North Potomac Yard

Small Area Plan

Creating a Complete Sustainable Community

Adopted 6/12/2010, Ordinance 4673

See Four Mile Run Master Plan, adopted 3/18/2006

City of Alexandria Department of Planning & Zoning

April 7, 2010

AMENDMENTS TO NORTH POTOMAC YARD SMALL AREA PLAN - as of 06/1/2015

Master Plan Amendment #	Ordinance #	Passage Date	Description/Address	Small Area Plan	Land Use Change
MPA2010-0002	4673	6/12/2010	Incorporate North Potomac Yard SAP in Potomac Yard / Potomac Greens SAP	NPY/PYPG	Incorporate North Potomac Yard SAP
MPA2006-0001	unknown	3/18/2006	See Four Mile Run Restoration Plan for reference		

Table of Contents

Acknowledgements v

1 Vision and Guiding Principles 1
- Vision Statement
- Plan Principles – North Potomac Yard
- Creating a Complete, Sustainable Community
  - Environmental Sustainability
  - Economic Sustainability
  - Social Sustainability

2 Environmental Sustainability..... 7
- Recommendations

3 Urban Design – Plan Framework 11
- A. Urban Design Framework
- B. Street Hierarchy
- C. Creation of Three Distinct Urban Neighborhoods
- D. Gateways and Vistas
- E. Urban and Building Form
- F. Flexible Metrorail Zone
- G. Public Art and History
- Recommendations

4 Land Use 25
- A. Balancing Land Uses
- B. Neighborhood Land Use Strategy
- C. Land Use—Future Zoning (Coordinated Development District)
- D. Retail Uses
- E. Adjacent Redevelopment Sites
- F. Building Height
- G. Parking Strategy
- H. Open Space
- I. Housing
- J. Development Summary
- Recommendations

5 Community Facilities..... 45
- A. Projected Demographics
- B. Collocation, Flexibility, and Incentives
- C. Community Facilities
- Recommendations

6 Transportation 51
A. Transportation Network
B. Transportation Analysis
C. Mode Share
D. Streets And Connectivity
E. Transit
F. Truck Loading
G. Parking Management
H. Bicycles
I. Water Taxi
J. Transportation Demand Management
Recommendations

7 Infrastructure 65
A. Water Management Master Plan
B. Stormwater Management
C. Wastewater Management
D. Solid Waste Management
Recommendations

8 Existing Neighborhoods 71
A. Neighborhood Character
B. Established Neighborhoods
C. New Neighborhoods
D. Connectivity and Accessibility
E. Mitigating Neighborhood Traffic Impacts
Recommendations

9 Implementation 77

Appendix I: Background 89
The Planning Area
Current Land Use and Zoning

Appendix II: Context for Plan 95
Role of The Plan
History and Historical Character
Existing Conditions and Policies
Demographics and Forecasts
Analysis of Market Conditions
Opportunities and Constraints

Appendix III: History 101

Appendix IV: Climate Change, Emissions, and Energy 111

Appendix V: Community Outreach 115

Appendix VI: Summary of Recommendations 121

Acknowledgements

City Council

Mayor William D. Euille
Vice Mayor Kerry Donley
Frank H. Fannon
Alicia Hughes
Rob Krupicka
Redella S. Pepper
Paul C. Smedberg

Planning Commission

John Komoroske, Chair
H. Stewart Dunn, Jr., Vice Chair
Donna Fossum
Jesse Jennings
Mary Lyman
J. Lawrence Robinson
Eric R. Wagner

Potomac Yard Planning Advisory Group

Joe Bondi
Mike Caison
Richard Calderon
Allison Cryor DiNardo
Darryl Dugan
Garrett Erdle
Bill Hendrickson
Deborah Johnson
John Porter/Mark Krause
Jon Lindgren/Steve Collins
Dan McCaffery
Crystall Merlino
Jennifer Mitchell
Peter Pocock
Mariella Posey
Frederick Rothmeijer
Noah Teates
Eric R. Wagner, Chair
Maria Wasowski

City Departments

Alexandria Economic Development Partnership, Inc.

Val Hawkins, *President and CEO*
Stephanie Landrum, *Senior Vice President*

City Manager's Office

Jim Hartmann, *City Manager*
Mark Jinks, *Deputy City Manager*

Historic Alexandria

J. Lance Mallamo, *Director*
Francine Bromberg, *City Archaeologist*
Pamela Cressey, *City Archaeologist*

Housing

Mildrilyn Davis, *Director*
Helen McIlvaine, *Deputy Director*

Planning and Zoning

Faroll Hamer, *Director*
Jeffrey Farner, *Deputy Director*
Karl Moritz, *Deputy Director*
Kathleen Beeton, *Division Chief*
Tom Canfield, *City Architect*
Valerie Peterson, *Principal Planner*
Kristen Mitten, *Urban Planner*
Claire Gron, *Urban Planner*
Benjamin Aiken, *Planning Technician*

Recreation, Parks and Cultural Activities

James Spengler, *Director*
Alisa Carrel, *Office of the Arts, Director*
Ron Kagawa, *Acting Division Chief*
Beth Carton, *Urban Planner*

Transportation and Environmental Services

Rich Baier, *Director*
Abi Lerner, *Deputy Director*
Emily Baker, *City Engineer*
Jim Maslanka, *Division Chief*
Erica Bannerman, *Senior Environmental Specialist*
Dr. Claudia Hamblin-Katnik, *Watershed Program Administrator*
Daniel Imig, *Civil Engineer III*
Daphne Kott, *Civil Engineer III*
Yon Lambert, *Pedestrian/Bicycle Coordinator*
Sandra Marks, *Principal Transportation Planner*
Dr. Satya Singh, *Civil Engineer IV*

Consultant Team

Cooper, Robertson & Partners
Kimley-Horn and Associates, Inc.
The Perspectives Group

1

Vision and Guiding Principles

Vision and Guiding Principles

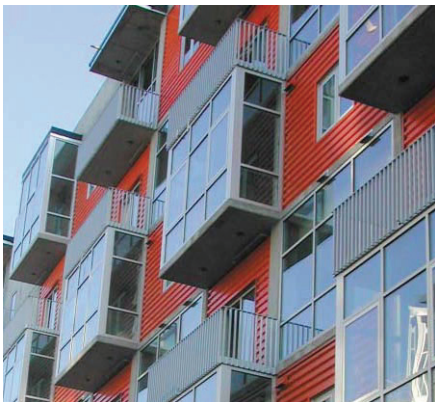
Figure 1. Vicinity and Landbay Map

Note: Landbays within Potomac Yard are geographic areas used for zoning and development purposes.

Vision Statement

The Plan envisions North Potomac Yard as an environmentally and economically sustainable and diverse 21st Century urban, transit-oriented, mixed-use community that is compatible with adjacent neighborhoods. The Plan seeks to create a regional destination with diverse built and natural spaces where people want to spend time in a wide variety of pursuits.

The North Potomac Yard Small Area Plan (Plan) is intended to guide public and private investment and development decisions in the northern portion of Potomac Yard (Landbay F) (North Potomac Yard). The Plan focuses on the creation of dynamic urban forms, a complementary mix of land uses, community amenities, and a range of housing opportunities.



The Plan is a framework to create one of the most sustainable series of neighborhoods within the region, known for its outstanding Four Mile Run waterfront, parks, public transportation, innovative architecture, environmentally sustainable design and practices, and incorporation of Alexandria's ("Alexandria" or "City") rich history and culture.

Figure 2 a. Plan Principles

- Create North Potomac Yard as a **model of environmental sustainability** for its site planning, infrastructure, and buildings.
- Create an **economically sustainable** development.
- Promote **excellence in design** with a new standard in architecture, urban design, and materials that creates a compelling and lasting identity.
- Create a **vibrant and diverse mixed-use community** that provides options for living, working, shopping, recreation, culture, and civic uses for a wide range of incomes and ages.
- Pursue a **comprehensive multi-modal approach to transportation** based on a highly walkable urban environment, minimal automobile impact, and maximum use of existing and new Metro stations.
- Create landscaped streets and a **network of usable open spaces and parks** with a strong connection to Four Mile Run and the Potomac.
- Provide **connections and transitions** appropriate to and protective of the character of surrounding neighborhoods.

Creating a Complete, Sustainable Community

The Plan will guide future growth and redevelopment by taking advantage of North Potomac Yard's strengths: planned economic diversity, history, a central location in the region, dedicated high-capacity transitway, a future Metrorail station and proximity to the Ronald Reagan Washington National Airport.

The Vision Statement and Plan Principles emphasize the importance of creating a sustainable community. "Sustainability" refers to the long-term environmental, economic, and social health of a community, one in which the needs of this generation are met without compromising the ability of future generations to meet their needs. The City has embraced sustainability as a core value through the adoption of numerous policies and regulations. Together, these policies and regulations will provide a roadmap to move Alexandria toward becoming a more sustainable City. ***The fundamental goal of the Plan is for North Potomac Yard to achieve progressive and innovative strategies for sustainability in all aspects of development.***

The three primary elements of sustainability integrated throughout the Plan consist of the following:

1. Environmental Sustainability

Redevelopment is based on establishing long-term environmental goals, such as carbon neutrality, as well as achieving short- and mid-term goals, such as the incorporation of environmentally responsible building and site development practices; aggressive strategies for the reduction of energy and water use, stormwater reduction, and water reuse; and the restoration and continued health of the ecosystem and watershed. These issues are discussed in more detail in *Chapter 2: Environmental Sustainability, Chapter 6: Transportation and Chapter 7: Infrastructure.*

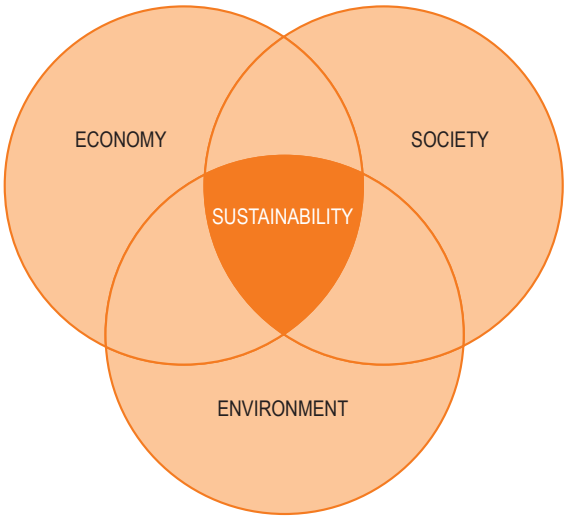
2. Economic Sustainability

The Plan enables North Potomac Yard to be poised for future growth as a long-term economic development area for the City. This growth, which is good for the City and the region, requires the provision of a future Metrorail station. The Plan requires additional office development in order to increase the real estate tax base and the maximization of density (particularly office density) around the Metrorail station. A goal of the Plan is attracting businesses, jobs, visitors, families, shoppers and tourists. These issues are discussed in more detail in *Chapter 4: Land Use.*

3. Social Sustainability

Consistent with the City goal of diversity, the Plan envisions a mix of uses, amenities, housing opportunities, and community facilities to serve a variety of age groups, interests, and income levels. These issues are discussed in more detail in *Chapter 4: Land Use* and *Chapter 5: Community Facilities.*

Figure 2 b. Sustainability Diagram



2

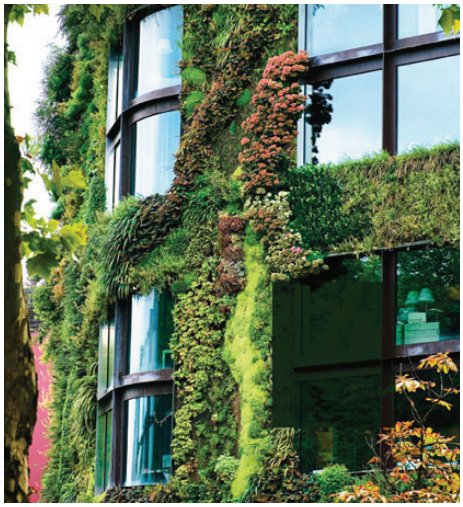
Environmental Sustainability

Environmental Sustainability

Sustainable design is not so much a collection of technologies, but rather the integration of the built environment into the natural ecosystem. The Plan supports redevelopment of a site impacted by historic rail yard operations by using innovative techniques and environmental requirements to achieve innovative outcomes in sustainability. The following are the primary strategies to ensure that the development of the Plan area enhances the natural environment and quality of life.

A. **District-wide sustainability measures:** The intent of the Plan is to encourage sustainability measures that will be integrated in a coordinated and comprehensive manner supporting the City's environmental goal of new construction to be carbon neutral by 2030. These measures will include, but are not limited to, green buildings, stormwater management, energy and water efficiency, conservation measures, and use of renewable resources and emerging technologies.

B. **Green roofs:** New development will be required to provide green roofs. Green roofs have the potential to provide amenity space for building users; reduce heat (by adding thermal mass and thermal resistance value); reduce cooling (evaporative cooling) loads on buildings; reduce the urban heat island effect; increase the life span of the roof; reduce stormwater runoff; filter airborn pollutants and CO_2 out of the air; filter pollutants, nutrients and heavy metals out of rainwater; and increase wildlife habitats in an urban area.



> **"My interest is in the future, because I am going to spend the rest of my life there."**
>
> *- Charles Kettering*

C. Mixed-use development: Provide a balance of office, residential, and retail to maximize walkability and transit use.

D. Native plants: The use of native plant species and water-efficient landscaping limits the need of fertilization and conserves water.

E. Open space network: An interconnected park and greenway system will provide residents, employees, and visitors access to local and regional active and passive recreation amenities.

F. Quality built form: Quality built form will encourage reuse rather than replacement and account for life cycle analysis.

G. Stormwater and natural vegetation: Stormwater management is required to be integrated as part of the street and open space design to improve the site's hydrology to reduce runoff, improve water quality, and provide residents and visitors opportunities to participate in the natural processes of their environment.

H. Water conservation: Rainwater collection systems, natural irrigation, and greywater recycling are encouraged, and green roofs are required to help conserve energy and limit potable water usage.

The Plan recommends the submission of a Sustainability Plan as part of the submission of the first development special use permit, which will identify strategies to implement the phased recommendations on a plan-area wide basis. The Sustainability Plan should integrate long-term progressive goals in successive phases, with the ultimate goal of carbon neutrality for the entire plan area. The phasing should anticipate a 20 to 30 year build-out of North Potomac Yard, and the evolution of sustainability requirements and technology during that period.

Note:
Specific deadline and submission requirements not specified for recommendations will be determined as part of the rezoning for the subject property.

ENVIRONMENTAL SUSTAINABILITY RECOMMENDATIONS

2.1 Explore a minimum of LEED Silver or comparable, or the City's green building standards and requirements, whichever is greater.

2.2 Require plan area-wide sustainability through LEED-ND or comparable. Require the provision of green roofs for new development.

2.3 Explore the possibility of community gardens so that residents and visitors could have access to edible and non-edible plantings. Community gardens also offer a unique educational opportunity.

2.4 Require stormwater management to be integrated as part of the street and open space design.

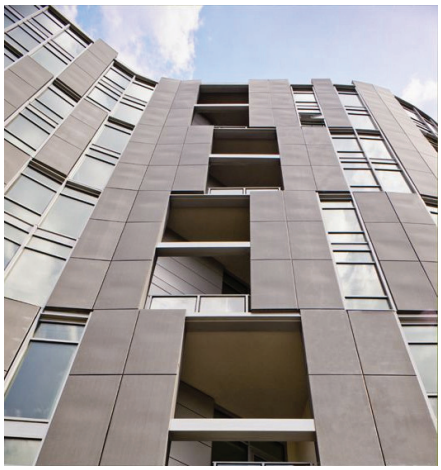
2.5 Encourage water conservation by using ultra low and/or low flow plumbing fixtures and reuse of captured rainwater.

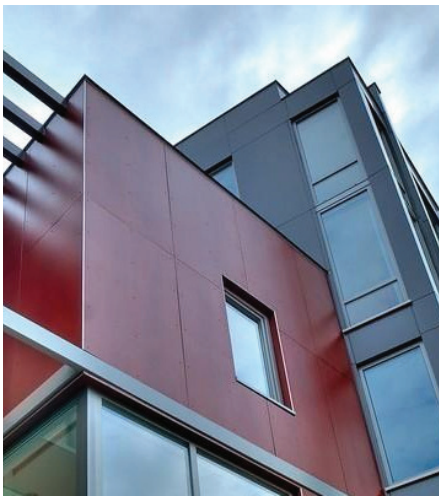
2.6 North Potomac Yard should strive to achieve carbon neutrality by 2030.

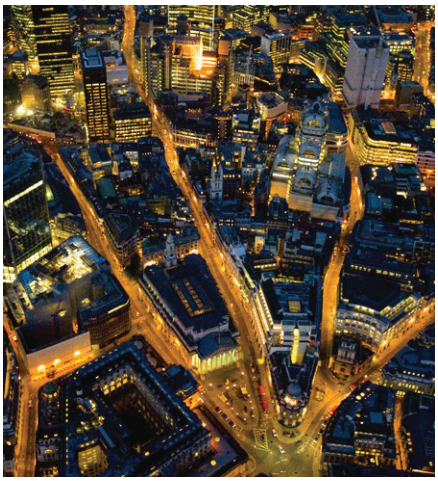
2.7 Require the submission of a Sustainability Plan as part of the submission of the first development special use permit and amended for subsequent block(s) and/or building(s) that demonstrates the compliance with anticipated goals and recommendations of the Plan and the goal of district-wide sustainability measures.

3

Urban Design-Plan Framework







Urban Design – Plan Framework

Creating North Potomac Yard as a great place will involve the collective experience of architecture, public spaces, public art, urban design, and landscape design. An exclusive focus on density and land use will not result in a high quality cohesive urban community, or an enduring sustainable place that will bring lasting value to the City. The combination of innovative and high quality architecture, environmentally sustainable elements and great public spaces will create attractive places to live - places that will express the culture and tradition of Alexandria, while also enabling this area to be an effective long-term economic engine for the City. It is crucial that as projects proceed, buildings, open space and the public realm be held to the highest standards of quality, ensuring that all of the redevelopment provides amenities and economic value for the City. **Quality begets quality.**

A. Urban Design Framework

The urban design framework plan (Figure 3) provides the basic structure for an interconnected series of streets, blocks, and parks. The required street grid is based on Alexandria's historic pattern of pedestrian-scale blocks, with required variations in the street grid pattern at the Metrorail station and Crescent Gateway Park, to create a distinctive and memorable street pattern at these visually prominent locations. The Metrorail station serves as a focal design element for Metro Square neighborhood. The framework streets will connect to existing streets within the rest of Potomac Yard, Potomac Yard Arlington, and connect or align with neighborhoods to the west. The Plan recommends the adoption of Design Guidelines to augment the urban design elements of the Plan.

> **"If buildings are beautiful, higher density compounds that beauty. Conversely, if buildings are ugly, then higher density compounds that ugliness."**
>
> *- Vince Graham*

Figure 3. Framework Plan and Street Hierarchy

Figure 4. North Potomac Yard Neighborhoods

***Note** The names given to neighborhoods, parks, and streets throughout the Plan are for reference purposes only, and subject to additional approval processes where applicable. The blocks, streets and uses within the Flexible Metrorail Zone shall be subject to Recommendation 3.2.*

Note:

Flexible Metrorail Zone

B. Street Hierarchy

A street hierarchy based on function identifies prominent streets and streets for parking and service access (Figure 3). “A” streets are the most prominent streets; “B” streets connect “A” and “C” streets and provide general pedestrian and vehicular circulation for the neighborhoods; and “C” streets provide a means of access and service entries to parking. The Design Guidelines may provide for service entries on “B” streets when buildings have no alley or “C” street frontage. The streets vary in width depending on their function, hierarchy and scale of adjoining buildings. The required width of the streets and sidewalks capture the characteristics of great urban streets. All streets will be designed to favor the pedestrian and keep vehicle speeds low. The required street cross-sections for each street will be depicted in future design guidelines.

C. Creation of Three Distinct Urban Neighborhoods

A defining element of the City is its distinct neighborhoods, such as Old Town, Del Ray, Northeast, Lynhaven, Rosemont, and Parker-Gray. The City also includes numerous emerging or transitioning neighborhoods such as Carlyle, Eisenhower East, and Landmark/Van Dorn. The differences in identity, character and scale of the various neighborhoods complement each other and contribute to the richness of the urban experience of the City. Consistent with the City's urban tradition of a series of interconnected, distinctive neighborhoods, the Plan requires three unique and identifiable neighborhoods (Figure 4).

- **Metro Square Neighborhood**
- **Market Neighborhood**
- **Crescent Gateway Neighborhood**

The Metro Square Neighborhood

This neighborhood is the transit hub of North Potomac Yard, where the Metrorail station, dedicated high-capacity transitway, and local and circulator bus services will converge. Two important public spaces define the character of the neighborhood, including the square park at the center of the neighborhood, and a possible internal pedestrian connection. The neighborhood is characterized by a mix of uses, but will be predominantly office, with ground floor retail. In addition, uses such as entertainment and/or live performance arts are encouraged. An entertainment district could provide a unique identity for this neighborhood and would differentiate this new town center from others in the region. The entertainment and theatre uses can utilize the office parking during the evening hours, and add evening activity within the neighborhood.

Figure 5. Perspective View of Metrorail Station and Metro Square Park

The Market Neighborhood

This neighborhood is the heart of North Potomac Yard, where a significant amount of retail and restaurants will create an exciting regional destination. This is the neighborhood where large format retailers could be located (see *Analysis of Market Conditions in Appendix 2*). This neighborhood will provide the greatest mix of uses, offering a range of housing and office uses above the ground floor retail uses. Because of the retail and adjoining Metrorail station, one of the blocks may include an internal pedestrian walkway/connection.

Figure 6. Perspective View of Crescent Park

Crescent Gateway Neighborhood
Located at the northern portion of the site at the gateway to the City, this neighborhood consists of primarily residential uses, with other uses such as a hotel and a possible school. The neighborhood will be defined by its Crescent Park and will take advantage of the adjacent Four Mile Run and park. The Crescent Park creates a residential address for the adjoining larger scale residential buildings. Buildings in this neighborhood are situated to enjoy views of the Potomac River and the Washington, D.C. skyline. A signature element of the neighborhood will be the required curved building facades adjacent to Crescent Park. Taller buildings are located within the central portion of the neighborhood and step down in height to the existing smaller scale neighborhoods to the west and the George Washington Memorial Parkway to the east.

Figure 7. Gateways and Vistas

D. Gateways and Vistas

Similar to Old Town and the remainder of Potomac Yard, the east-west streets visually terminate into the Potomac River or a linear park (except within the Metro Square Neighborhood) affording terminating water and open space views (Figure 7). There are opportunities for buildings to reinforce visually prominent locations along Route 1, Potomac Avenue and the George Washington Memorial Parkway. The scale, character, elements and orientation of new buildings are required to highlight the designated gateways and vistas. Signature facades and gateway elements draw attention to specific points of interest and mark the location of entries and places for each of the neighborhoods. The Plan recommends variety in building massing, design, and height. The plan also recommends distinctive building tops for taller buildings.

E. Urban and Building Form

The urban form is based on the best of Alexandria's design elements such as pedestrian scale at the street level while creating distinctive urban buildings and forms. The buildings are intended to be contemporary, exhibit design excellence, and reinforce the public realm and character of each neighborhood. The higher density, mixed-use buildings in some of the neighborhoods will provide the urban density to help activate retail and restaurants as well as reinforce a sense of place, urban life and vitality for Potomac Yard.
The basic bulk and form of buildings will be governed by the block-specific Development Summary (Table 3), Maximum Building Heights (Figure 17), and Minimum Building Heights (Figure 18). Collectively, these standards will ensure that appropriate densities are maintained and that buildings will create an urban street wall from which the streets and open spaces will be defined and framed. Densities and building heights are discussed in more detail in *Chapter 4: Land Use*. Future design guidelines will address urban and building form elements such as building stepbacks, variation in heights, and form.

Figure 8. Image of North Potomac Yard

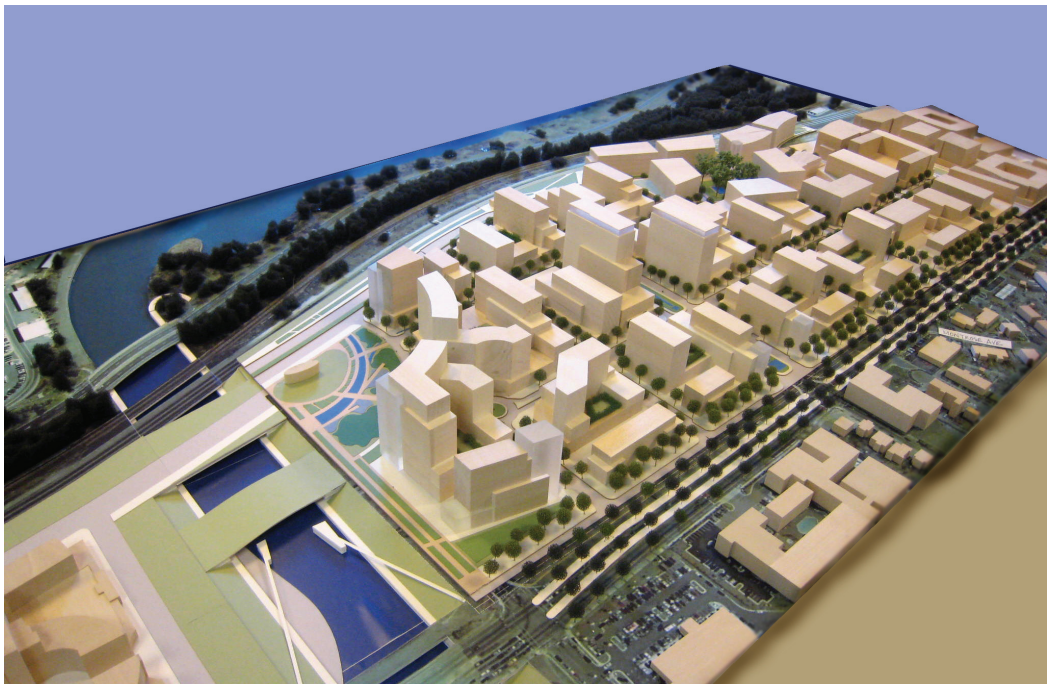


Figure 10. Illustrative Plan #1

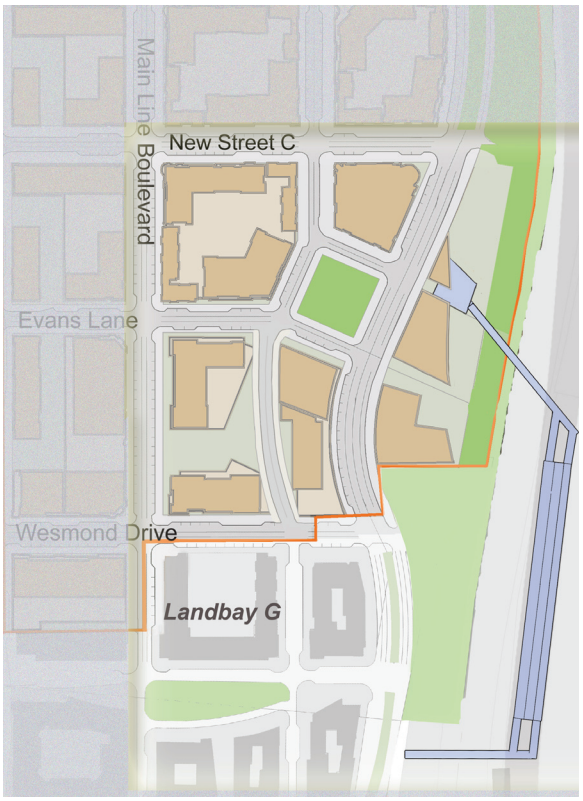


Figure 11. Illustrative Plan #2

F. Flexible Metrorail Zone

The final design and location of the Metrorail station requires additional coordination with the Washington Metropolitan Area Transit Authority (WMATA), the National Park Service (NPS), and other applicable Federal and State agencies. In addition, although the conceptual route for the dedicated high-capacity transitway has been finalized, the type of vehicle that will be utilized (bus rapid transit and/or streetcar) and the location of the stations are not yet finalized. Within the Flexible Metrorail Zone (Figure 9), the final configuration of the streets, blocks, buildings, and open space will be determined as part of the development review process, subject to the intent and recommendations provided in the Plan. Figures 10 and 11 represent two possible configurations of the Flexible Metrorail Zone.

The Flexible Metrorail Zone is envisioned as an urban place centered around the Metrorail station, Metro Square, and adjacent buildings. Key goals of the Flexible Metrorail Zone include:

- Creation of an urban Metrorail station which primarily serves pedestrians and not automobiles;
- Maximization of the accessibility of the Metrorail station and high-capacity transitway route and stations;
- Emphasis on connectivity at the Metrorail station and high-capacity transitway stations, and between modes;
- Maintenance of the overall curvilinear nature of Potomac Avenue;
- Maximization of building height and office density and memorable building forms in the vicinity of the Metrorail station;
- Provision of a centrally-located, well-defined urban park;
- Potomac Avenue (relocated) will connect to the planned street network to the North and South;
- Inclusion of a visual terminus for Water Street at Metro Square; and
- Provision of a meaningful connection to Landbay K.

Refer to recommendation 3.2 for the specific requirements within the Flexible Metrorail Zone.

Figure 9. Flexible Metrorail Zone

G. Public Art and History

Public art and historical interpretation help define a community, create a sense of place, celebrate the site's unique history, reinforce a design theme, engage and inspire the public, and add beauty to a space that will be enjoyed for generations to come. Consideration should be given to the integration of public art and historical references, interpretation and educational opportunities. The public art element of the Plan will need to be consistent with any city-wide public art funding policy and/or as required through the development review process. The Plan recommends a Public Art and History Interpretive Plan to integrate public art and history in a comprehensive way throughout the plan area

Note:
Specific deadline and submission requirements not specified for recommendations will be determined as part of the rezoning for the subject property.

URBAN DESIGN RECOMMENDATIONS

Framework Streets and Blocks

3.1 Require the streets and blocks depicted in the Framework Plan to be constructed as part of any redevelopment and dedicated to the City (Figure 3).

3.2 The final design and configuration of the streets, blocks, buildings, and open space with the Flexible Metrorail Zone (Figure 9) will be determined through the development review process. The final configuration of the streets, blocks, buildings, and open space shall be subject to the following:

a. An approximately 0.70 acre square-shaped park shall be centrally located within the Flexible Metrorail Zone. The park shall be surrounded on all sides by streets, and framed by buildings on each side.

b. Potomac Avenue (relocated) shall align and connect to the Potomac Avenue right-of-way south of Landbay F and to the final alignment of the Potomac Avenue (relocated) right-of-way to the north of the Flexible Metrorail Zone.

c. The overall curvilinear nature of Potomac Avenue (relocated) shall be maintained.

d. The shape of the buildings in plan and form within the Flexible Metrorail Zone shall create distinct and memorable three dimensional forms.

e. Buildings surrounding the centrally located park shall be required to provide a primary entrance facing the approximately 0.70 acre park.

f. Buildings on Potomac Avenue shall be required to provide a primary entrance facing Potomac Avenue.

g. Buildings will be required to have more than one entrance and/or through lobbies for buildings with multiple street frontages.

h. Pedestrian bridge(s) within the Flexible Metrorail Zone that access the Metrorail station shall be fully integrated into the design for the Metrorail station, adjoining buildings, and open space.

i. The alignment of Potomac Avenue (relocated) shall be such that Landbay K park is continuous.

j. Development blocks east of Potomac Avenue shall be sufficient size for market-acceptable building floor plates.

k. The blocks and buildings shall be subject to the minimum height and density provisions and other applicable zoning provisions, design guidelines, and the North Potomac Yard Small Area Plan.

l. The streets shall be configured to accommodate transit and transit stations.

m. Buildings should be designed to integrate transit stations and/or stops.

n. The streets shall be configured to provide a fine-grained interconnected street grid network and spacing consistent with and connecting to streets outside the Flexible Metrorail Zone.

o. Evans Lane is strongly encouraged to connect from Main Line Boulevard to Potomac Avenue (relocated).

URBAN DESIGN RECOMMENDATIONS (CONTINUED)

3.3 Require the street hierarchy to define space and differentiate the character of streets and neighborhoods (Figure 3).

3.4 Require streets to emphasize the pedestrian and bicycles.

3.5 Allow for internal pedestrian connections and alleys within the blocks.

3.6 Improve and enhance the Route 1 frontage with streetscape improvements, buildings, and landscaping.

Creation of Three Distinct Urban Neighborhoods

3.7 The parks depicted in the Framework Plan shall be required within each neighborhood as a defining element of each neighborhood (Figure 3).

3.8 Create three distinctive and unique neighborhoods. Encourage the use of history as inspiration for the design of the open space, public realm, and buildings. Encourage the use of public art to establish distinct neighborhood identities and create unifying themes for the neighborhoods

3.9 Encourage a mix of innovative building typologies within each neighborhood.

3.10 The Metrorail station shall serve as a focal design element for the Metro Square Neighborhood.

3.11 Explore the possibility of providing cultural and civic uses to reinforce the character of each neighborhood.

Gateways and Vistas

3.12a Require variety in building massing, design, and height.

3.12b Use heights and variety in heights, building materials, orientation, and dimensions to create distinctive building tops for taller buildings.

3.13 Provide distinctive building forms and architecture at the designated gateway locations (Figure 7).

Urban and Building Form

3.14 Balance the aesthetic and functional criteria of sustainable design.

3.15 Create an urban building scale and relationship between buildings, streets and open spaces that ensures urban relationships of the buildings and sidewalk, and maximizes walkability and the use of transit.

3.16 Require any building with government tenants or tenants who require security measures to meet the Vision, applicable provisions of the Master Plan and future design guidelines.

3.17 Adopt future design guidelines to implement the Vision of the Plan.

URBAN DESIGN RECOMMENDATIONS (CONTINUED)

Public Art and History

3.18 Require the submission of a Public Art & History Interpretive Plan for North Potomac Yard and explore relationships between public art and the history of the site.

3.19 Integrate small and large-scale public art which considers the history of the site, as well as thematic, artistic, and cultural ideas into new development and the public realm, including the following areas: trails, transit infrastructure, open spaces, buildings, site furnishings, lighting, gateways, and wayfinding.

4

Land Use

Land Use

Figure 12. Land Use Plan

Note: Public Buildings/Community Facilities will be permitted within any of the blocks subject to a development special use permit. Proposed Retail will require additional coordination with Landbay G.

A. Balancing Land Uses

The allocation and mix of land uses are based on the proximity and relationship to transit, planned surrounding uses, open space, the required street network, circulation, and market conditions. A balanced mix of uses provides benefits including:

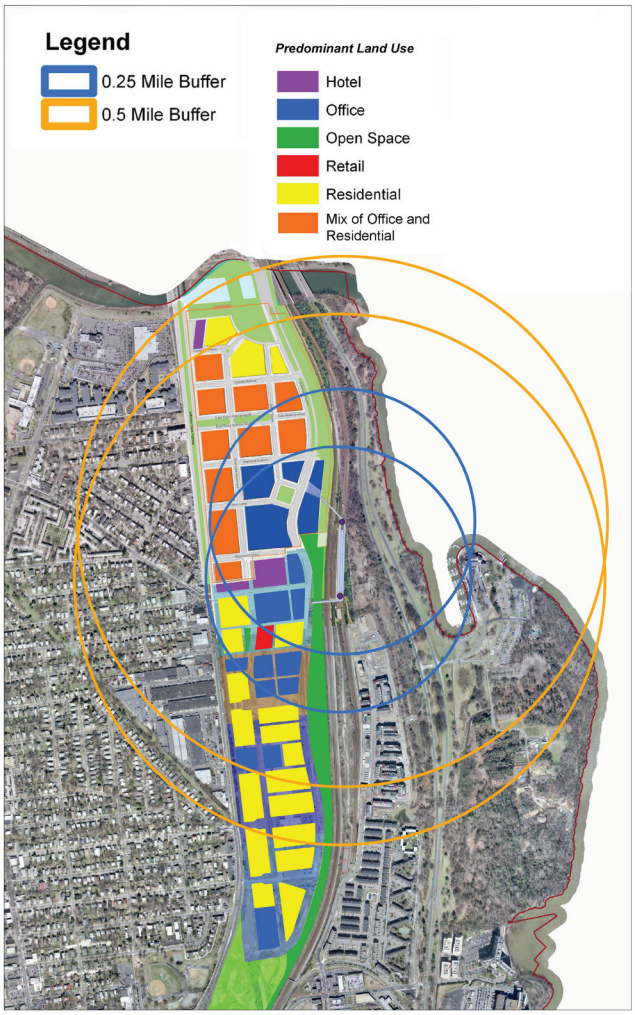
- Improving safety and walkability by sustaining street life through daytime and evening hours;
- Maximizing use of transportation infrastructure capacity by distributing peak hour traffic over longer periods, maximizing internal trips, and maximizing transit use;
- Decreasing parking demand, and creating opportunities for shared parking; and
- Supporting retail by establishing a diverse customer base.

The Plan creates a balance among office, residential and retail uses. Office uses have economic benefits for the City, and provide patrons for restaurants and shops primarily during the day. Residential uses provide activity primarily in the mornings, evening and weekends. Office, residential, and retail uses require connectivity and critical mass to ensure their success. The challenge is to create a fine-grained mix of uses and still meet the market and relationship demands generally required for each of the uses.

A 50/50 mix of residential and office use does not mean an equal distribution of square footage for each use. The City's current occupancy for office is 3.5 employees/1,000 square feet, while multi-family residential use is 1.8 residents/ unit. Therefore, to provide a balance of residents and employees, approximately two to three times more residential than office square footage is necessary.

> **"No urban area will prosper unless it attracts those who can choose to live wherever they wish."**
>
> ***- Jonathon Barnett***

Figure 13. Metrorail Station Quarter and Half Mile Radii



Note: Uses proposed within Potomac Yard are subject to approval as part of the development review process.

The Plan requires specific uses for certain blocks. For example, the blocks adjacent to the Metrorail station are required to be office. However, the Plan allows flexibility for the upper floors of the majority of the blocks to be residential and/or office use (Figure 12 and Table 3). The final maximum permitted square feet and range of permitted uses for each block will be determined as part of the zoning and subsequent development review process for each building.

B. Neighborhood Land Use Strategy

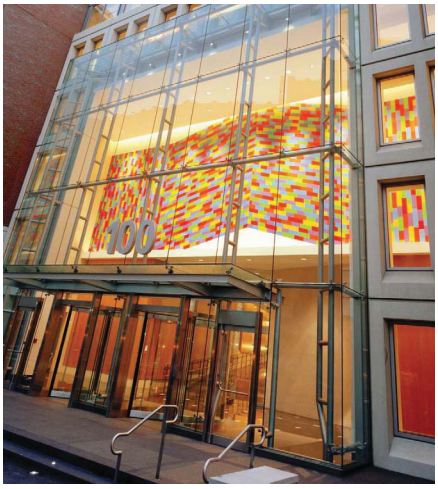
The land use strategy capitalizes on the planned $220 to $235 million (2015 dollars) investment in a new Metrorail station and the additional investment in the planned dedicated high-capacity transit corridor, local bus, and shuttle service which will be provided for North Potomac Yard. All of the proposed blocks are located within a ½ mile radius of the Metrorail station, and more than half of the blocks are located within a ¼ mile. The close proximity of these blocks to the Metrorail station provides a unique opportunity to integrate land use with transit to create a transit-oriented development for Potomac Yard.

Table 1. Metrorail Station ¼ and ½ Mile Approximate Densities

Northern Options (B2/B3) (North and South Entrances)			
	All Landbays		
	Inside 1/4	Outside 1/4	Total within 1/2
Residential/ Office	5,000,000	4,000,000	9,000,000
Retail	790,000	340,000	1,130,000
Hotel	450,000	170,000	620,000
Total	6,240,000	4,510,000	10,750,000

Note: The density shown includes existing planned development in Potomac Yard, including density proposed for North Potomac Yard. The density is measured from Metrorail Station Option B. See Table 3 for overall development summary proposed as part of the Plan.

While the overall goal of the Plan is to maximize density – particularly office density near the Metrorail station and transit, the land uses are also based on creating community and reinforcing the character of each of the neighborhoods.



Many of the buildings leading to the Metrorail station, Landbay G and adjacent to transit stops are required to provide ground floor retail. (Figure 12). Office uses are required for the upper levels of the blocks closer to the Metrorail station, both to maximize transit use and to benefit from the existing office planned in the adjoining Landbays G and H. With approximately 1.5 to 2.25 million square feet of office use within the Metro Square Neighborhood, the culmination of the planned 1.5 million square feet in Landbays G and H result in a total of 3 to 4 million square feet of office within this neighborhood and the adjacent landbays.

The Market Neighborhood will have the largest amount of retail of all the neighborhoods and a similar density as the Metro Square Neighborhood. The Plan recommends flexibility for the upper floors for office and/or residential uses.

The Crescent Gateway Neighborhood requires predominantly residential uses, hotel, and possible community-civic uses.

C. Land Use – Future Zoning (Coordinated Development District)

The Land Use Plan (Figure 12) depicts the principal land uses for each block. In The Plan recommends modification of the boundaries of the existing Coordinated Development District (CDD #10) zoning and the creation of a new Coordinated Development District (CDD #19). The rezoning will be contingent on compliance with the vision, intent and recommendations of the Plan and future design guidelines (including a definitive plan agreed to by the property owners and the City in regard to financing the proposed Metrorail station) and approval of a subsequent rezoning, CDD Concept Plan and applicable approvals by the City. Figure 14a depicts the location of the existing CDD zoning in the planning area, and Figure 14b depicts the creation of the new CDD zone for North Potomac Yard. The recommendations of the Plan will function as the CDD Guidelines and basis for approval of a subsequent rezoning.

Figure 14 a. Existing CDD Zoning

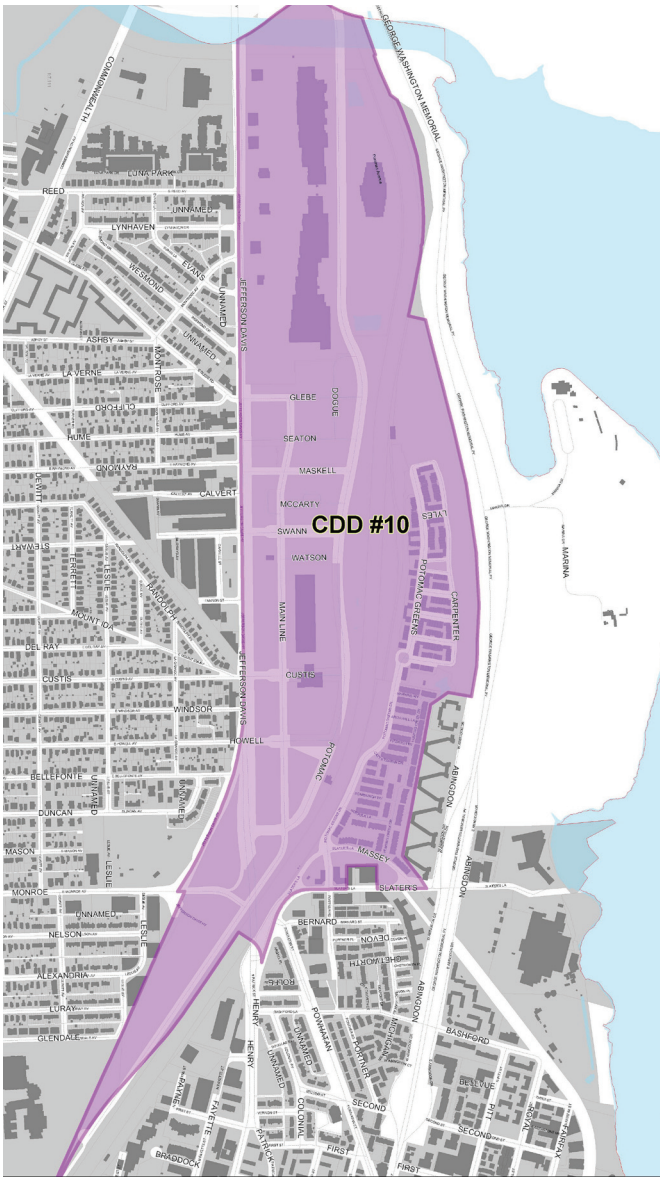
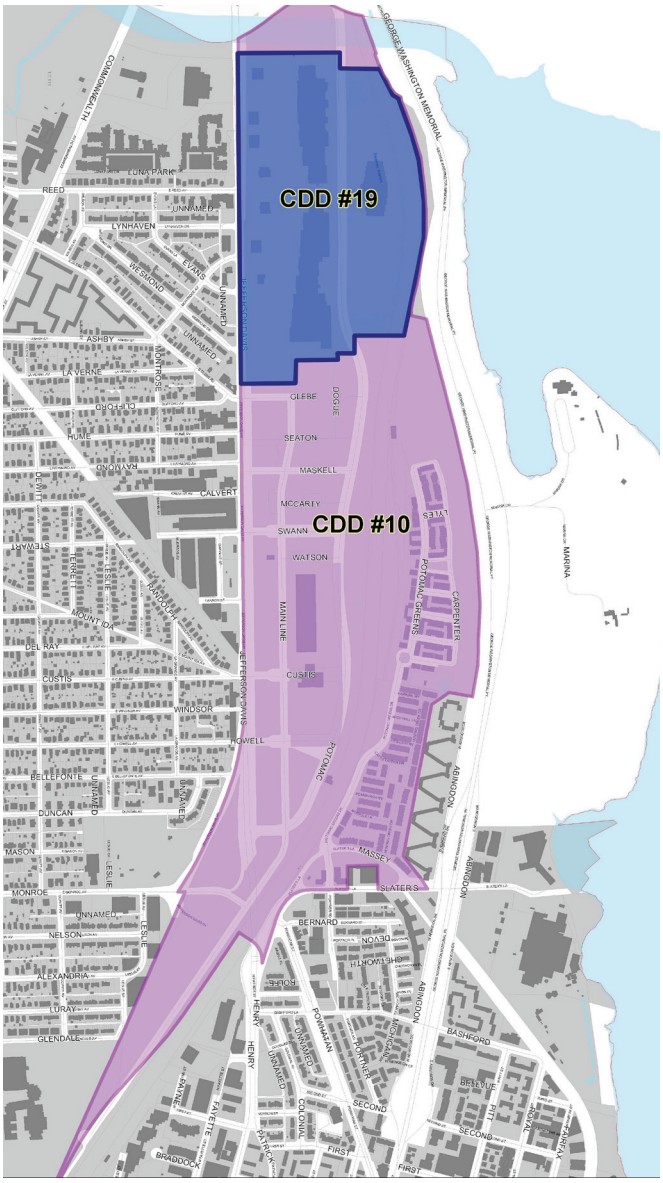


Figure 14 b. Proposed CDD Zoning



D. Retail Uses

The required retail uses are an integral part of the development and land uses for North Potomac Yard (Figure 15). The retail study commissioned to assess the potential for retail within Potomac Yard found that given the scale, amount of development and a future Metrorail station, the market can support the proposed amount of retail (see *Analysis of Market Conditions in Appendix 2*). It is the intent of the Plan that the retail uses provide for the basic needs of residents and employees while also attracting visitors from throughout the region. The anticipated retail uses could include large and small tenants which serve the regional market, neighborhood-serving retail, and restaurants and “lifestyle” entertainment retail (see *Analysis of Market Conditions in Appendix 2: Context for Plan*). Large format retail tenants who serve the regional market should be concentrated in the Market Neighborhood, convenience retail to serve transit users should be concentrated in the Metro Square Neighborhood, and restaurants and entertainment uses could be located in both neighborhoods.

Figure 15. Required, Preferred, and Planned Retail Locations

Note: Proposed retail will require additional coordination with Landbay G

The Plan concentrates a significant amount of retail and provides connections to the planned retail for Landbay G (Figure 15). The Plan creates a new East - West retail street (Reed Avenue), and a new retail street (New Street D) which will connect East Reed Ave., the Metrorail station, and the retail planned for Landbay G.

The locations depicted as Required Retail (Figure 15) will provide ground floor retail as part of the development of each of the blocks. The retail is also required to connect to Landbay G. See Table 3 for the amount of maximum retail for each block. The locations depicted as Preferred Retail are anticipated to be retail, but the final ground floor use will be determined as part of the development review process. However, even where retail uses are preferred, the height and depth of the ground floor space, and potential loading and service areas are required to be designed to not preclude future retail uses. As part of the redevelopment, the retail must be focused and continual

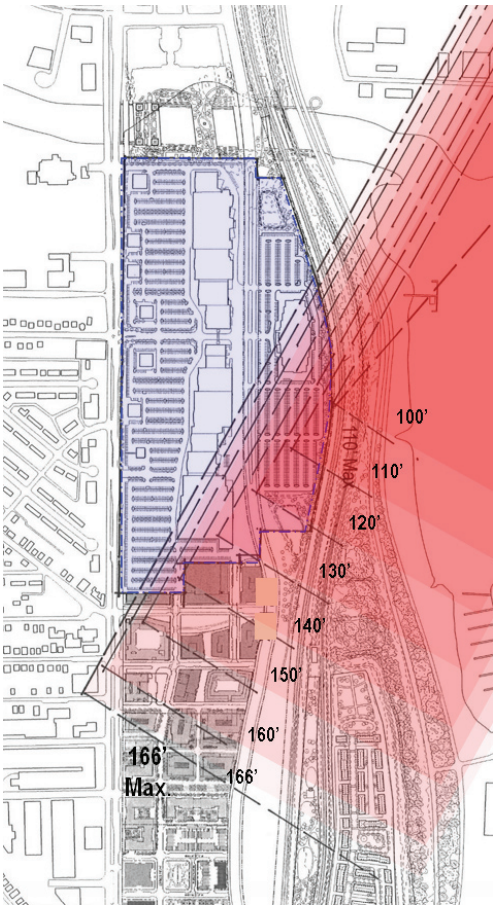
The Plan requires the submission of a comprehensive retail strategy that addresses coordinated management and maintenance issues. The retail strategy will be required prior to the submission of a development special use permit for the first building and/or block to ensure that the retail properties are managed in a comprehensive manner for the entirety of North Potomac Yard. Future design guidelines will have standards for the design of the retail uses, storefronts and signage.

E. Adjacent Redevelopment Sites

Although not specifically a part of North Potomac Yard, there are several possible redevelopment sites in close proximity to North Potomac Yard. Development and future planning of these sites should be mutually beneficial for the adjacent Route 1 corridor and Potomac Yard.

As North Potomac Yard redevelops, and the new Metrorail station and dedicated high-capacity transitway are constructed and implemented, it is possible that several of the larger sites on the west side of Route 1 could redevelop. This Plan does not recommend land use or zoning changes for these properties. However, future redevelopment of sites in close proximity to Potomac Yard will need to enhance connections with Potomac Yard both physically and through programming of land uses and public amenities so that these individual parcels are integrated into Potomac Yard. The Plan recognizes that the value of these properties will be positively impacted by the significant infrastructure and other public amenities constructed at Potomac Yard and recommends that, when these properties redevelop as a result of a rezoning, that they be required to participate in the financing of these and other improvements as may be determined by a future planning process.

Figure 16. FAA Height Restrictions.



Note: Heights depicted are heights above sea level

F. Building Height

The height for each neighborhood is based on the following:

- Define open space, streets and the public realm;
- Maximize density in proximity to the Metrorail station;
- Smaller scale buildings on Route 1 adjacent to the lower scale established neighborhoods of Lynhaven and Del Ray to the west;
- Taller buildings in the central portion of the site to provide transitions to the existing neighborhoods to the west and the George Washington Memorial Parkway to the east;
- Taller signature buildings at the central portion of the site to denote the symbolic center of North Potomac Yard and at the visual terminus of Main Line Boulevard on the northern portion of the site;
- Using taller and shorter heights to demarcate the required gateways; and
- A variety of heights within each block and for individual buildings.

Adjacent to the Metrorail station, the Federal Aviation Administration (FAA) flight path limits the building heights to approximately 100 feet (Figure 16). Despite the limitation, the majority of the density in North Potomac Yard is located within a ¼ mile of the planned Metrorail station. A recommendation of the Plan is that the City work with the FAA to explore the possibility of eliminating or revising the flight path height restrictions to permit additional height and density near the proposed Metrorail station.

Note: Heights depicted are heights above sea level.

The Plan recommends maximum heights which range from 50 feet to 250 feet for several taller signature buildings (Figure 17). In addition to maximum heights, the Plan is also recommending minimum heights to ensure an appropriate urban scale and density near the planned transit and Metrorail station (Figure 18).

Figure 17. Maximum Building Heights

Figure 18. Minimum Building Heights

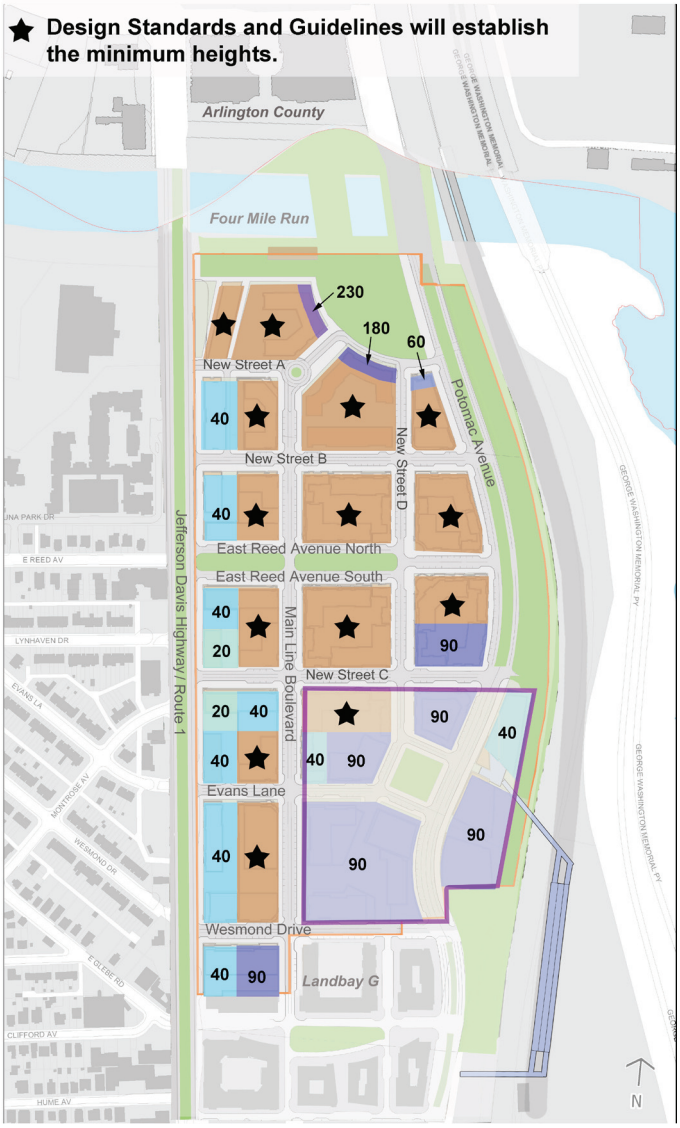


Figure 19. Below-Grade Parking.

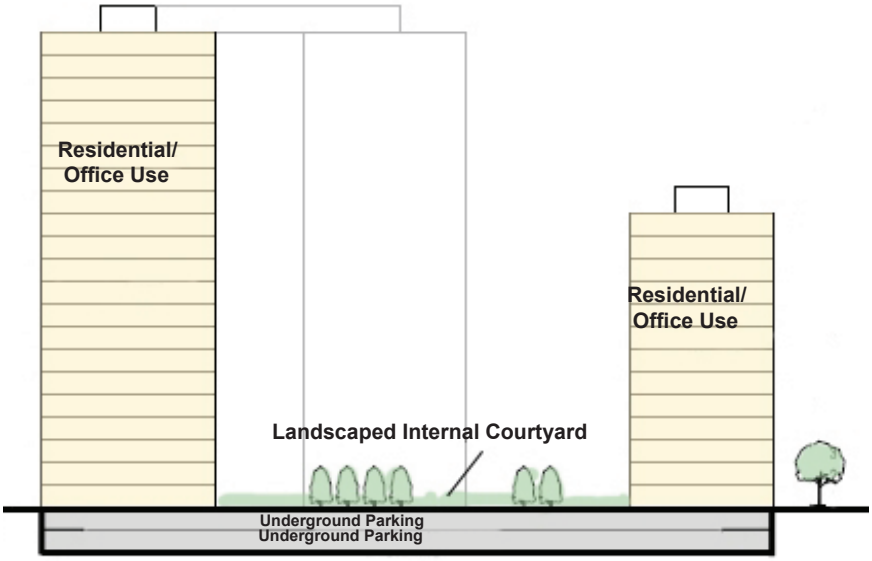


Figure 20 a. Embedded Parking

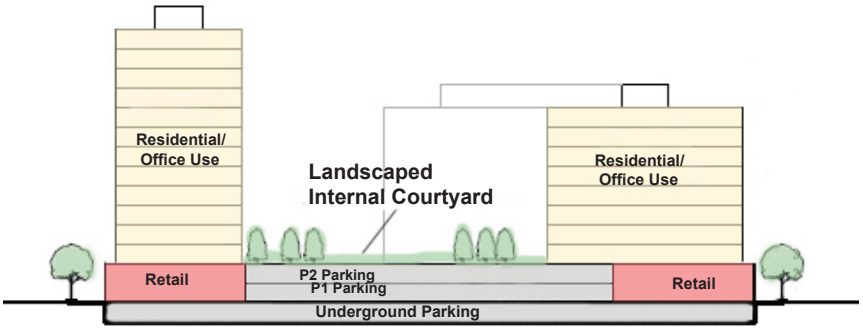
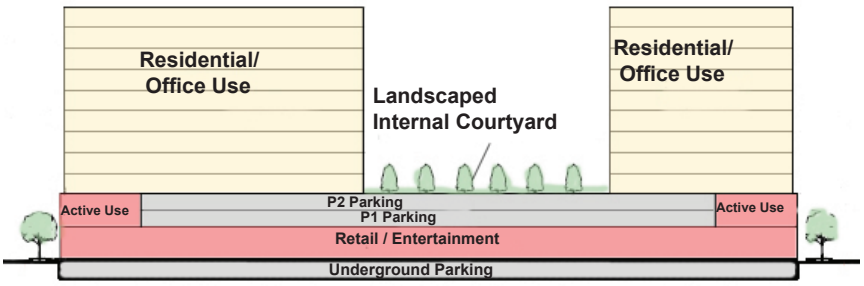


Figure 20 b. Embedded Parking above retail



G. Parking Strategy

Location of Parking

A goal of the Plan is that to the extent possible, parking should be located below-grade. Below-grade parking enables uses and people (rather than cars) to be located at and above the street level. Below-grade parking generally reduces the scale of buildings and generally results in a more urban building form. In addition, when there are height limits, above-grade parking generally reduces both density and open space, which is inconsistent with the vision and intent of the Plan.

Each building and block within North Potomac Yard is required to provide a minimum of one level of underground parking. All of the parking for Block 2, Block 3, Block 5 and Block 21 is required to be located below grade regardless of the use to enable the internal ground level open space and possible pedestrian connections planned for these blocks (Figure 19). On-street parallel parking is generally required for all of the streets, excluding the park frontages.

Above-grade structured parking may be located within the central portion of the block at grade, provided that a minimum of one level of parking is provided below grade and each level of the entire street and/or park/open space frontage is devoted to active uses (residential, office and/or retail) (Figure 20 a). If above-grade structured parking is provided above the ground floor uses, the parking is required to be screened with active uses (residential, office and/or retail) (Figure 20 b) for the entire street and/or park/open space frontage. Additional parking and screening requirements will be included in future design guidelines and subsequent zoning conditions.

Parking Ratios and Shared Parking

The amount of parking is intended to meet the economic and programmatic demands of the planned uses while also creating a transit-oriented development. To discourage single occupancy vehicle (SOV) travel, a maximum parking ratio is recommended for each land use. No minimum parking requirements are recommended in the Plan. The minimum amount of parking will be determined as part of the development review process for each block and/or building. The parking maximums have several advantages that include:

- Encouraging commuters to make transportation choices other than private autos, decreasing vehicle miles traveled, and reducing auto congestion and air pollution; and
- Maximizing the use of developable land and ensuring that the urban form remains compact.

Table 2 compares the parking required by the City's Zoning Ordinance and the parking maximums recommended by the Plan.

Table 2: Existing Parking and Proposed Parking Maximums

USE	EXISTING ZONING ORDINANCE MINIMUMS	PARKING MAXIMUMS**
Civic/Community Facilities/Theatre	5.0 spaces/1,000 sq. ft. (community buildings, museums, libraries, or similar) 1.0 space/5 seats (church) 1.0 space/ 25 seats (elementary school) 2.0 spaces/classroom (day nursery-childcare)	2.5 spaces/1,000 sq. ft.
Hotel (per room)	1.0 space/2 rooms + 1.0 space/ 15 employees	0.75 space /room
Office	1.7 spaces /1,000 sq. ft.	1.21 spaces/1,000 sq. ft.
Residential	1.3 spaces/unit (1 BR) 1.75 spaces/unit (2 BR) 2.2 spaces/unit (3+ BR)	1.0 space /unit*
Restaurant	1.0 space per 4 seats	3.5 spaces /1,000 sq. ft.
Retail/Grocery	4.35 spaces /1,000 sq. ft.	3.5 spaces /1,000 sq. ft.

*Note: *Visitor parking may be required by the City as part of the development review process.*
*** All Uses will be required to participate as part of a comprehensive shared parking strategy.*

Shared parking will be required as part of the development of each building and block. Therefore, the amount of parking for each of the blocks and buildings will likely be lower than the parking maximums. The amount, location, distribution and management of shared parking will be determined as part of the development review process. For additional information on parking, see *Chapter 6: Transportation.* A number of factors contribute to the success of shared parking, including:

- A mixture of uses that would lend itself to multiple stops within the same vehicular trip;
- Variations in the timing of peak parking demand for different uses;
- Alternate modes of transportation available; and
- Good pedestrian connections, amenities and appropriate scale to encourage walking.

H. Open Space

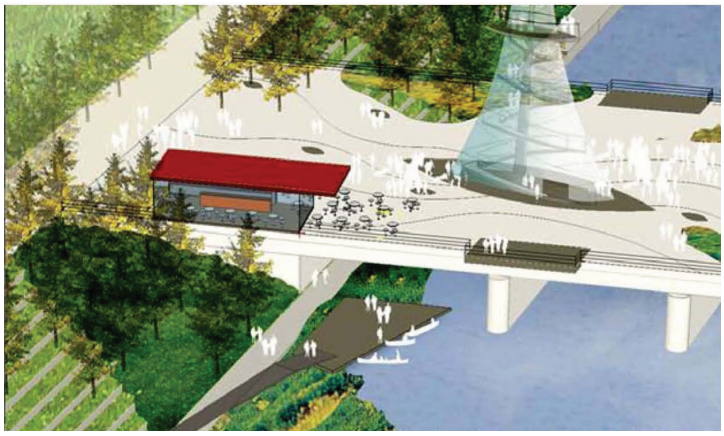
The Plan recommends a comprehensive network of parks and public open spaces that serve to define the neighborhoods in which they are located, with connections to local and regional open space systems and trails (Figure 21). The parks will be a combination of active and passive open spaces and will integrate historical interpretive elements, public art, and improve the City's urban tree canopy. A minimum of 15% of North Potomac Yard is required to be provided as ground level open space, with an additional 25% open space required to be provided at either ground level and/or on roof-tops. Blocks 2, 3, 5 and 21 will be required to provide ground level open space due to the the required underground parking.

Figure 21. Public Parks

Four Mile Run

North Potomac Yard is bordered on the north by Landbay E (Four Mile Run Park) and Four Mile Run, a heavily urbanized flood control channel that is planned for restoration. The Four Mile Run Restoration Master Plan was adopted to be a model of urban ecological restoration. Through the sensitive and sustainable integration of natural areas with active urban nodes, the Four Mile Run Restoration Master Plan proposes that the corridor be a place along which the communities of Arlington and Alexandria can gather, recreate and celebrate a shared waterfront. The Four Mile Run Restoration Master Plan identifies Potomac Yard as "a vibrant urban node that is home to thousands of new residents and workers while offering terrific shopping. On nice days, it's great to relax on the terraced banks that lead down to the water, on benches along the stream or in the elevated park."

Figure 22. Concept Rendering of Four Mile Run



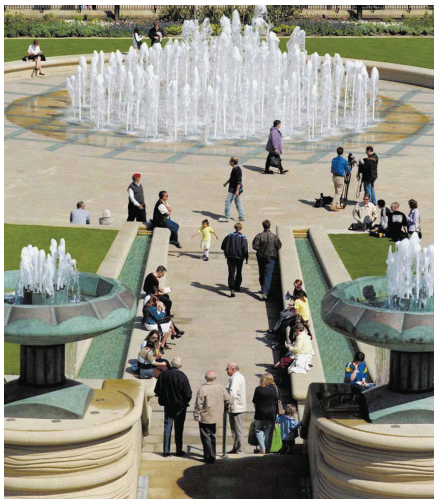
The Plan builds on the Four Mile Run Restoration Master Plan: it requires Crescent Park and improvements next to Four Mile Run, which are intended to provide wide range of opportunities, both active and passive, and include opportunities for a gathering and event space. Figure 22 depicts a conceptual rendering of Four Mile Run along North Potomac Yard. Together, through the Four Mile Run Restoration Master Plan and the Plan, amenities will be provided on both sides of Four Mile Run and on the existing approximately 1-acre pedestrian bridge, which will connect to Crescent Park and Landbay K beyond, providing a series of spaces for a variety of interests which celebrate the connection to the water and natural environment.

Landbay K (Potomac Yard Park)

The Plan requires the extension of the currently approved Landbay K to provide a continuous open space connection and off-street trail from Four Mile Run to Braddock Road. The proposed (approximately 3.5 to 4 acres) and approved (24 acres) parks will result in an approximately 28-acre park for the City. The park should be designed as a regional amenity for users of all ages and abilities, and will provide active and passive recreational amenities for future residents and visitors. The park will be designed to incorporate interpretive elements of the multi-century transportation history of this corridor. It will also provide a crucial non-motorized connection between Braddock Road Metro and Four Mile Run.

Figure 23. Landbay K

The continuation of Landbay K into North Potomac Yard enables integration of the park with the remainder of the Potomac Yard development. The current Landbay K plan includes an approximately 15-foot section of land between North Potomac Yard and the active rail corridor. The extension of Landbay K along the eastern edge of North Potomac Yard will provide the opportunity to create a meaningful connection between the existing Landbay K, Crescent Park, Four Mile Run, and the George Washington Memorial Parkway. The Plan recommends that the Landbay K extend to Four Mile Run along the eastern edge of Landbay F, and that the extension be wide enough to provide substantial trail amenities, plantings, interpretive areas, active use amenities, and a vegetative buffer along the rail corridor consistent with the already planned portion of Landbay K.



Metro Square

This park is proposed as an urban square of approximately 0.70 acres at a transit hub which includes the Potomac Yard Metrorail station across the street, nearby dedicated transit, and local bus service. The park is required to be surrounded by public streets and framed by the surrounding buildings with retail at the ground floor. Located at the intersection of Evans Lane, Water Street and Potomac Avenue, Metro Square will be the focal element of this neighborhood where office workers, porential theatre-goers, shoppers, commuters and residents can gather. The park is envisioned to include a mix of landscaping and hardscape (pervious where appropriate), providing a range of experiences to accommodate

Figure 24. Bryant Park

Figure 25. Stone Street

Figure 26. Mizner Park

active social gathering. Amenities in the park may include benches, movable furniture, high-quality temporary retail carts, public art, historic interpretation, and water features. The park should be designed to accommodate programming and events that serve its diverse users. In support of the principle of collocation, future development should consider utilizing the space below the park (underground) for uses supportive of the character of the neighborhood, such as a theatre.

The Plan proposes three buildings adjacent to the Metrorail station. The area to the south of the proposed buildings is not part of North Potomac Yard, but is part of the approved Landbay K (Potomac Yard Park). While there is a potential for an additional building at this location, the Plan does not recommend a building because of the impact on planned and approved open space. Further analysis of a building to the south of North Potomac Yard would need to occur as part of a subsequent planning process. As previously discussed, the blocks adjacent to the Metrorail station are subject to the Flexible Metrorail Zone and the applicable standards.

Internal Pedestrian Street / Connection

The Plan requires that, at a minimum, one continual internal pedestrian connection be provided for one of the blocks within the Metro Square or Market Neighborhood which could consist of a central hardscaped open space area that could be lined with restaurants, outdoor dining, music venues, and theatre uses. This space is envisioned to be primarily hardscape with amenities that celebrate culture, art and creative expression. Stone Street in New York City could serve as a potential design precendent (Figure 25). This space provides a ¨break¨ in the standard street grid.

Market Green Park

The Market Green is a linear open space forming the core of the Market Neighborhood. The green is proposed to occupy approximately one acre at the center of Reed Avenue, within two elements separated by Main Line Boulevard. The Market Green will be framed at the ground level by active retail uses, and buildings that along portions of the park will rise up to 250 feet, the tallest and most prominent buildings in all of Potomac Yard. The design of the Market Green should reinforce this prominent location, and is envisioned to accommodate passive uses including pedestrian pathways, large open green spaces, plantings, and trees. Mizner Park has a similar character (Figure 26). Uses and activities in the Market Green may include special events, such as fairs, live music, markets, and other similar events, which may on occasion also utilize the adjacent streets. For this purpose, the street surfacing material surrounding the Market Green should be of a distinct character and material from the other streets to enhance the pedestrian experience. The linear configuration of the Market Green is consistent with the finger parks established in the southern landbays of Potomac Yard.

Crescent Park

Located at the intersection of the existing Landbay K trail and Four Mile Park (Landbay E) is Crescent Park. This curved open space (and adjoining strip to the west along Four Mile Run) creates an important connection between these two regional parks linking the associated trail networks with the Four Mile Run pedestrian bridge and Arlington. This intentional break in the street grid also provides a meaningful terminus for New Street D. The park is required to be approximately 3 acres, and its orientation and crescent shape are configured to maximize access and vistas, including views of the Nation's Capitol. The park also serves as a buffer between the proposed buildings and the George Washington Memorial Parkway. The park is partially bordered on its curved edge by a street, and defined by signature buildings that follow the curved, crescent shape of the park. The amenities for the park will likely include a large gathering and event space, pedestrian pathways, large open green spaces, significant landscaping, pedestrian and bicycle pathways, a stormwater water amenity, and a possible civic use.

To realize the vision of these open spaces, and to reinforce them as a coordinated system of spaces, the Plan requires a comprehensive open space plan, that includes rooftop open space, with the specific requirements to be provided as part of the rezoning approval.

Roof-Top Open Space

Suggested roof-top amenities could include active courts and turf areas, dog parks and/or dog runs, and playgrounds, as well as passive recreational spaces to meet the needs of the anticipated population. Public access of certain blocks should be considered to enhance the recreational opportunities and views within North Potomac Yard, increase community interaction, and, on office buildings, to activate space in the evenings. These roof-top open spaces are anticipated to incorporate substantial sustainable components, while maintaining access and uses for residents and building users.

Playing Fields

The City recognizes the need for additional athletic playing fields generally. While the Plan does not require the provision of playing fields within North Potomac Yard, the Plan recommends that the developer assist in the provision of off-site playing fields.

I. Housing

The Plan envisions a place designed to accommodate a wide range of incomes, ages, and household types and sizes. By planning for a variety of housing types and products, which offer a variety of affordability options, it is likely that those who work, shop, and recreate in North Potomac Yard will also be able to live there. To achieve this, the Plan recommends that developers be encouraged to:

- Provide affordable and workforce housing units, both rental and for sale, throughout North Potomac Yard;
- Explore the provision of public housing units;
- Offer a range of housing types to accommodate different household sizes and compositions, including studio, one, two and three bedroom units;
- Incorporate green and sustainable designs and materials to enhance the interior living environment and to yield energy savings for residents;
- Integrate universal design and/or accessibility features to accommodate multiple life stages and abilities; and
- Explore opportunities for public, private and non profit collaborations to maximize the use of land and to leverage all available resources for the development of workforce and affordable, including public housing.

Affordable housing contributions in the Plan will be governed by the city-wide guidelines in effect at the time development approvals are sought. Such guidelines are expected to provide for both mandatory and voluntary contributions. It is anticipated that voluntary contributions will be satisfied through the provision of on-site housing units and/or cash contributions to the City's Housing Trust Fund.

In Alexandria the range of household income typically served by public housing units is generally 20-30% of the Washington, D.C. area median income ("AMI"); affordable rental housing serves households with incomes up to 60% AMI; workforce rental units serve those households earning up to (mathematical) 80% AMI. For sales housing, the City offers a range of homeownership assistance for qualified first time homebuyers with incomes up to 100% of the area median income.

Housing Case Study:

The Station at Potomac Yard
Alexandria, Virginia

The Station is an award-winning, creative approach to meeting multiple community needs in a dense, high-cost exurb of Washington, D.C., and provides an easily replicated model of sustainable design and construction. The project's innovative mixed-use design combines a fire station, 64 units of affordable and workforce rental housing and retail space, maximizing the use of land in a built environment. The project was made possible through a successful public-private collaboration among the City of Alexandria, Potomac Yard Development, LLC (PYD), a joint venture of national homebuilders, Pulte and Centex Corporations, and the Alexandria Housing Development Corporation (AHDC), a local non-profit housing developer. Conceived when it was realized that PYD's proposed urban design (which had already been vetted and approved through a public process) might hinder optimal emergency services response times within the Yard, PYD offered to provide land and money for a new fire station, and the City utilized air rights above the fire station to produce critically needed affordable housing (between 2000 and 2007, more than 10,000 of the City's existing privately owned "market affordable" rental housing stock in the City was lost to rent increases or redevelopment). Through AHDC, significant federal, state and local funds were leveraged to finance four stories of affordable housing. During the public outreach process, the community expressed a strong desire to include workforce housing: PYD's voluntary contribution of $7.5 million to the City's housing fund helped underwrite the costs to develop 20 workforce units. Consistent with Alexandria's Eco-City charter, The Station is "green"— the residential component is built to Earthcraft program standards (yielding energy savings for residents) and the first floor fire station LEED Silver-certified.

1.1 acres
Total development cost $34 million
Project features:

- Four bay state-of-the-art fire station
- 64 apartments (including one, two and three bedroom units, with three fully accessible units; 44 are "affordable" to households at or below 60% of the area median income (AMI); 20 units have rents affordable at the "workforce level", at or below 80% AMI
- Retail space (planned to be neighborhood serving)
- Two levels of underground parking (142 spaces)

In addition to PYD's donation of land and its contributions to the fire station ($6.6 M) and to the housing facility ($7.5 M); other funding includes $8.6 M in low income housing tax credit equity and $8.35 M in loans from the Virginia Housing Development Authority (VHDA), with the balance coming as loans and grants from the City.

Table 3. Development Summary

Block #	Principal Land Use	Office SF	Residential SF (DU)	Office or Residential SF (DU)	Retail (SF)	Hotel (SF)	Total [3]
1	Open Space	(Crescent Park)					
2	Residential	0	500,000 (500)	0	0	0	500,000
3	Hotel	0	0	0	0	170,000	170,000
4 [1]	Community Facility/ Public Building	0	0	0	0	0	0
5	Residential	0	600,000 (600)	0	0	0	600,000
6	Office / Residential	110,000	0	250,000 (250 DU)	35,000	0	395,000
Crescent Gateway Neighborhood		**110,000**	**1,100,000 (1,100)**	**250,000 (250 DU)**	**35,000**	**170,000**	**1,665,000**
7	Office / Residential	0	0	320,000 (320 DU)	90,000	0	410,000
8	Office / Residential	0	0	690,000 (690 DU)	110,000	0	800,000
9	Office / Residential	55,000	0	260,000 (260 DU)	40,000	0	355,000
10	Office / Residential	0	0	330,000 (330 DU)	160,000	0	490,000
11	Office / Residential	0	0	700,000 (700 DU)	120,000	0	820,000
12	Office and/or Residential	55,000	0	295,000 (295 DU)	50,000	0	400,000
13	Open Space	(Market Commons)					
Market District Neighborhood TOTAL		**110,000**	**0**	**2,595,000 (2595 DU)**	**570,000**	**0**	**3,275,000**
Metro Flex Zone (Blocks 14, 15, 16, 18, 20 & 21) [2]	Office	1,100,000	0	300,000 (300 DU)	190,000	0	1,590,000
17	Office / Residential	60,000	0	250,000 (250 DU)	50,000	0	360,000
19	Open Space	(Market Square Park)					
22	Office	370,000	0	0	65,000	0	435,000
23	Office	180,000	0	0	20,000	0	200,000
Metro Square Neighborhood TOTAL		**1,710,000**	**0**	**550,000 (550 DU)**	**325,000**	**0**	**2,585,000**
24	Open Space	(Landbay K extension - Potomac Yard Park)					
							Total (SF)
		1,930,000					**7,525,000**

NOTES:

1. Community facilities, public buildings and accessory uses may be provided on any block and are not deducted from the maximum permitted development; however the uses will be subject to the height requirements, design guidelines and other applicable elements as part of the development review process. Block 4 is reserved as a possible school site.
2. The blocks located within the Metro Flex Zone are defined herein and the final block configuration and number of blocks will be determined as part of the rezoning and development review process.
3. The maximum amount of development shall be 7,525,000 sf; however the amount of permitted development within each block is conceptual. The final amount of development may be permitted to be transferred from block to block and will be determined as part of the rezoning for the subject property and development special use permit.
4. In addition to the maximum amount of development, a minimum amount of density is required for each block pursuant to the minimum heights and other applicable requirements.
5. Section 7-700 of the zoning ordinance is not applicable to North Potomac Yard (Landbay F).

Note:
Specific deadline and submission requirements not specified for recommendations will be determined as part of the rezoning for the subject property.

LAND USE RECOMMENDATIONS

Land Use - Zoning

4.1 Establish a new CDD zone to implement the Vision and recommendations of the Plan.

4.2 Permit the flexibility of office and/or residential uses for Blocks 6-12, 17, 22, 23, and a portion of Block 16.

Metro Square Neighborhood

4.3 Require predominantly office uses and ground floor retail uses for the Metro Square neighborhood.

4.4 Explore the provision of live performance space/theatre.

4.5 Explore the possibility of uses such as a theatre below Metro Square Park (underground).

Market Neighborhood

4.6 Allow flexibility for office and/or residential uses on upper floors within the blocks of this neighborhood.

Crescent Gateway Neighborhood

4.7 Require predominantly residential uses in this neighborhood.

Retail Uses

4.8 Locations with required retail shall be provided as depicted in Figure 15.

4.9 For preferred retail locations, the ground floor height and depth shall be designed to not preclude retail uses.

4.10 Develop design standards and guidelines for all retail uses, including large-format retailers.

4.11 Develop standards for retail storefronts and signage.

4.12 Encourage opportunities for live-work and comparable ground floor uses.

4.13 Encourage neighborhood-serving retail uses, including the potential provision of a grocery store within the Metro Square or Market neighborhoods.

4.14 Explore the possibility of allowing street carts - vendors.

4.15 Require the submission of a comprehensive retail marketing strategy prior to the submission of a development special use permit for the first building and updated with each subsequent development approval.

4.16 Require district-wide management of retail (i.e. business improvement district, or other similar entity).

Building Height

4.17 Ensure that the ceiling heights and depths for various uses are flexible to encourage a broad range of uses within the residential and commercial buildings, particularly the ground floor.

LAND USE RECOMMENDATIONS (CONTINUED)

4.18 Transition building height and scale to Route 1 and the existing residential neighborhoods to the west and the George Washington Memorial Parkway to the east.

4.19 Differentiate the height of the gateway elements of the neighborhood by establishing taller or shorter heights for these elements.

4.20 Explore the possibility of eliminating or revising the Federal Aviation Administration (FAA) flight path restrictions.

4.21 Implement maximum and minimum heights for each block consistent with Figures 17 and 18.

4.22 Require that any amenity space on the top floor of the building of Block 2 be made periodically available for public functions and/or meetings.

4.23 Provide taller signature buildings at the central portion of the site to denote the symbolic center of North Potomac Yard, and at the visual terminus of Main Line Boulevard on the northern portion of the site. Require a variety of heights within each block and for individual buildings.

Parking

4.24 Implement parking maximums.

4.25 Require unbundled residential parking.

4.26 Implement parking ratios that reflect the transit-oriented nature of the development consistent with Table 2.

4.27 Require shared parking throughout North Potomac Yard.

4.28 A minimum of one level of underground parking is required for each block and/or building.

4.29 All of the parking for Blocks 2, 3, 5, and 21 is required to be entirely below-grade.

4.30 Any above-grade parking is required to be lined with active uses for each level for all street and park and/or open space frontages (Figures 19, 20 a, 20 b).

4.31 Generally require on-street parking for streets, excluding park frontages.

4.32 Require provision of long and short-term bicycle parking.

Open Space

4.33 Require the submission of a comprehensive Open Space Plan to identify the programming within each park/public open space.

4.34 The parks/open space required within the Framework Plan, which consist of the following, need to be implemented with the development of each neighborhood:

- Expanded open space at Four Mile Run to provide a meaningful connection to the City's open space network, consistent with the Four Mile Run Restoration Master Plan; (Crescent Park)
- A finger park in the retail district (Market Green);
- A square shaped plaza/urban square at the Metrorail station (Metro Square);

LAND USE RECOMMENDATIONS (CONTINUED)

- An extension of Landbay K to provide usable open space along the rail corridor and make a non motorized transportation connection to Four Mile Run; and
- Internal pedestrian connections with adjacent active uses shall be provided in the Metro Square and/or Market Neighborhoods.

4.35 Require that Landbay K and Crescent Park be dedicated to the City as public parks, with an agreement for private maintenance in perpetuity. The remainder of the parks (Metro Square, Market Green) and the central open spaces are required to be privately-owned and privately maintained but accessible to the public through the provision of a perpetual public access easement.

4.36 A minimum of 15% of North Potomac Yard is required to be provided as ground level open space, with an additional 25% to be provided at either ground level or on rooftops. Blocks 2, 3, 5 and 21 within North Potomac Yard shall be required to provide additional open space due to the central ground level spaces within the blocks.

4.37 Explore the possibility of collocating uses in open space, for example, entertainment, civic and cultural uses, historical interpretation, public art, and stormwater management.

4.38 Provide off-street shared-use paths in the open space at Four Mile Run and through Landbay K (Potomac Yard Park).

4.39 Provide public and private dog parks and/or runs. Explore the possibility of locating these facilities on roof tops.

4.40 The developer shall assist in the provision of off-site playing fields.

4.41 Employ sound urban forestry principles and practices to improve the City's tree canopy.

4.42 Explore the possibility of including interim active recreational fields.

Housing

4.43 Contribute to the City's affordable housing trust fund, consistent with guidelines in effect at the time development approvals are sought; and /or provide affordable and workforce housing units, both rental and for sale, throughout North Potomac Yard.

4.44 Provision of public housing in North Potomac Yard shall be strongly encouraged particularly as other public housing sites in the City redevelop. Consideration of the existing project based density bonus for affordable housing should be considered to facilitate possible public housing relocation to North Potomac Yard.

4.45 Offer a range of housing types to accommodate different household sizes and compositions, including studio, one, two and three bedroom units.

4.46 Incorporate green and sustainable designs and materials to enhance the interior living environment and to yield energy savings for residents.

4.47 Integrate universal design and/or accessibility features to accommodate multiple life stages and abilities.

4.48 Explore opportunities for public, private and non profit collaborations to maximize the use of land and to leverage all available resources for the development of affordable and workforce housing, including public housing.

5

Community Facilities

Community Facilities

The Plan recognizes that a successful urban community is one that strives to provide amenities and services for all of its residents. New community facilities should be designed and constructed to meet the needs of the population today and tomorrow. Uses such as a school, child care center, recreation/community center, flexible exhibition and theatre/performance space, or library are potential community facilities.

A. Projected Demographics

The demographics give a snapshot of the size and character of the anticipated North Potomac Yard population. The projected number of residents will generate a demand for community and/or civic facilities. It is this population and age that will ultimately determine the future needed facilities and programs. Between 350 and 500 school-aged children are projected to reside in North Potomac Yard, weighted more heavily in favor of younger children of elementary school age. Young workers, singles and non-traditional families are projected to comprise a substantial portion of North Potomac Yard's future. Finally, given the proposed affordable housing, persons with a range of incomes will be be part of the community.

B. Collocation, Flexibility, and Incentives

Community facilities should be collocated to ensure cost and operational efficiency, and for the added convenience for users. The term collocation refers to the vertical integration of multiple uses within the same building. The future community facilities should expand on the principle of the Potomac Yard Fire Station which combines a fire station and affordable housing. In order to ensure that the needs of Potomac Yard residents, workers, and visitors can be accommodated throughout the day, and into the future, the Plan recommends that community facilities be designed as flexible multi-purpose spaces and possibly as part of residential and/or office buildings. Multi-purpose spaces are differentiated from collocated uses in that multiple uses can use the same space. In order to encourage provision of these facilities, whether public or private, the Plan recommends that the floor area for community facilities not count against the maximum amount of permitted development. While the community facilities will not be deducted from the maximum permitted development, the Plan recommends that each use require the approval of a development special use permit, excluding childcare facilities within existing buildings.

C. Community Facilities

Emergency Services

The new police facility on Wheeler Avenue will adequately serve the proposed development. No new fire facility is needed as the area is located only a few blocks from The Potomac Yard Fire Station and the mutual aid fire service provided throughout the City.

Schools

The proposed development will potentially generate the need for additional school capacity. Based on 2008-2009 student generation rates, between 211 and 258 elementary, 70 and 117 middle, and 70 and 117 high school students will be generated by the projected residential uses. The remainder of Potomac Yard (including Landbays G, H, I, J, and L) is expected to generate between 123 and 140 elementary, 67 and 93 middle, and 53 and 70 high school students.

If elementary school student generation rates continue to increase, the City will not have additional capacity to support elementary school students generated by the new development in North Potomac Yard. Furthermore, if middle and high school generation rates continue to increase, in the long-run, the City will face additional capacity challenges in the middle and high schools. The most critical need is the provision of additional system capacity at the elementary school level. The Plan addresses three possible options to accommodate the needs of a possible school:

1) Block 4 has been reserved for a possible school site. In light of the fact that North Potomac Yard will be urban in nature, a school, if constructed in this location, must be in an urban form, such as the Tenderloin Community School in San Francisco, California, which is a multi-level elementary school but includes elements such as a family resource center, health center, counseling rooms, an adult education center, and a preschool child development center. The building will also require underground garage parking and possible rooftop recreation and community gardens;
2) Construct a new school at an off-site location; or
3) Expand or reconstruct an existing school, for example, Cora Kelly STEM School, to accommodate additional students.

If the school reservation (Block 4) is not used for a school site, the City would reserve the right to use the block for other purposes. The remainder of the community facilities will be determined as part of the development review process.

Childcare Facilities

Because of the proposed amount of residential and office uses, there will be a considerable need for childcare facilities that can serve residents and employees. Childcare may be located within an office and/or residential building and could be included as part of the school or adjacent to the proposed school. Considering the school will not likely be built in the early phases of the development, childcare facilities will need to be provided in the early phases and integrated within larger office or residential buildings. To encourage these uses, the Plan is recommending that childcare uses be permitted with administrative approval within existing buildings.

Other Potential Community Facilities

In addition to a potential school and childcare facilities, there are numerous other facilities that may be needed or desired as part of the development of North Potomac Yard. Some of the potential uses are listed below.

Community Arts, Exhibition and/or Performance Space. This space could contain an art gallery and could be utilized for community gatherings as well as destination events such as festivals, concerts, and other arts performances, and would be particularly appropriate in the Metro Square Neighborhood.

Education Center. A privately funded education center or learning facility could be provided, possibly with a focus on sustainability or green infrastructure. Sustainability is not only a key component of the overall Plan, but it could also serve, as other models such as the Living Classroom have shown, as another feature supporting Potomac Yard's multi-faceted program of community building.

Neighborhood Reading Room/Library. A neighborhood reading room or library could be provided, and should be centrally located.

Community Center. A space that can serve as a community function space. The facility could be linked to the school, which has often historically been the case for such facilities in urban communities.

Recycling Center/Program. An important and significant component of the Sustainability Plan will be requirements and incentives for, and facilities to accommodate, a complete recycling program.

Transit Center. A transit center to support the multi-modality of the development could be collocated with an office building in close proximity to the Metrorail station or transit.

Youth Center. Appropriate locations could be collocated with or near the school, parks or other educational settings and with easy access for all residents. Uses in this space could include after school, educational and social activities for young residents.

It is certain that not all of these community facilities should be placed within North Potomac Yard, or even Potomac Yard. However, potential sites and buildings for locating these community facilities will need to be identified and where the facilities could be developed as part of the proposed residential and/or office buildings. If any, or a combination of all of these uses were developed in the Plan area, they could assist in being a catalyst for redevelopment. The development of childcare and possibly a school in this area would also serve commercial office development, especially for employees with children. To integrate the facilities as part of the planning and development process, the Plan recommends the submission of a comprehensive Community Facilities proposal, that is updated with each development.

Note:
Specific deadline and submission requirements not specified for recommendations will be determined as part of the rezoning for the subject property.

COMMUNITY FACILITIES RECOMMENDATIONS

School

5.1 Adequate provision shall be made to accommodate an urban school, collocated with a childcare facility and/or comparable uses. Block 4 shall be reserved for a possible urban school. If Block 4 is not needed for a school, the City may use the block for open space and/or a comparable community facility/public building.

Daycare/Childcare

5.2 Require the provision of daycare/childcare facilities as part of the community facilities, mixed-use, and/or office buildings. Daycare/childcare facilities shall be permitted through an administrative approval within existing buildings.

Collocation, Flexibility And Development Incentive

5.3 To the greatest extent feasible, community facilities shall be collocated, and be designed to provide for flexible use of interior spaces.

Zoning

5.4 Community facilities and/or public buildings may be included on or in any block and/or building and shall not be deducted from the maximum permitted development. These uses shall be defined as part of the rezoning for the Plan area.

Implementation

5.5 Provide a comprehensive Community Facilities proposal depicting the general size and locations of community facilities and/or public buildings proposed within North Potomac Yard, including but not limited to the school and daycare/childcare facilities recommended herein. This Proposal shall be submitted as part of the first development special use permit and amended as necessary to accommodate future uses and programming.

6

Transportation

Transportation

The transportation strategy has been designed to facilitate a significant mode - shift – from private autos to alternative, more sustainable means of transportation, consistent with the Transportation Master Plan. The transportation network is required to include a Metrorail station, dedicated high-capacity transit corridor, buses, shuttles, car sharing, and bicycle facilities. In addition, an aggressive Transportation Management Plan (TMP) program will be required and parking will be managed, shared, priced, and designed to reduce car trips. The Plan is designed to allow employees and residents access to essential services within a five minute walk, and streetscapes are designed to accommodate easy access to transit and the Metrorail station.

> **"If you plan cities for cars and traffic, you get cars and traffic. If you plan for people and places, you get people and places."**
>
> - Fred Kent

A significant portion of the adjoining roadway system is already established with limited opportunity to build additional east-west streets. The geography that gives Potomac Yard its special character – its location between the Potomac River and the adjoining established neighborhoods – also constrains access.

Recommendations include strategies to manage transportation demand, expand the street grid and connectivity, provide additional transit capacity, incorporate an expansive bicycle and pedestrian network and create a culture of people first in a complete green streets context.

A. Transportation Network

In the preparation of the transportation analysis, a set of parameters were developed relating to development density, the future transportation network, travel mode choice (mode split), a 2030 buildout year and general future traffic growth (background traffic). Each of these is briefly described below:

- **Future Metrorail Station:** A new Metrorail station is required by the Plan to support the proposed density and accommodate new person trips.
- **Crystal City/Potomac Yard (CCPY) Transitway:** High-capacity transit service will be provided in dedicated lanes on Route 1 and through the Plan area and Potomac Avenue. It will intersect with the Metro service to create a high-performance transit hub for Potomac Yard.
- **Local and Circulator Transit Service:** Additional local-serving routes will be provided to connect the new development in North Potomac Yard to existing neighborhoods and other destinations with enhanced service local transit.

- **US Route 1 (Jefferson Davis Highway) ("Route 1"):** Route 1 will be widened to accommodate a dedicated high-capacity transitway for the length of Route 1 to Arlington County. Route 1 will not be widened to accommodate additional SOV (single occupancy vehicles) vehicle lanes.
- **Potomac Avenue:** This new major north-south route will connect Route 1 on the south with Crystal Drive on the north and will provide additional north/south capacity for local and non-local trips.
- **Internal Street Network:** The Plan requires a fine-grained, interconnected network of streets with multimodal connectivity to the surrounding neighborhoods.
- **New Landbay K bicycle/pedestrian connection:** This off-street trail connection will tie Potomac Yard directly to Four Mile Run through a linear park connecting Braddock Road and Four Mile Run, enhancing its access to the major regional trail network that currently serves recreational users as well as commuters.

B. Transportation Analysis

A transportation study was conducted to determine the impact of the proposed development at Potomac Yard. The study found that current vehicular traffic conditions along Route 1 and at most intersections adjacent to Potomac Yard are acceptable; however, some delays occur during the peak period. With the increment of background traffic growth, traffic from approved (currently unbuilt) developments, and the completion of Potomac Yard, traffic will increase on roadways and at intersections.

Figure 27. Local and Regional Traffic

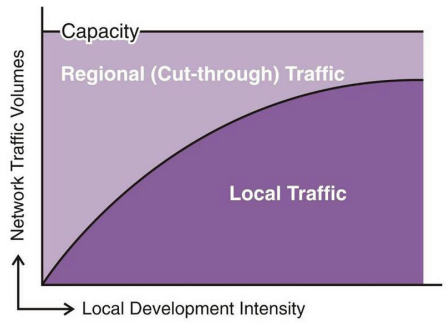
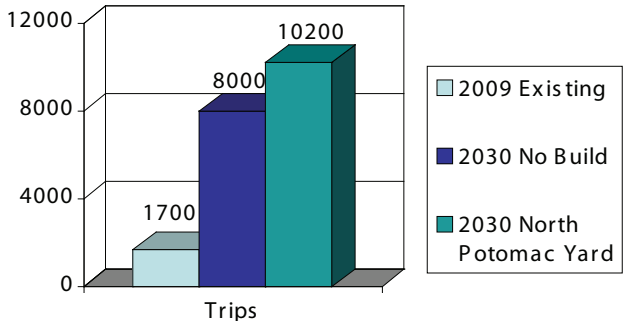


Table 4. PM Trip Generation



The evaluation assumes a 2030 buildout year and that through traffic on Route 1 will grow by approximately 10 percent. This growth is intended to reflect likely increases in traffic attributable to general city growth including development already planned in neighboring jurisdictions and development approved in Landbays G, H, I and J. Regardless of whether or at what density Potomac Yard is redeveloped, Route 1 will operate at capacity in areas. With the recommended multimodal transportation network, most intersections will operate acceptably with the exception of the intersections of Route 1/E. Reed Avenue, Route 1/E. Glebe Road, and Route 1/Potomac Avenue.

Because of the limited east-west connectivity from Route 1 to the west, E. Glebe Road is unable to accommodate the anticipated traffic traveling east-west without additional improvements. The intersection of Route 1/E. Glebe Road has a number of challenges including awkward geometry and adjoining single-family homes. These factors limit the opportunity for improvements to increase capacity. One improvement recommended by the Plan is to include turn lanes on the northwest side of the intersection, but this improvement is limited in the relief it provides at the intersection.

The transportation analysis performed for the Plan is a planning-level analysis without the benefit of specifics regarding locations and types of development on a given block. The development is anticipated to be built out over a 20-30 year period and traffic patterns in the region will likely change over time. All future development applications will require detailed traffic studies to analyze the specific impacts of the blocks based on future transportation data available at that time. These studies will refine the planning-level analysis performed for the Plan. They will also identify traffic impacts associated with specific development and make more detailed recommendations based on the analysis on the traffic impacts on the roadway network at the time of redevelopment and may refine the type and timing of transportation improvements required to support the development.

Table 5. Travel Speed and Time on Route 1 Corridor

2030 Future Conditions with Development Average Weekday PM Peak Hour Travel Speeds and Times for US 1				
Scenario	**Southbound**		**Northbound**	
	Speed (mph)	**Travel Time (min)**	**Speed (mph)**	**Travel Time (min)**
Existing	20.9	5.0	22.3	4.5
Future Conditions without Development	13.1	8.0	14.7	7.0
Future Conditions with Development	16.6	7.0	12.1	8.5

* Future conditions assume the construction of the transitway on US 1, New Street C, and within the Plan area

**Under Future Conditions with Development, US 1 signals are timed with lead-lag left turns and coordinated with 140-second cycle length. Potomac Avenue is timed with coordinated, 90-second cycle length signals.

Source: Kimley-Horn and Associates, Inc.

The significant investments in the multimodal transportation network already planned and recommended in the Plan such as the new Metrorail station and dedicated transit lanes will create substantial capacity to move people and accommodate increases in travel demand associated with continued development in Alexandria as well as in Potomac Yard specifically.

C. Mode Share

To represent the anticipated trip-making patterns associated with the redevelopment of Potomac Yard, assumptions were developed to assign trips to transit, pedestrian, bicycle, and auto modes. The assumptions were based on local, regional, and national experience and evidence for similar scale urban redevelopment projects. Specifically, the recent Metrorail ridership study was consulted in addition to data from the Crystal City, Braddock Road, and King Street Metrorail stations and US Census, Journey to Work data. It is widely recognized that urban, mixed-use developments with accessible transit will result in lower automobile trip generation. When the mode choice assumptions detailed in Table 6 are applied to the proposed mix of uses in North Potomac Yard, the resulting mode share is 47% of the trips being made by automobiles, 37% of the trips being made by transit, and 16% of the trips being made by bike or on foot (Table 6). The mode share assumes buildout of the proposed mix of uses, accessibility to multiple modes of transportation, including Metrorail and dedicated high-capacity transitway, enhanced street connectivity, and bike and pedestrian facilities.

Table 6. Mode Choice Assumptions

Mode Choice Assumptions with a Potomac Yard Metrorail Station					
Land Use	**Transit (Metrorail)**	**Transit (Metrobus, DASH, and CCPY)**	**Pedestrian/ Bicycle (non-auto)**	**Auto**	**Total**
Office: adjacent to a transit station	35%	11%	6%	48%	100%
Office: within ¼ mile of a transit station	21%	9%	6%	64%	100%
Residential: adjacent to a transit station	54%	1%	16%	29%	100%
Residential: within ¼ mile of a transit station	48%	1%	15%	36%	100%
Residential: ¼ to ½ mile of a transit station	31%	5%	10%	54%	100%
Hotel	27%	4%	31%	38%	100%
Entertainment (theater)	26%	6%	11%	57%	100%
Retail: all, excluding large format	29%	8%	27%	36%	100%
Retail: large format	9%	5%	14%	73%	100%

D. Streets and Connectivity

To better address the limited east-west connectivity and support the anticipated level of east-west traffic, and consistent with the recommendations of the Transportation Study, the Plan recommends:

- Physical improvements at the intersection of E. Glebe Road and Route 1;
- New east-west connectivity or comparable street, circulation, and/or transit improvements, as part of any proposed development and any future planning efforts for properties to the west of Route 1;
- Maximize the street grid by configuring Reed Avenue at Route 1 to allow all movements;
- Study the intersection of Commonwealth and Reed Avenues to determine the need for signalization and pedestrian upgrades; and
- Explore and evaluate the option of opening Evans Lane, Wesmond Drive and Lynhaven Drive in the future to provide access to Route 1.

The recommendations of the Plan are consistent with the City's Transportation Master Plan, which recommends a fine-grained street grid to accommodate circulation for all modes through the site and connect to the neighborhoods across Route 1.

The Plan and the transportation analysis show Reed Avenue connecting across Route 1 and serving as an additional east-west connection. This connection is recommended to accommodate the additional traffic from the development. Additional street connections will help disperse traffic and alleviate overburdened intersections. The provision and timing for additional east-west connectivity or comparable street, circulation, and/or transit improvements, will likely be desirable in the future. New east-west connections should continue to be explored as part of development and planning for properties to the west of Route 1.

In addition to exploring additional east-west street connectivity, additional right-of-way to provide turn lanes and enhanced pedestrian accommodations will be necessary at E. Glebe Road at Route 1. The intersection of Commonwealth and Reed Avenues will need to be signalized and studied to improve pedestrian movements. For a discussion of neighborhood impacts and other recommendations to address these issues, see *Chapter 8: Existing Neighborhoods.*

All streets in North Potomac Yard are required to be public and dedicated to the City. The streetscape and public right-of-way must play an important role in managing stormwater while visually reinforcing the environmental sustainability principles of the Plan. Low-impact design techniques that reduce runoff and provide water quality treatment are required to be incorporated as part of the street design. These techniques could include, but are not limited to pervious surfaces for parking spaces and sidewalks, curbside bioretention areas and large, interconnected tree wells irrigated with harvested rainwater.

E. Transit

One of the most important features of North Potomac Yard is its commitment to transit-oriented development. As such, the City is committed to providing levels of transit service which can help the North Potomac Yard achieve a minimum 50% transit mode split throughout its phases of development. This involves a range of transit options which will provide transit services consistent with the amount and type of the planned development.

New transit infrastructure including a new Metrorail station, dedicated high-capacity transitway and expanded local bus service are required by the Plan to support the proposed density. These transit facilities and the Metrorail station in particular, allow for a higher transit ridership and a higher level of development density. Without the new transit infrastructure traffic congestion will overwhelm the street network capacity and the transportation network will fail.

In addition, as discussed in *Chapter 5: Community Facilities*, a Transit Center should be located in North Potomac Yard to support the new transit options.

Figure 28. Metrorail Station Alternatives

Metrorail Station

During the North Potomac Yard planning process, the Metrorail Station Feasibility Work Group ("Work Group") was established to examine the technical and financial feasibility of a new Metrorail station at Potomac Yard. The Work Group analyzed eight potential locations, and did a preliminary screening using factors including station constructability, phasing, and cost. After the initial screening, three of the eight original station location alternatives remained under consideration and could proceed to the environmental analysis phase of the feasibility process: No build, A and the B Alternatives, (see Figure 28). The B alternatives, as depicted and discussed in the Potomac Yard Metrorail Station Concept Development Study, best achieve the intent and vision of the Plan. With regard to financial feasibility, it was determined that a new station (in the location of the B Alternatives would cost between $220 and $235 million (2015 dollars) depending on the alternative.

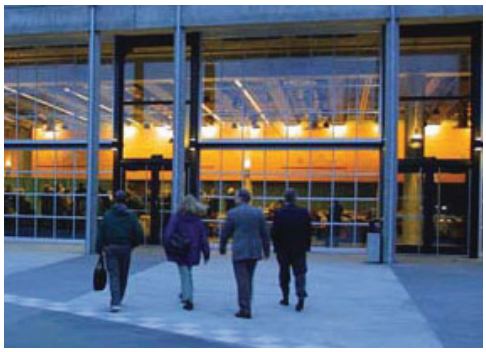


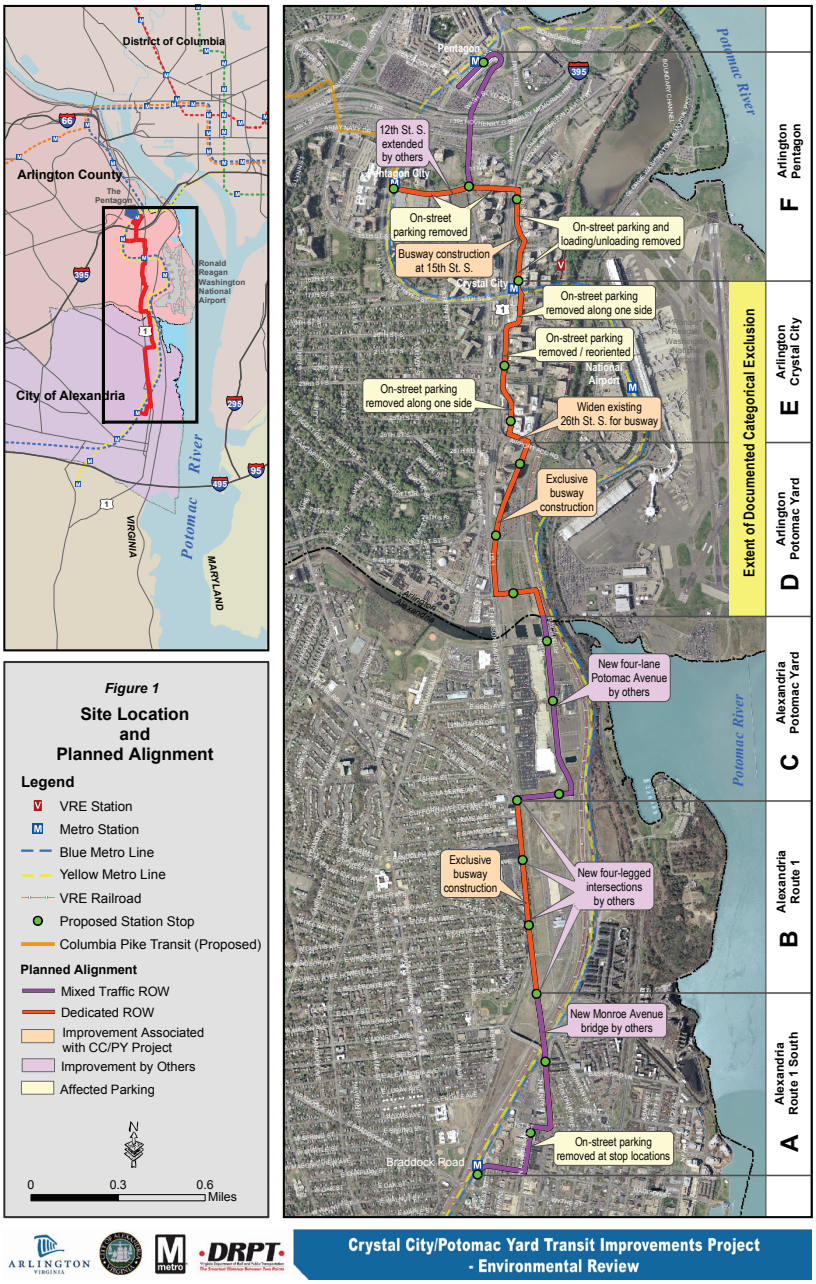
Table 7: Metrorail Station Alternatives Cost Estimates

	Cost (in millions)		
	Low	**Mid-point**	**High**
Alternative A	$190	$220	$250
B Alternatives	$200	$235	$270

Note: Station costs include two mezzanines and a pedestrian access ramp to Potomac Greens.

The implementation of the Metrorail station will require coordination with WMATA, the National Park Service (NPS), Federal highway and transit agencies, CSX and adjoining developers. Issues to be resolved include impacts on the NPS scenic easement, the George Washington Memorial Parkway, and delineation and mitigation of potential impacts to wetlands and floodplains. The developer will be required to contribute substantially to the financing of the construction of the Metrorail station (see *Chapter 9: Implementation*), and special tax districts in all of the Potomac Yard CDD's will be necessary. It is required that federal environmental review processes be followed and that a final station location will not be established until these review processes are completed.

Figure 29. Crystal City/Potomac Yard Transitway Route:



Note: The final alignment of the transitway south of the Route 1 bridge should be consistent with the route established by the Braddock Metro Neighborhood Plan. The route for the portion north of the Route 1 Bridge will be finalized through the zoning and environmental process. The final location of the dedicated transitway and station within Landbay F shall be determined as part of the rezoning process.

Dedicated High-Capacity Transitway

A joint Alexandria-Arlington transitway was planned and approved prior to the North Potomac Yard planning effort (Figure 29). The actual vehicle which will be used on the high-capacity transitway has not yet been determined and may change as the development density increases. Initially, conventional clean-fueled buses are contemplated, and the transitway will be designed to accommodate a higher capacity transit vehicle, such as a streetcar. Design vehicles for the transitway will be determined as future studies are completed, and coordinated with Arlington County.

The City has been awarded a Federal TIGER grant of $8.5 million to construct the portion of the transitway between E. Glebe Road and Monroe Avenue. This funding is in addition to $4 million already granted to the City. Funding for the North Potomac Yard portion of the transitway will require developer contributions.

The current alignment of the high-capacity transitway will operate within a dedicated right-of-way along Route 1, turning east into North Potomac Yard at New Street C and travel through the Plan area into Arlington (Figure 30) (Note that the final route and station locations will be finalized as part of the final configuration of streets, blocks, and buildings within the Flexible Metrorail Zone).

Figure 30. Proposed Dedicated Transitway Route

Note: The final location of the dedicated transitway and stations within Landbay F will be determined as part of the rezoning process.

This route allows an additional stop along Route 1 to serve the Lynhaven community (there is currently inadequate right-of- way width to accommodate an exclusive transit lane at the bridge crossing Four Mile Run). Arlington has made significant investments in a routing along Potomac Avenue, including a station at south Glebe and exclusive right-of-way that is already set aside. Right-of-way will be reserved to maintain a consistent setback the length of the Route 1 frontage.

Dedicated transit lanes are planned within the Route 1 corridor. The plans include: the widening of Route 1 to accommodate dedicated high-capacity transit within a landscaped central median; and provision of left turning movements while promoting a pedestrian-friendly environment designed as an urban boulevard with the transit vehicle within the central median.

The Plan recommends exploring options to incorporate innovative green technologies into the design of the dedicated transit right-of-way. The stations should be designed to include innovative real time transit information and display technologies to include route maps, schedules and local and regional information. Stations will provide shelter from the elements, seating, and lighting. These facilities will be ADA accessible and may also include ability to purchase fare media, level boarding, heating, WiFi/wireless Internet, emergency intercoms, public art, and solar power.

Local and Circulator Transit Service

While Metrorail and dedicated transitway services are critical elements, other modes of transit cannot be overlooked. These are local buses operated by DASH and Metrobus that provide valuable connections between neighborhoods in the City. Currently, North Potomac Yard is served by local bus service, which provides seven day a week service to the existing shopping center. DASH bus service also connects North Potomac Yard to the Del Ray neighborhood. DASH will need to increase the service on this route and to add service from other parts of the City as the project develops. The Metrorail station will also serve as a transit hub for DASH and other transit providers. Longer term plans call for direct bus connections from portions of the City, such as the West End, directly to North Potomac Yard. The Plan recommends that additional local-serving routes should be explored to connect locations within Potomac Yard to nearby communities and destinations.

F. Truck Loading

The growth in office, retail and other development will increase truck loading and deliveries. To maintain efficient traffic circulation, the City will require a comprehensive policy regarding truck loading and deliveries during the development review process. Truck loading and deliveries are prohibited on A and B streets. Additional requirements regarding access and loading will be specified in future design guidelines.

G. Parking Management

Management of on-street and on-site parking is a critical feature of any transportation system and should be carefully coordinated with other transportation considerations. On-street parking spaces will be required to be efficiently managed to maximize turnover of spaces and encourage garage parking for longer stays. On-street parking spaces will be required to be metered and be part of a performance parking program to efficiently manage parking resources.

Parking garages should employ smart parking technologies including variable pricing and available parking space technologies. Wayfinding signage should be employed to efficiently direct drivers to parking garages and clearly indicate price and availability of parking. Parking garage entrance widths shall be minimized.

Figure 31. Bike Lanes

H. Bicycles

The bicycle network requires both on- and off-street bikeways to serve all users and trip types with particular focus on bicycle parking and better connections to transit. The network will enable more people to bicycle for some of their daily trips and increase the proportion of the workforce who cycle to work. The bicycle network is a key element in the multimodal approach to transportation, has health and environmental benefits, and is consistent with the sustainability goals of the Plan.

An off-street shared-use path is required along the length of Landbay K between Braddock Road to the south and Four Mile Run to the north. The Landbay K path will provide a high-quality experience for pedestrians and bicyclists, and serve as a spine for a wider network of paths and associated connections. Designed to minimize conflicts and provide a direct connection between Braddock Metro Neighborhood and Potomac Yard, the trail is an important complement to the street grid.

The slow design speed and urban context of the streets will encourage cyclists to ‘take the lane’ on all streets where appropriate. However, on-street bicycle facilities on primary streets may include bicycle lanes and shared-lane markings (“sharrows”) intended to improve bicycle safety and provide a sense of security. Roadway crossings are critical to the connectivity of the bicycle network and intersections will be designed to stress the convenience and comfort of cycling.

Providing adequate end-of-trip facilities is a critical component of any bicycle network and perhaps more so in transit-oriented developments such as North Potomac Yard. The Plan considers bicycle parking in a number of contexts:

- Bike stations in connection with public transportation along the transitway and Metrorail.
- At homes and at workplaces.
- At shops and retail centers.
- On streets in general.

A connection from Landbay K to the Four Mile Run Trail is recommended as part of the Plan. In addition, a future connection from Landbay K across the George Washington Memorial Parkway to the Mount Vernon Trail should be explored. The Plan should provide a 24-hour bicycle/pedestrian access bridge over the CSX tracks from North Potomac Yard to the east.

I. Water Taxi

The Plan encourages the use of alternative modes of transportation. The possibility of water transportation on the Potomac River and potentially on Four Mile Run would require technical and operational evaluation. Any future proposal for a water taxi will need to be consistent with the intent of the Four Mile Run Restoration Master Plan and Design Guidelines. A water taxi, particularly on the Potomac River, may reduce demand on other transit systems that may be carrying increased numbers of summer tourists and visitors to special events. Water taxis could link Potomac Yard to a growing system of waterfront destinations along the Potomac River, including Old Town, National Harbor, Anacostia, and Georgetown.

J. Transportation Management Plans (TMP)

Transportation Management Plans (TMPs) are a set of specific strategies that influence travel behavior by mode, frequency, time, route or trip length in order to help achieve an efficient and sustainable use of transportation facilities, along with other City goals such as promoting access for all transportation system users, improving mobility, and minimizing the negative impacts of vehicular traffic.

Given the centrality of multimodal transportation in North Potomac Yard, and in order to ensure that the systems and programs are in place as needed to support the density, the Plan requires that future development participate in a TMP district which employs aggressive TMP measures to achieve the 50% mode share targets assumed in the study, and also meet future TMP requirements.

These strategies will include parking maximums, market-rate parking fees for all uses, performance parking, shared parking, parking management, transit passes, “unbundling” parking cost (parking facilities available at additional cost rather than included in unit cost), transit incentives, required TMP plans and monitoring, and similar measures. North Potomac Yard will also be required to participate as part of a TMP district.

Providing market rate parking is an important tool in the TMP strategies employed to create a successful multimodal community. Availability and cost of parking will heavily influence people’s decision whether or not to drive. Parking should be available for those that choose to drive and are willing to pay its cost. At the same time, incentives (financial and otherwise) should be provided to those who choose not to drive. Parking maximums, as discussed in *Chapter 4: Land Use*, are required to achieve the modal split anticipated for new development.

Note:
Specific deadline and submission requirements not specified for recommendations will be determined as part of the rezoning for the subject property.

TRANSPORTATION RECOMMENDATIONS

Streets

6.1 Provide a compact grid of streets consistent and in alignment with, and connecting to the established street grid in Potomac Yard (Potomac Avenue and Main Line Boulevard), on the west side of Route 1, and in Potomac Yard Arlington.

6.2 All streets and rights-of-way shall be dedicated to the City.

6.3 Maximize the street grid within the site and connectivity to adjacent neighborhoods including:

- Reed Avenue at Route 1 shall be configured to allow all movements.
- Explore and evaluate the option of opening Evans, Wesmond, and Lynhaven in the future to provide access to Route 1.
- Study the intersection of Commonwealth and Reed Avenue to determine the need for signalization and pedestrian upgrades.

6.4 Consider all users in the future design of streets and streetscapes.

6.5 Study, develop and implement a comprehensive phased approach to address traffic impacts in neighborhoods adjacent to development and other impacted neighborhoods. (See also recommendations in *Chapter 8: Existing Neighborhoods*).

6.6 New east-west connectivity or comparable street, circulation, and/or transit improvements, should be explored as part of any proposed development and/or any future planning efforts for properties to the west of Route 1.

6.7 With any rezoning of the property, the provision and timing for improvements to the intersection of E. Glebe Road at Route 1 are required.

6.8 Each development will be required to submit a comprehensive approach and policy regarding truck loading and deliveries as part of the development review process.

Transit

6.9 Require the construction of an operational Metrorail station. Rezoning of the property is contingent upon the City and the landowner agreeing to a financial plan funding the Metrorail station.

6.10 In conjunction with other public agencies, a new intermodal transit and transit center shall be constructed proximate to the new Metrorail station.

6.11 Require the construction of a transitway. The final alignment of the transitway and station locations shall be determined with any rezoning for the site.

6.12 Require dedication of right-of-way to accommodate the high-capacity transitway.

6.13 Explore options to incorporate green technologies into the design of the dedicated transit right-of-way and stations.

6.14 Require participation in a Transportation Management (TMP) District in coordination with existing Potomac Yard TMP District.

6.15 Transit stations should be designed to include real-time transit information and innovative display technologies to include route maps, schedules, and local and regional information.

TRANSPORTATION RECOMMENDATIONS (CONTINUED)

6.16 Employ aggressive Transportation Management Plan (TMP) performance measures, meeting or exceeding a 50% modal split.

6.17 Explore additional local-serving routes to connect locations within Potomac Yard to nearby communities and destinations.

Parking

6.18 On-street parking is required to be metered and managed through a performance parking program.

6.19 Provide advanced parking management systems including real-time parking availability, pre-trip parking information and parking reservation/navigation systems.

6.20 Require long and short-term bicycle parking.

Pedestrian – Bicycle

6.21 Provide a continuous, connected and accessible network that enables pedestrians – particularly those with mobility impairments – to move safely and comfortably between places and destinations.

6.22 Develop a comprehensive on- and off-street bicycle network.

6.23 Develop a connected system of primary and secondary bikeways with ample bicycle parking to serve all bicyclists' needs.

6.24 Provide a 24-hour bicycle and pedestrian connection across the railroad tracks to Potomac Greens in conjunction with Metrorail station development.

6.25 Provide centralized bicycle storage facilities, located near the Metrorail and transit locations for all users of Potomac Yard – including areas for private and for shared use bicycles – in conjunction with Metrorail station development. Commuter and recreational bicycle information could also be available to residents and visitors.

6.26 Explore future connection from Landbay K across the George Washington Memorial Parkway to the Mount Vernon Trail.

6.27 Provide a future connection from Landbay K to the Four Mile Run Trail.

6.28 Require an off-street shared-use path along the length of Landbay K between Braddock Road to the south and Four Mile Run to the north.

7

Infrastructure

Infrastructure

A. Water Management Master Plan

With the intent of fully complying with Alexandria's Eco-City Charter, a Water Management Master Plan (WMMP) is required to be provided by the developer, which will coordinate water supply, stormwater, and wastewater systems. The Plan will include systems to reduce potable water use by capturing and reusing rainwater, reducing wastewater generation through water conservation, and exploring reuse of greywater. These, in turn, will serve to reduce development impact on the sewer infrastructure and improve the instream habitat of Four Mile Run, the Potomac River and the Chesapeake Bay.

B. Stormwater Management

Redevelopment presents an opportunity to coordinate stormwater management on individual blocks and North Potomac Yard simultaneously. To accomplish the innovative stormwater goals envisioned as part of the Plan, the WMMP will incorporate specific water management requirements. Both smaller on-site systems and larger facilities serving multiple blocks will be required to be integrated as part of the WMMP. The innovative techniques specified will provide enhanced stormwater performance measures that exceed water quality requirements current at the time of development. Individual blocks, for example, should incorporate elements such as green roofs, rain water harvesting, and bioretention areas to reduce the amount of stormwater runoff generated and reuse the remaining stormwater to the greatest extent possible. The harvested rainwater will provide irrigation to adjacent vegetated areas such as on-site landscaping and tree wells located in the public right of way. The WMMP may allow for the possibility of locating limited stormwater management infrastructure in the public realm. Low Impact Design (LID) techniques that require infiltration such as bioretention and pervious surfaces will require special consideration due to low-level soil and groundwater contamination remaining from Potomac Yard's previous use as a railyard. Larger stormwater facilities, such as the stormwater

management pond planned for Crescent Park, will be required to be designed to provide a high level of nutrient removal as well as function as a high quality recreational amenity for residents and visitors and be integrated into the overall design of this urban park.

Since North Potomac Yard is uniquely located at the confluence of Four Mile Run and the Potomac River, the redevelopment is required to support the guidelines set forth in the Four Mile Run Restoration Master Plan while further enhancing protection of the adjacent Resource Protection Areas (RPA). This proposal will reclaim portions of the RPA to improve riparian character and ecological functionality.

C. Wastewater Management

North Potomac Yard will have a significant impact on the Alexandria Sanitation Authority's (ASA) wastewater collection and treatment systems. As a condition of approval of the Potomac Yard/Potomac Greens CDD, a sanitary sewer line was built from the Potomac Yard development directly to the ASA Advanced Wastewater Treatment (AWT) facility. This Potomac Yard off-site Sanitary Trunk Sewer (PYTS) was required because the City's sanitary sewer collection system did not have sufficient capacity to carry the sanitary flows from development proposed within the CDD. The PYTS was designed to include additional capacity (beyond the anticipated requirement of the CDD at that time) to meet future needs of the City including the diversion of wet weather flows from the Four Mile Run Pump Station, separation of combined sewer system (CSS) flows in the Old Town area, and limited development along the Route 1 corridor.

In the Potomac Yard/Potomac Greens CDD, it was anticipated that the redevelopment of North Potomac Yard would contain up to 600,000 square feet of development. The Plan recommends increasing the permitted amount of development from 600,000 square feet to 7.5 million square feet. The sanitary flows generated from this level of development slightly exceed the remaining unallocated capacity in the PYTS, including what had originally been designed to accommodate future City needs, i.e., separated sanitary flows from CSS area and other future developments.

Based on preliminary analysis, the City's conservative estimates indicate that an assignment of the available capacity will likely lead to surcharged (i.e. an over capacity) condition within the PYTS. The City has evaluated several options for accommodating the additional flows anticipated from North Potomac Yard, which include use of low flow plumbing fixtures and practicing water conservation measures to reduce generation of the municipal wastewater, construction of a separate, parallel sanitary trunk sewer, and possible reuse of greywater. The use of low flow fixtures and water conservation practices are in accordance to the Eco-City Charter adopted by the City of Alexandria. With these water conservation measures, additional conveyance capacity will still be needed to convey the flows from the area to the treatment plant. The applicant will contribute funding toward the required improvements to the infrastructure to provide the necessary conveyance for the 7.5 million square feet in proposed development. In addition to the limited conveyance capacity, the City is evaluating capacity needs at the ASA treatment facility. Based on the most current development projections, sufficient treatment capacity should be available for this development.

D. Solid Waste Management

In compliance with the City Eco-City Charter, the developer will prepare a solid waste management plan for handling and disposing of solid wastes in an environmentally sustainable manner, which will include a hierarchy of uses: Reduce, Reuse, Recycle Resource Recovery, and Proper Disposal. The Plan shall develop a program to recycle the construction and demolition debris and materials that can be converted into valuable resources that would otherwise become waste.

Note:
Specific deadline and submission requirements not specified for recommendations will be determined as part of the rezoning for the subject property.

INFRASTRUCTURE RECOMMENDATIONS

7.1 A Water Management Master Plan (WMMP) is required as part of the rezoning. The WMMP will be updated/amended with each building and/or block to demonstrate compliance with each applicable phase.

7.2 Require use of pervious surfaces on sidewalks, driveways, parking areas, and streets to reduce generation of stormwater runoff. Maximize use of rooftop space for other sustainability practices (for example, for open space, community gardens, green roofs, energy generation, etc).

7.3 Maximize on-site stormwater reduction and reuse techniques to reduce impact on public stormwater infrastructure.

7.4 Remove impervious surfaces within RPAs and revegetate to restore function and quality.

7.5 Use harvested rainwater to meet irrigation demand.

7.6 Maximize exposure of stormwater management facilities as functional amenities to promote citizen awareness and understanding of stormwater quality issues.

7.7 Use water conservation measures to reduce the generation of municipal wastewater and explore reuse of greywater.

7.8 Construct additional sanitary sewer conveyance infrastructure and address Chesapeake Bay nutrient treatment needs.

7.9 Research and evaluate other pioneering technologies to address the capacity needs.

7.10 Develop and launch an education program that will include hierarchy of uses: Reduce, Reuse, Recycle, and Proper Disposal of hazardous wastes.

7.11 Develop a recycling program for commercial and multi-family buildings.

7.12 Develop a community recycling program.

8

Existing Neighborhoods

Existing Neighborhoods

Figure 32. Contextual Map - Existing Neighborhoods - Existing Landbays

A. Neighborhood Character

The planning principles state that connections and transitions should be provided that are appropriate and protective of the character of surrounding neighborhoods. Each of the neighborhoods surrounding North Potomac Yard has a unique character that should be retained. New development should be compatible with the surrounding neighborhoods.

B. Established Neighborhoods

The neighborhoods located on the west side of Route 1, are low-density residential neighborhoods of historical and architectural significance. In particular, the Town of Potomac (which includes portions of the present-day Mount Jefferson and Del Ray communities), was designated a National Register Historic District in 1992. The area began to develop in 1894 as the planned residential communities of Del Ray and St. Elmo, and was incorporated as the Town of Potomac in 1908 before being annexed by the City of Alexandria in 1930. These neighborhoods were some of the first streetcar suburbs in America.

The Lynhaven community is a predominately residential community of single-family, townhouse, and multi-family homes, most of which were constructed in the 1940s to house the largely African-American Potomac Yard railroad workers. The Del Ray and Mount Jefferson communities are located just south of Lynhaven on the west side of Route 1 across from Landbays G, H, I, and J.

The communities include a mix of single-family, duplex, and multi-family homes, and commercial and industrial uses. Activity in this area is centered around the Mount Vernon Avenue commercial district. Many of the railroad workers at Potomac Yard resided in the Del Ray and Mount Jefferson communities.

C. New Neighborhoods

New neighborhoods are also located in the vicinity of North Potomac Yard, and include Potomac Yard Arlington, Landbay G (Town Center), and Potomac Greens.

Across Four Mile Run, Potomac Yard Arlington is a development which, when complete, will include approximately 2 million square feet of office uses, 225,000 square feet of retail uses, 1,500 multi-family units, and 625 hotel rooms. Building heights will range from approximately 120 ft. to 160 ft.

In early 2009, the City Council approved a mixed-use, urban “Town Center” development in Landbay G. The Town Center was approved for approximately 700,000 square feet of office uses, 183,000 square feet of retail uses, 414 multi-family units, and 623 hotel rooms.

Potomac Greens, located to the east of the CSX railroad and Metrorail tracks, is a new residential community consisting of 2- and 3-story townhouses. The Potomac Greens development is located in Landbay A of Potomac Yard/ Potomac Greens. Building heights range from 35 ft. to 45 ft. In addition, there is an approximately 15,000 sq. ft. of neighborhood serving retail on Slater’s Lane which is located in Landbay C (Potomac Plaza).

D. Connectivity and Accessibility

The existing neighborhoods are served by an interconnected system of streets, pedestrian and bicycle routes and trails, and open space. Route 1 is currently perceived as a barrier between the existing neighborhoods and Potomac Yard, in particular for pedestrians and bicyclists. The 1999 Concept Plan for Potomac Yard strives to integrate new development with existing neighborhoods. The continuation and expansion of this philosophy in North Potomac Yard will not only enable residents, workers, and visitors of existing neighborhoods to access amenities at Potomac Yard, but also it will increase the accessibility of amenities

in existing neighborhoods to future residents, workers, and visitors of Potomac Yard. Specific information concerning the transportation network can be found in *Chapter 6: Transportation.*

E. Mitigating Neighborhood Traffic Impacts

The Potomac Yard Multi-modal Transportation Study found that traffic will increase with new development, including on collector streets such as E. Glebe and Reed, and incremental increases on local streets. Currently, the majority of streets on the west side of Route 1 do not have access onto Route 1 nor do they provide direct access to collector roadways on the west. Threshold analyses were performed to confirm that the anticipated volumes on the east-west roadways would not exceed the design capacity of the local roadway system. The analysis also showed that the greater the connectivity of the street grid the greater the dispersal of trips on the network and thus the impact on any one street is minimized. The Plan provides for a number of amenities and benefits to surrounding neighborhoods, including enhanced transit service, better connectivity and bicycle and pedestrian accommodations. *Chapter 6: Transportation* identifies a number of recommendations that address issues of connectivity and mitigating impacts on adjacent neighborhoods.

While the anticipated impact does not exceed the technical capacity of the existing local street, there will be some impacts perceived by the residents living in adjacent neighborhoods. The narrow streets and frequent blocks in the adjacent neighborhoods are already a model of good neighborhood design that distributes traffic and encourages lower speeds.

In anticipation of increased traffic volumes, a variety of additional traffic calming and parking management strategies could be considered. The Plan recommends that the developer be required to provide a monetary contribution for a comprehensive traffic calming strategy, to be implemented in the immediately adjacent neighborhoods and beyond, and appropriately phased with development as it comes in for review. Baseline traffic data should be collected for evaluation of future impacts of development. While a number of tools would be considered as part of the comprehensive strategy, one strategy may be to provide traffic calming treatments specifically within the first blocks off of Route 1 to alert drivers of the residential character of the neighborhoods. Other tools include managing intersections with traffic circles, developing a parking management plan and other traffic calming treatments.

Note:
Specific deadline and submission requirements not specified for recommendations will be determined as part of the rezoning for the subject property.

EXISTING NEIGHBORHOODS RECOMMENDATIONS

8.1 Require the developer to provide a monetary contribution for the preparation and implementation of a comprehensive traffic calming and parking management strategy for the neighborhoods to the west of Potomac Yard. The study and implementation shall be proactive and phased with development.

8.2 Evaluate alternatives for traffic calming treatments at gateway locations along the west side of Route 1 and throughout neighborhoods.

8.3 Promote smooth transitions between existing neighborhoods and new development at North Potomac Yard through a careful consideration of uses, heights, and massing.

8.4 Development at North Potomac Yard should preserve and build upon the unique history and character of existing neighborhoods.

8.5 Develop connections which are consistent and compatible with existing development within Potomac Yard and across Route 1.

9

Implementation

Implementation

A. Overview

Alexandria's growth in the past decade is partially the result of planning and infrastructure investments, such as the Eisenhower and King Street Metrorail stations and the urban street grid, that were the result of both public and private investment. The build-out of the Plan area, the future Potomac Yard Metrorail station, land uses, street grid and associated infrastructure will enable long-term redevelopment for the City, similar to infrastructure investments and planning in the City decades ago. If the City implements all of the recommendations of the Plan, the City could capture a significant share of the projected regional growth. The Plan lays out an ambitious 20 to 30 year vision for Alexandria's North Potomac Yard.

It is important to understand the degree to which the implementation and infrastructure components of the Plan are interrelated and depend on one another for their success. The required infrastructure and development mustalso be carefully phased. The transportation and circulation through the site are based on the provision of a Metrorail station and dedicated transit. Without a Metrorail station, the Plan does not work and is not feasible. The success of the residential neighborhoods will depend on the viable retail and commercial uses which will provide convenient access to goods and services. Open space and design excellence add value but will also add amenities for the workers, residents, and visitors. Without all of the necessary infrastructure improvements and amenities working together and phased appropriately, potential tenants, residents, and retail patrons will go somewhere that does provide the desired level of infrastructure improvements and amenities.

This chapter incorporates the planned land use and density, infrastructure, transportation, amenities, community facilities, phasing, and fiscal impacts. The implementation chapter serves several purposes that include:

- Evaluate the overall financial feasibility of the land use plan;
- Understand and describe the project economics and general financing concepts;
- Understand and describe the basic financial transaction structure between the City and developers contributions;
- Ensure that private development provides funding for public improvements and their on-going maintenance; and
- Finding the right balance of private and public funding that is needed to construct the Metrorail station.

B. Infrastructure, Amenities, and Phasing

The cost to construct a new WMATA Metrorail station is approximately $220 to $235 million (2015 dollars) for the A and B Metrorail station options discussed within the Plan. In addition, $16 million dollars in construction costs are anticipated for the dedicated transitway, with an additional $5 million anticipated for other transportation improvements. Transportation is not the only needed infrastructure given the number of employees, residents, visitors and students which will eventually reside, work or visit North Potomac Yard. Significant additional investment in sewer and water distribution and management are needed to accommodate the basic needs generated by the planned amount of development. In addition, services such as police, fire and schools will require services from the proposed development which are anticipated to be funded with a portion of the new taxes this project will generate.

The discussion of sources, uses and revenues below provides a static summary of total project financing, total project costs and total revenues. In actuality, these costs and revenues are incurred over time from the inception of development through the build-out of the project and the impacts of these timing issues have a potentially significant impact on the overall financial feasibility of the project. As is often the case with large, complex, urban infill redevelopment efforts, in the initial years of planning and constructing, a large proportion of overall costs must be incurred and revenues follow much later. At North Potomac Yard this is particularly true as a result of the significant infrastructure improvements, such as the Metrorail station, that must be made in the early phases to support development.

C. Zoning and Development Conditions

The City's Zoning Ordinance is its key regulatory tool, and is used to direct the size, character, use, and location of development throughout the City. A new Coordinated Development District is planned for Landbay F and recommends a rezoning for the Plan area.

The proposed increase in allowable development from 600,000 square feet to approximately 7.5 million square feet will require significant investment from the developer for infrastructure and facilities and amenities to meet public needs. The following are some of the site plan requirements for the City, which are generally included in the development special use permit process:

- Street and Street Improvements – Sidewalks – Street right-of-way (necessary to serve the needs of the site);
- Applicable Utilities such as Sanitary and Storm Sewer – Water – Electric (necessary to serve the needs of the site);
- Parks – Open Space (necessary to serve the site);
- Voluntary Affordable Housing Contribution;
- Voluntary Public Art Contribution (policy under development);
- High Quality Architecture and Streetscape;
- Underground Parking; and
- Sanitary Sewer and Stormwater.

In addition, in order for the development proposed in the Plan to be implemented, the following major transportation infrastructure improvements are required:

- WMATA Metrorail Station; and
- Dedicated High-Capacity Transitway.

The Plan recommends a number of other community benefits, desired by the City and community, be provided at additional cost to the developer, some of which include the following:

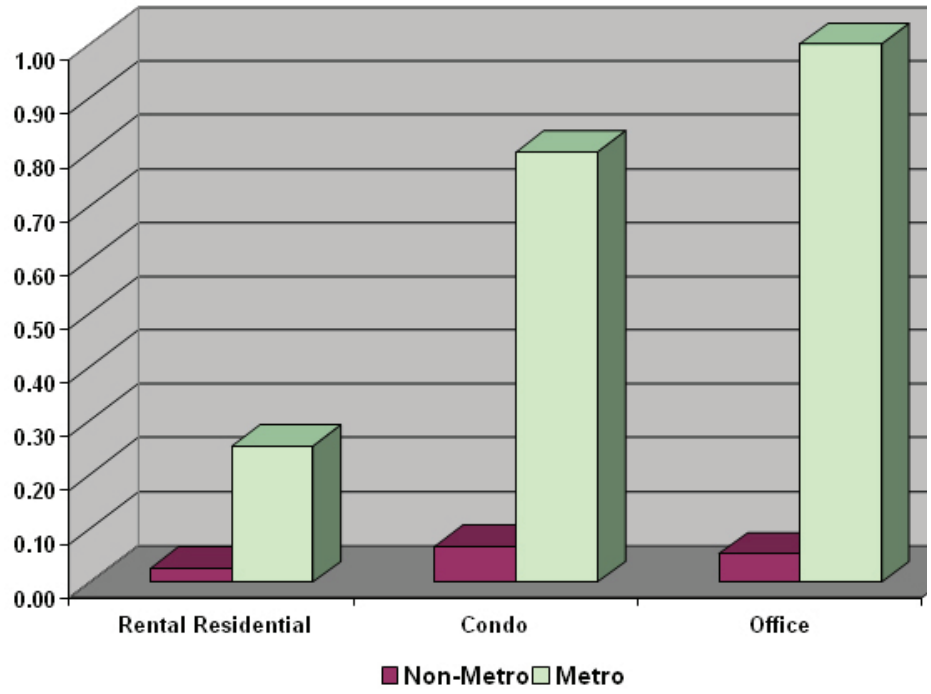
- Reservation for future school;
- Civic Uses – Performing Arts Theatre, etc; and
- Green – Sustainable Building Elements.

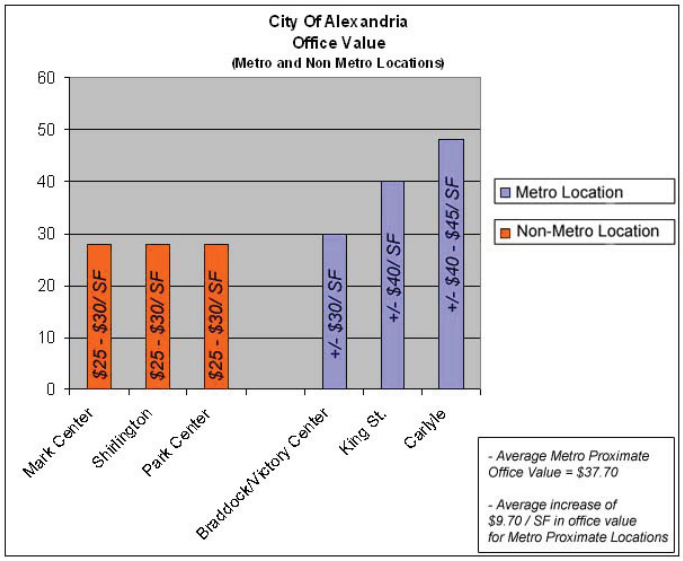
The developer's ability to invest in community benefits is driven by the strength of the market (i.e. achievable rents and revenues) and development costs. Although Potomac Yard is in a relatively strong market, there are significant costs associated with infrastructure development. In addition, because of the existing retail buildings and uses, redevelopment must generate enough income to pay development costs and achieve an adequate investment return to redevelop the existing buildings. When a return exceeds the return-on-cost threshold there is an opportunity for the developer to invest in public amenities.

The proposed rezoning would significantly increase the amount of density and associated value that could be provided to the City. The presence of a Metrorail station significantly increases potential public amenities by creating market value (higher rents) and reducing development cost (such as less parking required). (See Table 8). In addition, all other things being equal, absorption (the amount and pace of development) near Metrorail stations is faster than non-Metro locations. Office rents at Metrorail stations in Alexandria are almost one-and-a-half times greater than comparable non-Metrorail locations. (See Table 9). As such, the ability for the developer to contribute significantly toward public amenities increases significantly, almost tenfold, if a Metrorail station is constructed.

Table 8. Value Added by Presence of Metrorail Station

Table 9.Office Rents at Metrorail and Non-Metrorail Locations





While the current economic state of commercial real estate development makes a calculation speculative, accounting for developer cost and profit margin, by one conclusion, according to the City's consultants, W-ZHA the proposed increase in allowable development on the property with the construction of a new Metrorail station will increase the value of the land by as much as $240 million, creating value that can be spent toward community benefits. (See Table 10). The contribution amount will have to be refined as part of the implementation phase of the project.

Table 10. Increase in Value of Land Due to Increase in Allowable Development

2.5 FAR, Metro Office/Retail Mix Potomac Yard Retail Center			
	Existing Zoning	**2.5 FAR**	
Land Area (Sq. Ft.)	3,008,589	3,008,589	
FAR Feet	600,000	7,521,473	
Retail	600,000	20% - 1,504,295	
Office	0	80% - 6,017,178	
Retail			
Land Value	$90,000,000	$60,171,800	
Value /FAR Ft.		$40.00	
Office			
Land Value	$0	$270,773,000	
Value /FAR Ft.		$45.00	
			Difference
Total Value	$90,000,000	$330,944,800	$240,944,800
Discount for Profit			(10.00%) $216,850,300
Contribution / FAR Ft.			$28.83

Source: City of Alexandria; W-ZHA

D. Overview Of Financing The Potomac Yard Metrorail Station

The proposed rezoning of Landbay F increases the development on that landbay from 600,000 square feet of "big box" retail to 7,500,00 square feet of total development. The transportation network in this area of the City of Alexandria will not support this level of development, and thus the rezoning to this level of density cannot be approved, in the absence of the construction of a new Metrorail station and dedicated transit.

The Plan supports the recommendations of the Metrorail Station Feasibility Work Group (see final report Potomac Yard Metrorail Station Concept Development Study). In addition, the following fundamental principles should guide the City of Alexandria, its political decision makers, and staff:

- The City is supportive of the type of long-term, quality mixed-use development contemplated at Potomac Yard, and plans to provide the bond financing of the Metrorail station, but the financial risk to the City must be carefully structured and managed.
- The City plans to enact special tax districts on Landbays F, G, H, I, and J as well as Potomac Greens that will help pay for a portion of the cost of the Metrorail station, and to issue general obligation or other types of municipal bonds for such construction, most likely backed by the full faith and credit of the City of Alexandria, or a similar pledge.
- Special tax districts could be implemented as early as 2011 to help finance pre-construction and environmental study costs. At this time the needed tax rate prior has not been determined. Two special tax districts are contemplated: one district for the higher density Landbays F, G, and H, and a second tax district for the lower density Landbays I and J and Potomac Greens. The exact boundaries in Landbay H, I, and J remain to be determined.
- No negative cash impact on the City's General Fund in any given year. The projected "gap" between the anticipated tax revenues from the special tax district, per square foot developer contributions, plus additional incremental net new revenues generated by the project, will need to be "bridged" in the early years of the bond financing by firm and sufficient up front Landbay F guaranteed payments, so there will be no negative cash impact on the City's General Fund in any given year.
- Any proposed financing must be conservative with a sound financing structure and shared risk. The proposed financing must not put at risk the City's AAA/Aaa bond ratings, as well as projections used for the Metrorail station construction costs, as well as the project build-out timetable and resultant projected tax revenues need to utilize conservative assumptions, so that the downside risks can be minimized. Some of the downside risks also need to be shared by the participating parties.
- The final financing plan when approved by City must be based on final plans approved by the Washington Metropolitan Area Transit Authority and the City, and a guaranteed maximum or other fixed price construction contract for construction approved by WMATA must be in place for the station to be constructed and must be structured to minimize the possibility of cost overruns.
- Even with a combination of special tax districts, developer contributions, other contributions, and increased taxes, it is likely that if projections are not met, the City will have to pay any net shortfalls, and this risk and the impact on the City's ability to do other projects must be factored in to all proffer negotiations to result in a conservative, sound financing structure with shared risk.

Discussion

A plan of finance and agreement with the owner of North Potomac Yard (Landbay F) in regard to funding the $240 million (assumes for worst case financing modeling purposes the midpoint of a $210 million to $270 million construction range which is the B options with a 2015 construction midpoint and is also the highest cost of the three options A, B1 and B2 under consideration) Metrorail station to serve Potomac Yard and adjacent neighborhoods is a necessary precedent to any rezoning of Landbay F. Since the additional 7.5 million square feet of additional density of all types contemplated for Landbay F can only occur if the necessary transportation infrastructure (including a new Metrorail station) is provided, it must be certain that the station can be financed, constructed and put into operation.

Financing a $240 million project is an exceedingly difficult challenge given the enormity of this cost. In perspective, $240 million is nominally about two and one-half times the cost of the new T.C. Williams High School recently constructed in the City. Proof of the difficulty of this is that there has been only one new in fill Metrorail station (New York Avenue) constructed to date and added to the existing 103-mile Metrorail system that serves the entire Washington, D.C. area since the system was constructed starting in the 1970's. This is in large part due to the cost of such station additions, as well as the lack of significant federal and state funding opportunities for adding stations to existing subway systems. Also since individual stations largely benefit individual localities, the Washington Metropolitan Area Transit Authority (WMATA) does not spend its limited capital dollars on adding Metrorail stations to its system. In Virginia, where State transportation capital funding assistance to localities has collapsed, as the State's transportation tax revenues have fallen sharply and not kept up with demand, there also is no current significant new funding for mass transit capital projects such as a new Metrorail station. The absence of state and federal funding opportunities, leads to the conclusion that any Metrorail station within Potomac Yard must be planned to be almost entirely locally funded and financed, with any state and/or federal funding that might occur reducing that local funding burden.

Modeling of Financial Feasibility

To determine the financial feasibility of funding a Metrorail station, the City retained the transportation consulting firm of PB Consulting to undertake calculation of tax revenues potentially generated by the development of Potomac Yard, as well as modeling how City-issued general obligation bonds could raise the funds necessary to fund the construction of the station. These bonds would be serviced and repaid by a combination of developer contributions, net new taxes, as well as special tax district revenues.

The PB modeling made the following key revenue assumptions:

1. Tax rates assumed at 2009 levels and policies;
2. Special Tax District at 20-cents per $100 of valuation in the high density landbays;
3. As contemplated by the original Potomac Yard CDD approval, all of Potomac Yard (except the most southern Landbay L and Old Town Greens) including Potomac, Greens would be included in the Special Tax Districts and all net new tax revenues from those landbays (including already zoned Landbays G and H) counted as available revenues;
4. No current tax revenues generated by any Potomac Yard landbays would be counted as available for a Metrorail station financing;
5. Real Estate unit values (i.e., per unit or per square foot values) at 2009 values;
6. 10% value increase assumed for properties within ¼ mile of the Metrorail station entrance, with two entrances to the Metrorail station provided;

7. 6.5% (hotel) to 59.8% (residential) of new tax revenues (not including the $.20 per $100 special tax district revenues) would be assumed to be used to finance City and School services and capital costs to serve Potomac Yard and thus would not be available to assist in the Metrorail station financing;
8. 25-year straight-line build out of planned development starting in 2017, and
9. No federal or state aid assumed.

At the City's direction, PB consulting used the following key bond financing assumptions:

1. 30-year amortization of the bonds, commencing in 2014;
2. Use of AAA/Aaa rated general obligation bonds issued by the City;
3. Capitalized construction period interest, during the first three years;
4. A $275 million bond issuance ($240 million for construction, $30 million for capitalized interest during construction, and $5 million in related bond issuance costs);
5. Interest only repayment in years four, five and six; and
6. Gradual build-up of principal repayment in years seven through seventeen, and then level principal and interest through year thirty.

The results of the PB analysis shows that while there are sufficient net new tax revenues after 2024 to cover the debt service obligation of the Metrorail station bond financing, there is a significant up front gap from 2014 to 2024 (years one to eleven). This is because the net new tax revenues generated from development are projected not to grow sufficiently in the first eleven years after the bonds are issued (in part because the buildout of this order of magnitude of new development will be phased over the long term because of the limitations of market absorption). These projections are subject to many variables (actual station construction costs, land valuations, buildout timetable, interest costs, etc) and would need to be rerun and any financing plan adjusted accordingly to the realities of the time in which the decisions of going forward or not going forward with a Metrorail station would need to be made. For this reason, the final underwriting and construction contracting decisions must be based on final approved plans, not to exceed a construction contract price acceptable to the City and its advisors, as well as a sound and predictable financing plan.

Developer Contributions

To finance a portion of the Metrorail station ($475 million in total debt service over the 30-year period including $275 million in bonds and $200 million in interest) and to close the aforementioned funding gap, it will be necessary for the developers to agree to pay for a significant portion of the Metrorail station development that will benefit them by increasing the value of their property as well as accelerating when the market will facilitate the development of the property. Without such written agreement executed by the City with each of the three sets of owners (PYD, RREEF's institutional client, and MRP) or their successors, no Metrorail station can or will be built at Potomac Yard. In addition, the proposed density increase in North Potomac Yard/Landbay F of some 7.5 million square feet would not be able to be constructed, as the Metrorail station is precedent for any new development density in Landbay F as it is the only way that such density of that magnitude can receive adequate transportation capacity to function.

Developer agreements with the City need to recognize the different land use status of the various Landbays at Potomac Yard. For already developed property (Potomac Greens and The Station at Potomac Yard), there would be no developer conditions expected as development has already taken place. In particular the owners of Landbays G, H, I and J have contributed directly or indirectly to significant public infrastructure investment and land donation to the

City.
Those properties are proposed to be subject, however, (as was originally contemplated in the original Potomac Yard CDD approved by the City in 1999) to a special tax district levy.

It is contemplated that the high density special tax district (Landbays F, G, and H) would be put in place for 2011 at a 20¢ tax rate. It is also contemplated that the low density special tax district would be put in place in 2011, but with a 0¢ tax rate. That 0¢ tax rate would then be planned to be kept in place until the Metrorail station opened in 2017. Then after the Metrorail station has opened, the low density special tax district would have rate in the 5¢ to 10¢ tax range levied.

A $10 per square foot contribution for Metrorail can be justified as reasonable in that research has shown that the value of buildings within a quarter mile of a Metrorail station increase in value (i.e., in rents achieved) in comparison with similar properties not that close to a Metrorail station. If a property increases by 10% in long term value or about $40 per square foot, due to the presence of a Metrorail station within a quarter mile, it would be reasonable for the developers to pay $10 of that towards the costs of the Metrorail station.

For the owner of Landbay F, where any upzoning does not currently exist, and would only be approved as Metrorail station dependent, the developer contributions for the Metrorail station and for other public amenities should be significantly more than $10 per square foot, as the contemplated possible increase in approved overall density is 7.5 million square feet. As indicated earlier, the potential public increment of value through a rezoning alone (i.e, not including any long term value added from actual construction of higher density improvements) may be as much as $100 million to over $200 million. Given today's unsettled commercial real estate markets, the determination of the value of a rezoning is challenging. A large portion of this public creation of private value should be allocated and committed towards the new Metrorail station and other infrastructure and public amenities upon which any rezoning will be dependent.

The timing of developer contributions would need to be negotiated and structured to fit the financing needs of the Metrorail station, and would have to be able to be financed by the developer in the commercial lending marketplace. Some of these funds should be paid up front and be sufficient to cover the estimated $32 million projected gap (PB December; 2009 Study) between projected revenues and projected debt service costs, and some of the funds paid at the time of the development. While paying up front for infrastructure puts a burden on the development project to be financed, it is a common real estate development practice.

It would not be unreasonable for the developer of North Potomac Yard/Landbay F to also commit a significant contribution for the transportation infrastructure – in this case a portion of the costs of the Metrorail station, as well as other public infrastructure. As of the time of the issuance of this chapter, the owners of North Potomac Yard/Landbay F have tentatively agreed to an up front shortfall guarantee in an amount that would be sufficient to close the projected funding gap. Negotiations with the City are active and on-going on this issue as well as that of other development conditions with many details to be worked out.

In addition to the developer contributions, there will have to be negotiations of the allocation of risk, and contingency plans and protections structured to cover circumstances that could arise prior to, during and after the Metrorail Station is constructed. Without such an executed agreement between the City and the owner of North Potomac Yard/Landbay F, on funding and related conditions, no new density authorization can be legally assumed to have been granted by the

City through the development and approval of this North Potomac Yard Plan, and therefore no new development could be initiated in Landbay F without a formal executed agreement and an actual rezoning (which is a distinct and separate action from an adoption of a North Potomac Yard Plan).

City Risks and Debt Policy Implications

While the financial model's projections and potential future agreements with developers in regard to their contributions could result in a plan of finance for the Metrorail station that is self-financing from developer contributions, special tax district revenues and net new tax revenues generated by that development, such projections are just projections and reality may be very different. Also City issuance of $275 million in bonds would represent a major, significant change in City debt policies and practices.

First, with regard to the model's projections and eventual reality, it is very difficult to predict real estate development. While real estate development is cyclical in nature, predicting the timing, length, highs and lows of real estate cycles is not possible. While many real estate pro forma projections proved correct, many real estate pro forma projections prove materially incorrect. The current real estate market place contains many examples of highly inaccurate projections and failed real estate ventures (such as development related local government issued "dirt bonds" that are now in default). While the use of general obligation financing would avoid a default situation, there is the real possibility that once the station was constructed that it would take far more time than the model projects for net new tax revenues to cover bond debt service obligations. This means that there is a risk that a deficit would occur and need to have a funding source. While some of this down side risk to the City and its General Fund may be able to be shared with the developer of Landbay F, it will be the City that is standing behind any bonds issued and would be the City's responsibility as the final backstop and ultimate obligator to pay debt service as it becomes due. Failure to repay the bonds is not a realistic option as it would result in a downgrading of the City's top AAA/Aaa bond ratings and the raising of future borrowing costs. It could also prevent the City from accessing the bond markets (to raise capital for City needs) for some period of time.

A second set of major issues for the City are the debt policy implications of the City issuing $275 million in new bonds to finance this new Metrorail station. For several decades the City has had in place very conservative debt policy guidelines with specific numerical targets and limits. This has resulted in the City's debt being considered low in comparison with other jurisdictions by the major bond rating agencies, Moody's Investors Service, and Standard & Poors. If the City issued $275 million in additional bonds it would increase the City's debt burdens in year 2015 and beyond by about 64% (from a projected $433 million in 2015 to $708 million). This would raise the City's primary measure of debt capacity (debt as a percent of property value) from a projected 1.18% in 2015 to 1.93%. In comparison with other AAA/Aaa rated localities in Virginia and Maryland this would shift the City's debt burdens from being on the low end when compared to those localities to the high end when compared to these peer localities.

While this represents a significant, material increase, according to the City's independent financial advisors, it would not in and of itself jeopardize the City's top AAA/Aaa bond ratings. In particular, the rating agencies recognize that the investment in heavy or light rail transit systems is an investment with multi-generational benefit if coupled with new transit-oriented development. This view and bond rating agency acceptance is highly likely to hold in the future, but

cannot be guaranteed.

The issuance of $275 million in new debt will have the implication of potentially limiting future major public projects that the City may want to consider funding. For example, if federal, state or other funds are not substantially available to upgrade the planned Potomac Yard high-capacity transitway from a Bus Rapid Transit (BRT) to a street car system, then that upgrade may have to be delayed until such time as a large portion of the Metrorail station bonds have been repaid. The Metrorail and the high-capacity transitway are required to accommodate the traffic associated with the proposed development.

Appendix I: Background

Background

The Planning Area

The Potomac Yard/Potomac Greens site is a 295-acre brownfield located in the northeast area of the City, immediately south of downtown Washington, D.C. and Ronald Reagan Washington National Airport. The area has served as a north-south trade and transportation corridor since prehistoric times, and most recently as the site of an active railroad (See *Appendix 3: History*). Today, the site is divided into two main parcels – Potomac Yard and Potomac Greens – by a 120 foot wide active railroad corridor running north-south through the tract. Potomac Yard is further divided into smaller portions or "landbays." The focus of this plan is Landbay F (Figure 33).

Figure 33. Potomac Yard Landbays

Landbay F – Current Uses

At 69.07 acres in size, Landbay F (Potomac Yard Center) is the largest property in Potomac Yard/Potomac Greens. Landbay F is located in the northern portion of Potomac Yard, is roughly rectangular in shape, and is approximately one-half mile in length from north to south. It is bordered by Landbay E and Four Mile Run to the north, Landbay G (Town Center) to the south, Landbay K (Potomac Yard Park), CSX Railroad tracks, Washington Metropolitan Area Transit Authority (WMATA) Metrorail tracks, and Landbay A (Potomac Greens) to the east, and Route 1 to the west.

Landbay F was developed in the mid-1990s as an automobile-oriented, approximately 600,000 sq. ft., retail shopping center with predominately "big box" national retailers, pad sites, a 16-screen cinema, and surface parking. When it was developed it was intended to be an interim use, and not a long-term use.

In early 2009, the City Council approved an urban, mixed-use Town Center in Landbay G, with a total of 1,766,868 square feet, a relative floor area ratio (FAR) of 2.2, and building heights between 45 and 110 feet. In addition, to the north across Four Mile Run, the development of Potomac Yard Arlington is well under way, with a planned total gross square footage of 4,409,835, an FAR of 2.03, and building heights of approximately 120 to 160 feet.

Status of Other Potomac Yard Landbays

Landbay A (Potomac Greens): Final Development Special Use Permit (DSUP) approved for up to 244 residential units and approximately 20 acres of open space. Potomac Greens construction is nearly completed.

Landbay C (Potomac Plaza): Developed with 15,000 square feet of street retail.

Landbay D (Rail Park): Requires subsequent approval for design and programming of the park.

Landbay E (Four Mile Run): Revised CDD conditions related to the dedication of and improvements to Landbay E approved. Dedication pending. Approval has been granted for bridge demolition.

Landbay G (Town Center): Preliminary DSUP approved for up to 800,000 square feet of office space, 625 hotel rooms, 80,000 square feet of street retail, 414 residential units, and 1.6 acres of open space. Construction has not commenced. A portion of Landbay G is developed with “The Station,” a City-owned, collocated fire station and 64 affordable housing units.

Landbay H: Final DSUP approved for the construction of office space, street retail, and residential units. Transfer of 765,000 square feet of office space to Landbay H from Landbay J and L subsequent to the approval of the Final DSUP.

Landbay I: Preliminary DSUP approved for a portion of Landbay I for the construction of 116 townhouse and stacked townhouse units.

Landbay J: Preliminary DSUP approved for a portion of Landbay J for the construction of 60 townhouse and stacked townhouse units.

Landbay K (Potomac Yard Park): Preliminary DSUP approved for an approximately 24-acre park.

Landbay L: SUP approved for a portion of Landbay L for a dog park. No plans submitted for development.

Landbay M: A multipurpose athletic field plan approved as part of a DSUP.

Landbay N: Plans submitted for dedication to the city.

Prior Planning History

Plans for the redevelopment of Potomac Yard have been underway for over 20 years. Starting in the late 1980s, the City began updating the 1974 Master Plan and the Richmond, Fredericksburg & Potomac (RF&P) Railroad began to explore development alternatives for Potomac Yard because it was no longer being used as a rail yard. The first proposal (for the entirety of Potomac Yard), Alexandria 2020, was a mixed-use, neighborhood development which continued the street grid of the adjacent neighborhoods and replicated typical setbacks, heights and architectural styles. The plan included a tree-lined interior boulevard, parks, and pedestrian gathering places. The plan included a Metrorail station near the center of Potomac Yard, with the potential for commuter rail service and bus connections. The total amount of development proposed in the 2020 plan was approximately 16 million sq. ft.

Alexandria 2020 was never formally submitted to the City for approval; however, the City approved new zoning for the site in the context of updating the Master Plan in 1992. The new zoning, Coordinated Development District (CDD), provided for a lower level of development than was proposed in the Alexandria 2020 plan, with approximately 8.8 million sq. ft. of development.

In the early 1990s, the property owner of Potomac Yard pursued a proposal to locate Jack Kent Cooke football stadium at Potomac Yard. This proposal did not go forward.

In 1997, the property owner submitted a proposal for changes to the Master Plan and CDD to allow the location of the Patent and Trademark Office (PTO) at Potomac Yard. However, the request was denied by the Planning Commission and withdrawn by the applicant prior to the City Council hearing. The PTO subsequently located its offices elsewhere in Alexandria at Carlyle.

Landbay F was developed in the mid-1990s in accordance with its underlying zoning: Commercial Service Low (CSL) and Industrial (I).

Current Land Use and Zoning

In 1999, City Council approved an updated Potomac Yard/Potomac Greens Small Area Plan and rezoned the property to Coordinated Development District (CDD #10).

The City has approved a number of revisions to this plan since 1999, but it remains the current operative plan for Potomac Yard and allows for approximately 6.4 million sq. ft of development overall. In accordance with this plan, Landbay F is limited to 600,000 sq. ft. of retail uses.

Potomac Yard/Potomac Greens is subject to the Potomac Yard Urban Design Guidelines (the “Design Guidelines”) which were adopted in 1999 as part of the Small Area Plan. The Potomac Yard Design Advisory Committee (PYDAC) reviews plans for conformance with the Design Guidelines as part of the DSUP process required by the CDD zoning.

To date, construction is complete in Landbay C (Potomac Plaza) and nearing completion in Landbay A (Potomac Greens). In addition, “The Station” is recently completed. A number of infrastructure improvements are in place throughout Potomac Yard/Potomac Greens, including the Monroe Avenue Bridge and portions of the framework street network.

Appendix II: Context for Plan

Context for Plan

Role of The Plan

The City Council established the Potomac Yard Planning Advisory Group (PYPAG) in October 2008 to function, in part, as a conduit for community values, knowledge and ideas, and to advise City staff on the development of the small area plan and plan recommendations. The purpose of the Plan, as outlined in the PYPAG Vision Statement, is to establish the City's vision for North Potomac Yard as an environmentally and economically sustainable and diverse 21st Century urban, transit-oriented, mixed-use community that is compatible with adjacent neighborhoods and which is a regional destination with diverse built and natural spaces. Additional information concerning the PYPAG can be found in *Appendix 4: Community Outreach.*

The Plan lays the foundation which will guide development in North Potomac Yard for the next 30 years. Keeping its functional life in mind, the Plan is intentionally flexible in order to accommodate new approaches (such as new technologies, policies, or methods) to achieve the Plan's goals. As the City plans its future, Potomac Yard will play an important role in helping Alexandria achieve its goal of being a world-class, environmentally and economically sustainable city.

History and Historical Character

Potomac Yard has a long history of serving as a major north-south trade and transportation corridor from prehistoric times through the present. Detailed information concerning Potomac Yard's colorful history can be found in *Appendix 3: History.*

Existing Conditions and Policies

This planning effort has been guided by the principles, goals, and recommendations of City policy documents which lay the foundation upon which the recommendations of the North Potomac Yard Small Area Plan are based. These policy documents include:

- Potomac Yard/Potomac Greens Small Area Plan (1992)
- Historic Preservation Plan (1992)
- Potomac Yard/Potomac Greens Small Area Plan (1999), as amended through June 2008
- Open Space Plan (2002)
- Strategic Master Plan for Recreation, Parks and Cultural Activities (2003)
- City Council's 2004-2015 Strategic Plan (2004)
- Mayor's Economic Sustainability Work Group Final Report (October 2007)
- Transportation Master Plan (2008)
- Pedestrian & Bicycle Mobility Plan (2008)

- Eco-City Environmental Charter (2008)
- Four Mile Run Restoration Master Plan (2006) and Four Mile Run Design Guidelines (2009)
- Green Building Policy (2009)
- Environmental Action Plan 2009-2030 (2009)
- Urban Forestry Master Plan (2009)

Demographics and Forecasts

There are currently no residential units in North Potomac Yard, therefore, there is no demographic data available for the area. However, 1999 Census data is available for the adjacent areas of Potomac West and Crystal City.

Potomac West is located to the west of Potomac Yard. It is an approximately 2.13 square mile area which roughly includes the Arlandria, Del Ray, Lynhaven, Mount Jefferson, and Rosemont neighborhoods (Census Tracts 2012.02, 2012.03,2012.04, 2014.00, and 2015.00). Key characteristics of the Potomac West area are as follows:

- Population: 22,331
- Race: White non-Hispanic, 44%; Hispanic, 27.9%; Black non-Hispanic,23%
- Age: Under 18, 20.3%; 18-64, 73.9%; Over 65, 5.8%
- Mean Household Income: $69,684
- Tenure: Owner-occupied, 44.2%; renter-occupied, 55.8%
- Housing Type: single-family detached, 25.3%; single-family attached, 31.5%; 2+ units attached, 43.1%.

Crystal City is an approximately 1.71 square mile area located to the north of Potomac Yard in Arlington County (Census Tract 1034.02). Key characteristics of the Crystal City area are as follows:

- Population: 3,012
- Race: White non-Hispanic, 72.9%; Asian, 9.9%; Black non-Hispanic, 7.9%, Hispanic, 5.8%
- Age: Under 18, 3.3%; 18-64, 83.5%; Over 65, 13.2%
- Mean Household Income: $86,274
- Tenure: Owner-occupied, 15.3%; renter-occupied, 84.7%
- Housing Type: single-family detached, 1.4%; 2+ units attached, 98.6%

Analysis of Market Conditions

Robert Charles Lesser & Co. (RCLCO) completed a retail market study for North Potomac Yard (Potomac Yard Center) and Landbays G and H/I (Town Center). For the purposes of the study, a development program was assumed for North Potomac Yard including: 900,000 to 1,100,000 square feet of office uses; 800,000 to 900,000 square feet of retail uses; 4,500 to 5,000 residential dwelling units; and 250 to 300 hotel rooms. The study also considered approved densities for Landbays G and H, and part of Landbay I, and the greater market area.

Based on projections of future households and workers in the market area, the study concludes that there is sufficient market support for approximately 1.27 million square feet of retail uses in North Potomac Yard and Landbays G and H/I including approximately:

- 495,000 square feet of Major Comparison Retailers, such as department and general merchandise stores, and electronics, home furnishings, and book stores.
- 230,000 square feet of In-line Comparison Retailers, including smaller tenants selling specialty goods, such as apparel and apparel accessories, jewelry, home goods and furniture, books and music, and electronics.
- 325,000 square feet of Neighborhood Retailers which serve every day consumer needs, such as grocery stores, pharmacies, and other convenience retailers.
- 220,000 square feet of Food and Beverage, including full-service sit-down restaurants; limited-service, take-out, fast-food, and fast-casual restaurants, and bars and clubs.

The study envisions North Potomac Yard and the Town Center as two distinct and complementary retail districts. North Potomac Yard would function as a regional "lifestyle" retail destination which combines all four of the above-named retail uses, plus entertainment options. In contrast, retail uses in Landbays G and H/I (Town Center) would cater primarily to local residents, workers, and transit users.

The study concludes that retail projects in North Potomac Yard and the Town Center would fill a gap in the retail market in Alexandria and surrounding areas which currently lacks new, large-scale, urban retail options. In addition, retail projects at Potomac Yard would enable the City to better capture retail sales dollars that are currently lost to neighboring jurisdictions.

Opportunities and Constraints

Opportunities

A number of opportunities present themselves at Potomac Yard. These opportunities are rare in an urban location and include:

- Size: Potomac Yard is one of the largest developable properties in the City and the region. North Potomac Yard is over 69 acres in size.
- Location: Potomac Yard is located in close proximity to downtown Washington, D.C. and Ronald Reagan National Airport. It is a natural "gateway" into Alexandria.
- Transportation: Potomac Yard is accessible from Route 1, a major north-south route for local and regional traffic in the eastern area of the City. In terms of public transit, Potomac Yard is part of the greater Potomac Yard/ Crystal City Transit Corridor for which there are plans for dedicated transit lanes, and there is the potential for the location of a Metrorail station at Potomac Yard.

Constraints

In order to take advantage of the opportunities of the site, certain constraints must be mitigated or managed. These constraints include:

- Existing Infrastructure: The existing road network and stormwater and sanitary sewage treatment capacity systems have limited capacity. Unless expanded, these capacities will limit the densities that can be accommodated at Potomac Yard.

- Financing: In order to finance the needed transportation infrastructure, significant developer participation is imperative but not easily achieved given costs and the realities of the current development financing market.
- Federal Aviation Administration (FAA) Height Restrictions: North Potomac Yard is impacted by FAA height restrictions which have been imposed on properties in the vicinity of Ronald Reagan National Airport.
- Neighborhood Impacts: Potomac Yard is surrounded by many residential neighborhoods of historic significance (See *Chapter 4: Existing Neighborhoods*). Development at North Potomac Yard could have impacts on the adjacent neighborhoods, particularly in terms of traffic generation and building heights.
- Accessibility: Accessibility to North Potomac Yard is limited. The property is surrounded by water to the north (Four Mile Run) and CSX railroad and Metrorail tracks to the east. In addition, road connections to the north and south are limited, and there are no connections to the east.

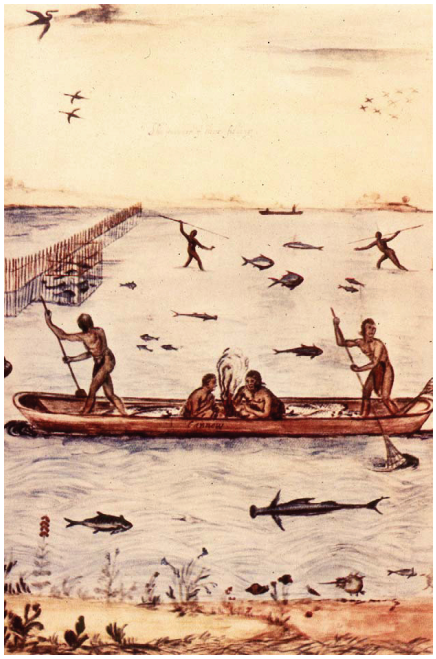
Appendix III: History

Potomac Yard History

The History of Potomac Yard: A Transportation Corridor through Time

By Francine W. Bromberg, Alexandria Archaeology

The area that became Potomac Yard has a long history of serving as a trade and transportation corridor. From prehistoric times through the present, these level terraces paralleling the Potomac River provided a north/south pathway for moving people and goods. While the modes of transportation changed - from foot to horse and stagecoach, then to canal boats, and later to trains and automobiles, the landform remained an important link in the route connecting people and places throughout the course of history.



Native American Occupation

The word "Potomac" is thought to derive from an Algonquian Indian term meaning "where things are brought in" or a place for trade (National Museum of the American Indian 2008). Thus, even before the arrival of Europeans, the area was recognized as a transportation hub and center for the exchange of goods. While the river itself served as the major natural transportation corridor for Native Americans in their canoes, an old Indian trail purportedly followed the ridge from the Rappanhannock to the Potomac and developed into present-day Telegraph Road in the local area (Netherton et al. 1978:20).

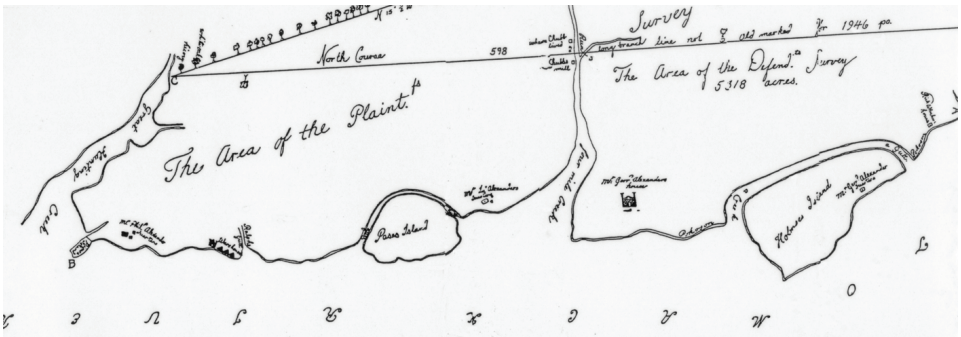
Bands of Native American hunters and gatherers may have traversed the area that became Potomac Yard as early as 13,000 years ago. More intensive occupation undoubtedly began about 5000 years ago when anadromous fish became abundant in the Potomac (Bromberg 1987). In addition, the nearby marshes, which formed as the glaciers melted, provided a wide variety of resources. Temporary encampments to exploit the marsh resources and take advantage of the reliable spring fish runs probably continued on the Potomac Yard terraces into the historic period, which begins with John Smith's voyage up the Potomac River in 1608. At that time, Smith recorded the locations of two nearby agricultural hamlets, Nameraughquend to the north (on what is now National Airport) and Assaomeck to the south (near Belle Haven), from which foraging parties could have departed for exploitation of the swamp and fish resources of the Potomac Yard property (Smith 1608).

Tobacco Plantations, Farms, Towns And Turnpikes, 1669-1830

The area that became Potomac Yard was part of a 6,000-acre grant awarded to ship captain Robert Howsing (Howson) for the transport of 120 settlers to the Virginia colony in 1669. Not a settler himself, Howsing wasted no time in converting his property to the currency of the time, and sold the acreage to John Alexander, a planter residing in what is now King George County, for 6 hogsheads (6,000 pounds) of tobacco (Miller 1992a:107; Walker and Harper 1989:3-4; Mullen 2007:28). From the 1670s until the 1730s, John Alexander and his descendants leased the property to tenants. Thus, the earliest historical settlement of the

land that became Potomac Yard consisted of tenant farms on large landholdings owned by absentee landlords (Walker and Harper 1989:3-4; Mullen 2007:28). In the 1730s, members of the Alexander family began subdividing the property and established plantations on it (Mullen 2007:28). John Alexander's great grandson John and his wife Susannah Pearson Alexander set up a quarter in the northern section of what was to become Potomac Yard. It is likely that enslaved African Americans lived in the quarter and worked the tobacco fields under the supervision of an overseer (Mullen 2007:30). Other plantations were established on adjacent properties by Alexander's descendants, including the Dade plantation to the southeast and Abingdon north of Four Mile Run. It is likely that John and Susannah's son Charles built the Preston plantation house in the 1750s or 1760s, in roughly the same location as the original quarter (Mullen 2007:30). The family cemetery was situated nearby (Miller 1992a:109). The river still served as a transportation artery, and the large landholdings had been subdivided to allow each plantation frontage on the Potomac.

Historic Waterfront



Overland travel also linked the early plantations. A branch off the old Indian trail running closer to the river became known as the Potomac Path and developed into the present-day Route 1 (Netherton et al. 1978:20). In 1749, Alexandria was established south of the Potomac Yard property on a portion of Alexander's land around a tobacco warehouse and inspection station built to facilitate shipment of the cash crop to England. With the formation of the town, roads such as the Potomac Path took on new importance as stage and post roads.

Sometime during the second half of the eighteenth century, a road was extended north from Alexandria, incorporating portions of what is now Route 1, to the vicinity of present-day Rosslyn. There, a ferry shuttled passengers and goods across the Potomac to Georgetown. Known as the Georgetown Road, it was the route taken by the French army, led by Comte de Rochambeau, on their way to and from Yorktown to fight with the Americans against the British in 1781. A sketch map indicates that a portion of the French army camped adjacent to the road, probably near the southern end of what was to become Potomac Yard (Mullen 2007:32).

As the eighteenth century progressed, farmers abandoned the cultivation of tobacco for wheat, and the large plantations were subdivided into smaller farms. The growth of the town of Alexandria, along with the establishment of Washington, D.C., in 1791, created markets for the foods that could be cultivated on these smaller farmsteads and necessitated additional improvements in the transportation corridor. Wealthy townspeople also kept gardens, orchards and small farms on the outskirts of the town. One such farm, owned by the Fendalls, who resided in town on Oronoco Street, extended into the area that was to become Potomac Yard. In 1805, it was leased to innkeeper John Gadsby, who undoubtedly carted the produce to town for use in his tavern and hotel (Miller 1992:110; Mullen 2007:31).

Recreational and institutional facilities arose along this transportation corridor in the rural community to serve the growing town. In the late 18th and early 19th centuries, a horse-racing track was located north of town, and around 1800,

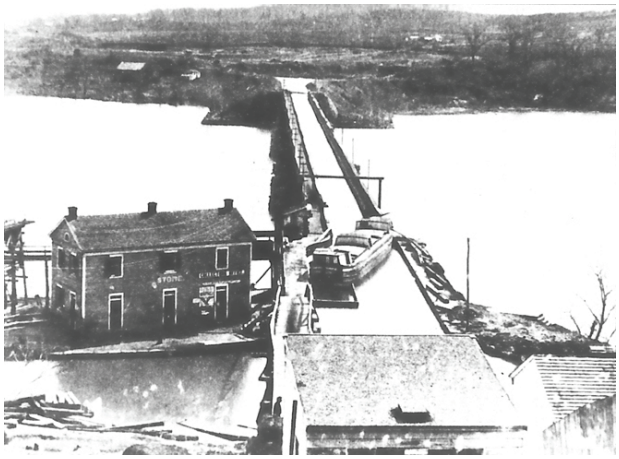
Alexandria constructed an alms house at the northwest corner of present-day Monroe Avenue and Route 1, just outside of the property that would become the rail yard. The poorhouse provided shelter, food and clothing to indigent residents of town and functioned as a work house and farm. In addition, local courts sentenced petty criminals to serve time in the work house (Mullen 2007:31).

Good roads through the area that would become Potomac Yard became crucial to the town's economy; however, most were haphazardly constructed and poorly maintained. In 1785, a group of Alexandrians received permission from the Virginia General Assembly to erect toll gates on the Georgetown Road in order to raise money for road maintenance. This strategy proved inadequate, and by the 1790s, some local residents began forming private companies to build turnpikes to raise capital for road maintenance and improvements. In 1808, the Washington and Alexandria Turnpike Company received a charter to build a turnpike between Alexandria and Washington, and the turnpike opened in 1809. It began on Washington Street in Alexandria, then headed north following the route of the Georgetown Road, and continued along the present-day path of Route 1 toward a new bridge constructed over Four Mile Run. The toll house was situated on the south side of the bridge (Mullen 2007:33; Miller 1992a:114-115).

Transportation Improvements: Canal and Railroads, The Civil War, and the Seeds of Suburbanization, 1830-1905

Despite the construction of the turnpikes, overland travel remained slow. The level terraces that were eventually developed into Potomac Yard became the site of transportation innovations that connected Alexandria to the north, west, and south--first cutting through the rural landscape and then helping to transform it into suburban communities.

The Alexandria Canal



As cities and towns on the east coast began to grow, competition for trade with the agricultural lands to the west intensified, and merchants became anxious to improve navigation around the falls along the Potomac River. For Alexandrians, competition with Georgetown was always an issue. With plans for the construction of the Chesapeake and Ohio Canal connected to Georgetown on the Maryland side of the river, Alexandrians became concerned that trade would bypass their wharves and that the town would lose its connection to the west, which was so vital to its economic interests. To connect Alexandria with the Chesapeake and Ohio, the Alexandria Canal Company was chartered in 1830, and the canal opened for navigation in 1843. It crossed the Potomac via an aqueduct bridge, an amazing feat of engineering for its time, with a 1,000 foot-long trough resting on 8 masonry piers. Canal boats were then pulled for 7 miles along the flat ground that would later become Potomac Yard, and lowered to the level of the Potomac through four lift locks at the north edge of town. With the completion of the canal, business flourished for a time with wheat, corn, flour and whiskey carried downstream and fish, salt, plaster, and lumber transported on the upstream journeys. After 1850, when the C&O Canal reached Cumberland, Maryland, coal became the major commodity for downstream transport. When the coal reached Alexandria's port, much of it was loaded onto

seagoing vessels for export to cities along the east coast and in Europe (City of Alexandria n.d.; Mullen 2007:34).

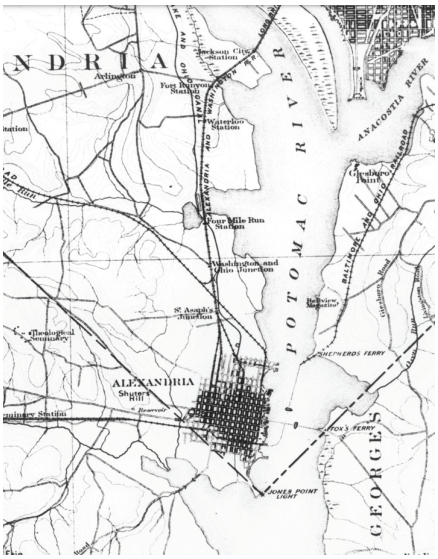
The Railroad Era Begins

While the canal was successful for a while, it was no match for the railroads, and ceased operation in 1886. Towns like Baltimore, which had invested in the railroad industry in the early nineteenth century, became the industrial centers of the northeast. Rail transportation finally came to Alexandria in 1851 with the opening of the Orange and Alexandria rail line, which headed west along tracks that ran parallel to Duke Street.

The first line to traverse the Potomac Yard property was built to link Alexandria and Washington. Completed in 1857, the Alexandria and Washington Railroad had six trains daily, leaving from a station on St. Asaph Street. Passengers found it a fast and convenient way to travel between the two cities and to connect with trains headed north. In addition, food and other products could be transported by rail for sale in Washington or transferred to northbound trains in the capital (Mullen 2007:34).

Plans for another railroad had begun to take shape in 1853, when a group of local residents, hoping to help Alexandria compete with Baltimore for trade with the west, secured a charter for the Alexandria, Loudoun and Hampshire railroad. Construction began in 1855, and trains began running between Alexandria and Leesburg in 1860, crossing from the southeast toward the northwest through what would become Potomac Yard (Mullen 2007:34, 39).

Historic street grid with context



The Civil War: Rail Connections Improved

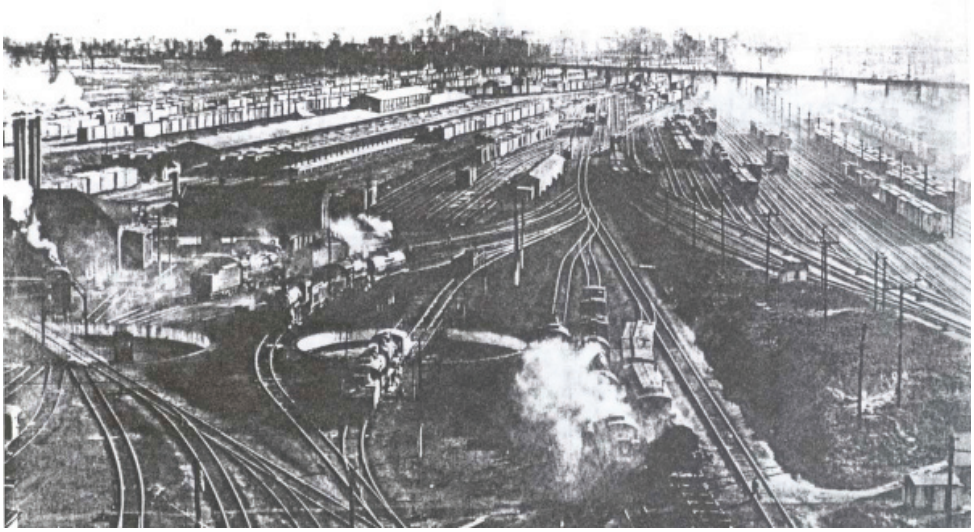
The connection of the north and south railroad lines through Alexandria occurred as a result of the Civil War. On March 24, 1861, the day after Virginia seceded from the Union, Federal troops entered by city, and it remained an occupied town throughout the course of the war. Tens of thousands of soldiers passed through the area, and during the early years of the war, the 5th Massachusetts may have camped on what would become Potomac Yard property (Mullen 2007:40-41). Control of the railroads leading out of Alexandria to the west and south probably served as the major impetus for this occupation. Alexandria became a major depot for shipment of supplies and troops to the front as well as a hospital and convalescent center for those injured. The U.S. Military Railroad complex, a secure and stockaded 12-block area enclosing the facilities of the Orange and Alexandria, was constructed. The three rail lines to enter the city were connected and expanded during the occupation, and the rail connection with the North was made complete when tracks were laid across Long Bridge to the Baltimore & Ohio Railroad (Mullen 2007:39-40).

Post-War Seeds of Suburbanization

Throughout the nineteenth century, land use in the area that would become Potomac Yard remained largely agricultural. The Swanns, descendants of the Alexanders, lived near the former location of Preston Plantation, which was burned down during the Civil War. The Daingerfields owned much of the land, and Susan Barbour, daughter of Henry Daingerfield and wife of U.S. Congressman and then Senator John Barbour, erected a house on the property in the 1870s. A small community, which included a school house by 1878, grew up near the intersection of what is now Monroe Avenue (Poorhouse Lane) and the turnpike. In 1894, two planned residential developments, Del Ray and St. Elmo, were established on the west side of the turnpike and laid the groundwork for the suburbanization that was to occur around Potomac Yard in the succeeding century. The proximity to the railroads made it possible for residents to commute to jobs in Alexandria and Washington. On the A&W rail line, St. Asaph Junction station served the community of Del Ray, and the Washington and Ohio station served St. Elmo (Mullen 2007:40-47).

Potomac Yard, 1906-1987

In the late nineteenth and early twentieth centuries, the Washington, D.C. area became a major point for the transfer of freight between northern and southern rail networks. The railroads carried perishable goods, such as fruits, vegetables, and livestock, from the southern states to urban markets in the North, and transported manufactured goods from northern factories to the South. With multiple rail companies serving each region at the turn of the twentieth century, there was no central location for the transfer of freight between the northern and southern lines (Mullen 2007:47). The situation was particularly difficult in Alexandria, where a significant bottleneck occurred with all these rail lines trying to pass through town. East/west City streets were blocked, as 20 to 30 trains per day came through on Fayette and Henry streets. With the rising volume of rail traffic, the system became increasingly unwieldy, and a movement to beautify Washington took up the cause to get the railroads out of the cities (Griffin 2005). The solution took shape as an unusual business undertaking, when six competing railroads agreed to band together to construct the rail yard and facilitate the movement of freight between the northern and southern rail lines. Potomac Yard, known as the "Gateway Between the North and the South," became the largest railroad yard for freight car interchange on the east coast. When Potomac Yard opened on August 1, 1906, it had 52 miles of track that could handle 3,127 cars. The yard grew to a maximum of 136 miles of track crammed into a 2 ½ to 3 mile stretch of land. At its peak, it serviced 103 trains daily (Griffin 2005; Carper 1992; Mullen 2007:47, 49).



The yard was divided into two main areas—a northbound classification yard and a southbound classification yard. In the northbound yard, freight destined for the north came into the yard, was classified and made up into trains for the northern markets. The routine was the same in the southbound yard. Trains would come in, climb what was called the hump, and be directed toward the appropriate track to form outbound trains by the throwing of switches. Initially, gravity took the cars down the hump with brakemen riding on the sides of the cars and manually putting on the brakes (Griffin 2005; Mullen 2007).

While the main function was freight classification, the yard had numerous support buildings and facilities. These included an 800-foot long transfer shed to consolidate freight from cars that were not full, facilities for pit inspection of the cars, a 12-stall round house and engine house for repairs and maintenance, and a 135-foot high coal tipple that could load over 1500 tons of coal per day to satisfy the needs of the steam locomotives. There were also facilities for feeding and resting livestock in transit. In addition, a huge icing facility could service 500 cars of perishable goods per day with ice manufactured by the Mutual Ice Company of Alexandria. As the twentieth century progressed, the yard changed

with increased mechanization and the advent of electric and diesel electric trains (Griffin 2005; Carper 1992; Miller 1992; Mullen 2007; Walker an Harper 1989).

To operate the classification yard and associated facilities, Potomac Yard employed approximately 1200 people in 1906 and about 1500 at its peak. Employees included mechanics and carpenters who worked on the rail cars, car inspectors, brakemen, switch operators, and locomotive engineers, as well as clerks who managed the huge amount of paperwork associated with the freight transfer. The work force consisted of both whites and African Americans, but the yard enforced racial segregation in employee facilities. In the early twentieth century, the workers were primarily male, but by mid-century African American women, and perhaps white women, had become part of the labor force (Mullen 2007:49).

By the 1970s, the heyday of the railroad era began to wane and the need for a classification yard between the North and South lessened. Technological improvements in the rail cars allowed for longer periods of use without maintenance. There was a decrease in the flow of agricultural goods from south to north, and competition from the trucking industry took its toll. By 1987, a decision was made to route freight trains around Washington, and Potomac Yard officially ceased operations (Miller 1992:115). Metro and Amtrak trains still carry passengers through this corridor, and with the development of the linear park, walkers, joggers and bikers will continue to travel the north-south transportation corridor that was first traversed by Native Americans thousands of years ago.

References Cited

Bromberg, Francine W.
1987 *Site Distribution in the Coastal Plain and Fall Zone of the Potomac Valley from ca. 6500 B.C. to A. D. 1400, M.A Thesis*, The Catholic University of America, Washington, D.C.

Carper, Robert S.
1992 "Fairwell to Potomac Yard," *Trains*, vol. 52, no. 5, pp 30-39, Kalmbach Publishing Co., Waukesha, Wisconsin.

City of Alexandria
n.d. Alexandria Canal, brochure prepared by the Department of Planning and Community Development and Alexandria Archaeology, Office of Historic Alexandria.

Griffin, William E., Jr.
2005 A Brief History of Potomac Yard, Virginia, condensed from the forthcoming book, *The History of Potomac Yard, Virginia,* ms. on file at Alexandria Archaeology, Alexandria, Virginia.

Miller, T. Michael
1992 "The History of Potomac Yards: The Alexandria Canal," *The Fireside Sentinel,* vol. 6, no. 11, Alexandria Library, Alexandria, Virginia.

1992a "The Potomac Yards," *The Fireside Sentinel*, vol. 6, no. 10, Alexandria Library, Alexandria, Virginia.

Mullen, John
2007 *Documentary Study for the Potomac Yard Property, Landbays #, G, H, I , J, K L, and M, City of Alexandria, Virginia*, Thunderbird Archeology, Gainesville, Virginia.

National Museum of the American Indian
2008 "The Potomac," http://www.nmai.si.edu/opening/explore/museum.html.

Nethereton, Nan, Donald Sweig, Janice Artemel, Patricia Hickin, and Patric Reed
1978 *Fairfax County, Virginia, a History,* Fairfax County Board of Supervisors, Fairfax, Virginia.

Smith, John
1608 Map of Virginia, Library of Congress, Washington, D.C.

Walker, Mark, and Marilyn Harper
1989 *Potomac Yard Inventory of Cultural Resources*, Engineering Sciences, Inc.

Appendix IV: Climate Change, Emissions and Energy

Climate Change, Emissions and Energy

What are the Local Impacts of Climate Change?

The Earth's climate has changed many times during the planet's history, with events ranging from ice ages to long periods of warmth. Historically, natural factors such as volcanic eruptions, changes in the Earth's orbit, and the amount of energy released from the Sun have affected the Earth's climate. While not all scientists agree, evidence indicates that human activities may be accelerating climate by the dramatic increase in man-made GHG emissions. The consensus of the Intergovernmental Panel on Climate Change (IPCC, 2007), the National Academy of Sciences (NAS, 2008) and other scientific organizations is that there is little doubt climate will continue to change in the 21st century and is likely to bring harmful effects across the globe and in particular to people in coastal communities. Climate change will have many kinds of impacts – both positive and negative – and will vary from region to region. In general, the larger and faster the changes in climate are, the more difficult it will be for human and natural systems to adapt.

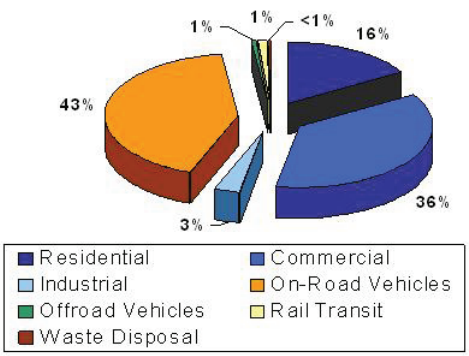
Assessments have been made of the potential impacts of climate change in the mid-Atlantic region. These impacts can be summarized as follows (MWCOG, 2008):

- Higher Sea Levels - increased flooding and shoreline loss, especially in populated areas such as Alexandria that have seen flooding damage from water inundation and are at greater risk due to sea level rise; salt water intrusion that will degrade both surface and groundwater sources
- Higher Air Temperatures - increased air pollution and health risks, changing plant and animal species, more frequent forest fires.
- Higher Water Temperatures - decrease in some living resources, increase in harmful algal blooms, degraded water quality.
- Changes in Precipitation - Patterns heavier rainfall, flooding, erosion, prolonged droughts, increased pollutant runoff, degraded water quality.

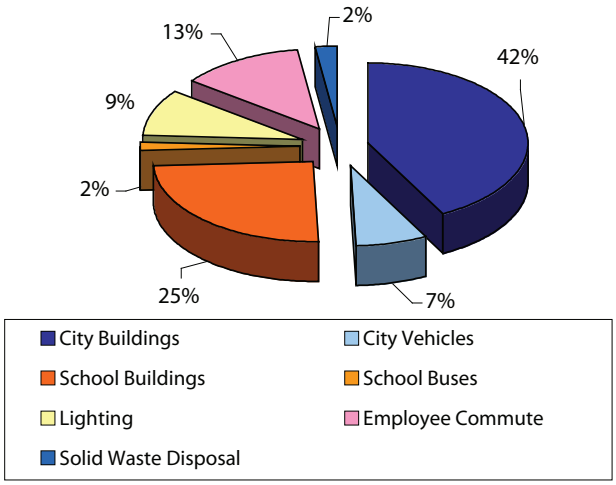
Greenhouse Gas Emissions in the City

In June of 2009, the City completed its first comprehensive greenhouse gas emissions (GHG) inventory report. Community-wide GHG emissions for the selected baseline year of 2005, were approximately 2.6 million metric tons of which the City government operations resulted in approximately 79,820 metric tons of GHGs. As depicted below, the largest sources of GHG emissions in the community are from on-road vehicles at 43%, commercial buildings at 36%, and residential building at 16%. City government's largest source is the operation of its building stock including schools.

2005 CO2e Emissions by Sector



FY 06 Government CO2e Emissions by Sector



The City adopted the following GHG emissions reduction targets based on the scientific evidence published by the Intergovernmental Panel on Climate Change and its consistency with the Metropolitan Council of Government's regional GHG reduction goals.

- 2012 Target: Reduce Greenhouse Gas Emissions (GHG) to 2005 levels
- 2020 Target: Reduce GHG emissions by 20 percent below 2005 levels
- 2050 Target: Reduce GHG emissions by 80 percent below 2005 levels

Meeting these targets will present many challenges. It will require implementation of the sustainable measures in this Plan coupled with the cooperation and enthusiasm of other residents, businesses, and governmental entities.

Energy Consumption

Energy consumed in private buildings and homes totaled 11,301,523 million Btu in 2005. The City's goals are to: 1) reduce per capita energy use 15% by 2015 (about 2.5% per year) and 2) have 50% of the City's energy portfolio consist of clean, renewable energy by 2030. New developments will be required (when appropriate) to be 30% more energy efficient than the adopted energy code. This may be achieved by installing (1) more effective air sealant, insulation, and leakage prevention; (2) energy efficient fenestration systems; (3) energy star appliances; (4) energy efficient building lighting and streetlights; (5) onsite solar, geothermal, wind, or other renewable energy technology; etc.

Appendix V: Community Outreach

Community Outreach

Potomac Yard Planning Advisory Group

The City began an intensive, 17-month community planning process in October 2008 that resulted in this Plan. On October 14, 2008, the City Council adopted Resolution No. 2297 establishing the Potomac Yard Planning Advisory Group (PYPAG). The City Manager selected 20 individuals to serve on PYPAG, and to represent the diverse interests in the Potomac Yard area. The group was comprised of:

- Residents of surrounding neighborhoods;
- The property owners;
- Members of the business community, including the Alexandria Economic Development Partnership (AEDP);
- The Alexandria City Public Schools;
- Representatives of interest groups such as affordable housing, transportation, the environment, and others; and
- A member of the Planning Commission.

The functions of the PYPAG included:

- Identify and study the issues, challenges and opportunities presented by the redevelopment of Potomac Yard;
- Bring community values, knowledge and ideas into the process of creating a plan that takes advantage of opportunities to improve the area in ways that provide lasting benefit to the local community and the City as a whole;
- Based on the members' interests, local knowledge, values and ideas, advise City staff on options for the future of the planning area, and assist staff in developing policy recommendations in the variety of subject areas required for a plan;
- Weigh the desirability of a new Metrorail station in comparison to the impacts of the density needed to support it; and
- Keep the public informed about the Potomac Yard planning processes and issues, advising groups the members represent of the progress of the plan and issues raised that are of interest.

The PYPAG met as a group monthly while the plan was being developed (excluding January, and July-September) for a total of 13 PYPAG meetings. In addition, the Plan Principles subcommittee met three times from December 2008 to February 2009, the Transportation subcommittee met four times from March to August 2009, and the Summer Check-In group met twice in July and August 2009. All the meetings were open to the public and were attended by neighborhood citizens and other interested parties. In addition to these meetings, a number of PYPAG members participated in a tour of the site and surrounding neighborhoods in November 2008.

Topics covered at the various PYPAG meetings and PYPAG subcommittee meetings included:

- Site influences and opportunities;
- Planning best practices;
- PYPAG mission and plan principles;
- Circulation, connectivity, and neighborhood impacts;
- Metrorail station locations;
- Land use, massing, and height;
- Open space network;
- Sustainability; and
- Civic Uses.

List of PYPAG Meetings and City Work Sessions

Date	Event
10/21/08	PYPAG meeting
11/6/08	Planning Commission Work Session
11/8/08	Site tour
11/18/08	PYPAG meeting
12/16/08	PYPAG meeting
12/30/08	Plan Principles subcommittee meeting
1/21/09	Plan Principles subcommittee meeting
2/5/09	Plan Principles subcommittee meeting
2/17/09	PYPAG meeting
3/11/09	Transportation subcommittee meeting
3/26/09	PYPAG meeting
4/21/09	PYPAG meeting
5/13/09	Transportation subcommittee meeting
5/21/09	PYPAG meeting
6/2/09	Planning Commission Work Session
6/9/09	City Council Work Session
6/16/09	PYPAG meeting
7/16/09	Summer Check-In Group
7/27/09	Transportation subcommittee meeting
7/16/09	Summer Check-In Group
8/25/09	Transportation subcommittee meeting
10/1/09	PYPAG meeting
10/5/09	PYPAG meeting
11/5/09	Planning Commission Work Session
11/24/09	City Council Work Session
11/30/09	PYPAG meeting
12/15/09	PYPAG meeting
2/4/10	**PYPAG meeting**
2/23/10	**Joint Planning Commission & City Council Work Session**
4/6/10	**Planning Commission Work Session**

Engaging the Greater Community

All PYPAG and PYPAG subcommittee meetings were open to the public, and were advertised to the greater community on the City web site and by means of the City news bulletin (eNews), to which users can subscribe for free on the City web site. Materials from each meeting were posted on the City web site.

The City held two community workshops. The first community workshop was held on a Saturday in January 2009. During this workshop, the community discussed the Plan Principles and overall themes, and participated in a design exercise in which the concepts of connections and streets, the open space network, and land use and amenities were discussed. A second workshop was help in October 2009. This workshop, which was hosted by the PYPAG, commenced with an open house, followed by two rounds of break-out conversations concerning Transportation and Neighborhood Impacts; Open Space, Civic Uses and Housing; and Site Planning and Sustainability.

In addition, City staff met with civic leaders and associations throughout the community planning process. In addition, individual PYPAG members were responsible for reporting back to their respective boards and associations. Many associations also prepared Potomac Yard-related articles in their newsletters, and provided their memberships with Potomac Yard meeting announcements.

List of Greater Community Meetings

Date	Event
9/24/08	Alexandria Federation of Civic Associations
1/5/09	Lynhaven Citizens' Association meeting
1/22/09	Meeting with Civic Leaders on Potomac Yard
1/31/09	Community Workshop
3/9/09	Del Ray "Meet-n-Greet"
3/12/09	Rosemont Citizens' Association meeting
4/13/09	Del Ray Citizens' Association meeting
10/12/09	Del Ray Citizens' Association meeting
10/20/09	Community Workshop
11/2/09	Lynhaven Citizens' Association
11/9/09	Del Ray Citizens' Association meeting
11/18/09	Northeast Citizens' Association meeting
11/19/09	Rosemont Citizens' Association meeting
3/8/10	Del Ray "Meet-n-Greet"
3/11/10	West Old Town Citizens' Association
3/25/10	Rosemont Citizens' Association
3/31/10	Alexandria Federation of Civic Associations

Potomac Yard Metrorail Station Feasibility Work Group

Although separate and distinct from the Potomac Yard small area community planning process, the work of the parallel Potomac Yard Metrorail Station Feasibility Work Group was integral to and informed this process. Three members of PYPAG also served on the Potomac Yard Metrorail Station Feasibility Work Group. A total of five Potomac Yard Metrorail Station Feasibility Work Group meetings were held from February to November 2009. Additional information concerning the Potomac Yard Metrorail Station Feasibility Work Group can be found in *Appendix 2: Context for Plan.*

List of Potomac Yard Metrorail Station Feasibility Work Group Meetings

Date	Event
2/19/09	Metrorail Station Feasibility Work Group
4/15/09	Metrorail Station Feasibility Work Group
5/19/09	Metrorail Station Feasibility Work Group
9/21/09	Metrorail Station Feasibility Work Group
11/9/09	Metrorail Station Feasibility Work Group
12/14/09	Metrorail Station Feasibility Work Group

Appendix VI:

Summary of Recommendations

CDD Guidelines Summary of Recommendations

Chapter 2: Environmental Sustainability Recommendations

2.1 Explore a minimum of LEED Silver or comparable, or the City's green building standards and requirements, whichever is greater.

2.2 Require plan area-wide sustainability through LEED-ND or comparable. Require the provision of green roofs for new development.

2.3 Explore the possibility of community gardens so that residents and visitors could have access to edible and non-edible plantings. Community gardens also offer a unique educational opportunity.

2.4 Require stormwater management to be integrated as part of the street and open space design.

2.5 Encourage water conservation by using ultra low and/or low flow plumbing fixtures and reuse of captured rainwater.

2.6 North Potomac Yard should strive to achieve carbon neutrality by 2030.

2.7 Require the submission of a Sustainability Plan as part of the submission of the first development special use permit and amended for subsequent block(s) and/or building(s) that demonstrates the compliance with anticipated goals and recommendations of the Plan and the goal of district-wide sustainability measures.

Chapter 3: Urban Design Recommendations

Framework Streets and Blocks

3.1 Require the streets and blocks depicted in the Framework Plan to be constructed as part of any redevelopment and dedicated to the City (Figure 3).

3.2 The final design and configuration of the streets, blocks, buildings, and open space with the Flexible Metrorail Zone (Figure 9) will be determined through the development review process. The final configuration of the streets, blocks, buildings, and open space shall be subject to the following:

a. An approximately 0.70 acre square-shaped park shall be centrally located within the Flexible Metrorail Zone. The park shall be surrounded on all sides by streets, and framed by buildings on each side.

b. Potomac Avenue (relocated) shall align and connect to the Potomac Avenue right-of-way south of Landbay F and to the final alignment of the Potomac Avenue (relocated) right-of-way to the north of the Flexible Metrorail Zone.

c. The overall curvilinear nature of Potomac Avenue (relocated) shall be maintained.

d. The shape of the buildings in plan and form within the Flexible Metrorail Zone shall create distinct and memorable three dimensional forms.

e. Buildings surrounding the centrally located park shall be required to provide a primary entrance facing the approximately 0.70 acre park.

f. Buildings on Potomac Avenue shall be required to provide a primary entrance facing Potomac Avenue.

g. Buildings will be required to have more than one entrance and/or through lobbies for buildings with multiple street frontages.

h. Pedestrian bridge(s) within the Flexible Metrorail Zone that access the Metrorail station shall be fully integrated into the design for the Metrorail station, adjoining buildings, and open space.

i. The alignment of Potomac Avenue (relocated) shall be such that Landbay K park is continuous.

j. Development blocks east of Potomac Avenue shall be sufficient size for market-acceptable building floor plates.

k. The blocks and buildings shall be subject to the minimum height and density provisions and other applicable zoning provisions, design guidelines, and the North Potomac Yard Small Area Plan.

l. The streets shall be configured to accommodate transit and transit stations.

m. Buildings should be designed to integrate transit stations and/or stops.

n. The streets shall be configured to provide a fine-grained interconnected street grid network and spacing consistent with and connecting to streets outside the Flexible Metrorail Zone.

o. Evans Lane is strongly encouraged to connect from Main Line Boulevard to Potomac Avenue (relocated).

3.3 Require the street hierarchy to define space and differentiate the character of streets and neighborhoods (Figure 3).

3.4 Require streets to emphasize the pedestrian and bicycles.

3.5 Allow for internal pedestrian connections and alleys within the blocks.

3.6 Improve and enhance the Route 1 frontage with streetscape improvements, buildings, and landscaping.

Creation of Three Distinct Urban Neighborhoods

3.7 The parks depicted in the Framework Plan shall be required within each neighborhood as a defining element of each neighborhood (Figure 3).

3.8 Create three distinctive and unique neighborhoods. Encourage the use of history as inspiration for the design of the open space, public realm, and buildings. Encourage the use of public art to establish distinct neighborhood identities and create unifying themes for the neighborhoods

3.9 Encourage a mix of innovative building typologies within each neighborhood.

3.10 The Metrorail station shall serve as a focal design element for the Metro Square Neighborhood.

3.11 Explore the possibility of providing cultural and civic uses to reinforce the character of each neighborhood.

Gateways and Vistas

3.12a Require variety in building massing, design, and height.

3.12b Use heights and variety in heights, building materials, orientation, and dimensions to create distinctive building tops for taller buildings.

3.13 Provide distinctive building forms and architecture at the designated gateway locations (Figure 7).

Urban and Building Form

3.14 Balance the aesthetic and functional criteria of sustainable design.

3.15 Create an urban building scale and relationship between buildings, streets and open spaces that ensures urban relationships of the buildings and sidewalk, and maximizes walkability and the use of transit.

3.16 Require any building with government tenants or tenants who require security measures to meet the Vision, applicable provisions of the Master Plan and future design guidelines.

3.17 Adopt future design guidelines to implement the Vision of the Plan.

Public Art and History

3.18 Require the submission of a Public Art & History Interpretive Plan for North Potomac Yard and explore relationships between public art and the history of the site.

3.19 Integrate small and large-scale public art which considers the history of the site, as well as thematic, artistic, and cultural ideas into new development and the public realm, including the following areas: trails, transit infrastructure, open spaces, buildings, site furnishings, lighting, gateways, and wayfinding.

Chapter 4: Land Use Recommendations

Land Use - Zoning

4.1 Establish a new CDD zone to implement the Vision and recommendations of the Plan.

4.2 Permit the flexibility of office and/or residential uses for Blocks 6-12, 17, 22, 23, and a portion of Block 16.

Metro Square Neighborhood

4.3 Require predominantly office uses and ground floor retail uses for the Metro Square neighborhood.

4.4 Explore the provision of live performance space/theatre.

4.5 Explore the possibility of uses such as a theatre below Metro Square Park (underground).

Market Neighborhood

4.6 Allow flexibility for office and/or residential uses on upper floors within the blocks of this neighborhood.

Crescent Gateway Neighborhood

4.7 Require predominantly residential uses in this neighborhood.

Retail Uses

4.8 Locations with required retail shall be provided as depicted in Figure 15.

4.9 For preferred retail locations, the ground floor height and depth shall be designed to not preclude retail uses.

4.10 Develop design standards and guidelines for all retail uses, including large-format retailers.

4.11 Develop standards for retail storefronts and signage.

4.12 Encourage opportunities for live-work and comparable ground floor uses.

4.13 Encourage neighborhood-serving retail uses, including the potential provision of a grocery store within the Metro Square or Market neighborhoods.

4.14 Explore the possibility of allowing street carts - vendors.

4.15 Require the submission of a comprehensive retail marketing strategy prior to the submission of a development special use permit for the first building and updated with each subsequent development approval.

4.16 Require district-wide management of retail (i.e. business improvement district, or other similar entity).

Building Height

4.17 Ensure that the ceiling heights and depths for various uses are flexible to encourage a broad range of uses within the residential and commercial buildings, particularly the ground floor.

4.18 Transition building height and scale to Route 1 and the existing residential neighborhoods to the west and the George Washington Memorial Parkway to the east.

4.19 Differentiate the height of the gateway elements of the neighborhood by establishing taller or shorter heights for these elements.

4.20 Explore the possibility of eliminating or revising the Federal Aviation Administration (FAA) flight path restrictions.

4.21 Implement maximum and minimum heights for each block consistent with Figures 17 and 18.

4.22 Require that any amenity space on the top floor of the building of Block 2 be made periodically available for public functions and/or meetings.

4.23 Provide taller signature buildings at the central portion of the site to denote the symbolic center of North Potomac Yard, and at the visual terminus of Main Line Boulevard on the northern portion of the site. Require a variety of heights within each block and for individual buildings.

Parking

4.24 Implement parking maximums.

4.25 Require unbundled residential parking.

4.26 Implement parking ratios that reflect the transit-oriented nature of the development consistent with Table 2.

4.27 Require shared parking throughout North Potomac Yard.

4.28 A minimum of one level of underground parking is required for each block and/or building.

4.29 All of the parking for Blocks 2, 3, 5, and 21 is required to be entirely below-grade.

4.30 Any above-grade parking is required to be lined with active uses for each level for all street and park and/or open space frontages (Figures 19, 20 a, 20 b).

4.31 Generally require on-street parking for streets, excluding park frontages.

4.32 Require provision of long and short-term bicycle parking.

Open Space

4.33 Require the submission of a comprehensive Open Space Plan to identify the programming within each park/public open space.

4.34 The parks/open space required within the Framework Plan, which consist of the following, need to be implemented with the development of each neighborhood:

- Expanded open space at Four Mile Run to provide a meaningful connection to the City's open space network, consistent with the Four Mile Run Restoration Master Plan; (Crescent Park)
- A finger park in the retail district (Market Green);
- A square shaped plaza/urban square at the Metrorail station (Metro Square);
- An extension of Landbay K to provide usable open space along the rail corridor and make a non motorized transportation connection to Four Mile Run; and
- Internal pedestrian connections with adjacent active uses shall be provided in the Metro Square and/or Market Neighborhoods.

4.35 Require that Landbay K and Crescent Park be dedicated to the City as public parks, with an agreement for private maintenance in perpetuity. The remainder of the parks (Metro Square, Market Green) and the central open spaces are required to be privately-owned and privately maintained but accessible to the public through the provision of a perpetual public access easement.

4.36 A minimum of 15% of North Potomac Yard is required to be provided as ground level open space, with an additional 25% to be provided at either ground level or on rooftops. Blocks 2, 3, 5 and 21 within North Potomac Yard shall be required to provide additional open space due to the central ground level spaces within the blocks.

4.37 Explore the possibility of collocating uses in open space, for example, entertainment, civic and cultural uses, historical interpretation, public art, and stormwater management.

4.38 Provide off-street shared-use paths in the open space at Four Mile Run and through Landbay K (Potomac Yard Park).

4.39 Provide public and private dog parks and/or runs. Explore the possibility of locating these facilities on roof tops.

4.40 The developer shall assist in the provision of off-site playing fields.

4.41 Employ sound urban forestry principles and practices to improve the City's tree canopy.

4.42 Explore the possibility of including interim active recreational fields.

Housing

4.43 Contribute to the City's affordable housing trust fund, consistent with guidelines in effect at the time development approvals are sought; and /or provide affordable and workforce housing units, both rental and for sale, throughout North Potomac Yard.

4.44 Provision of public housing in North Potomac Yard shall be strongly encouraged particularly as other public housing sites in the City redevelop. Consideration of the existing project based density bonus for affordable housing should be considered to facilitate possible public housing relocation to North Potomac Yard.

4.45 Offer a range of housing types to accommodate different household sizes and compositions, including studio, one, two and three bedroom units.

4.46 Incorporate green and sustainable designs and materials to enhance the interior living environment and to yield energy savings for residents.

4.47 Integrate universal design and/or accessibility features to accommodate multiple life stages and abilities.

4.48 Explore opportunities for public, private and non profit collaborations to maximize the use of land and to leverage all available resources for the development of affordable and workforce housing, including public housing.

Chapter 5: Community Facilities Recommendations

School

5.1 Adequate provision shall be made to accommodate an urban school, collocated with a childcare facility and/or comparable uses. Block 4 shall be reserved for a possible urban school. If Block 4 is not needed for a school, the City may use the block for open space and/or a comparable community facility/public building.

Daycare/Childcare

5.2 Require the provision of daycare/childcare facilities as part of the community facilities, mixed-use, and/or office buildings. Daycare/childcare facilities shall be permitted through an administrative approval within existing buildings.

Collocation, Flexibility And Development Incentive

5.3 To the greatest extent feasible, community facilities shall be collocated, and be designed to provide for flexible use of interior spaces.

Zoning

5.4 Community facilities and/or public buildings may be included on or in any block and/or building and shall not be deducted from the maximum permitted development. These uses shall be defined as part of the rezoning for the Plan area.

Implementation

5.5 Provide a comprehensive Community Facilities proposal depicting the general size and locations of community facilities and/or public buildings proposed within North Potomac Yard, including but not limited to the school and daycare/childcare facilities recommended herein. This Proposal shall be submitted as part of the first development special use permit and amended as necessary to accommodate future uses and programming.

Chapter 6: Transportation Recommendations

Streets

6.1 Provide a compact grid of streets consistent and in alignment with, and connecting to the established street grid in Potomac Yard (Potomac Avenue and Main Line Boulevard), on the west side of Route 1, and in Potomac Yard Arlington.

6.2 All streets and rights-of-way shall be dedicated to the City.

6.3 Maximize the street grid within the site and connectivity to adjacent neighborhoods including:

- Reed Avenue at Route 1 shall be configured to allow all movements.
- Explore and evaluate the option of opening Evans, Wesmond, and Lynhaven in the future to provide access to Route 1.
- Study the intersection of Commonwealth and Reed Avenue to determine the need for signalization and pedestrian upgrades.

6.4 Consider all users in the future design of streets and streetscapes.

6.5 Study, develop and implement a comprehensive phased approach to address traffic impacts in neighborhoods adjacent to development and other impacted neighborhoods. (See also recommendations in *Chapter 8: Existing Neighborhoods*).

6.6 New east-west connectivity or comparable street, circulation, and/or transit improvements, should be explored as part of any proposed development and/or any future planning efforts for properties to the west of Route 1.

6.7 With any rezoning of the property, the provision and timing for improvements to the intersection of E. Glebe Road at Route 1 are required.

6.8 Each development will be required to submit a comprehensive approach and policy regarding truck loading and deliveries as part of the development review process.

Transit

6.9 Require the construction of an operational Metrorail station. Rezoning of the property is contingent upon the City and the landowner agreeing to a financial plan funding the Metrorail station.

6.10 In conjunction with other public agencies, a new intermodal transit and transit center shall be constructed proximate to the new Metrorail station.

6.11 Require the construction of a transitway. The final alignment of the transitway and station locations shall be determined with any rezoning for the site.

6.12 Require dedication of right-of-way to accommodate the high-capacity transitway.

6.13 Explore options to incorporate green technologies into the design of the dedicated transit right-of-way and stations.

6.14 Require participation in a Transportation Management (TMP) District in coordination with existing Potomac Yard TMP District.

6.15 Transit stations should be designed to include real-time transit information and innovative display technologies to include route maps, schedules, and local and regional information.

6.16 Employ aggressive Transportation Management Plan (TMP) performance measures, meeting or exceeding a 50% modal split.

6.17 Explore additional local-serving routes to connect locations within Potomac Yard to nearby communities and destinations.

Parking

6.18 On-street parking is required to be metered and managed through a performance parking program.

6.19 Provide advanced parking management systems including real-time parking availability, pre-trip parking information and parking reservation/ navigation systems.

6.20 Require long and short-term bicycle parking.

Pedestrian – Bicycle

6.21 Provide a continuous, connected and accessible network that enables pedestrians – particularly those with mobility impairments – to move safely and comfortably between places and destinations.

6.22 Develop a comprehensive on- and off-street bicycle network.

6.23 Develop a connected system of primary and secondary bikeways with ample bicycle parking to serve all bicyclists' needs.

6.24 Provide a 24-hour bicycle and pedestrian connection across the railroad tracks to Potomac Greens in conjunction with Metrorail station development.

6.25 Provide centralized bicycle storage facilities, located near the Metrorail and transit locations for all users of Potomac Yard – including areas for private and for shared use bicycles – in conjunction with Metrorail station development. Commuter and recreational bicycle information could also be available to residents and visitors.

6.26 Explore future connection from Landbay K across the George Washington Memorial Parkway to the Mount Vernon Trail.

6.27 Provide a future connection from Landbay K to the Four Mile Run Trail.

6.28 Require an off-street shared-use path along the length of Landbay K between Braddock Road to the south and Four Mile Run to the north.

Chapter 7: Infrastructure Recommendations

7.1 A Water Management Master Plan (WMMP) is required as part of the rezoning. The WMMP will be updated/amended with each building and/or block to demonstrate compliance with each applicable phase.

7.2 Require use of pervious surfaces on sidewalks, driveways, parking areas, and streets to reduce generation of stormwater runoff. Maximize use of rooftop space for other sustainability practices (for example, for open space, community gardens, green roofs, energy generation, etc).

7.3 Maximize on-site stormwater reduction and reuse techniques to reduce impact on public stormwater infrastructure.

7.4 Remove impervious surfaces within RPAs and revegetate to restore function and quality.

7.5 Use harvested rainwater to meet irrigation demand.

7.6 Maximize exposure of stormwater management facilities as functional amenities to promote citizen awareness and understanding of stormwater quality issues.

7.7 Use water conservation measures to reduce the generation of municipal wastewater and explore reuse of greywater.

7.8 Construct additional sanitary sewer conveyance infrastructure and address Chesapeake Bay nutrient treatment needs.

7.9 Research and evaluate other pioneering technologies to address the capacity needs.

7.10 Develop and launch an education program that will include hierarchy of uses: Reduce, Reuse, Recycle, and Proper Disposal of hazardous wastes.

7.11 Develop a recycling program for commercial and multi-family buildings.

7.12 Develop a community recycling program.

Chapter 8: Existing Neighborhoods Recommendations

8.1 Require the developer to provide a monetary contribution for the preparation and implementation of a comprehensive traffic calming and parking management strategy for the neighborhoods to the west of Potomac Yard. The study and implementation shall be proactive and phased with development.

8.2 Evaluate alternatives for traffic calming treatments at gateway locations along the west side of Route 1 and throughout neighborhoods.

8.3 Promote smooth transitions between existing neighborhoods and new development at North Potomac Yard through a careful consideration of uses, heights, and massing.

8.4 Development at North Potomac Yard should preserve and build upon the unique history and character of existing neighborhoods.

8.5 Develop connections which are consistent and compatible with existing development within Potomac Yard and across Route 1.