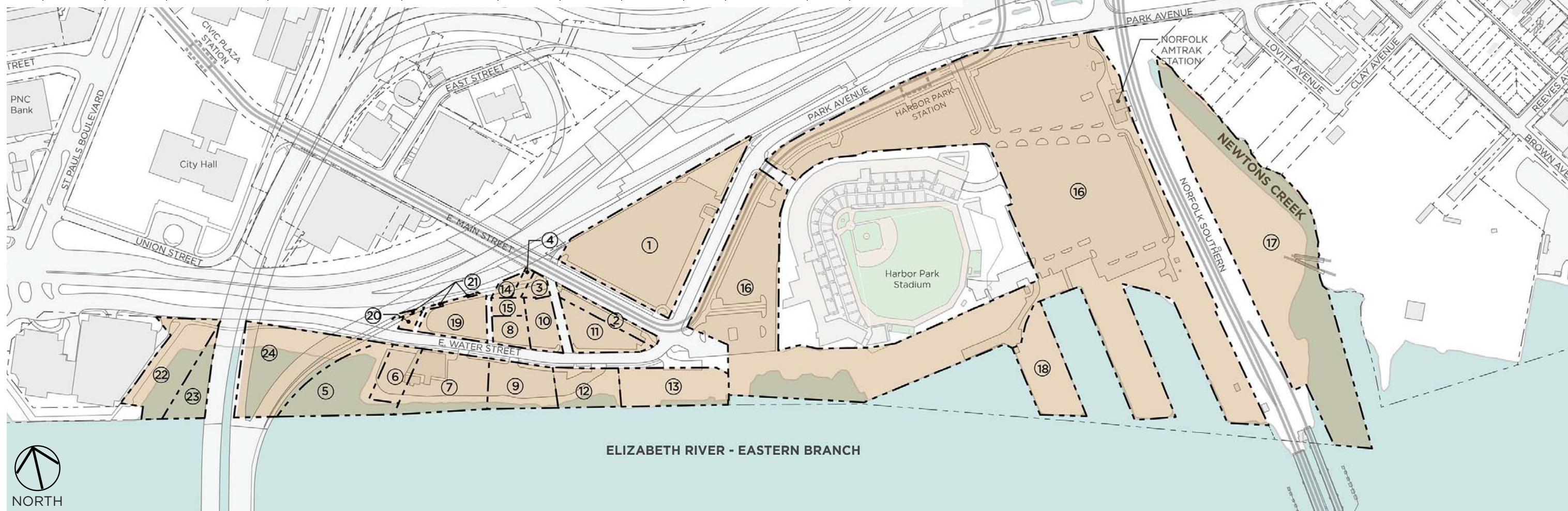


FIGURE 3.14 : PARCEL INFORMATION AREA B

Map Key	Parcel GPIN	Tax Account	Property Address	Current Owner	Previous Owner	Phase I ESA	Phase II ESA	Property Use	Parcel Area Acreage	Current Land Use	Zoning	Overlay District
1	1437140235	84315200	N S Water St (Address ?)	Elizabeth River Tunnel Dist				Non-Taxable	0.0203	City Hall South Garage Access Road	D-BC	Coastal Resilience Overlay
2	1437142307	79786210	999 E Main St	Elizabeth River Tunnel Dist				Non-Taxable	1.7779	City Hall South Garage	D-BC	Coastal Resilience Overlay
3	1437143258	79784410	S S E Main St (Address ?)	City Of Norfolk				Non-Taxable	0.1626	City Hall South Garage	D-BC	Coastal Resilience Overlay
4	1437143258	79784410	S S E Main St (Address ?)	City Of Norfolk				Non-Taxable	0.1626	City Hall South Garage	D-BC	Coastal Resilience Overlay
5	1437146404	79811410	100 East St	City Of Norfolk				Non-Taxable	1.6834	City Hall North Garage	D-BC	Coastal Resilience Overlay
6	1437147447	79811000	E S East St (Address ?)	City Of Norfolk				Non-Taxable	0.1149	Vacant land - Vegetated	D-BC	Coastal Resilience Overlay
7	1437147578	85008700	140 East St	City Of Norfolk	USA???			Non-Taxable	1.4798	Norfolk Sheriff Office	D-BC	Coastal Resilience Overlay
8	1437148474	79810910	S S East St (Address ?)	City Of Norfolk				Non-Taxable	0.1259	Vegetated Buffer	D-BC	Coastal Resilience Overlay
9	1437240519	79811110	E S East St (Address ?)	City Of Norfolk				Non-Taxable	0.3499	Vacant Land - Vegetated	D-BC	Coastal Resilience Overlay
10	1437241668	86204410	S S E City Hall Av (Address ?)	Commonwealth of Virginia				Non-Taxable	1.1789	Highway Structure & Roads	D-BC	Coastal Resilience Overlay
11	1437240586	Unknown	Unknown	Unknown				Unknown	Unknown	Unknown	D-BC	Coastal Resilience Overlay
12	1437240703	86202610	S S E City Hall Av (Address ?)	Commonwealth of Virginia				Non-Taxable	0.0539	Highway Structure & Roads	D-BC	Coastal Resilience Overlay
13	1437241668	86204410	S S E City Hall Av (Address # ?)	Commonwealth of Virginia				Non-Taxable	0.0863	Highway Structure & Roads	D-BC	Coastal Resilience Overlay
14	1437145658	84315500	143 East St	Elizabeth River Tunnel Dist				Non-Taxable	Unknown	Parking & Highway structure	D-BC	Coastal Resilience Overlay
15	1437145778	72673050	W S East St (Address ?)	Norfolk Redevelopment and Housing Authority				Non-Taxable	0.0969	Parking & Highway Structure	D-BC	Coastal Resilience Overlay
16	1437143790	72673000	N S E Main St (Address ?)	Commonwealth of Virginia				Non-Taxable	0.9642	Vegetated Buffer	D-BC	Coastal Resilience Overlay
17	1437144698	79811052	W S East St (Address ?)	City Of Norfolk				Non-Taxable	0.1810	Structure	D-BC	Coastal Resilience Overlay
18	1437143698	79811050	W S East St (Address ?)	City Of Norfolk	Norfolk Redevelopment and Housing Authority			Non-Taxable	0.0093	Vegetated Buffer	D-BC	Coastal Resilience Overlay
19	1437142690	79811054	N S E Main St (Address ?)	City Of Norfolk	Norfolk Redevelopment and Housing Authority			Non-Taxable	0.0222	Vegetated Buffer	D-BC	N/A
20	1437143588	79813210	920 E Main St	City Of Norfolk				Non-Taxable	0.7193	Norfolk Central Energy Plant	D-BC	Coastal Resilience Overlay

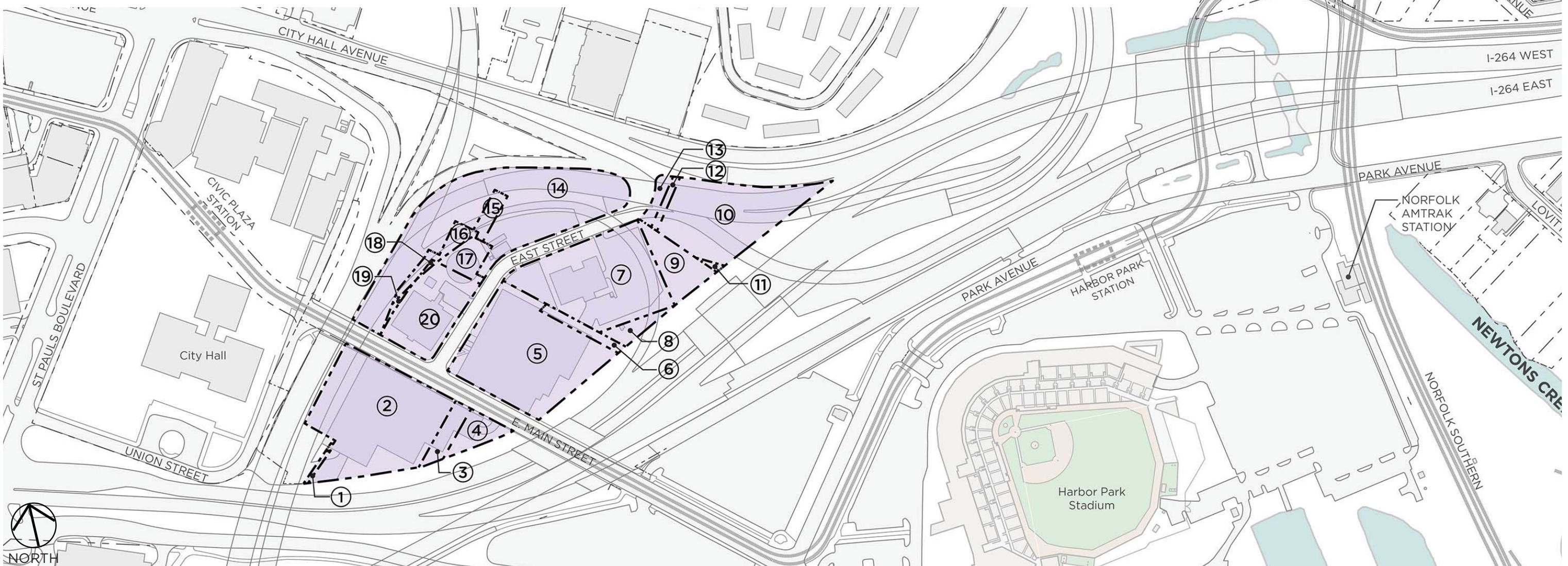


FIGURE 3.15 : PARCEL INFORMATION AREA C

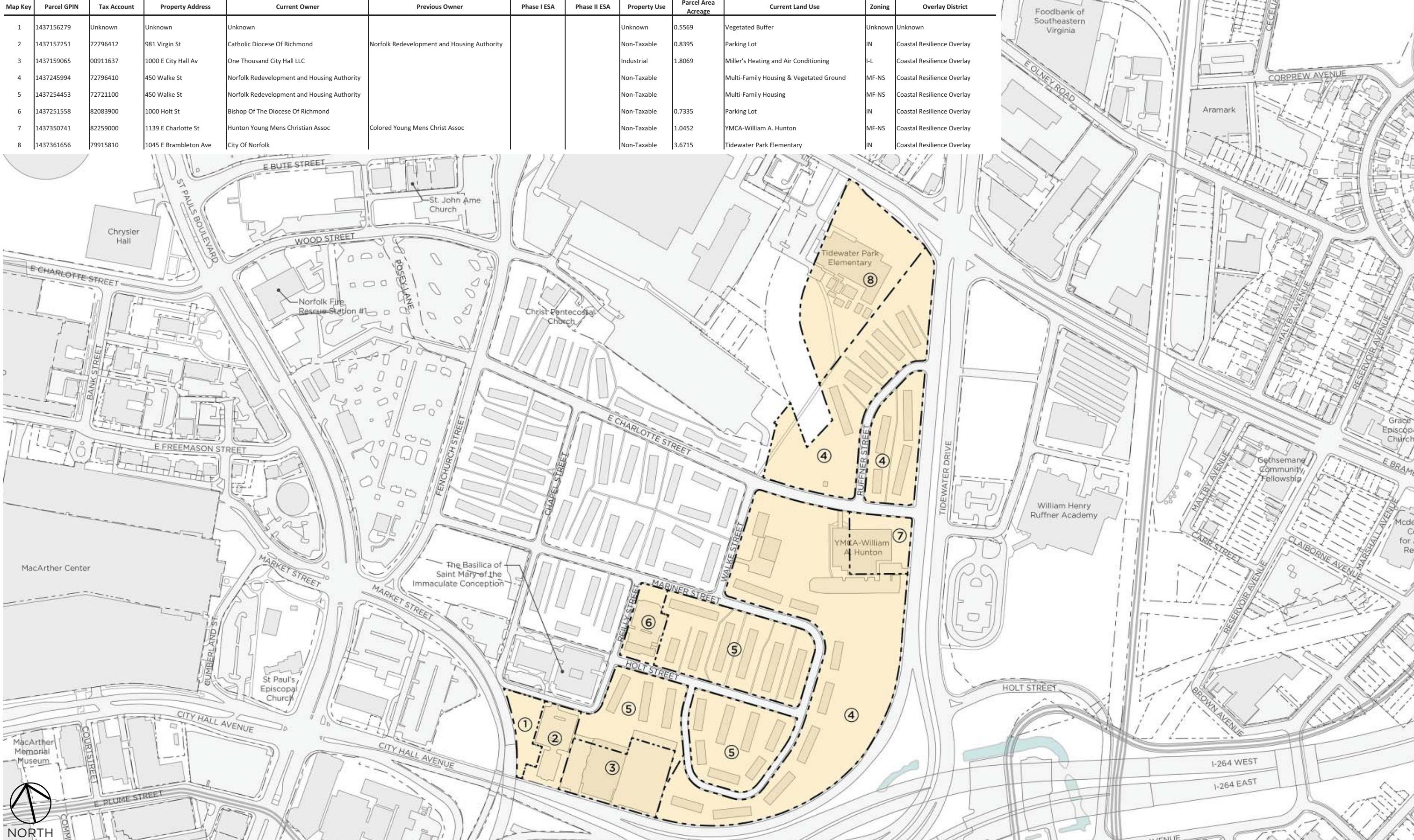


FIGURE 3.16 : PARCEL INFORMATION AREA D

Map Key	Parcel GPIN	Tax Account	Property Address	Current Owner	Previous Owner	Phase I ESA	Phase II ESA	Property Use	Parcel Area Acreage	Current Land Use	Zoning	Overlay District
1	1437355483	01792020	610 May Av	City Of Norfolk				Non-Taxable	9.8266	William Henry Ruffner Academy	IN	Coastal Resilience Overlay
2	1437346998	00911499	354 Holt St	City Of Norfolk				Non-Taxable	0.0550	Street	IN	Coastal Resilience Overlay
3	1437347914	00911512	350 Holt St	City Of Norfolk				Non-Taxable	0.0830	Street	IN	Coastal Resilience Overlay
4	1437344999	46856000	S S Lovitt Av	City Of Norfolk	White, Corbin B			Non-Taxable	0.3355	Light Rail Structure	IN	Coastal Resilience Overlay
5	1437358246	Unknown	Unknown	Unknown				Unknown	0.8502	Vegetated Buffer	Unknown	Unknown
6	1437349913	Unknown	Unknown	Unknown				Unknown	0.3183	Vegetated Buffer	IN-C	Coastal Resilience Overlay
7	1437453007	00911511	429 Park Av	City Of Norfolk				Non-Taxable	1.3730	Vacant Land	Unknown	Coastal Resilience Overlay
8	1437358197	Unknown	Unknown	Unknown				Unknown	0.1198	Ground	I-L	Coastal Resilience Overlay
9	1437450147	13219200	313 Reservoir Av	Norfolk Redevelopment and Housing Authority	Hutch Properties Llc			Non-Taxable	0.9343	Vacant Land	I-L	Coastal Resilience Overlay
10	1437450478	00000782	Unknown	Unknown				Unknown	0.9889	Vegetated Ground	Unknown	Unknown
11	1437451306	45187600	N S Willoughby Av	Virginia Holding Corp.				Vacant Land	0.1963	Vegetated Buffer	I-L	Coastal Resilience Overlay
12	1437451390	79948210	401 Reservoir Av	City Of Norfolk				Non-Taxable	0.2175	Reservoir Avenue	I-L	Coastal Resilience Overlay
13	1437452345	22334600	405 Reservoir Av	City Of Norfolk	United Way Of S Hampton Roads Inc			Non-Taxable	0.1490	Mini Park Vegetated	I-L	Coastal Resilience Overlay
14	1437452378	23359855	409 Reservoir Av	City Of Norfolk	Jones, Herbert E Et Als			Non-Taxable	0.0887	Ground Vegetated	I-L	Coastal Resilience Overlay
15	1437440846	79905010	1511 Brown Av	City Of Norfolk				Non-Taxable	0.3419	Parking Lot	IN-C	Coastal Resilience Overlay
16	1437443903	00911614	1512 Brown Av	Norfolk Redevelopment and Housing Authority				Non-Taxable	1.5799	Industrial Building	I-L	Coastal Resilience Overlay
17	1437443878	24006700	359 Park Av	Norfolk Redevelopment and Housing Authority	Johnson, Everett R			Non-Taxable	0.0754	Parking Lot	I-L	Coastal Resilience Overlay
18	1437444758	02331900	350 Park Av	Transportation Dist Comm Of H Rds	Eure-Barrington, Judy Et Als			Non-Taxable	0.0340	Vacant Land	IN-C	Coastal Resilience Overlay
19	1437444789	36621020	352 Park Av	Transportation Dist Comm Of H Rds	Enterprise & Empowerment Fdtn Nsu			Non-Taxable	0.0406	Vacant Land	IN-C	Coastal Resilience Overlay
20	1437445821	27103400	354 Park Av	Norfolk Redevelopment and Housing Authority	Kesser, M Barron			Non-Taxable	0.1009	Vacant Land	IN-C	Coastal Resilience Overlay
21	1437445852	43772500	356 Park Av	Norfolk Redevelopment and Housing Authority	Epps, James L Life &			Non-Taxable	0.0637	Vacant Land	IN-C	Coastal Resilience Overlay
22	1437445873	79906810	E S Park Av	City Of Norfolk				Non-Taxable	0.0543	Vacant Land	IN-C	Coastal Resilience Overlay
23	1437446708	01015200	S 5 Willoughby Av	Transportation Dist Comm Of H Rds	Anthony, Christopher R			Non-Taxable	0.0188	Vacant Land	IN-C	Coastal Resilience Overlay
24	143745030	47254520	401 Park Av	Enterprise & Empowerment Fdtn Nsu	Norfolk Redevelopment and Housing Authority			Vacant Land	0.1552	Vacant Land	IN-C	Coastal Resilience Overlay
25	1437450392	47254530	405 Park Av	Enterprise & Empowerment Fdtn Nsu	Norfolk Redevelopment and Housing Authority			Vacant Land	0.0439	Vacant Land	IN-C	Coastal Resilience Overlay
26	1437456013	47254523	407 Park Av	Enterprise & Empowerment Fdtn Nsu	Norfolk Redevelopment and Housing Authority			Vacant Land	0.0352	Vacant Land	IN-C	Coastal Resilience Overlay
27	1437456034	47254525	W S Park Av	Enterprise & Empowerment Fdtn Nsu	Norfolk Redevelopment and Housing Authority			Vacant Land	0.0269	Vacant Land	IN-C	Coastal Resilience Overlay
28	1437456064	47254533	W S Park Av	Enterprise & Empowerment Fdtn Nsu	Norfolk Redevelopment and Housing Authority			Vacant Land	0.0204	Vacant Land	IN-C	Coastal Resilience Overlay
29	1437456095	47254535	W S Park Av	Enterprise & Empowerment Fdtn Nsu	Norfolk Redevelopment and Housing Authority			Vacant Land	0.0055	Vacant Land	IN-C	Coastal Resilience Overlay
30	1437446848	27103500	400 Park Av	Norfolk Redevelopment and Housing Authority	Kesser, M Barron			Non-Taxable	0.0654	Vacant Land	IN-C	Coastal Resilience Overlay
31	1437446960	22135400	402 Park Av	Norfolk Redevelopment and Housing Authority	Alston, Sam			Non-Taxable	0.0594	Vacant Land	IN-C	Coastal Resilience Overlay
32	1437446981	22135500	404 Park Av	Norfolk Redevelopment and Housing Authority	Whitehead, Tonya			Non-Taxable	0.0611	Vacant Land	IN-C	Coastal Resilience Overlay
33	1437447804	20170800	1608 Willoughby Av	Norfolk Redevelopment and Housing Authority	Roseboro, Debora T			Non-Taxable	0.0451	Vacant Land	IN-C	Coastal Resilience Overlay

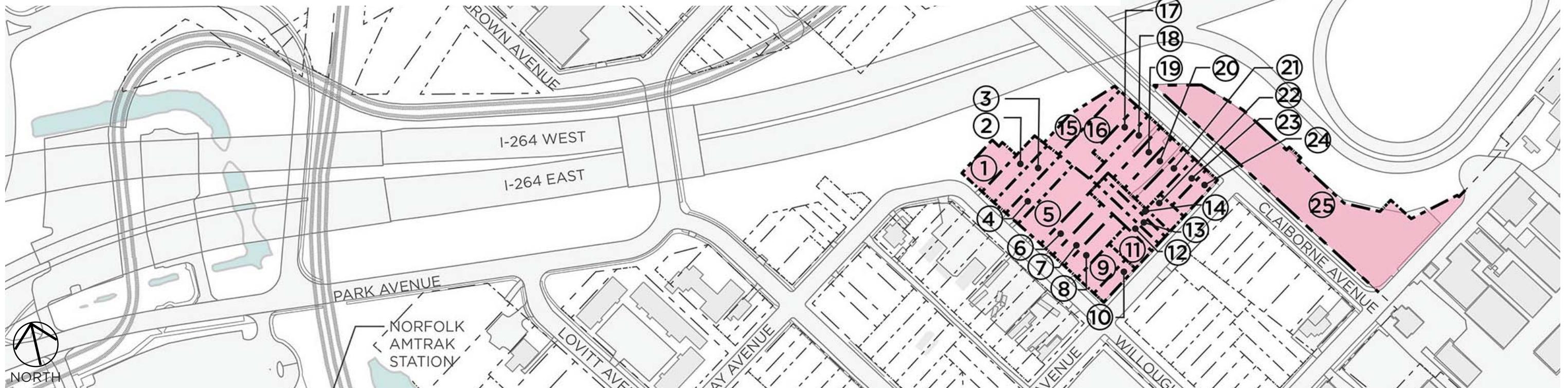
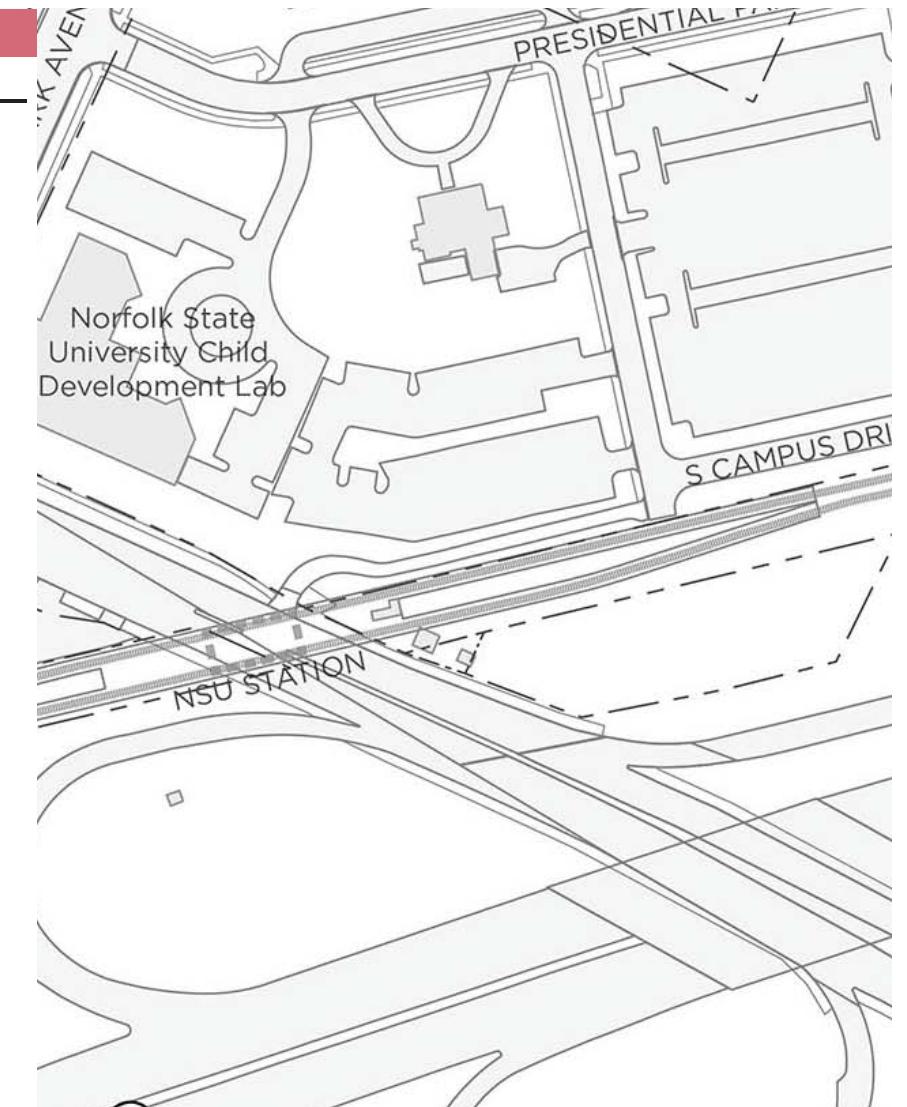


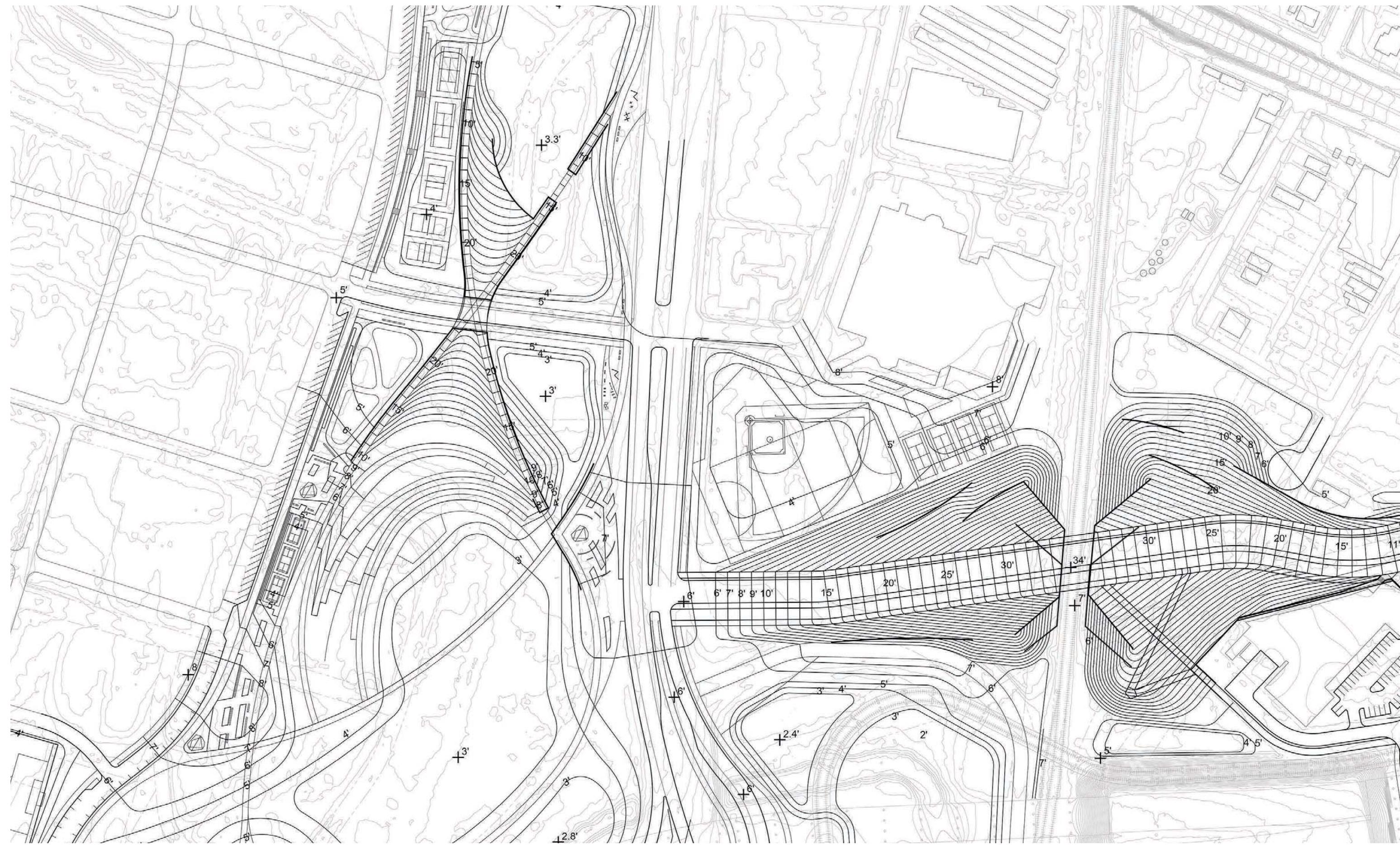
FIGURE 3.16 : PARCEL INFORMATION AREA D CONTINUED

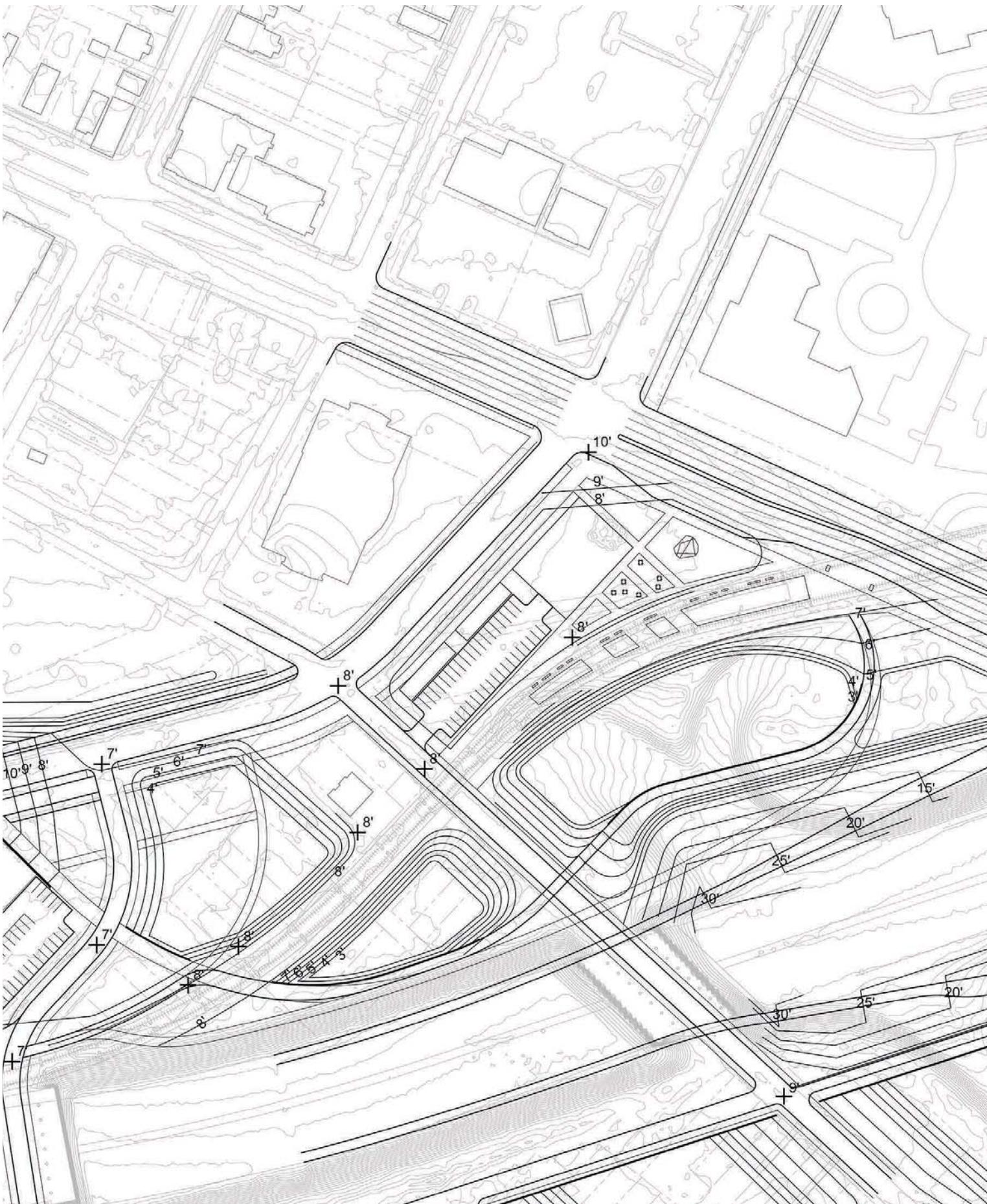
Map Key	Parcel GPIN	Tax Account	Property Address	Current Owner	Previous Owner	Phase I ESA	Phase II ESA	Property Use	Parcel Area Acreage	Current Land Use	Zoning	Overlay District
34	1437447912	14684200	406 Park Av	Norfolk Redevelopment and Housing Authority	Corter, Mc Clain B & Elaine M			Non-Taxable	0.0748	Vacant Land	IN-C	Coastal Resilience Overlay
35	1437447944	27591050	408 Park Av	Norfolk Redevelopment and Housing Authority	Wynn, Dana Cheryl			Non-Taxable	0.1522	Vacant Land	IN-C	Coastal Resilience Overlay
36	1437447844	79908610	1610 Willoughby Av	City Of Norfolk				Non-Taxable	0.0997	Light Rail Structure	IN-C	Coastal Resilience Overlay
37	1437447862	31794700	1612 Willoughby Av	Transportation Dist Comm Of H Rds	Newby, Angeline P. Et Als			Non-Taxable	0.0946	Vacant Land	IN-C	Coastal Resilience Overlay
38	1437447880	86211610	1614 Willoughby Av	Commonwealth of Virginia				Non-Taxable	0.0988	Vegetated Buffer	IN-C	Coastal Resilience Overlay
39	1437448707	86209810	1618 Willoughby Av	Commonwealth of Virginia				Non-Taxable	0.186	Vegetated Buffer	IN-C	Coastal Resilience Overlay
40	1437448908	24240294	414 Park Av	City Of Norfolk	Mc Daniel-Reeves Enterprises Ltd			Non-Taxable	0.1504	Light Rail Structure	IN-C	Coastal Resilience Overlay
41	1437448984	39384000	1611 Claiborne Av	Norfolk Redevelopment and Housing Authority	Cooke, Alonza Et Al			Non-Taxable	0.0820	Structure	IN-C	Coastal Resilience Overlay
42	1437448992	14231500	1613 Claiborne Av	Norfolk Redevelopment and Housing Authority	S H R Habitat For Humanity Inc			Non-Taxable	0.0790	Vacant Land	IN-C	Coastal Resilience Overlay
43	1437449910	20463700	1615 Claiborne Av	Norfolk Redevelopment and Housing Authority	Hodges, Dorcas A.			Non-Taxable	0.0771	Vacant Land	IN-C	Coastal Resilience Overlay
44	1437449828	04351600	1617 Claiborne Av	Norfolk Redevelopment and Housing Authority	Bradley, Michael J			Non-Taxable	0.0770	Vacant Land	IN-C	Coastal Resilience Overlay
45	1437449846	03105600	1619 Claiborne Av	Norfolk Redevelopment and Housing Authority	Bell, Harryette H Et Al			Non-Taxable	0.0804	Vacant Land	IN-C	Coastal Resilience Overlay
46	1437449864	45612000	1621 Claiborne Av	Norfolk Redevelopment and Housing Authority	Bradley, Charles A & Betty H			Non-Taxable	0.0770	Vacant Land	IN-C	Coastal Resilience Overlay
47	1437449884	15022850	1623 Claiborne Av	Norfolk Redevelopment and Housing Authority	Foxx, Charles R & Barbara B			Non-Taxable	0.0480	Vacant Land	IN-C	Coastal Resilience Overlay
48	1437540813	86208010	S S Claiborne Av	Commonwealth of Virginia				Non-Taxable	0.0368	Vacant Land	IN-C	Coastal Resilience Overlay
49	1437550143	00939955	502 Park Av	City Of Norfolk				Non-Taxable	0.3396	Vacant Land	Unknown	Coastal Resilience Overlay
50	1437552202	10978300	1605 E Brambleton Av	Norfolk Redevelopment and Housing Authority				Non-Taxable	0.9499	Light Rail Structure	IN-C	Coastal Resilience Overlay
51	1437553154	00939954	1645 E Brambleton Av	Transportation Dist Comm Of H Rds				Non-Taxable	0.5523	Structure	Unknown	Coastal Resilience Overlay
52	1437458041	14812005	418 Park Av	Pryer, Morechell N	Norfolk Redevelopment and Housing Authority			Duplex	0.1515	Duplex House	IN-C	Coastal Resilience Overlay
53	1437458075	12453100	422 Park Av	Norfolk Redevelopment and Housing Authority	Heller, Robert E Et Als			Non-Taxable	0.0785	Vacant Land	IN-C	Coastal Resilience Overlay
54	1437449909	61212100	1609 Claiborne Av	Norfolk Redevelopment and Housing Authority	Felton, Daniel Et Als			Non-Taxable	0.0699	Vegetated Buffer	IN-C	Coastal Resilience Overlay
55	1437452152	15626500	E S Reservoir Av	Gamage,								

FIGURE 3.17 : PARCEL INFORMATION AREA E

Map Key	Parcel GPIN	Tax Account	Property Address	Current Owner	Previous Owner	Phase I ESA	Phase II ESA	Property Use	Parcel Area Acreage	Current Land Use	Zoning	Overlay District
1	1437449468	08676800	1700 Willoughby Av	Norfolk Redevelopment and Housing Authority	Moore, John E			Non-Taxable	0.1118	Vacant Land	MF-NS	Coastal Resilience Overlay
2	1437540417	30257950	1704 Willoughby Av	Norfolk Redevelopment and Housing Authority	Mock, John L Sr Est			Non-Taxable	0.1018	Vacant Land	MF-NS	Coastal Resilience Overlay
3	1437540434	29060400	1708 Willoughby Av	Norfolk Redevelopment and Housing Authority	Mock, John L Sr Est			Non-Taxable	0.1062	Vacant Land	MF-NS	Coastal Resilience Overlay
4	1437540452	34208500	1712 Willoughby Av	Norfolk Redevelopment and Housing Authority	Lumpkin, John C			Non-Taxable	0.1055	Vacant Land	MF-NS	Coastal Resilience Overlay
5	1437540388	30036100	1716 Willoughby Av	Norfolk Redevelopment and Housing Authority	Snipes, Priscilla M Et Al			Non-Taxable	0.2057	Vacant Land	MF-NS	Coastal Resilience Overlay
6	1437541304	32262597	1720 Willoughby Av	Norfolk Redevelopment and Housing Authority	Willoughby Avenue, Llc			Non-Taxable	0.0969	Vacant Land	MF-NS	Coastal Resilience Overlay
7	1437541312	49392600	1722 Willoughby Av	Norfolk Redevelopment and Housing Authority	Willoughby Avenue, Llc			Non-Taxable	0.0927	Vacant Land	MF-NS	Coastal Resilience Overlay
8	1437541239	42122000	1724 Willoughby Av	Norfolk Redevelopment and Housing Authority	Stith, Leroy			Non-Taxable	0.1029	Vacant Land	MF-NS	Coastal Resilience Overlay
9	1437541245	25882720	1726 Willoughby Av	Norfolk Redevelopment and Housing Authority	Milian, Henry			Non-Taxable	0.0875	Underutilized	MF-NS	Coastal Resilience Overlay
10	1437541262	36836200	N S Willoughby Av	Norfolk Redevelopment and Housing Authority	Roach, Edward L Jr Estate			Non-Taxable	0.0514	Underutilized	MF-NS	Coastal Resilience Overlay
11	1437542208	36872550	408 Reeves Av	Norfolk Redevelopment and Housing Authority	White, Willar M			Non-Taxable	0.0717	Underutilized	MF-NS	Coastal Resilience Overlay
12	1437542304	00171000	412 Reeves Av	Norfolk Redevelopment and Housing Authority	Hafiz, Mahmooda			Non-Taxable	0.0748	Parking Lot	MF-NS	Coastal Resilience Overlay
13	1437542315	03341030	414 Reeves Av	Norfolk Redevelopment and Housing Authority	Hafiz, Mahmooda			Non-Taxable	0.0678	Parking Lot	MF-NS	Coastal Resilience Overlay
14	1437542336	48497200	416 Reeves Av	Norfolk Redevelopment and Housing Authority	Winslow, S Rena			Non-Taxable	0.0471	Parking Lot	MF-NS	Coastal Resilience Overlay
15	1437541553	32215200	1709 Claiborne Av	Norfolk Redevelopment and Housing Authority	Willoughby Avenue, Llc			Non-Taxable	0.1160	Vacant Land	MF-NS	Coastal Resilience Overlay
16	1437541580	32215250	1713 Claiborne Av	Norfolk Redevelopment and Housing Authority	Willoughby Avenue, Llc			Non-Taxable	0.1984	Vacant Land	MF-NS	Coastal Resilience Overlay
17	1437542429	28467920	1717 Claiborne Av	Norfolk Redevelopment and Housing Authority	Pooler, Mamie L & Herman			Non-Taxable	0.0812	Vacant Land	MF-NS	Coastal Resilience Overlay
18	1437542426	46995540	1719 Claiborne Av	Norfolk Redevelopment and Housing Authority	Willoughby Avenue, Llc			Non-Taxable	0.1108	Vacant Land	MF-NS	Coastal Resilience Overlay
19	1437542454	32111000	1721 Claiborne Av	Norfolk Redevelopment and Housing Authority	Ricks, Dalphine A Et Als			Non-Taxable	0.0893	Vacant Land	MF-NS	Coastal Resilience Overlay
20	1437542472	61063440	1723 Claiborne Av	City Of Norfolk	Coleman, Ruth			Non-Taxable	0.0872	Vacant Land	MF-NS	Coastal Resilience Overlay
21	1437542399	23703400	1725 Claiborne Av	Norfolk Redevelopment and Housing Authority	Reid, Cameron			Non-Taxable	0.0872	Parking Lot	MF-NS	Coastal Resilience Overlay
22	1437542373	26899300	420 Reeves Av	Norfolk Redevelopment and Housing Authority	Long, Clary A Et Als			Non-Taxable	0.0555	Parking Lot	MF-NS	Coastal Resilience Overlay
23	1437543328	26899000	1727 Claiborne Av	Norfolk Redevelopment and Housing Authority	Atlantic National Bank			Non-Taxable	0.0670	Parking Lot	MF-NS	Coastal Resilience Overlay
24	1437543346	26899100	1729 Claiborne Av	Norfolk Redevelopment and Housing Authority	Long, Clary A Et Als			Non-Taxable	0.0647	Parking Lot	MF-NS	Coastal Resilience Overlay
25	1437539372	00911616	1900 Claiborne Av	Eastern Branch, Llc				Industrial		Parking Lot	I-DW	Coastal Resilience Overlay







04

ES Executive Summary

- 01 Overall Area-Wide Plan & Design Performance Criteria
- 02 Infrastructure Framework Plan Recommendations
- 03 Land Use Recommendations

04 Resource Roadmap

- 4.1 Introduction
- 4.2 Focus Areas for Resource Leveraging
- 4.3 Priority Short-Term Resources & Actions
- 4.4 Effective Approaches for Leveraging Resources
- 4.5 Full Resource Charts

Appendix A: Background Conditions Report

Appendix B: Transportation Network Considerations

Appendix C: Existing Conditions Market Assessment

Appendix D: Elizabeth Riverfront and Harbor Park Brownfields Resiliency Infrastructure Preliminary Constructability Plan

Appendix E: Public Outreach Summary

RESOURCE ROADMAP

4.1 Introduction

This Harbor Park AWP calls for major public investments in site preparation, transportation and connectivity infrastructure, green infrastructure and resiliency projects, parks, recreation, public arts and placemaking, community facilities, and vertical private sector development incentives. A substantial level of public investment is needed, and an effective resource leveraging strategy will need to tap multiple sources of funding and finance in a phased, stepwise approach that builds momentum over time toward the tipping point when robust private sector development starts to flow that can achieve a community return on these investments.

This section of the AWP report provides a “Resource Roadmap” with recommendations on how the City of Norfolk can establish and implement an effective strategy and tactics for resource leveraging, and secure resources for critical, initial next steps. This section begins with a confirmation of the focus areas for resource leveraging, taken from the preceding sections and their key recommendations. The section continues with recommendations on how the City of Norfolk should best position itself of ongoing effectiveness in the leveraging of resources. The section ends with a chart with 56 potential resources from federal, state, local, private sector, philanthropic and other sources that are aligned with the AWP’s priorities, including key competitiveness factors, typical funding ranges, required match amounts, timing considerations, and key next steps for pursuing these sources.

4.2 Focus Areas for Resource Leveraging

This report outlines a number of areas for initial and long-term investment needed to enable the City of Norfolk to achieve the “Thrive” vision for Harbor Park, as defined in the AWP report. These seven focus areas include:

Brownfield Assessment & Cleanup

The City of Norfolk will likely need additional resources for environmental site assessments, investigations, obsolete building demolition, and contamination remediation associated with specific infrastructure and development projects.

Transportation Infrastructure & Connectivity Improvements

The City of Norfolk must work with state and federal government to plan, design and construct major upgrades to Interstate 264, upgraded and complete streets, and bicycle/pedestrian/multi-modal connectivity that fully connects Harbor Park to its surrounding context including St. Paul’s Area, Norfolk State University, and Downtown.

Utility Infrastructure

The City of Norfolk needs to analyze and support construction of underground water, sewer, electric and telecommunications infrastructure upgrades and relocations as part of the overall development scheme and transportation upgrade approach.

Stormwater & Community Recreation Resiliency Projects

A fundamental approach to The City of Norfolk’s development of these waterfront neighborhoods, and a central focus of this plan, is to manage stormwater and coastal resiliency issues. This plan is based on a holistic strategy that brings together coastal resilience, a living shoreline, green infrastructure, stormwater management, parks and recreational components into a highly-integrated approach. This approach includes a riverfront floodwall (“I” wall) and living shoreline plan described in the Constructability Plan, together with comprehensive parks, open green space, and green infrastructure stormwater management facilities. This approach will require an integration of coastal management, emergency management and disaster prevention, and park components that will require a sophisticated leveraging of a wide variety of resources.

Vertical Development & Parking Structures

While the plan expects that vertical economic development of buildings such as the casino, hotel, spa, and Harbor Park West mixed-use buildings will be financed, constructed, owned and operated by the private sector, this Roadmap identifies incentives and supportive resources that could help these private sector players. Such a public-private collaboration should enhance the chances of commercial success in this development area, and increase the opportunities for the City of Norfolk to elicit resources from these private partners for more robust investment in the community infrastructure needed outside of the building footprints to make this plan work. Further, there is a potential role for the City of Norfolk to utilize a public-private partnership approach for the construction of the two parking structures and surface parking under I-264 in order to facilitate the overall vertical developments.

Community Facilities & Healthy Foods

The plan recommends an upgraded community connectivity corridor via a new Park Avenue Greenway that could feature a RISE Resiliency Accelerator, the Norfolk Environmental Center, Wooden Boat Factory, NSU/community food cooperative, and outdoor food market pavilion.

Public Art & Placemaking

The AWP’s approach calls for beautiful design and public art installations that stand the test of time and enhance this destination. Further, the plan calls for interim uses at the Harbor Park West area that would include recreational and community activities, artisan spaces, food and beverage gardens, lighting, banners, branding and other elements of community placemaking.

The remainder of this section identifies short-term resource priorities as well as a robust range of funding sources that align with these seven focus areas.

4.3 Priority Short-Term Resources & Actions

A project as big, ambitious, and resource-intensive as the revitalization of the City of Norfolk's Harbor Park and St. Paul's Area is like eating an elephant – and the only way to eat an elephant is one bite at a time. The AWP makes a number of recommendations for shorter-term, priority actions that the city and its partners could bite off initially in order to move the overall project forward. Some of the plan's recommendations are for additional studies, assessments, plans, design and engineering of key projects in order to move these projects toward a "shovel ready" status. Other projects, such as the deployment of a riverfront floodwall and living shoreline, and the removal of certain I-264 connectors in order to enable the extension of City Hall Avenue into Harbor Park, are must-do projects that will take significant time and resources (these are the elephants in the room). Following is a discussion of seven key approaches for the City of Norfolk to leverage "early-bite" resources for these critical, short-term steps and must-do projects.

Coordination with Corps of Engineers on a Coastal Storm Risk Management Approach that Embraces a Living Shoreline

The City of Norfolk greatly appreciates the Corps' focused efforts on the Norfolk Coastal Storm Risk Management (CSRMR) initiative and supports moving that CSRMR through full pre-construction engineering and design (PED). Now, the City of Norfolk is encouraged to quickly approach the USACE Norfolk District and the CSRMR project managers, to request that the PED be harmonized with the AWP's and the Constructability Plan's "living shoreline" approach. This living shoreline and floodwall ("I" Wall) approach could also be confirmed by working with USACE and the City of Norfolk's congressional delegation to secure directive language in Water Resource Development Act legislation that would authorize the \$1.4 billion Norfolk project, specifying that the design and engineering should incorporate the "living shoreline" approach specified in the Constructability Plan and this report as feasible. This could also potentially enable the City of Norfolk to secure federal congressional Energy & Water appropriations to support the living shoreline components of the AWP scheme as part of the overall Corps CSRMR, which could provide 65% of the costs of the living shoreline component. In addition, at the time of this writing in May 2019, the U.S. Congress was on the verge of passing a \$17.2 billion disaster relief appropriations law that includes \$715 million in Corps funding for shore protection from floods for projects which have a signed Chief's Report (as the City of Norfolk does), which could provide up to 100% Corps share for projects.

The City of Norfolk is recommended to work with the USACE Norfolk District soon to determine whether it could obtain such funding for the next stages of the CSRMR and living shoreline project. City officials and government affairs are encouraged to then approach the Norfolk District Deputy Engineer, Water Resources Division Chief, and Project Manager to request full integration of the Norfolk land use planning team with the Corps' PED engineers, for the purpose of incorporating the living river shoreline into the Corps' design for the project. Further, the City of Norfolk officials should brief congressional Members and staff on this critical living shoreline objective in the overall CSRMR project.

Seek VDOT Resources for Key Transportation Projects including a Traffic Study & Model, and a Corridor Management Plan for the Design of the Removal of the I-264 Fly-In Ramp Extensions

This area-wide plan recommends that the City of Norfolk conduct an initial, needed comprehensive traffic study and transportation capacity model in the project area to confirm the recommended approaches for transportation connectivity upgrades. Further, the plan identifies a critical project to remove the obstructing I-264 fly-in ramps to enable an extension of a connecting City Hall Avenue, improve other points of access to and from I-264, and create new local complete street connections between Harbor Park and surrounding neighborhoods. The City of Norfolk could apply to the Virginia Department of Transportation for resources to support such an effort:

- Norfolk could seek to have VDOT accept the AWP transportation project into the Virginia Transportation Modeling and Accessibility Program, under which VDOT will provide technical expertise on capacity analysis, travel level forecasts, multi-modal alternatives, land use-transportation interactions, and other issues. See <http://virginiadot.org/projects/vtm/vtm.asp>.

VDOT provides direct technical support for transportation projects through VDOT's Transportation & Mobility Planning Division. This program provides consultant services to VDOT District Planners, regional planning bodies, localities, and others to practice common sense engineering to develop multi-modal transportation solutions that are implementable. These planning deliverables can provide valuable information for inclusion in the Statewide Multi-modal Transportation Plan (VTrans), SMARTSCALE applications and will better connect and integrate local, regional, and statewide planning all of which apply the AWP project transportation improvements. Proposed transportation planning studies and project development activities can 'bubble-up' from various sources, including VDOT's Central Office, District offices, local government, Transportation Planning Organizations and Planning District Commissions. As a rule of thumb, non-VDOT entities will

request access to the on-call consultant through the District Planners. The City of Norfolk is advised to contact the Hampton Roads District Planner and 'make the case' for why the study is needed and how it will lead to improved multi-modal transportation safety, operations, accessibility and help facilitate economic development.

- Seek VDOT funding for a VDOT Corridor Management Study of this stretch of I-264 and surrounding roads, much like the \$492,000 study recently completed by VDOT for the I-264 corridor through Virginia Beach (http://virginiadot.org/projects/hamptonroads/i-264_corridor_study.asp). The City of Norfolk could seek funding for such a Corridor Study through the VDOT "Economic Development Access Program", under which VDOT could provide up to \$500,000 in design-only funding with no match, and additional funding of up to \$150,000 on a 1:1 match basis. Such grants are provided for transportation projects that support a "Major Employment and Investment", defined as a high-impact regional economic development project in which a private entity is expected to make a capital investment in real and tangible personal property exceeding \$250 million and creating more than 400 new, full-time jobs. www.vedp.org/incentive/economic-development-access-program.

Another alternative could be to seek Corridor Study funding through the VDOT Transportation Partnership Opportunity Fund, under which the Governor and VDOT can give a grant of up to \$5 million for significant projects. www.vedp.org/incentive/transportation-partnership-opportunity-fund-tpof.

For any of these VDOT grants, the City of Norfolk may use the potential of the major economic benefit of the casino resort as the justification for a VDOT award. These efforts will need to be coordinated closely with VDOT Hampton Roads District Engineer Christopher Hall and the Hampton Roads Transportation Accountability Commission.

Stormwater & Green Infrastructure Model & Strategy

The City of Norfolk needs to secure and dedicate a funding source for the green infrastructure model in this AWP plan area. Over the past decade, the City of Norfolk and its partners have been skillful at securing a variety of significant resources for coastal resilience and green infrastructure efforts, with grants awarded from, among other sources, the National Fish & Wildlife Foundation, Virginia DEQ, and others. Given this report's recommendation that the City of Norfolk needs to move into a topographic analysis, preliminary engineering stormwater management facilities, and additional watershed impact analyses, Norfolk should consider seeking such resources again to dedicate to the AWP stormwater designs and plans that must be conducted. It has been since 2016 that the City of Norfolk received a Virginia DEQ Stormwater Local Assistance Fund (SLAF) grant, and the City has not secured a National Fish & Wildlife Foundation, Chesapeake Bay Stewardship Program grant since 2014. The City of Norfolk has also apparently never received a FEMA Pre-Disaster Mitigation grant, which could be used for these plan recommendations. These three sources could be top targets for funding the next stage of stormwater and coastal resilience planning of the AWP project. See [www.deq.virginia.gov/Programs/Water/CleanWaterFinancingAssistance/StormwaterFundingPrograms/StormwaterLocalAssistanceFund\(SLAF\).aspx](http://www.deq.virginia.gov/Programs/Water/CleanWaterFinancingAssistance/StormwaterFundingPrograms/StormwaterLocalAssistanceFund(SLAF).aspx) for more information on SLAF, www.nfwf.org/chesapeake/Pages/home.aspx for information on the NFWF Chesapeake Bay Stewardship Fund, and www.fema.gov/pre-disaster-mitigation-grant-program on the FEMA Pre-Disaster Mitigation grant.

Concept Design of St. Paul's Area Resilient Park

This AWP recommends a high priority of commencing and moving forward on a conceptual design of the proposed St. Paul's Area Resilient Park, which will integrate a comprehensive hydrological management system with community park and green space facilities. However, there will need to be significant evaluation of environmental, geotechnical, grading, park planning, and other key issues before the project can proceed.

For 2019, the Virginia Department of Conservation and Recreation has a larger-than-usual pot of resources in its Land & Water Conservation Fund grant program (approximately \$11 million). The VA DCR Director of this program who, in May 2019 conveyed that she does not recall a Norfolk LWCF application in many years, finds the AWP project to be compelling, and encourages an application. In 2019, VA DCR seeks to give larger-than-usual grants, of up to \$1 million, with a 50:50 match. VA DCR expects to be directing the first tranche of these funds for land acquisition projects, and the second tranche for project development. See www.dcr.virginia.gov/recreational-planning/lwcf.

There is also a competitive federal grant program administered by the U.S. Department of Interior, National Park Service dubbed the Outdoor Recreation Legacy Partnership Grant Program Act, which gives large, ~\$1 million grants to local projects submitted by state park authorities. VA DCR has not participated in this Outdoor Legacy Act for the past years, and Virginia has won no such grants. Virginia may be ripe for a local-state partnership to secure one of these large grants, which focus on economically distressed and minority areas who need better access to park and recreational space. There is a 1:1 match required.

Design Interim Uses for Harbor Park West

This AWP has emphasized the importance of attracting the community to Harbor Park on a more robust basis, and of building momentum as larger, longer-term development projects take place. For the interim park, recreational, public arts, and gathering spaces proposed at pp. 34-36 of this report for Harbor Park West, we suggest that the City of Norfolk re-apply for National Endowment for the Arts, "Our Town" and/or "Art Works" grant funding for creative placemaking and design of these Harbor Park West Areas. See www.arts.gov/grants/apply-grant/grants-organizations. NEA has traditionally been a strong supporter of the design of attractive and community-oriented green infrastructure installations. The City of Norfolk won an NEA Our Town grant for the "Art & Rising Tides" project in the Neon Art District, and a project in the Harbor Park area now could build upon that initial success and the new Harbor Park AWP.

Finance District Strategies

Due to the costly nature of the floodwall ("I" wall), transportation elements, green infrastructure, utilities, and other items, the plan recommends that the City of Norfolk commence now with the necessary steps to create a private financing district scheme that could be used to raise funds for the Harbor Park AWP implementation. Some approaches, such as the establishment of a Thrive/Harbor Point/St. Paul's Area Tax Increment Finance (TIF) District or a Business Improvement District for the area, would require the use of long-term projected tax revenues or user fee revenues to support the issuance of public bonds on the front-end of key transportation, infrastructure, utility or other public sector, site preparation projects. Other approaches, such as the use of the federal Transportation Infrastructure Finance Innovation Act (TIFIA) or Water Infrastructure Finance Innovation Act (WIFIA) mechanisms, use credit assistance tools to leverage limited federal resources to stimulate major, private capital market investments in transportation or water infrastructure. TIFIA and WIFIA bonds require, among other things, a dedicated repayment source on the bond, such as municipal revenues, sales tax proceeds, parking revenues, user charges, or other availability payments. TIFIA can be used for highways, bridges, pedestrian/bicycle networks, transit-oriented development, and other facilities, while WIFIA can be used for projects that are eligible under the federal Clean Water and Drinking Water Revolving Fund programs. See more at www.transportation.gov/tifia/tifia-credit-program-overview and www.epa.gov/wifia/learn-about-wifia-program#overview.

Whether a TIF District or a TIFIA or some combination of these, such a debt mechanism requires significant financial planning and analysis regarding the means and mechanisms for repayment. The City of Norfolk could now commence a financial assessment of the capacity of these tools to create public infrastructure finance, and the debt-service strategies to support such finance. Assessment of these tools now will help Norfolk decision-makers to move forward on viable and desirable strategies when they need larger finance support.

Public-Private-Partnership Approach to Public Facilities

Some of the vertical developments recommended in this AWP could be public sector facilities, such as parking structures, or be academic institution facilities, such as the proposed RISE Resiliency Accelerator, Norfolk Environmental Center, Wooden Boat Factory, and NSU/community food cooperative projects. For such public/academic projects, the City of Norfolk could consider using the public-private-partnership (P3) model at the National Development Council (NDC). NDC, a nonprofit created in the late 1960s to provide community development finance tools to economically challenged areas in cities, has created a P3 model, and obtained congressional authorization of a nonprofit bonding finance tool, that has been used in dozens of projects leveraging \$2.3 billion in finance across the nation for parking structures, municipal facilities, and academic facilities.

NDC uses the "American Model" for P3s, which achieves the cost and time efficiencies of private sector design and construction, with the benefits of tax-exempt debt financing. Under the P3 approach, a single-asset bankruptcy remote entity is formed for the purpose of building, say, a parking garage or an accelerator facility. The design-finance-build process is guided by the public agency (City of Norfolk), the architect/engineer, and the private developer under a set management structure. The private developer provides a guaranteed fixed-cost and on-time delivery under a contract in which the private developer takes construction and delivery risk, with no operating profit or disposition profit involved. The single-asset entity then leases the completed building to the public entity at a specified rent level until the financing debt is paid off, at which time the single-asset entity turns the structure over to the city. The advantages of the NDC P3 approach include: all of NDC's projects have been delivered on-time and on-budget, and sometimes under-budget; these P3 projects come in as much as 20-25% less expensive than the typical public procurement process for design and construction. At the same time, the disadvantages of the typical P3 privatization approach are avoided,

such as having to pay high returns or profits on equity from the private sector, or the loss of public control over the parameters or objectives of the project (listening to neighborhood desires and concerns, building with labor, building green, etc.). One other advantage is that NDC can help layer in other funds and finance; for example, NDC is a Community Development Entity with New Market Tax Credit allocations, and a nonprofit adept at using 6320 Nonprofit Bonding tools.

See more on the NDC P3 program at <https://ndconline.org/public-private-partnerships/>, and a portfolio of their projects at <https://ndconline.org/wp-content/uploads/2016/01/P3-Project-Portfolio-small-file-COMPRESSED-032018.pdf>.

4.4 Effective Approaches for Leveraging Resources

This subsection of the AWP Resource Roadmap outlines recommendations for how the City of Norfolk and its partners can best organize your team to pursue and leverage resources for implementation of priority projects.

The City of Norfolk's approach to resource advocacy, particularly at these needed resource levels, cannot be haphazard or inadequately pursued. Instead, it is encouraged to confirm a focused, robust and sustained approach to resource leveraging that could include the following steps and organizing tactics:

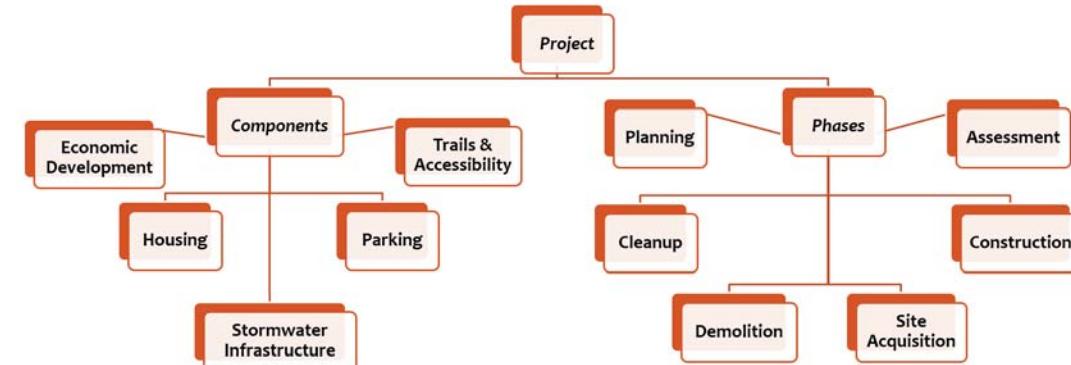


Figure 4.1: Example project structure.

1. Maintain a Vibrant Team with Identified Leaders & Managers

The City of Norfolk is encouraged to establish and maintain a core team of leaders dedicated to the AWP initiative and its resource leveraging over the course of project implementation. The AWP team ensures continued coordination, leveraging, project management, resource allocation, stakeholder outreach and collaboration, and general momentum. This ongoing team could include municipal officials, supportive Commonwealth officials, private sector partners, non-profit partners such as Norfolk State University, Elizabeth River Project, or Elizabeth River Trail leadership, project consultants, staff from the offices of state and federal representatives, and other key contributors. The AWP team should keep municipal elected leaders apprised and supportive, both to maintain community backing and to serve as ready spokespersons throughout the implementation process.

Maintaining this level of organization will demonstrate to potential funders that the Harbor Park AWP project has the support of key stakeholders and the community, and that the project team is well-prepared to receive and utilize funding resources and get the job done.

2. Engage Funders Early

Engage with the City of Norfolk's existing relationships with state, federal and other funders, and pursue new relationships with funding agencies and decision-makers that Norfolk does not yet have. Do this early and often. Invite these funding officials to convene with the AWP project team, host funding officials in your community, provide site and project tours, meet with these officials in their organizational offices, invite them to participate in project workshops, and otherwise engage and coopt these folks. These funders can give you direction on funding approaches, and become involved and supportive of projects well before the grant solicitations become public and application deadlines are coming. Often such funding partners will become champions of the project to external stakeholders and other funders.

3. Confirm Priority Projects & Initiatives

This Roadmap suggests the priority first bites and actions that should be undertaken to leverage resources for the Harbor Park AWP projects, but the priorities have to be confirmed by municipal leadership, and reaffirmed regularly. By identifying key priorities, the City of Norfolk can determine how it will allocate collaborative efforts, distribute shared resources, pursue external funding, avoid conflicts in funding requests with other parts of the community or region, make its political asks, and set the right expectations for the public and key partners about how AWP implementation will proceed. Priorities will be continually re-evaluated and re-confirmed as each project progresses, based on headway with private sector investment, available local/state/federal resources, and other opportunities.

4. Delineate Project Components & Phasing

Each discrete project may involve different components (such as infrastructure, stormwater, and vertical development components). Likewise, each distinct project may be considered as a multi-phase project, with each stage potentially fundable (and sometimes from different sources). For example, a typical public works project consists of phases including planning, design and engineering, right of way (ROW) acquisition, permitting, construction, and operation (Figure 4.1). Consider how much of a component or phase can realistically be accomplished in a typical funding cycle or other time to shape your resource requests. Often, funders who support an early stage of a project can be a continuing funder in the later stages. As small steps of progress are made into successive phases, it is important to inform and engage the community in order to maintain support and build momentum.

5. Estimate Project Costs

Once priority projects have been confirmed and their key components and phases have been delineated, the AWP project team should establish estimated project costs for each project and its core components. This will help the City of Norfolk better identify the best potential funding sources, understand the levels of matching funds required, and tailor advocacy efforts to gain political support for funding requests. The project team can enlist municipal staff with project management and cost-estimation expertise, obtain expert consulting support to help confirm cost estimates for key projects, or discuss projects with vendors. Most importantly, determine costs for the immediate next stages of each project and secure support for that stage. Federal agencies and philanthropic funders are often most interested in projects in which they can leverage existing funding to fill project gaps.

6. Align Funding Sources with Project Components and Phases

This AWP Resource Roadmap compiles information on the best and most significant sources of federal, state, local, corporate, private sector, and philanthropic funds for priority Norfolk projects. Over time and under new state and federal administrations and circumstances, funding sources often change, and thus it is important to stay abreast of funding developments. The Resource Roadmap should be a dynamic document that changes as project stages are accomplished or changed, and to use progress on certain funding sources as building blocks and momentum-builders for other sources.

7. Establish Matching/Leverage Strategies & Access Feasibility of Debt Financing

The most competitive funding requests will have committed matches and high leverage, which takes municipal financial planning, budgeting, and requests to key funding stakeholders well before funding applications become due. Well before any funding applications are due, create a match/leverage strategy for each funding request, and do the work necessary to explore and secure match commitments from key funding partners including the City Council, Commonwealth officials, community groups, foundations, and other potential supporters.

Many projects will require more funding than grants alone can supply, meaning that some projects may need to be financed with some form of municipal debt, particularly for the big construction phases of Public Works projects. Again, see the recommendation earlier to consider TIF, TIFIA, WIFIA or other similar debt strategies for the Harbor Park AWP implementation. There are many good sources of publicly-backed or subsidized lending, but these are only feasible and will only be available for applicants who can demonstrate a viable repayment strategy. Thus, there should be an analysis done for each major project that considers the possible revenue streams for servicing debt, the eligibility and competitiveness of the project for local bonding, the potential sources of state- or federally-backed debt that can provide lower-cost financing, and the political feasibility of debt strategies. Revenue streams that might be available to service debt for Harbor Park projects could include development fees, stormwater fees, or incremental future tax revenues associated with economic development.

8. Create Strategic Plans & Outreach Materials for Each Priority Project

When ready to proceed on a specific project or project component, it is valuable to create a written, step-by-step strategy for securing funding and other support for that specific project and specific funding opportunities. This memo can describe the specific objective for that project, describe the source(s) of funding for that project, identify the entities and persons who need to be included, delineate the persons responsible for leading each task, establish timelines and key tasks, and identify contingency plans.

Further, the team should utilize a well-crafted briefing sheet for the Harbor Park project to provide stakeholders and potential funders with a succinct explanation of the project scope and objectives, its benefits, its status and progress, its supporters, and its specific funding requests. Make sure to use well-designed sheets with attractive graphics. Additional briefing sheets tailored to specific project components/phases can also be beneficial for more targeted advocacy efforts, as well as for providing information to key stakeholders when seeking letters of support or commitments for grant applications. Remember the maximum – one sheet of paper! A briefing sheet is not meant to be a tome, but instead an easy leave-behind that most any official would be able to digest with a quick read.

9. Prepare for Grant Writing

The City of Norfolk, the AWP project team, and the city's grants staff are advised to prepare ahead of time to write effective grant applications, and not wait until you see a notice of funding opportunity and submission deadline. Determine the best local agency or other entity to be the lead applicant and confirm key application partners. Identify the internal/external grant writer(s) for each application and have the lead grant writer review past application materials to consider how to position future applications to be more effective. In situations where the City of Norfolk has applied unsuccessfully for those resources previously, reach out to funding managers and get a debrief from the agency on why the application was not selected for funding.

10. Convene Funder Roundtables

A proven tactic for building funding support for local revitalization projects is to hold a “Revitalization Roundtable” event that convenes key officials from target federal agencies, along with other stakeholders including state officials, community partners, philanthropic officials, and state/federal legislative representatives or staff. A roundtable can focus on one or a small number of projects, highlight progress, identify needs, bring key relevant parties into discussions on how to meet those needs, and build momentum for future support.

11. Secure Congressional Support

Of course, it is important to cultivate and secure congressional support for the City of Norfolk’s funding efforts, coordinating with the district representatives for U.S. Senator Tim Kaine, U.S. Senator Mark Warner, and Congressman Bobby Scott, as well as the relevant staff in their local and Washington offices and, ultimately, the Members themselves. Typically, the most important role for a Member of Congress will be to support your pending federal grant applications with senior agency leadership, but support can also involve regulatory help or assistance in forging a desired partnership. It is important to ask the elected officials and their staff for support beyond a standard letter, which may not have a major impact by itself. Instead, ask that they make calls, have meetings with federal agency leaders running the programs and other decision-makers, or even host federal officials to discuss the progress and potential of key projects.

12. Celebrate Success

Success breeds success. As implementation activities progress, the City of Norfolk will invite key stakeholders, including funders, federal and state elected officials, and others, to groundbreakings and ribbon-cuttings and work with the media to publicize progress. Write personal thank-you notes to funders who enable your progress. This will create momentum for the project and encourage funding agencies that seek to collaborate to join in and share in the success – and be ready for the next requests for support.

4.5 Full Resource Charts

OPPORTUNITY	PURPOSE	AMOUNT, MATCH	ANTICIPATED DEADLINE	NOTES
BROWNFIELDS ASSESSMENT & CLEANUP				
Virginia Brownfields Restoration & Economic Development Fund (VBAF)	■ Site assessment and planning grants, and remediation grants, at public- or private-owned brownfields with economic redevelopment potential	■ \$50,000 for assessment grants ■ \$500,000 for remediation grants ■ 1:1 match required	■ Rolling	■ Administered by the Virginia Economic Development Partnership together with Virginia DEQ ■ Norfolk has received these grants for Harbor Park ■ Contact VDEQ's Meade Anderson ■ P: 804.698.4179 ■ E: j.meade.anderson@deq.virginia.gov, ■ Or contact VEDP's John Loftus ■ P: 804.545.5786 ■ E: jloftus@vedp.org
U.S. EPA Region 3 Targeted Brownfields Assessment	■ To evaluate potentially contaminated sites in distressed areas due to prior use	■ Up to \$100,000 in environmental assessment and remedial planning, provided by EPA regional office procured vendor	■ Rolling	■ Coordinate with EPA Region 3 for specific sites under consideration in need of immediate assessment funds ■ Note that EPA Region 3 provided a TBA for Harbor Point in 2017 ■ Contact Mike Taurino at EPA Region 3 ■ P: 215.814.3371 ■ E: taurine.michael@epa.gov
U.S. EPA Brownfields Assessment Grant	■ To conduct environmental assessments and reuse planning at potentially contaminated sites that may need cleanup from prior use	■ Up to \$300,000 ■ No match required	■ Fall 2019	■ Norfolk has previously received 5 brownfields assessment and area-wide planning grants ■ Contact EPA Region 3 Brownfields Coordinator Felicia Fred ■ P: 215.814.5524 ■ E: fred.felicia@epa.gov
U.S. EPA Brownfields Cleanup Grant	■ To clean up contamination on public or non-profit properties	■ \$200,000 ■ 20% match required	■ Fall 2019	■ Site must be owned by public or nonprofit entity that did not cause or contribute to the contamination ■ Will need to conduct Phase assessment and analysis of cleanup alternatives prior to cleanup
U.S. EPA Brownfields Multipurpose Grant	■ To provide flexible grant funding for assessment, cleanup, and reuse to target key projects	■ \$800,000 ■ 20% match	■ Fall 2019	■ Contact EPA Region 3 Brownfields Coordinator Felicia Fred ■ P: 215.814.5524 ■ E: fred.felicia@epa.gov
U.S. EPA Brownfields Cleanup Revolving Loan Fund	■ To provide seed money for a revolving loan fund and subgrants to remediate sites owned by public, non-profit, and private entities	■ Up to \$1 million ■ 20% match required	■ Fall 2019 (offered every other year)	■ Would allow Norfolk to manage loans and subgrants for multiple concurrent cleanup projects ■ Subgrants could be provided to public or nonprofit entities conducting cleanup ■ Loan terms established by the city, with option of low- or no-interest rates
Environmental Insurance recovery	■ Municipal insurance policies in the period prior to 1985 (when industry standards and coverages changed) may be able to provide recoveries for cleanup costs at contaminated sites	■ Depends on variety of factors ■ Claims nearly always settled rather than litigated	■ N/A	■ See, for example, http://em-law.com/our-practice/insurance-recovery/

OPPORTUNITY	PURPOSE	AMOUNT, MATCH	ANTICIPATED DEADLINE	NOTES
TRANSPORTATION INFRASTRUCTURE & CONNECTIVITY IMPROVEMENTS				
VDOT Transportation Modeling & Accessibility Program	■ VDOT technical expertise on capacity analysis, travel level forecasts, multi-modal alternatives, land use-transportation interactions, and other issues	■ Technical assistance from VDOT, no match	■ Rolling	■ Contact VDOT's Xin Wang ■ P: 804.786.8034 ■ E: Xin.Wang@vdot.virginia.gov
VDOT Economic Access Program grant	■ Could fund corridor management study or other projects at Thrive area ■ For transportation projects that support "Major Employment & Investment" (e.g., casino), defined as high-impact regional economic development project in which private entity expected to make capital investment >\$250M creating >400 new, full-time jobs	■ \$500,000 in design funding with no match, with 1:1 match for additional \$150,000	■ Rolling, with detailed process spelled out by VDOT	■ Contact VDOT's William Dandridge ■ P: 804.786.2743 ■ E: william.dandridge@vdot.virginia.gov
VDOT Transportation Partnership Opportunity Fund	■ Governor and VDOT can support for significant economic development projects	■ Grants up to \$5 million ■ Interest free loans up to \$30 million, on various terms negotiated	■ Rolling	■ Contact VDOT's Laura Farmer ■ P: 804.786.3096 ■ E: laura.farmer@vdot.virginia.gov
U.S. DOT Better Utilizing Investments to Leverage Development (BUILD) Transportation Discretionary Grant	■ To support transportation projects that promote safety, accessibility, mobility, and economic redevelopment ■ DOT priorities emphasize streamlining, public safety, and leveraging of funds	■ Average grant is \$13 million ■ Must apply for minimum of \$5 million or more ■ 20% match minimum	■ July 15, 2010	■ Previously known as the TIGER program ■ Seek State support for the City's application ■ Competitive projects will have at least 30% of local match ■ Contact Howard Hill at U.S. DOT HQ ■ P: 202.366.0301 ■ E: BuildGrants@dot.gov
VDOT Transportation & Mobility Planning Division Technical Support	■ To provide support to regional planning bodies and localities to practice common sense engineering to develop multi-modal transportation solutions that are implementable.	■ Direct Technical Support funded through VDOT. ■ Michael Baker International (AWP team member) is VDOT Hampton Roads on-call VDOT consultant	■ Rolling	■ Contract Hampton Roads District Planner Eric Stringfield ■ P: 757 925 3669 ■ E: Eric.Stringfield@Vdot.virginia.gov
U.S. DOT BUILD Planning Grant	■ To support planning, studies, and design of large-scale transportation projects	■ \$15 million available for total program, no minimum grant request ■ 20% match required	■ July 15, 2019	■ U.S. DOT highly disfavors Planning Grants, seeks Capital Construction applications ■ Seek State support for the City's application ■ Competitive projects will have at least 30% of local match
VDOT Transportation Alternatives Program	■ TAP grants can support sidewalk, streetscape design and construction, bicycle lanes, etc.	■ Up to \$1.2 million ■ 20% match required	■ Fall 2019	■ Contact VDOT TAP Program Coordinator Pam Liston ■ P: 804.786.2734 ■ E: pamela.liston@vdot.virginia.gov
U.S. DOT INFRA Grant	■ To support large and small transportation projects that promote safety, accessibility, and mobility for freight	■ Small grants are up to \$25 million ■ Large grants are up to \$100 million ■ 40% match required	■ Fall 2019	■ Seek State support for the City's application ■ Will need projects to be listed in state transportation and freight plans to be competitive
U.S. EDA Public Works & Economic Development Facilities Grant	■ For public infrastructure and site development that supports quality economic development and high-skills jobs	■ Average grant is \$1 million, but up to \$3 million ■ 50% match	■ Rolling	■ Discuss with U.S. EDA EDR Bob Gittler at 215.597.4360 or bgittler@eda.gov ■ Norfolk has eligible census tracts, especially for access road projects in St. Paul's Area or Harbor Park

OPPORTUNITY	PURPOSE	AMOUNT, MATCH	ANTICIPATED DEADLINE	NOTES
UTILITY INFRASTRUCTURE				
Virginia DEQ Clean Water Revolving Loan Fund	<ul style="list-style-type: none"> May be used for underground wastewater utility infrastructure relocation or upgrades; however, a project driven for economic development, rather than water quality, may not compete well 	<ul style="list-style-type: none"> Ranges from \$250,000 to \$40 million Below-market interest rates over long term period Per congressional requirement, some loans will include principal forgiveness 	<ul style="list-style-type: none"> Annually in July 	<ul style="list-style-type: none"> Project must rank on state's priority list, termed an "Intended Use Plan" Requires applicant Preliminary Engineering Assessment prior to application for design funding Contact VDEQ's Karen Doran <ul style="list-style-type: none"> P: 804.698.4133 E: Karen.Doran@deq.virginia.gov Or contact VDEQ Regional Engineer Kimberly Butler <ul style="list-style-type: none"> P: 757.518.2148 E: kimberly.butler@deq.virginia.gov
Virginia Department of Health, Drinking Water Revolving Loan Fund and Water Supply Assistance Grant Fund	<ul style="list-style-type: none"> To support planning and construction loans for drinking water infrastructure; however, a project driven for economic development, rather than drinking water provision, may not compete well 	<ul style="list-style-type: none"> Planning grants up to \$35,000 Construction grants from \$100,000 to \$12 million Below-market loans over long term period Per congressional requirement, some loans will include principal forgiveness 	<ul style="list-style-type: none"> Rolling 	<ul style="list-style-type: none"> Project must rank on state's priority list, termed an "Intended Use Plan" Contact Health Department's Roy Soto <ul style="list-style-type: none"> P: 804.864.7516 E: Roy.Soto@vdh.virginia.gov or
OPPORTUNITY	PURPOSE	AMOUNT, MATCH	ANTICIPATED DEADLINE	NOTES
COMMUNITY RESILIENCY, STORMWATER & GREEN INFRASTRUCTURE				
U.S. Army Corps of Engineers, Integration of Coastal Storm Risk Management plan with Living Shoreline approach	<ul style="list-style-type: none"> To ensure integration of Thrive living shoreline approaches into Corps' Coastal Storm Risk Management initiative, for PED pre-construction and funding Coordination with USACE Norfolk District, Corps HQ & VA Congressional delegation on shoreline approach Water Resource Development Act authorization, with living shoreline directive language Energy & Water appropriations for living shoreline projects Disaster Relief legislation of 2019, USACE shoreline flood protection program 	<ul style="list-style-type: none"> Congressionally-driven 	<ul style="list-style-type: none"> 2020 	<ul style="list-style-type: none"> Must work closely with USACE District, and VA congressional delegation

OPPORTUNITY	PURPOSE	AMOUNT, MATCH	ANTICIPATED DEADLINE	NOTES
COMMUNITY RESILIENCY, STORMWATER & GREEN INFRASTRUCTURE				
U.S. Army Corps of Engineers Section 7001 of WRRDA 2014	■ To support non-federal projects for water resources development, improvements, or feasibility assessment	■ Varies	■ Rolling, but timed to annual Corps solicitation process	■ This would be a much-less-valuable fallback approach if USACE rejects integration of living shoreline approaches into CSRM plan ■ Army Corps of Engineers Process on 3x3x3 study
VDEQ Stormwater Local Assistance Fund (SLAF)	■ Grants to support design, planning and/or implementation of nonpoint source pollution reduction projects	■ From \$50,000 to maximum \$5 million ■ 1:1 match	■ Annually	■ Contact Kimberly Butler ■ P: 757.518.2148 ■ E: Kimberly.butler@deq.virginia.gov
VDEQ Stormwater Loan	■ Clean Water SRF Loan, as described in Utility matrix above	■ Amount varies ■ Rates start at 1% below market municipal bond rate, and can go as low as 0%; certain projects can receive loan forgiveness for up to 50% of loan	■ Annually, usually in July	■ Contact Kimberly Butler ■ P: 757.518.2148 ■ E: Kimberly.butler@deq.virginia.gov
FEMA Pre-Disaster Mitigation Grant Program	■ To reduce risk to population and structures from hazards and reduce reliance on federal funds in future disasters	■ Average of \$1 million per awardee ■ 25% non-federal match required	■ January 2020	■ Sub applicants (i.e., local governments) submit mitigation planning and project sub applications to their State during the open application cycle ■ Coordinate with Hampton Roads Emergency Management
NFWF/Wells Fargo Resilient Communities 2019	■ To support adaptation through regional conservation projects and capacity building	■ Up to \$500,000 ■ Competitive projects will have a 1:1 cash/in-kind match	■ Early 2020	■ Regional priorities vary by east, central, and west divisions ■ Contact Chloe Elberty ■ P: 202-595-2434 ■ E: Chloe.Elberty@nfwf.org
NFWF Chesapeake Bay Stewardship Fund	■ To protect the Bay by helping local communities use green infrastructure to protect the Chesapeake Bay watershed	■ Up to \$750,000 ■ 1:1 match required	■ Spring 2020	■ Projects are more favorably received if they can identify and track nutrient runoff (nitrogen, phosphorus, sediment, etc.) ■ Contact Jake Reilly ■ P: 202.595.2442 ■ E: jake.reilly@nfwf.org
NFWF National Coastal Resiliency Fund	■ To restore, increase, and strengthen natural infrastructure protect coastal communities while enhancing habitats for fish and wildlife	■ Up to \$3 million ■ Average award between \$250,000 - \$1.5 million ■ 1:1 match required (up to 100% can be in-kind)	■ Summer 2019	■ National program with a regional focus ■ 2018 awards can be found: https://www.nfwf.org/coastalresilience/Documents/2018grantslate.pdf ■ Contact Erika Feller ■ P: 202.595.3911 ■ E: Erika.feller@nfwf.org
NFWF Five Star and Urban Waters Restoration Program	■ To build capacity and educate communities to improve water quality, watersheds, and habitats	■ Up to \$50,000, average grant will be ~\$30,000 ■ 1:1 match is required	■ Early 2020	■ NFWF has five priority areas that applicants must address ■ Numerous geographic and programmatic priorities

OPPORTUNITY	PURPOSE	AMOUNT, MATCH	ANTICIPATED DEADLINE	NOTES
COMMUNITY RESILIENCY, STORMWATER & GREEN INFRASTRUCTURE				
Chesapeake Bay Trust Green Streets, Green Jobs, Green Towns (G3) Grant Program	■ To help communities in Region 3 EPA develop and implement plans that reduce stormwater runoff, increase green spaces in urban areas, and improve the health of the Bay Watershed	■ Up to \$75,000 for implementation ■ Up to \$30,000 for planning and design ■ Match encouraged, but not required	■ Spring 2020	■ Applicants applying for the implementation/construction and greening of vacant lots must use the G3 Implementation Project Calculator to show the breakdown of Green Infrastructure costs ■ Contact Jeffrey Popp ■ P: 410.974.2941 x103 ■ E: jpopp@cbtrust.org
VDCR Dam Safety, Flood Prevention and Protection Assistance Fund	■ Awards include flood prevention or protection through resiliency planning	■ Up to \$600,000, but flood protection awards typically smaller ■ 1:1 match required	■ Spring 2020	■ VDCR Deputy Director for Floodplain Management, Russ Baxter ■ P: 804.786.2291 ■ E: Russ.Baxter@dcr.virginia.gov
Green Project Reserve	■ To fund green infrastructure, water and energy efficiency, or other environmentally innovative projects	■ Low-interest loan program for planning, design, and construction of facilities	■ Must be on CWSRF or DWSRF priority list	■ At least 10% of states' CWSRF funding is typically required by Congress to support these types of projects ■ More than \$4.47 million were available in FY 2017
Hampton Roads Community Foundation Community Grant	■ To support major capital projects and campaigns that are transformative for the organization and the communities it serves in the areas of environmental stewardship (educate and engage youth on waterways' health and the impact of sea level rise) and vibrant places (capital projects).	■ Up to \$500,000	■ January 2020	■ Special interest grants also are available
The Funders' Network Partners for Places	■ For local projects that promote a healthy environment, a strong economy, and well-being for all residents through partnerships between the local government sustainability office and place-based foundations	■ Up to \$150,000 for 2-year projects ■ Up to \$75,000 for 1-year projects ■ 1:1 match required	■ January 31, 2019	■ Must have community-based foundation that will provide match ■ Must have designated municipal sustainability officer who is involved in project ■ Contact Funders Network's Ashley Quintana ■ P: (305) 667-6350 ext. 201, ■ E: ashley@fundersnetwork.org
Threshold Foundation Climate Strategies Grant	■ To support work that provides solutions to address the drivers of climate change; work that facilitates the use of clean, carbon-free energy; and work that supports the empowerment of vulnerable people as climate stewards	■ Up to \$100,000, with average grants of \$25,000	■ 6 month cycle from February to August	■ Does fund 501c4 activities ■ Typically do not fund organizations with budgets larger than \$2 million so should find a local nonprofit applicant
NOAA Environmental Literacy Program Grants	■ To support K-12 and public education about community resilience to extreme weather events and environmental hazards	■ Up to \$500,000 ■ Matching funds not required nor considered in evaluation	■ February 2019	■ Consider environmental education projects along Elizabeth River to inform public about cleanup, resiliency, or flooding ■ Contact Environmental Literacy Program grants team ■ E: oed.grants@noaa.gov
Virginia DLS Chesapeake Bay Restoration Fund	■ To protect the Bay by helping local communities clean up and restore their polluted rivers and streams	■ Small grant averaging \$5,000 in 2018	■ September 25, 2019	■ Contact Gwen Foley ■ P: 804.698.1810 ■ E: gfoley@dls.virginia.gov
U.S. EPA Region 3 Environmental Finance Center	■ Part of a national network, these centers provide research, training, and assistance to communities in their region on energy and water programs	■ Technical assistance and training for demonstration and applied research projects	■ No deadline	■ Review existing research programs on management for water systems, wastewater, and other strategies ■ Contact program staff to discuss specific projects or strategies

OPPORTUNITY	PURPOSE	AMOUNT, MATCH	ANTICIPATED DEADLINE	NOTES
VERTICAL DEVELOPMENT & PARKING STRUCTURES				
U.S. EDA Planning Grant	■ For planning of public infrastructure and economic development projects with potential to create significant development and/or jobs in distressed area	■ Up to \$300,000, with 1:1 match	■ Ongoing	■ Discuss with U.S. EDA EDR Bob Gittler ■ P: 215.597.4360 ■ E: bgittler@eda.gov
U.S. EDA Public Works & Economic Development Facilities Grant	■ For public infrastructure and site development that supports quality economic development and high-skills jobs	■ Average grant is \$1million, but up to \$3 million ■ 50% match	■ Ongoing	■ Discuss with U.S. EDA EDR Bob Gittler ■ P: 215.597.4360 ■ E: bgittler@eda.gov
U.S. HUD Choice Neighborhoods Implementation Grants Program	■ To support development and implementation of comprehensive neighborhoods and housing revitalization “Transformation Plans”	■ Up to \$30 million ■ No match required	■ Summer 2019	■ Norfolk won in May 2019! ■ Eligible communities must have “severely distressed” public housing, be in a distressed neighborhood by poverty or violent crime statistics, and have a strong community vision and plan for the neighborhood ■ Norfolk has received the CNP in 2010 and has a pending Implementation Grant submitted in 2018
U.S. Economic Development Administration Regional Economic Diversification Summit (REDS Summit)	■ To convene federal agency officials to discuss economic challenges and opportunities to grow and leverage funding	■ Federal convening	■ Rolling	■ Discuss with U.S. EDA EDR Bob Gittler on potential for REDS Summit
U.S. HHS Community Economic Development Grant	■ To support employment and commercial development projects that provide economic self-sufficiency for low-income residents and their communities	■ Awards range from \$225,000 to \$800,000 ■ No match	■ May 2019	■ Applicant must be a Community Development Corporation ■ Contact Rafael Elizalde in the Office of Community Services ■ P: 202.401.5115 ■ Examples of current projects can be found: https://www.acf.hhs.gov/ocs/programs/ced/ced-grantees
Federal Housing Finance Board / Federal Home Loan Bank of Atlanta	■ The FHLB of Atlanta can provide support to local banks to provide low-cost advance funds (typically 15-25 basis points below comparable advance rates) for terms of up to 30 years for bridge, construction, and permanent financing for projects including affordable housing, community infrastructure (streets, sidewalks, parking garages, stormwater, etc.), commercial/retail businesses, public and community centers facilities, small business lending, and other uses. Can be used to enhance banks’ CRA standing. Simple and quick application process.	■ Range from \$500k to \$2M	■ Rolling	■ Heavy focus on housing, but precedent of infrastructure and community program investment too ■ Contact Cassandra Madden ■ P: 800.636.9650, x 5321
EB-5 Project Finance	■ Federal program which allows eligible foreign immigrant investors to become lawful permanent residents of the United States by investing at least \$1 million (or, in the case of the Thrive project area, only \$500,000, as it can qualify as an EB-5 “Targeted Employment Areas”) to finance a commercial enterprise in the United States that will employ at least 10 American workers. ■ Most projects are conducted via “Regional Centers” approved by the U.S. Department of Homeland Security, which are pooled investments seeking EB-5 investments (there are more than 20 Regional Centers in Virginia) ■ EB-5 investments have been used extensively for commercial developments, hotels, casinos and similar real estate projects	■ Minimum \$500,000, no maximum	■ Ongoing	■ Advisable to work with approved Regional Center, or one of many EB-5 Investment intermediary firms, to identify potential Thrive project investors ■ See www.uscis.gov/working-united-states/permanent-workers/employment-based-immigration-fifth-preference-eb-5/immigrant-investor-regional-centers for a list of approved Regional Centers in Virginia

OPPORTUNITY	PURPOSE	AMOUNT, MATCH	ANTICIPATED DEADLINE	NOTES
VERTICAL DEVELOPMENT & PARKING STRUCTURES				
HUD Section 108 Loan Guarantee	<ul style="list-style-type: none"> Section 108 Loan Guarantees provide communities with a source of financing for economic development, housing rehabilitation, public facilities, and other large-scale physical development projects. They can be used by a designated public entity to undertake eligible projects, or, alternatively, can be loaned to a third-party developer to undertake the projects. They are low-cost loans borrowed against future CDBG allocations. 	<ul style="list-style-type: none"> Up to several million Must have repayment stream and collateral 	Rolling	<ul style="list-style-type: none"> Contact HUD Richmond Field Director Carrie Schmidt <ul style="list-style-type: none"> P: 800.842.2610 Or contact Paul Webster, HUD Director of Financial Management <ul style="list-style-type: none"> P: 202.402.4563
National Development Council (NDC), Public-Private Partnership (P3)	<ul style="list-style-type: none"> NDC designs-finances-builds, and can operate public facilities, brings non-profit bonding Municipality would lease to own facility from NDC 	Variable, with projects ranging from \$10M-\$50M	Rolling	<ul style="list-style-type: none"> Contact Stephanie Dugan at 325.668.6555 and Joe Gray at 561.537.0933 to discuss viability of NDC approach
Virginia Enterprise Zone, Job Creation Grants	<ul style="list-style-type: none"> As the Norfolk Thrive project area is in an eligible Enterprise Zone, businesses that locate in the Thrive project area and create at least four new, new permanent jobs which meet certain wage and health benefit requirements, may obtain grants of between \$500-\$800 per job (to a maximum of 350 jobs) over a five year period 	<ul style="list-style-type: none"> \$500 per qualifying job, up to 350 jobs \$800 per qualifying job in certain high unemployment areas 	Rolling	<ul style="list-style-type: none"> Contact Rebecca Rowe at the Virginia Department of Housing & Community Development <ul style="list-style-type: none"> P: 804.371.7040 E: ezone@dhcd.virginia.edu
Virginia Enterprise Zone, Real Property Investment Grant	<ul style="list-style-type: none"> As the Norfolk Thrive project area is in an eligible Enterprise Zone, developers of new commercial, office, retail, and mixed-use buildings capitalized at >\$500,000, may receive state grants 	<ul style="list-style-type: none"> Up to 20% of the qualified building investment over the \$500,000 base threshold, capped at \$100,000 for investments <\$5 million and \$200,000 for investments >\$5 million. Measured on cumulative investment basis over 5 years 	Rolling	<ul style="list-style-type: none"> Contact Rebecca Rowe at the Virginia Department of Housing & Community Development <ul style="list-style-type: none"> P: 804.371.7040 E: ezone@dhcd.virginia.edu
U.S. Treasury New Market Tax Credits	<ul style="list-style-type: none"> For infrastructure and development that supports job creation A qualified "Community Development Entity" can invest in a project, compensated by an investment tax credit financing 	<ul style="list-style-type: none"> Can subsidize up to ~20% of a project's capital needs with NMTC Projects typically amount to \$3-\$7.5 million in equity investment 	Work mid-year for preparing investments in the following year	<ul style="list-style-type: none"> Must find Community Development Entity (CDE) willing to invest in project
Opportunity Funds	<ul style="list-style-type: none"> To incentivize private equity investment in distressed areas through deferred capital gains taxes Could support commercial developments at Harbor Park 	<ul style="list-style-type: none"> Capital gains tax benefits, depending on duration of investment 	Ongoing	<ul style="list-style-type: none"> Norfolk has received 3 designations of eligible census tracts

OPPORTUNITY	PURPOSE	AMOUNT, MATCH	ANTICIPATED DEADLINE	NOTES
PARKS, PUBLIC ART & PLACEMAKING				
Land and Water Conservation Fund	■ To support and enhance outdoor park and recreational areas	■ Up to \$1,000,000 ■ 1:1 match required	■ Spring 2019	■ 1st VDCNR round will be for acquisition, second for park development projects ■ Contact Beth Reed ■ P: 804.786.5046 ■ E: beth.reed@dcr.virginia.gov
Outdoor Recreation Legacy Partnership Program	■ Funds projects that increase recreational access in economically distressed areas with inadequate access to quality parks	■ Up to \$1 million ■ 1:1 match required	■ Likely due in Summer 2019	■ State may submit up to 3 applications to the National Park Service ■ VDNR has not participated in recent years, and never won – but may be interested in this coming round ■ Contact Beth Reed ■ P: 804.786.5046 ■ E: beth.reed@dcr.virginia.gov
Virginia Recreational Trails Program	■ To fund the maintenance and development of recreational, pedestrian, and bicycle trails, trailheads, and trail facilities and property acquisition for trails	■ Up to \$400,000 ■ 20% match required	■ July 2020	■ Contact Synthia Waymack ■ P: 804.786.4379 ■ E: Synthia.waymack@dcr.virginia.gov
PetSafe Bark for Your Park Grant Program	■ To enhance or construct a community dog park ■ 8 grants for construction; 5 grants for enhancements	■ Up to \$25,000 for construction ■ Up to \$5,000 for enhancements	■ Summer 2019	■ Requires letters, photo, blueprints/plans, and other community support ■ Could support off leash dog park in Leicht Memorial Park as discussed
PeopleForBikes Community Grant	■ To support bicycle infrastructure, trails, facilities, parks, pump tracks, BMX facilities, and campaigns and programs that promote investments in bicycle use and infrastructure	■ Up to \$10,000 ■ No match required, but partnerships and leveraging are weighed ■ Cannot fund more than 50% of project	■ 2 cycles per year ■ LOI due July 2019 ■ Full application due October 2019	■ Does not fund studies, plans, signs, maps, trail heads, restroom facilities, etc. ■ Contact Zoe Kircos at 303.449.4893 x106 or zoe@peopleforbikes.org
Kaboom! Build It Yourself & Creative Play Grants	■ To support creative outdoor recreation and build new playgrounds to enhance parks	■ Up to \$15,000 ■ 160% local match	■ Deadlines: February 17, April 28, August 4	■ Contact grants@kaboom.org to discuss specific project concepts and eligibility for different funding opportunities
National Endowment for the Arts – Our Town Grant	■ To support creative placemaking that can transform communities by incorporating arts, culture, and design	■ Up to \$200,000 ■ 1:1 match required	■ Spring 2019	■ Requires a partnership between an arts organization and private, non-profit, or government entity ■ Could tie together Hopewell's art and placemaking efforts
Kresge Foundation Place-Based & Local Systems	■ To use art and design to facilitate and advance local placemaking and revitalization goals in distressed communities	■ Up to \$450,000	■ Rolling	■ Discuss concepts or potential ideas with local artists that would build upon broader placemaking strategy