

Crystal City/Potomac Yard Corridor Interim Transit Improvement Project

Draft Technical Memorandum:  
**Environmental Scan**

December 2005



## 1.0 INTRODUCTION

The National Environmental Policy Act of 1969, as amended (NEPA) requires that federal agencies assess the potential impacts of their actions on the human and natural environment. Similarly, the Commonwealth of Virginia requires that project impacts be documented through an Environmental Impact Review (EIR) process. In addition to NEPA and EIR, various state and local policies require proposed activities to obtain a variety of permits and approvals

With the purpose of informing decision-makers about the potential environmental impacts that may result from the construction and implementation of improved transit service in the Crystal City/Potomac Yard corridor, this Technical Memorandum provides a preliminary inventory of environmental resources, identifies potential effects of the proposed improvements, and outlines applicable environmental documentation requirements. Informed by the 2003 Crystal City/Potomac Yard Transit Alternatives Analysis (AA), this assessment was based on characteristics of the interim transit system as refined in the current implementation project, and readily available information from local, state and federal databases.

### 1.1 Federal Environmental Documentation Requirements

In order to advance the proposed transit improvements using federal funds, the appropriate level of federal environmental review must be undertaken. Under NEPA, there are three possible classes of action that determine the documentation required. Class I actions are those which are likely to significantly affect the environment, and require preparation of an Environmental Impact Statement (EIS). Class II actions are those which do not individually or cumulatively have significant environmental impacts. For these actions, a Categorical Exclusion (CE) will be issued. CEs can either be listed in regulations (23 CFR 771.117(c)) or documented and qualify as a CE (23 CFR 771.117 (d)). Listed CEs usually do not require additional documentation. However, documented CEs do require additional NEPA documentation to determine whether a CE applies. Many bus-related projects, such as bus acquisitions for minor fleet expansions and installation of small passenger shelters, are predetermined by FTA to be CEs. Class III actions are those where the significance of the environmental impact is not clear. These actions require the preparation of an Environmental Assessment (EA), which will result either in a Finding of No Significant Impact (FONSI), or in identification of potentially significant impacts, in which case an EIS is required.

Given existing federal earmarks for development of improved transit service in the corridor and the phased nature of the project, it is important that the appropriate level of NEPA documentation be prepared. During an October 2005 meeting with FTA staff, it was determined that the proposed transit improvements would likely require preparation of an Environmental Assessment.

Discussions with FTA staff covered the following topics which can affect the class of action recommended for a project of this nature:

- An alternatives analysis has been completed,
- The alignment selected for advancement as the interim project will be constructed in existing transportation right-of-way,
- There is public support for the project,
- There would likely be no residential or business displacements, and
- Impacts on known cultural resources and wetlands in the area are unlikely.

Given these characteristics, the preliminary indication from FTA staff is that the interim transit improvements would likely require an EA.

FTA staff suggested that the proposed improvements be treated as a single project, given the potential for cumulative impacts. An EA prepared for the entire corridor should focus on capital improvements and service elements, with the recognition that some elements could change along portions of the corridor. Potential impacts (specifically at potential station locations and any necessary roadway construction) could be analyzed within an envelope of expected improvements. In cases where specific details remain incomplete, the language of the EA should be tailored as specifically as possible to the known configuration of facilities, but left open enough to accommodate minor changes as planning goes forward. Issues such as mitigation measures can be re-examined during final design, if necessary. FTA staff noted that the EA should be succinct and not examine unnecessary questions.

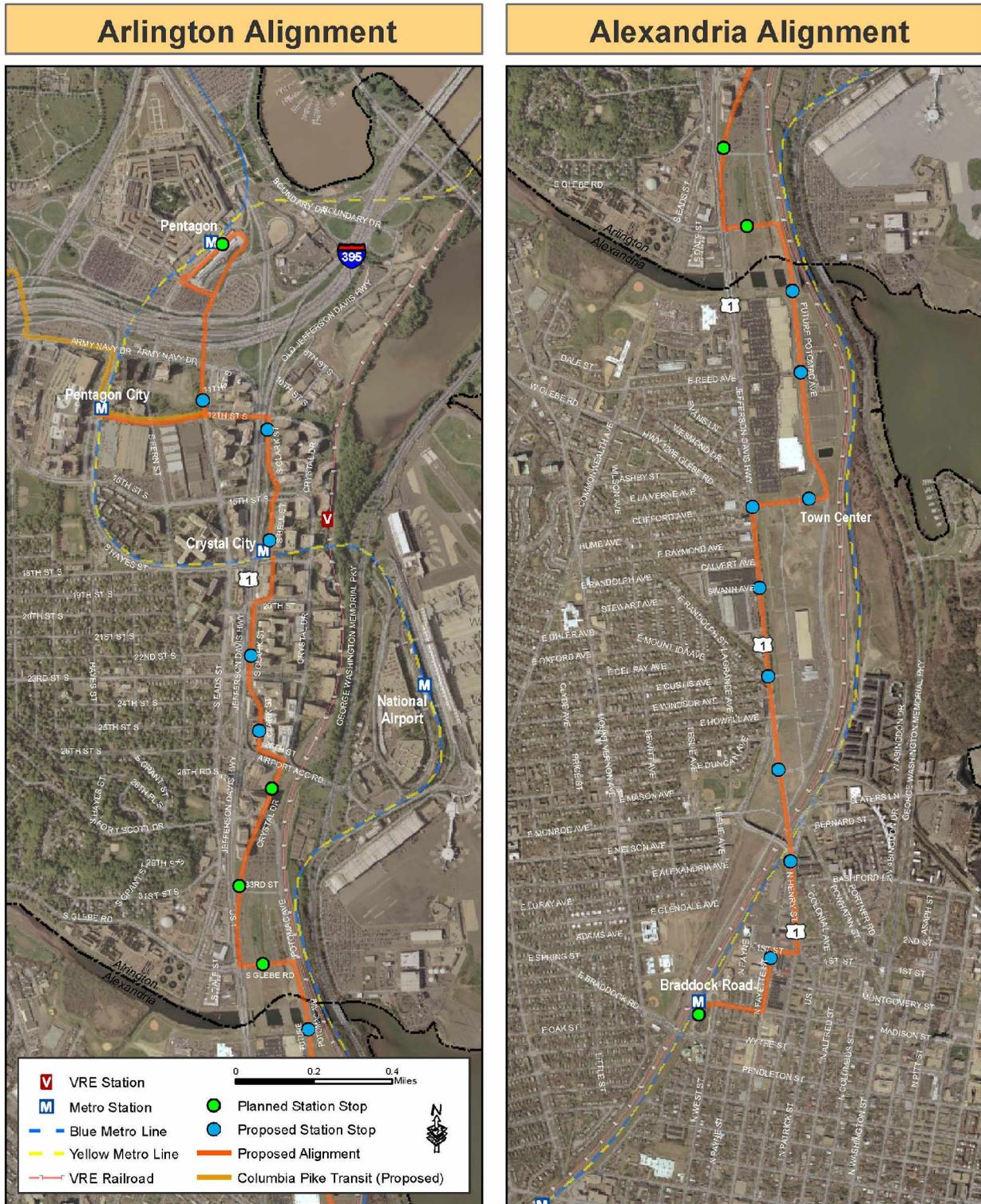
This technical memorandum provides an overview of the potential for environmental impacts in the corridor, and should be used to focus the more detailed review to be undertaken as part of the EA.

## **1.2 Existing Conditions**

Conditions along much of the corridor are very urban with a mix of commercial and residential land uses. Most of the corridor has been disturbed over the years to make way for the various developments that exist. Very little natural environment exists with the exception of designated recreation areas, landscaped areas, and along Four Mile Run and the Potomac River. Figure 1 depicts the study area on an aerial photograph.

The density and mix of uses varies within the corridor. The Pentagon City and Crystal City areas are a mix of high-density residential and office use. According to the 2000 Census, 87% of the population of Pentagon City and 94% of the population of Crystal City live in buildings containing 50 units or more. Pentagon City and Crystal City together have approximately 14 million square feet of office space, 10,000 housing units, 5,300 hotel rooms, and 2.5 million square feet of retail space (Arlington Economic Development website). The existing development in the rest of the corridor is much more residential in character, with commercial uses along Route 1 and Mount Vernon Avenue and around the Braddock Road Metrorail station. The majority of the population in the Aurora Highlands and Arlington Ridge neighborhoods south of Pentagon City in Arlington live in detached single-family houses (63%), with a significant minority of the population (23%) living in buildings with more than 50 units. In the neighborhood to the west of Potomac Yard in Alexandria, the majority of housing is made up of single-family attached and detached dwellings. The majority of the population in the vicinity of the Braddock Road Metrorail station lives in single-family attached houses (58%), with 14% living in buildings with more than 50 units, and 13% living in dwellings including between 2 and 9 units. The majority of housing to the west of the Braddock Road Metrorail station consists of single-family detached houses.

Figure 1: Crystal City/Potomac Yard Corridor



**Crystal City/Potomac Yard Corridor Interim Transit Improvements Project**

The Pentagon City, Crystal City, and Potomac Yard portions of the corridor are currently undergoing extensive redevelopment. At the northern end of the corridor, projects include new residential buildings in Pentagon City and Crystal City, as well as a possible conference center and office building in Pentagon City just south of the Pentagon reservation. Northeast of the proposed alignment is the North Tract site, a former industrial-commercial area which includes the former Davis scrapyard and is being redeveloped by Arlington County for recreational use and open space. The central portion of the corridor is occupied by Potomac Yard, a 368-acre former rail yard that is being redeveloped with a mix of office, residential, and retail uses. Build-out of Potomac Yard over the next 10 years will result in approximately 4.4 million square feet of new office space, 3,000 new residential units, 1,200 new hotel rooms, and 270,000 square feet of new retail space. At the southern end of the corridor, at the edge of Old Town Alexandria, there is active redevelopment of several sites for residential and retail uses.

### **1.3 Proposed Improvements**

Over the implementation period, the existing system of routes and multiple providers will transition to a uniform, branded, premium service running between the Pentagon and Pentagon City in the north, to Potomac Yard Town Center and Braddock Road Metrorail Station in the south. The service plan is divided into three phases (immediate, short-term, and mid-term), which are timed to coincide with the increase in transit demand as development occurs along the corridor. The physical characteristics of the proposed transit improvements would be built within the existing transportation infrastructure, operating both in shared traffic lanes and in exclusive transitway. It is anticipated that the transit improvements will be constructed entirely in existing or planned transportation right-of-way, although some widening and reconstruction of existing roadways may be necessary. From the Pentagon to Braddock Road Metrorail Station, the alignment is 5 miles long. About 50 percent of the alignment length is planned as exclusive transitway.

Aside from transitway construction, the other major physical improvement would be the construction of 18 new station stops along the alignment (3 stops will be at existing or planned Metrorail bus transfer sites: Pentagon, Pentagon City, and Braddock Road Metrorail stations). Station stop design guidelines involve recommendations for platforms, shelters, passenger information, and other amenities. This study assumes a typical platform that is seventy-five feet long and twelve feet wide. These dimensions may be modified to fit local circumstances. Narrower or shorter platforms are planned where there are constraints due to narrow right-of-way or adjacent existing conditions. Platforms will be raised eleven to fourteen inches off the street (typically six to nine inches above the sidewalk) to accommodate level boarding onto low-floor vehicles.

The interim service will provide connections between the Pentagon, Potomac Yard Town Center and the Braddock Road Metrorail Station, and between Pentagon City and Potomac Yard Town Center. The routes connecting these destinations will be introduced in phases. Frequencies will increase with each phase, starting at one vehicle approximately every 3 minutes along the trunk line and eventually equaling one vehicle approximately every 2 minutes (peak period). The service will require a fleet of 24 vehicles at the outset, and eventually will require a fleet of 35 vehicles as frequencies increase.

More detailed descriptions of the proposed improvements can be found in other documents prepared as part of this project, including the Service Implementation Technical Memorandum, the Station Stop Area Plans Technical Memorandum, and the Implementation Strategy.

## **2.0 ENVIRONMENTAL SCAN**

As a way of preparing for the formal environmental documentation that will be required at the federal as well as state and local levels, project staff made an initial identification of issues within the study corridor that could be affected by the proposed transit improvements. The following paragraphs, organized by category of resource, describe potential environmental effects and highlight areas that could require detailed scrutiny in an FTA-sponsored Environmental Assessment. The EA would also cover issues not developed in detail here, including a detailed evaluation of potential impacts to the existing transportation system and an assessment of potential economic impacts.

### **2.1 Soils**

The current composition of the soils along the study corridor has largely been created by erosion of the underlying geology and intense urban development. According to the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service soil survey of Arlington County, the majority of soil within the Arlington portion of the study corridor is classified as Urban Land-Udorthents Complex. More than 85 percent of the surface of areas within this classification is considered Urban Land and is covered by buildings, asphalt, concrete, or other impervious materials. The Udorthents (approximately 10 percent of the surface of areas within this classification) consist of material that has been graded, cut, filled, or otherwise disturbed during urbanization and generally reflects the soils of adjacent areas. Soil in the neighborhoods to the west of the study corridor consists of approximately 70 percent Urban Land. Other soil series found in the corridor include Sassafra, Woodstown, and Neabsco. A soil survey for the City of Alexandria was not readily available.

The Virginia Department of Conservation and Recreation (DCR) implements an Erosion and Sediment Control (ESC) Program under the Virginia Erosion and Sediment Control Law, Regulations, and Certification Regulations (VESCL&R). The ESC Program's goal is to control soil erosion, sedimentation, and nonagricultural runoff from regulated "land-disturbing activities" to prevent degradation of property and natural resources. DCR's Virginia Erosion and Sediment Control Handbook provides guidance for all state erosion and sediment control programs for land-disturbing activities to support compliance with the state regulations.

Arlington County regulates activities affecting erosion and sediment control through Chapter 57 of the Arlington County Code (Erosion and Sediment Control) and other related chapters. The City of Alexandria's related laws and regulations include the Soil Erosion and Sediment Control Ordinance (Section 5-4-1 of the City Code) and Section XIII of the City's Zoning Code.

#### *Conclusions*

An on-site geotechnical analysis at specified locations would be required to determine the soil characteristics and potential limitations of the underlying soils. Sediment and erosion control plans will be required by the appropriate soil and water conservation jurisdictions.

### **2.2 Air Quality**

The Clean Air Act (CAA) of 1970, as amended in 1990, is the basis for most federal air pollution control programs. The Environmental Protection Agency (EPA) regulates air quality nationally, while the Virginia Department of Environmental Quality (VDEQ) is responsible for statewide monitoring and enforcement of federal and state air quality standards. Virginia's State Implementation Plan (SIP) contains procedures to monitor, control, maintain and enforce compliance with federal air quality standards.

The CAA establishes National Ambient Air Quality Standards (NAAQS) for ground level ozone, carbon monoxide, particulate matter, lead, sulfur dioxide and nitrogen dioxide. In areas where

the NAAQS are not met, also known as nonattainment areas, the CAA classifies those areas depending on area's measured levels of a criteria pollutant compared to the federal standard. Furthermore, the CAAA requires federally funded transportation projects to demonstrate conformity with local air quality goals. Conformity requires that transportation investments must conform to the State Implementation Plan (SIP) and that plans cannot create new violations of the Federal air quality standards, increase the frequency or severity of existing violations, or delay attainment of the standards.

The Crystal City/Potomac Yard corridor is located in Arlington County and the City of Alexandria, which are located in an EPA-designated severe non-attainment area for ozone. The overall effect on corridor-level and regional air quality created by any transit improvement will largely depend on the following factors:

- The ability of the service to attract more people to use transit and reduce automobile-related emissions
- The impact on traffic flow from operations in mixed traffic or the use of exclusive lanes.
- Emissions from construction activities, e.g. equipment, trucks, and fugitive dust emissions.

### *Conclusions*

As the project progresses, air quality issues will be addressed in greater detail through emissions modeling, microscale analysis and confirmation of the project's inclusion in the regional Transportation Improvement Plan (TIP). Future analysis would include a demonstration of project air quality conformity with Virginia's SIP.

## **2.3 Noise and Vibration**

Transit projects have the potential to increase ambient noise levels and therefore affect noise sensitive receptors. Existing sources that contribute to ambient background noise and vibration levels include motor vehicles, rail transit, freight rail operations, aviation noise and other ongoing construction activities within the Crystal City/Potomac Yard corridor. Potential noise sensitive land uses in the study area include residential areas along Eads Street (a street parallel to and one block west of Route 1), high rise apartment buildings located within mixed-use areas, single and multi-family housing near the Braddock Road Metrorail Station, schools, libraries, churches, and parks.

It is anticipated that both the construction and ongoing operation of the transit service will contribute to ambient noise levels. Four sources of criteria that would be relevant for detailed evaluation of noise impacts and related mitigation measures include the following:

1. The Federal Transit Administration's (FTA) *Transit Noise and Vibration Impact Assessment* guidance manual (DOT-95-16, April 1995). In accordance with FTA guidelines, vibration impacts would be assessed based on the level of new proposed vibration sources created by the proposed transit improvement.
2. WMATA noise criteria for both vehicles and facilities.
3. VDOT's noise abatement policies.
4. Local and county noise ordinances.

### *Conclusions*

During environmental review, more detailed analysis will be required to identify potential noise-sensitive receptors and impacts. Noise levels from construction activities related to proposed

transit improvements along the study corridor, although temporary, could create a nuisance at nearby locations. Best management practices will be employed to minimize temporary effects.

## 2.4 Water Resources

Several key federal laws and regulations protect the quality of water resources:

- The Clean Water Act sets water quality standards for all bodies of surface water, including wetlands.
- U.S. DOT Order 5660.1A requires the protection, preservation, and enhancement of the nation's wetlands during the planning, construction, and operation of transportation facilities and projects.
- The Coastal Zone Management Act of 1972 and related amendments require that federal actions that are likely to affect any coastal zone resources complete a federal consistency determination.
- U.S. DOT Order 5650.2 requires transportation facilities and projects to give proper consideration to the avoidance and mitigation of adverse floodplain impacts.
- The Safe Drinking Water Act sets primary and secondary drinking water standards.
- The Chesapeake Bay Preservation Act requires tidewater local governments (including Arlington County and the City of Alexandria) to designate and protect water resources affecting the Chesapeake Bay. Local governments were required to implement an ordinance to regulate and minimize development-related impacts on the Bay through the designation of Resource Protection Areas (RPAs) and Resource Management Areas (RMAs).

Within the Commonwealth, the VDEQ has primary responsibility for day-to-day administration of federal and state laws and regulations affecting surface and groundwater resources.

Water resources within the study area include Four Mile Run and the Potomac River. According to the U.S. Department of the Interior, National Wetlands Inventory (NWI) mapping, wetlands within the study area are located northeast of the corridor, adjacent to Arlington County's North Tract site, south of Four Mile Run to the west of the corridor, and east of Potomac Avenue in Potomac Yard. RPA's and 100-year floodplains within the study area are associated with Four Mile Run and the Potomac River in Alexandria. The study area is within Arlington County and the City of Alexandria, Both Arlington County and the City of Alexandria are located within Virginia's Coastal Zone.

According to the *Water Quality Management Supplement* to the City of Alexandria's Master Plan (2001) and Arlington County's *Chesapeake Bay Preservation Plan* (2001), the primary source of drinking water in the study area is surface water. The City of Alexandria receives its primary drinking water from the Potomac River and the Occoquan Reservoir. Arlington County receives its primary drinking water from the Potomac River.

### *Conclusions*

Route 1 and Potomac Avenue span Four Mile Run within the study area. The proposed alignment on Potomac Avenue passes close to the wetlands in Potomac Yard. Other water resources in the study area are not in immediate proximity to the proposed alignment. Therefore, direct impacts to these resources are unlikely. The northernmost station stop in the Alexandria portion of Potomac Yard is located close to Four Mile Run. Temporary indirect impacts to these resources could result from construction-related activities. During construction, proposed improvements will be required to comply with applicable federal, state, and local

standards. Because the project is located within the Coastal Zone, a federal consistency determination will be required.

## **2.5 Protected Species and Critical Habitats**

Section 7 of the Endangered Species Act of 1973 regulates federally-listed threatened and endangered species and designated critical habitat. The National Marine Fisheries Service (NMFS) and US Fish and Wildlife Service (USFWS) identify, manage and protect those species in danger of extinction. USFWS also maintains a list of candidate species that do not have threatened or endangered status but are of special concern.

Virginia protects threatened or endangered plants and insects under its Endangered Plant and Insect Species Act of 1979. The Act provides for the listing and protection of species through the Virginia Department of Agriculture and Consumer Services (VDACS) with help from the Division of Natural Heritage (DNH) of VDCR. The DNH of VDCR also protects rare plant and animal species and natural heritage areas throughout the Commonwealth. Non-endangered wildlife is protected under federal law by the Migratory Bird Treaty Act of 1918, last amended in 1986, which provides protection for native migratory game and non-game birds. The Virginia Department of Game and Inland Fisheries (VDGIF) regulates non-endangered wildlife at the state level.

VDCR noted that natural heritage resource areas have been documented in the study area. The Virginia Department of Game and Inland Fisheries (VDGIF) noted that the federal and state listed bald eagle (*Haliaeetus leucocephalus*) was identified during a block survey for an area encompassing the study area. VDGIF also noted that “the stretch of the Potomac River adjacent to the project site is a documented anadromous fish use area, and occurrences of striped bass (*Morone saxatilis*), alewife (*Alosa pseudoharengus*), and blue black herring (*Alosa aestivalis*) have been documented.

### *Conclusions*

Given the urban setting of the study area, it is not expected that proposed improvements would result in adverse effects to protected species, critical habitats, or natural heritage resources. However, coordination with USFWS, NMFS, VDACS, VDCR and VDGIF is required to determine the potential for adverse effects on these resources. Construction activities that may affect the Potomac River where anadromous fish species occur would likely be required to follow time of year restrictions for certain activities.

## **2.6 Environmental Justice**

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, directs federal agencies to “promote nondiscrimination in federal programs substantially affecting human health and the environment, and provide minority and low-income communities access to public information on, and an opportunity for public participation in matters relating to human health or the environment.” In general, to give due consideration to the goal and intent of Executive Order 12898, proposed transportation projects which are funded with federal funds, must provide equitable distribution of benefits and avoid inequitable distribution of negative impacts.

The order identifies minority communities as “Black, Hispanic, Asian, American Indian and Alaskan Native, Native Hawaiian or other Pacific Islander.” Low income is defined in this study as any individual at or below the poverty level, as defined by the U.S. Bureau of the Census. Based on the breakdown of Census data provided, elderly persons are defined as those aged 65 and over.

When determining whether environmental effects are disproportionately high and adverse, agencies are to consider the following three factors to the extent practicable:

- Whether there will be an impact to the natural or physical environment that significantly and adversely affects a minority or low-income population. Such effects may include ecological, cultural, human health, economic or social impacts on minority communities or low-income communities when those impacts are interrelated with impacts to the physical environment;
- Whether environmental effects are significant and are, or may be, having an adverse impact on minority populations or low-income populations that appreciably exceeds, or is likely to appreciably exceed those to the general population or other appropriate comparison group; and
- Whether the environmental effects occur or would occur in a minority population or low-income population affected by cumulative or multiple adverse exposures from environmental hazards.

According to U.S. Census data for the year 2000, about 36 percent of the total populations in census tracts located roughly within ¼ mile of the proposed alignment are considered minority populations (14 percent is African-American, 6 percent is Asian, and approximately 16 percent is Hispanic). For those same census tracts, 10.4 percent of the population is considered low-income and 9.5 percent is considered elderly. The corridor has a slightly higher percentage of low-income and elderly populations than the jurisdictions as a whole, where 8.2 percent of the population is considered low-income and 9 percent is considered elderly.

### *Conclusions*

Based on the Census data collected for the study area, there is a potential for environmental justice communities within the study area. More detailed analysis is warranted to determine if and where potential environmental justice communities could be disproportionately affected within the study area.

## **2.7 Parks and Parklands**

Section 4(f) of the U.S. Department of Transportation Act of 1966, protects public parks and recreational lands, wildlife habitat, and historic sites of national, state, or local significance. Section 4(f) precludes transportation projects from using these lands and requires that all prudent and feasible alternatives to the use of these lands be investigated. For unavoidable impacts, all planning to minimize harm and appropriate mitigation is required. In addition, Section 6(f) of the U.S. Land and Water Conservation Fund Act preserves, develops, and assures the quality and quantity of outdoor recreation resources and requires that certain conditions be met before conversion of these resources can occur.

A number of parks, trails, and recreation facilities are located or planned within the study area. These include the George Washington Memorial Parkway, the Mount Vernon Trail (running along the parkway), the Virginia Highlands Park in Pentagon City, and Arlington County's North Tract site to the northeast of Crystal City. In Alexandria, major parks and recreation areas include Four Mile Run Park and Dangerfield Island. "Finger parks" are planned as part of the development of the Alexandria portion of Potomac Yard. A planned park at Four Mile Run in Potomac Yard would lie mostly in Arlington, with a small portion in Alexandria. Plans for the Arlington portion of Potomac Yard and the Metropolitan Park residential and office development in Pentagon City also include new parks.

Another facility located within the study area is Arlington County's Virginia Highlands Park and Playfield facility, located east of South Hayes Street and south of 15<sup>th</sup> Street South. The park is a mix of active and passive recreation uses and includes ball fields, soccer fields, tennis courts, picnic areas and play areas for children.

In February 2004, the Arlington County Board adopted plans to guide development of a 28-acre, recreational and park complex on a site known as the North Tract near Crystal City. The North Tract, a former light industrial site, is located at the north end of Crystal City between Old Jefferson Davis Highway and Roaches Run Waterfowl Sanctuary. Plans for the future recreational complex include extensive indoor and outdoor facilities.

### *Conclusions*

Direct impacts to these facilities are unlikely. The alignment does not directly cross any existing or planned parks, with the exception of the planned park at Four Mile Run. A determination of park boundaries and land ownership is required to determine the extent of impacts to this planned park. Proximity effects, such as noise and visual impacts, or temporary construction effects may occur. More in-depth analysis will be required to determine potential effects. If impacts are determined to occur, a Section 4(f) Evaluation would be required.

Future project planning and design of station stops and other facilities should be carried out to minimize the potential impacts on these parks and recreational resources. Coordination should occur with the affected federal, state and local agencies to avoid impacts to the extent possible on identified resources within the study areas.

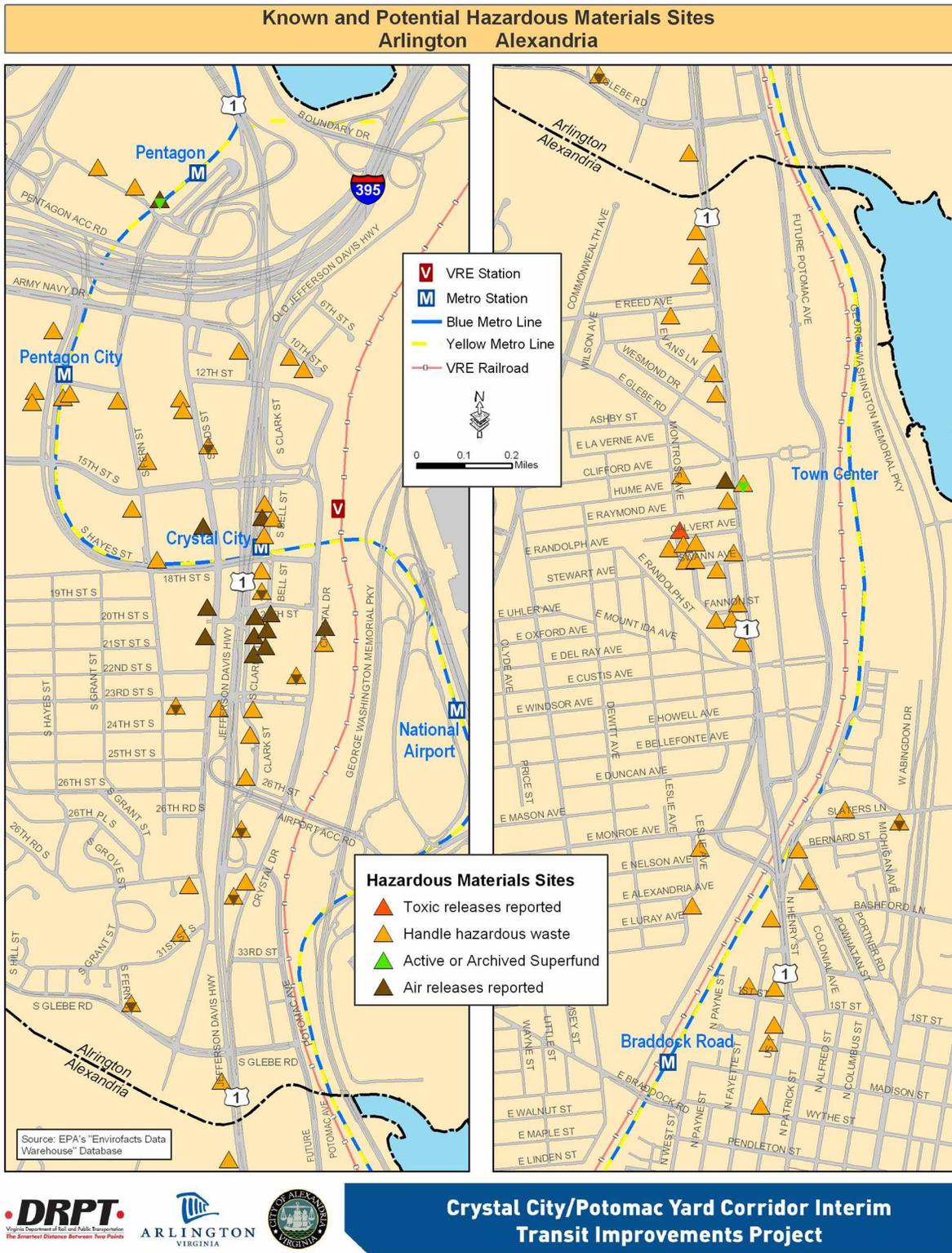
## **2.8 Hazardous and Contaminated Materials**

A large portion of the study area includes Potomac Yard, the site of former rail yards. Therefore, there is a high probability of contaminated sites within the study area. The 2003 Alternatives Analysis (AA) noted that many known sites in the study area have been remediated or are in the process of remediation, but that there may be other hazardous sites in need of remediation. A search of EPA's "Envirofacts Data Warehouse" database identified a number of existing hazardous materials sites within ¼ mile of the proposed alignment. The location of these sites within the corridor is shown in Figure 2 (page 12).

### *Conclusions*

In order to qualify for the innocent landowner defense to the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), an investigation of previous ownership and uses of the property is required. In order to identify potential sources of contamination and contaminated areas in addition to those mentioned above, a Phase I Environmental Site Assessment is recommended.

**Figure 2: Hazardous Materials Sites in the Crystal City/Potomac Yard Corridor**



## **2.9 Neighborhood and Community Impacts**

A major impetus for the development of improved transit service in the Crystal City/Potomac Yard corridor has been the large amount of new residential and office development expected in the corridor over the next ten years. The transit service is intended to serve the new residents and office workers, as well as current residents and workers in established neighborhoods and office districts. Station stops have been sited to provide access to new and existing buildings and activity centers. Station stop amenities, such as station stop design and landscaping, would be designed to support the goals of the community. People residing and working along the corridor would benefit from improved transit service and access to employment and retail centers.

Community facilities in the corridor include schools, places of worship, recreation centers, playgrounds, parks, libraries, post offices, fire stations, and police stations. More detailed analysis of potential impacts to these facilities will be conducted during environmental review.

### *Conclusions*

Community residents have expressed concern that adding lanes to Route 1 may increase the highway's effect as a barrier to community cohesion. Beyond this concern, it is not expected that improved transit service along the Crystal City/Potomac Yard corridor would adversely affect community cohesion, as the new transit system would not create any new barriers between communities or prevent access to community facilities. Any necessary mitigation could be provided through a comprehensive public participation program and continued adherence to design guidelines consistent with community goals.

## **2.10 Property Acquisition and Displacements**

Federal and state laws require that property owners be paid fair market value for their land and improvements, and that they be assisted in finding replacement business sites or dwellings. Displacements result from right-of-way acquisitions that require the use of a property occupied by a residence or business. Under the Uniform Relocation Assistance and Real Property Acquisition Policy Act of 1970, federal agencies are required to meet certain standards for the fair and equitable treatment of persons displaced by federally supported actions. Relocation assistance will follow the guidelines set forth in Title 49, Part 24 of the Code of Federal Regulations (49 CFR Part 24).

### *Conclusions*

It is the goal of Arlington County and the City of Alexandria to construct the proposed transit service with minimal disruption to private property. Although no acquisition of additional right-of-way is proposed, if after further study it becomes necessary to acquire any privately owned property for the transitway or for station stops, compensation will be required.

## **2.11 Historic and Cultural Resources**

Section 106 of the National Historic Preservation Act requires federal agencies to mitigate potential effects of activities of federal actions on historic properties. Historic properties are defined as "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP) maintained by the Secretary of the Interior." NEPA also requires federal agencies to coordinate and plan their actions so as to preserve important historic, cultural, and natural resources.

Under state law, a historic property is any district, site, building, structure, or object designated by the Virginia Board of Historic Resources for listing on the Virginia Landmarks Register. The

criteria are the same as those used for the National Register. Virginia's Department of Historic Resources (VDHR) performs the primary review of federally-assisted projects and provides assistance to federal agencies and their designees in carrying out their responsibilities under Section 106 and its associated regulations.

According to a search of the VDHR database, historic resources within the study area include two National Historic Landmarks. These are:

- The Pentagon. The proposed transit service would make use of the existing bus transfer facility at the Pentagon.
- Alexandria Historic District. This is also a regulated historic district within the city of Alexandria. The proposed alignment runs within ¼ mile of the northern end but does not traverse the district.

Three sites within the corridor are listed in the National Register of Historic Places and the Virginia Landmarks Register. These are:

- The original terminal and the South Hangar Line of Washington National Airport. The proposed alignment is separated from this site by developed land and the George Washington Memorial Parkway.
- George Washington Memorial Parkway. The proposed alignment is separated from this site by developed land.
- The Town of Potomac Historic District. This district includes the Del Ray neighborhood in Alexandria. The proposed alignment touches the eastern boundary of this district at the intersection of E. Randolph Street, E. Mount Ida Avenue, and Route 1.

Additional sites which are eligible for listing in the NRHP and Virginia Landmarks Registry include:

- The Parker-Gray Historic District. This is a regulated historic district within the City of Alexandria. Its northern boundary is within a block of the proposed alignment.
- The Robinson Library within the Parker-Gray Historic District. This site is located at 902 Wythe Street and is within a few blocks of the proposed alignment.
- The Lynhaven Historic District. The district is eligible for listing in the NHRP and Virginia Landmarks Registry. The district is bounded by Route 1, E. Glebe Road, Commonwealth Avenue, and E. Reed Avenue. The proposed alignment touches the southeastern edge of the district at the intersection of E. Glebe Road and Route 1.
- The Abingdon Plantation Ruins. The ruins of one of the original plantations in northern Virginia, and the home of George Washington's granddaughter. This site is on the grounds of Washington National Airport.
- The Addison Heights (Aurora Highlands) Historic District. This site is in Arlington County, to the west of the proposed alignment.

Archaeological resources in the study area include:

- The site of the Alexandria Canal, which runs north-south through Potomac Yard in Alexandria and to the west of Route 1 in Arlington.
- The site of the Four Mile Run Aqueduct to the west of the point where Route 1 crosses Four Mile Run.

- The site of a Civil War era military facility at Wythe and North Patrick streets in Alexandria.
- A time capsule at George Washington Middle School, to the west of the Braddock Road Metrorail Station.

### *Conclusions*

It is unlikely that any historic or cultural resources would be directly affected by the proposed transit improvements, given that it is anticipated that all construction and operation would be within the existing right-of-way. Likely proximity effects could include noise, vibration, and changes to the visual and aesthetic character surrounding these resources. Further investigation and coordination with VDHR as part of environmental review will be necessary to comply with Section 106 of the National Historic Preservation Act.

## **2.12 Safety and Security**

Safety refers to providing safe conditions and security refers to the enforcement of laws and protection measures for passengers, employees, and pedestrians during construction and ongoing system operation. The operation of a transit system presents a wide range of safety and security concerns, ranging from minor crimes to major acts of terrorism. For any new transit system, mutual aid agreements for emergency response could be developed between WMATA, Arlington County, and the City of Alexandria to identify the roles and responsibilities of each jurisdiction in responding to emergencies, general policing and security, and emergency access.

### *Conclusions*

It is expected that these issues would be addressed through the mutual aid agreements between WMATA and the jurisdictions that are already in place.

## **2.13 Energy**

Analysis of the impacts of a proposed transportation project on energy consumption is typically estimated for both direct energy, which involves all energy consumed by vehicle propulsion, and indirect energy consumption, which involves the non-recoverable use of energy in constructing the physical infrastructure associated with the project.

### *Conclusions*

WMATA, Arlington County, and the City of Alexandria currently operate bus transit systems within the study area which require related energy consumption to operate and maintain the vehicles. The proposed transit improvements would result in increased frequency in bus service along the corridor which would result in changes to both direct and indirect energy consumption. Furthermore, construction activities would also result in temporary direct and indirect energy consumption. Further analysis during environmental review is needed to determine both the long-term and construction impacts on energy consumption.

## **3.0 FINDINGS AND ONGOING TASKS**

In general, the interim transit improvements appear to present very few adverse impacts to either the built or natural environment. However, as planning for the project progresses, more detailed analysis is warranted to ascertain the extent and potential severity of impacts identified in this preliminary environmental scan.

As a result of the findings here within, the following subject areas raise the greatest potential for concern:

- *Potential for Hazardous Materials.* Numerous potential and known hazardous materials sites were identified. A Phase I Environmental Site Assessment is recommended as the project moves into the EA.
- *Potential for Environmental Justice Communities.* Preliminary review of census data indicates that there is the potential for effects on Environmental Justice Communities to occur within the study area. More in-depth analysis of the socioeconomic characteristics of the study corridor is recommended.
- *Potential Transportation Effects.* At this preliminary stage of the process, detailed transportation effects have not been evaluated fully. Both Arlington County and the City of Alexandria continue to assess potential transportation impacts. Detailed traffic studies to determine to effects on access to commercial and residential buildings along the corridor, pedestrian and bicycle traffic should be evaluated as part of the EA.
- *Potential for Utilities Modifications.* A better understanding of utilities within and planned for the corridor is needed to help shape the design of the project as well as to understand potential impacts to utilities existing and planned within the corridor.

It is anticipated that the issues identified above and the ongoing preliminary investigations being conducted by Arlington County and the City of Alexandria will serve as an introduction to the potential scope and content of the FTA-sponsored EA.