Existing Conditions Analysis - *Draft*

November 7, 2014

EISENHOWER WEST
SMALL AREA PLAN

CITY OF ALEXANDRIA VIRGINIA

SMITHGROUP JJR

EXISTING CONDITIONS ANALYSIS

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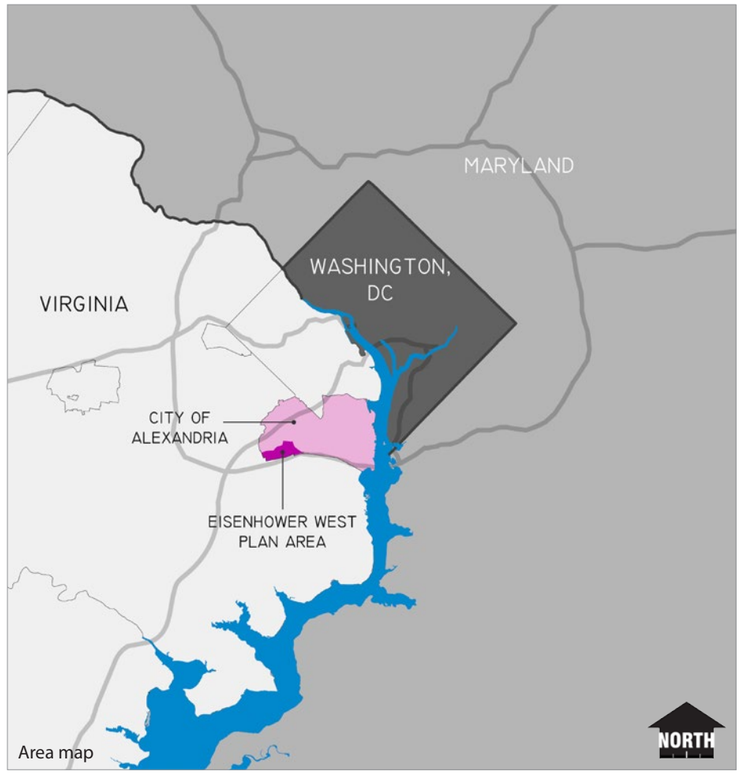
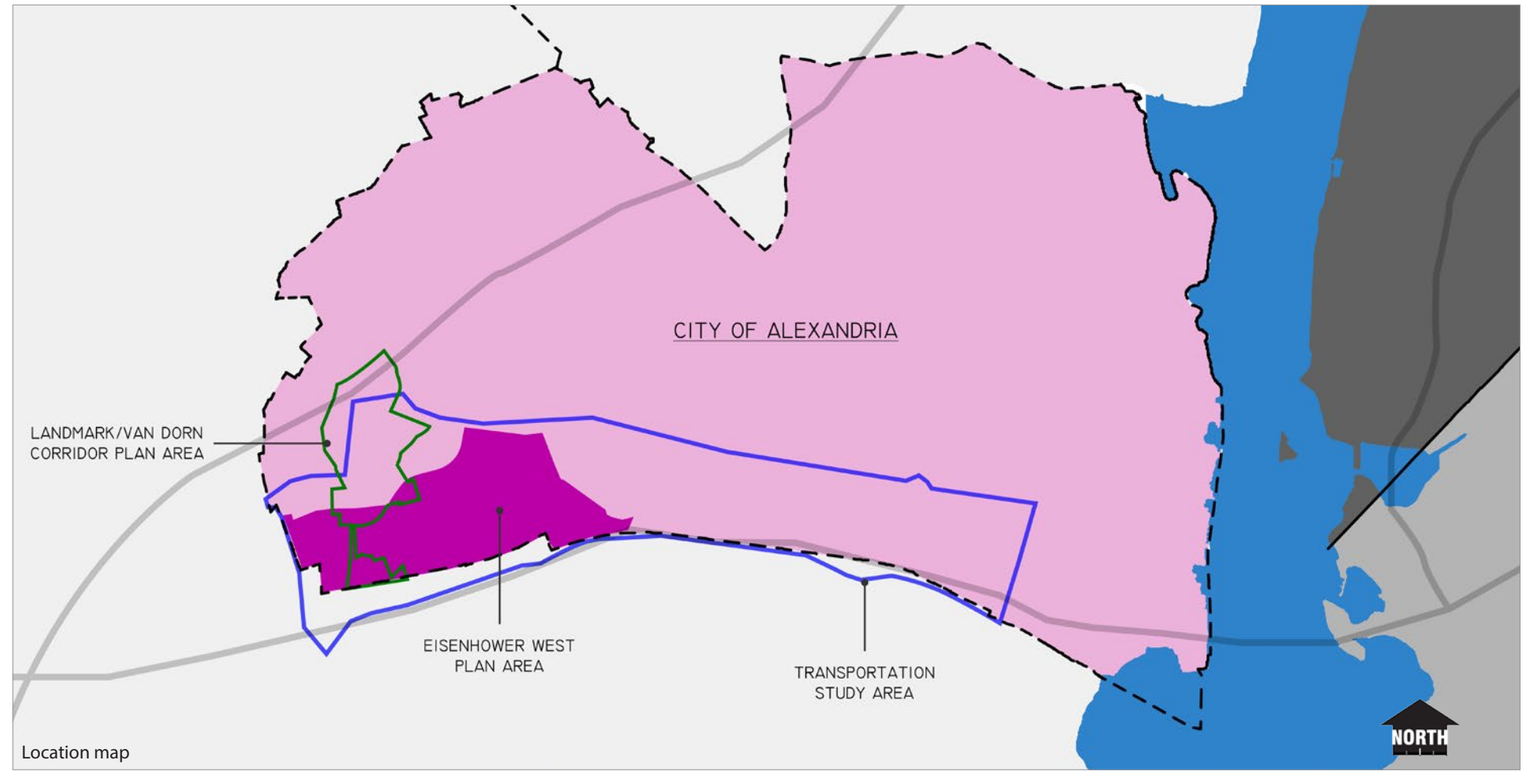


Area map



Location map

Overview

This report provides an analysis of existing physical conditions in the Eisenhower West Small Area Plan area. The analysis forms the beginning stages of the small area planning process, allowing the consultant team, city staff and officials, and community members to gain a common understanding of conditions in the study area. This analysis defines the physical situation "on the ground" in the study area, and identifies issues to be addressed, and opportunities to be explored. This understanding forms the basis upon which conceptual options will be developed in later phases of the process. This analysis will also become part of the Final Report which will be completed at the end of the planning process.

Planning Context

On May 29, 2013 the Alexandria City Council identified Eisenhower West as the area of a major planning effort to begin in 2014. The City's Department of Planning and Zoning (P&Z) began this small area planning process in early 2014 and is anticipated to complete it in mid-late 2015. The Eisenhower West Small area plan is being guided by a Steering Committee, and will identify issues and opportunities, develop a vision, and a plan for the next 20-25 years. The Eisenhower West Small Area Plan builds on several previous studies including the 1992 Landmark/ Van Dorn Small Area Plan, the 2009 Landmark/ Van Dorn Corridor Plan, and the 2009 Alexandria Industrial Use Study.

The City is conducting a concurrent transportation study for an area encompassing, but larger than, the small area plan study area. That study will describe and address the transportation implications of future development in the area and will study the potential location, alignment, and impact of a new multi-modal bridge providing new connectivity between Eisenhower Avenue and the Van Dorn Metrorail station to the south, and roadways to the north. The Small Area Plan and the Transportation study will coordinate their efforts throughout the planning process.

Site History and Archeology

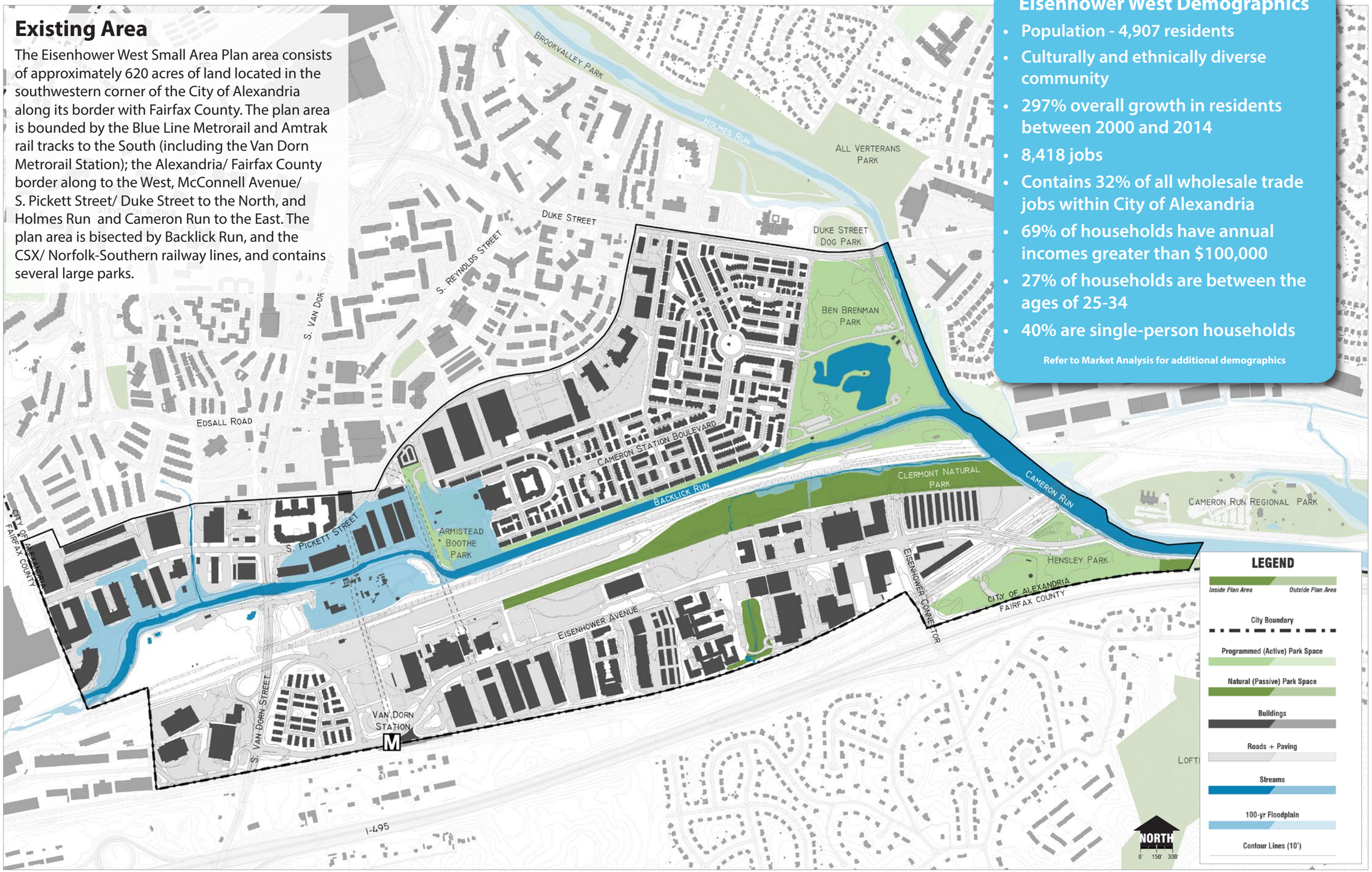
The early history of Eisenhower West planning area goes back approximately 8,500 years. The two existing streams - Holmes Run and Backlick Run - were natural resources likely to have been used by early hunter-gathers and Native Americans living and roaming throughout the area. Use of the streams could have included the plants and animals, but also the collection of cobbles, primarily quartz and quartzite, which would have been used to manufacture stone tools.

In 1649, the land was granted to supporters of King Charles II, and, by the end of the 17th century, came under the control of Lord Fairfax who issued grants for large tracts of land. During the 17th and 18th centuries, the area was divided up by the landowners, and plantations were established, on which African Americans worked as slaves. The foundations of the house at Bush Hill, a 354 acre estate, still exist at approximately 5000 Eisenhower Avenue. Several grist mills operated in the area. Portions of Cloud's Millrace are preserved in place along Holmes Run.

In the early 19th century, Little River Turnpike (Duke Street) was established as a toll road. The Orange and Alexandria Railroad was established in the 1850s, parallel to Duke Street. During the Civil War, a Union camp was set up in the planning area and observation balloons were launched to observe the movements of confederate troops. The area was annexed to Alexandria in 1952. In recent years, the Eisenhower West planning area developed rapidly primarily with light industrial and warehouse uses, taking advantage of proximity to the railroad, but also with office buildings, and some residences. The Van Dorn Metrorail Station opened in 1991, on the Blue Line. In 1992, the Cameron Station neighborhood was developed, replacing the Cameron Station military installation.

Existing Area

The Eisenhower West Small Area Plan area consists of approximately 620 acres of land located in the southwestern corner of the City of Alexandria along its border with Fairfax County. The plan area is bounded by the Blue Line Metrorail and Amtrak rail tracks to the South (including the Van Dorn Metrorail Station); the Alexandria/ Fairfax County border along to the West, McConnell Avenue/ S. Pickett Street/ Duke Street to the North, and Holmes Run and Cameron Run to the East. The plan area is bisected by Backlick Run, and the CSX/ Norfolk-Southern railway lines, and contains several large parks.



Eisenhower West Demographics

- Population - 4,907 residents
- Culturally and ethnically diverse community
- 297% overall growth in residents between 2000 and 2014
- 8,418 jobs
- Contains 32% of all wholesale trade jobs within City of Alexandria
- 69% of households have annual incomes greater than $100,000
- 27% of households are between the ages of 25-34
- 40% are single-person households

Refer to Market Analysis for additional demographics

Plan Area Character

With the exception of Cameron Station, local parks, and Backlick Run, the Eisenhower West plan area has no specific character, sense of place, or sense of identity. It is mostly comprised of an eclectic mix of large, low-rise, light-industrial or warehouse buildings; islands of residential townhomes; some heavy industrial uses and ample surface parking. However, the culturally, economically, and generationally diverse community in and around the area offers opportunities to define a future character for the area.

Issues

- Disconnected and car-oriented urban form
- Lack of cohesive or defining architectural character (Cameron Station excepted)
- Incompatibility of islands of residential uses surrounded by roadways and industrial uses

Opportunities

- Celebrate and link area historic resources
- Build on natural assets - parks, streams - to help define the character of Eisenhower West
- Define areas for celebration of local ethnic and cultural groups

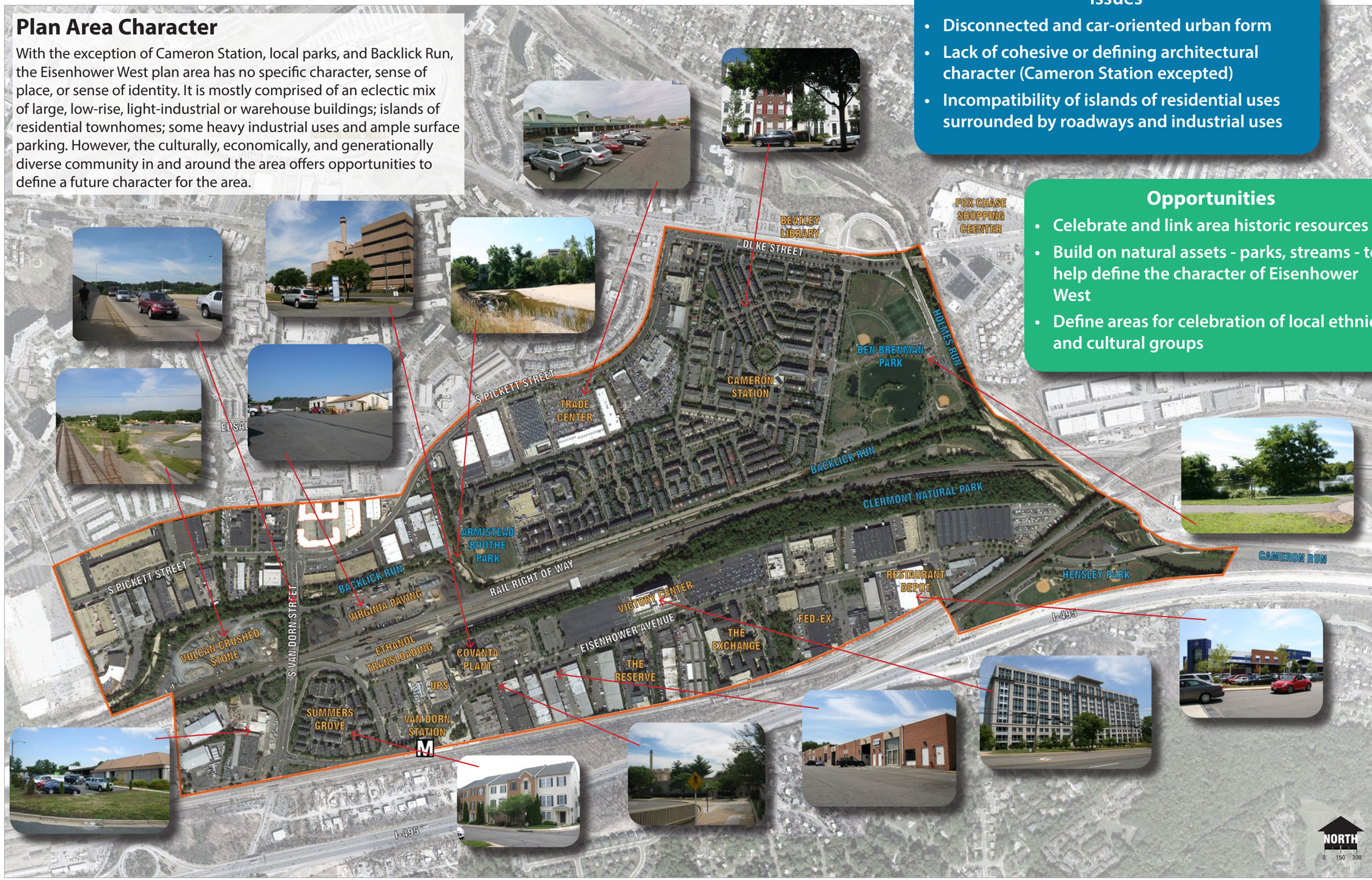
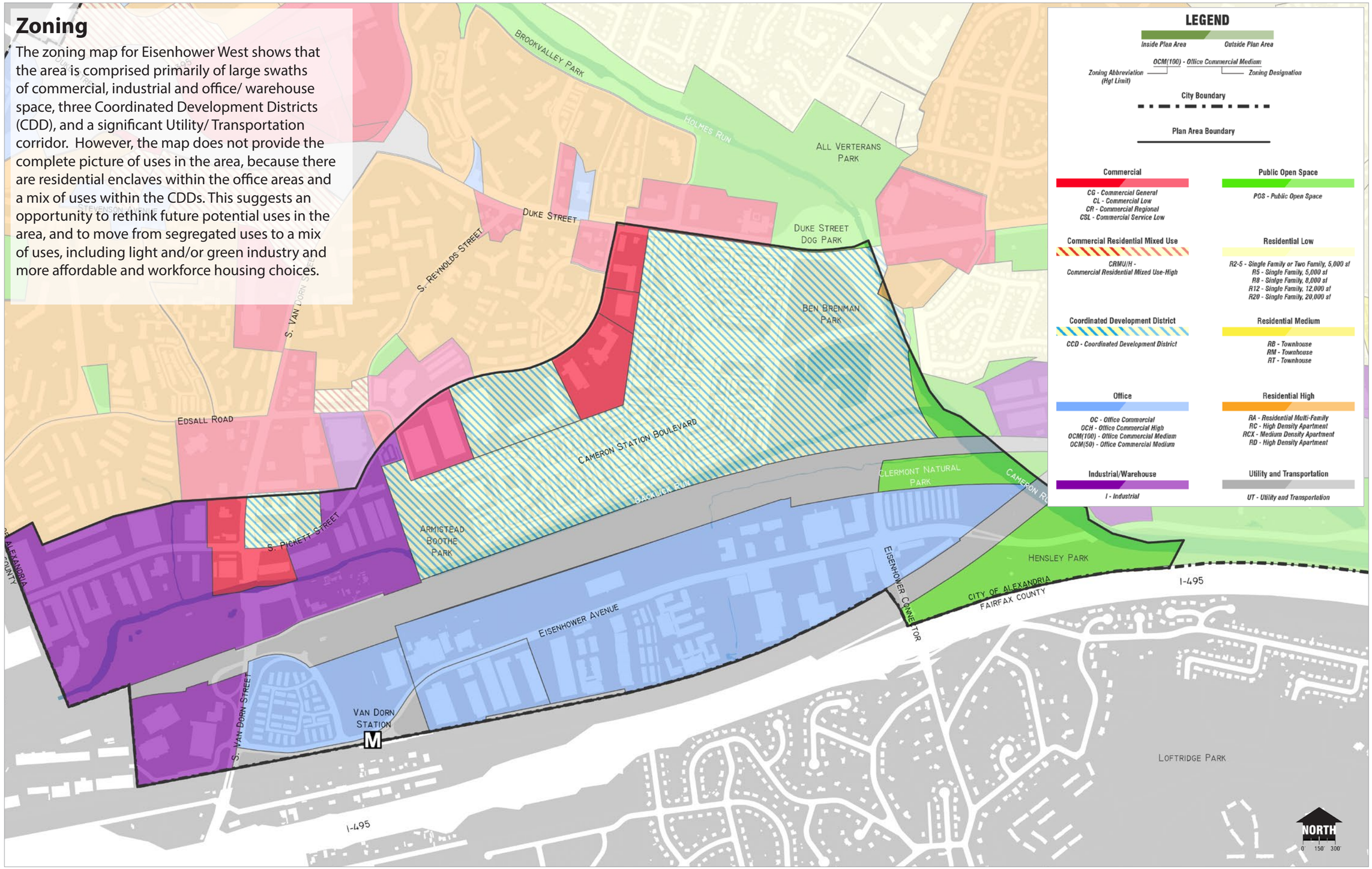


Figure - Ground

The "figure-ground" is a type of analytical urban design diagram that goes back several centuries. It is used to understand patterns of urban form by looking at the relationship of solids (built form, shown in black), to voids (everything else). In this diagram, the collection of solids reveal the generally haphazard nature of urban development in the plan area. The large void in the middle of the area represents the gap in the urban fabric created by the railway right-of-way. The notable exception to this is the strong urban fabric of Cameron Station, where the buildings, open spaces, and street network are well-defined.

Zoning

The zoning map for Eisenhower West shows that the area is comprised primarily of large swaths of commercial, industrial and office/ warehouse space, three Coordinated Development Districts (CDD), and a significant Utility/ Transportation corridor. However, the map does not provide the complete picture of uses in the area, because there are residential enclaves within the office areas and a mix of uses within the CDDs. This suggests an opportunity to rethink future potential uses in the area, and to move from segregated uses to a mix of uses, including light and/or green industry and more affordable and workforce housing choices.



Building Use

This diagram shows the actual uses building-by-building, and the layouts/ arrangements of the buildings relative to one another. Most commercial and industrial/ warehouse buildings are surrounded, or fronted, by surface parking, thereby not fully leveraging the land they are on. Residential along Eisenhower Avenue is squeezed tightly into islands and fenced off or otherwise separated from surrounding uses.

Issues

- Islands of residential along Eisenhower Avenue
- Segregated uses, very little is mixed-use
- Disconnected and inwardly-focused industrial/warehouse uses

Opportunities

- Strengthen the mix of people by adding new residential
- Create better connections between residential areas to each other and to surroundings
- Better connect industrial uses so they are not barriers
- Create more areas with a mix of uses to support a 24/7 environment

Building Age

Most of the the industrial/ warehouse buildings on the western portion of the plan area were built in the 1960s, while commercial and industrial/ warehouse buildings along Eisenhower date from the 1970s and 1980s. With a few exceptions, including the Trade Center along South Pickett Street, the majority of recent buildings in Eisenhower West- constructed in the 1990s and 2000s - are residential, signaling the strong market for residential development.

Issues

- Aging existing building stock in the plan area
- Newer uses are predominantly residential and continued residential construction threatens to reduce the diversity of uses in the plan area

Opportunities

- Replace aging buildings with new, sustainably designed, higher density uses to leverage the location, amenities, infrastructure in the plan area
- Build diverse new uses including commercial and retail to support existing residential and the potential future residential market.

Land Ownership

Most of the land in Eisenhower West is privately owned with the exception of WMATA-owned land around the Van Dorn Metro Station, City parks and some municipal properties along Eisenhower Avenue. Aside from the tight-knit residential developments in the plan area, land is very underutilized due to large-footprint, low-rise buildings and surface parking. Opportunities exist to densify and leverage land resources and create a more lively urban realm with new plazas, parks and public spaces.

Issues

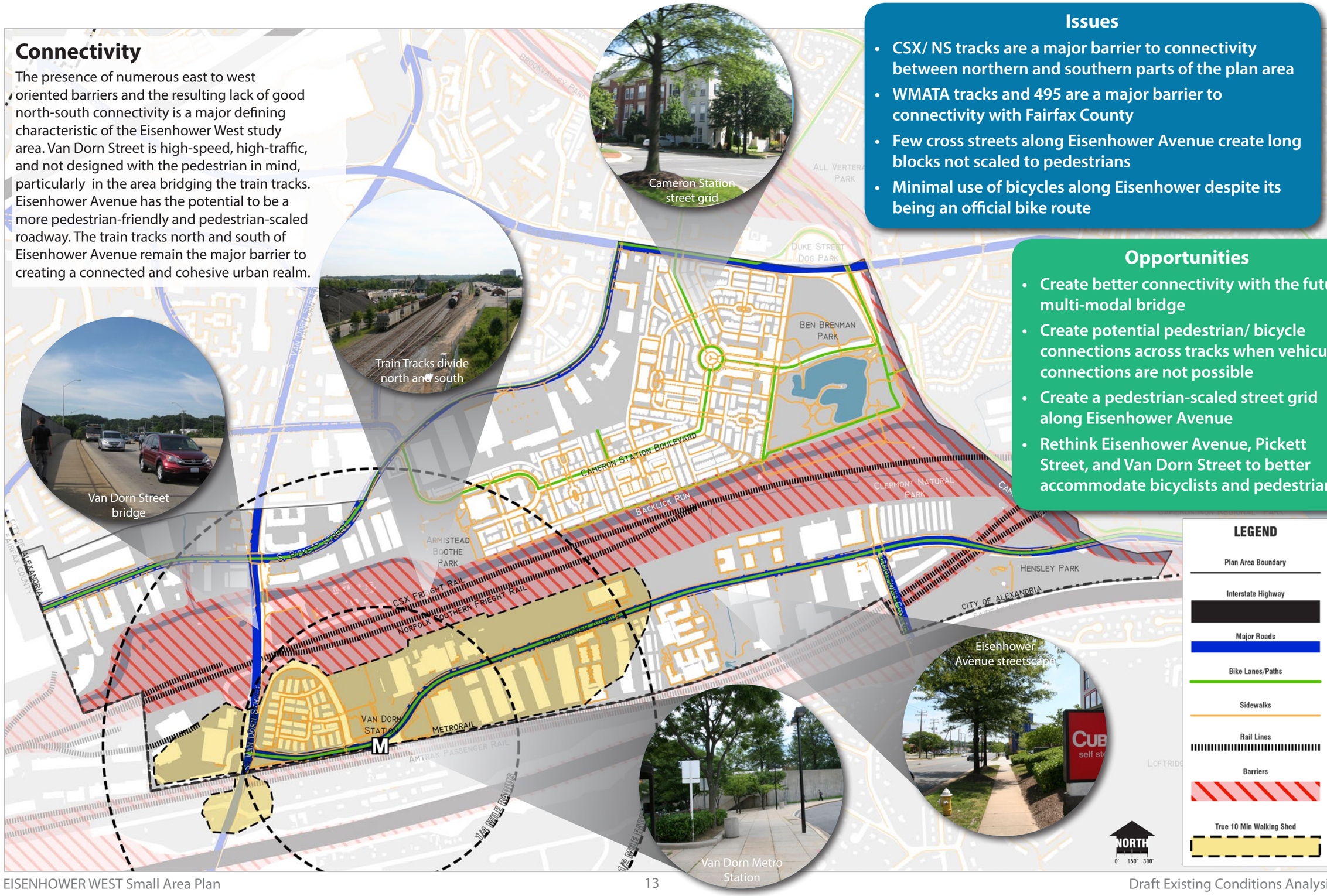
- Underutilized parcels of land
- Lack of small locally-serving public spaces and parks
- Barriers to cohesive redevelopment including numerous property owners in the plan area

Opportunities

- Leverage land resources with higher density development where appropriate
- Integrate new public spaces such as parks and plazas with new trails and development

Connectivity

The presence of numerous east to west oriented barriers and the resulting lack of good north-south connectivity is a major defining characteristic of the Eisenhower West study area. Van Dorn Street is high-speed, high-traffic, and not designed with the pedestrian in mind, particularly in the area bridging the train tracks. Eisenhower Avenue has the potential to be a more pedestrian-friendly and pedestrian-scaled roadway. The train tracks north and south of Eisenhower Avenue remain the major barrier to creating a connected and cohesive urban realm.



Issues

- CSX/ NS tracks are a major barrier to connectivity between northern and southern parts of the plan area
- WMATA tracks and 495 are a major barrier to connectivity with Fairfax County
- Few cross streets along Eisenhower Avenue create long blocks not scaled to pedestrians
- Minimal use of bicycles along Eisenhower despite its being an official bike route

Opportunities

- Create better connectivity with the future multi-modal bridge
- Create potential pedestrian/ bicycle connections across tracks when vehicular connections are not possible
- Create a pedestrian-scaled street grid along Eisenhower Avenue
- Rethink Eisenhower Avenue, Pickett Street, and Van Dorn Street to better accommodate bicyclists and pedestrians

Transit

Eisenhower West is generally well-served by transit including the Van Dorn Metrorail Station and bus lines along Eisenhower Avenue, Van Dorn Street and South Pickett Street. This diagram shows that half of the Eisenhower West area- and part of Fairfax County to the south- is within a 1/2 mile (10 minute walk) radius, of the Van Dorn Station, yet the station continues to be one of the most underutilized stations on the Blue Line in terms of ridership. The true 10-minute walking shed from the metro highlights how insufficent connectivity and physical barriers, such as train tracks, limit the pedestrian, in contrast to the overlaid 1/2 mile radius.

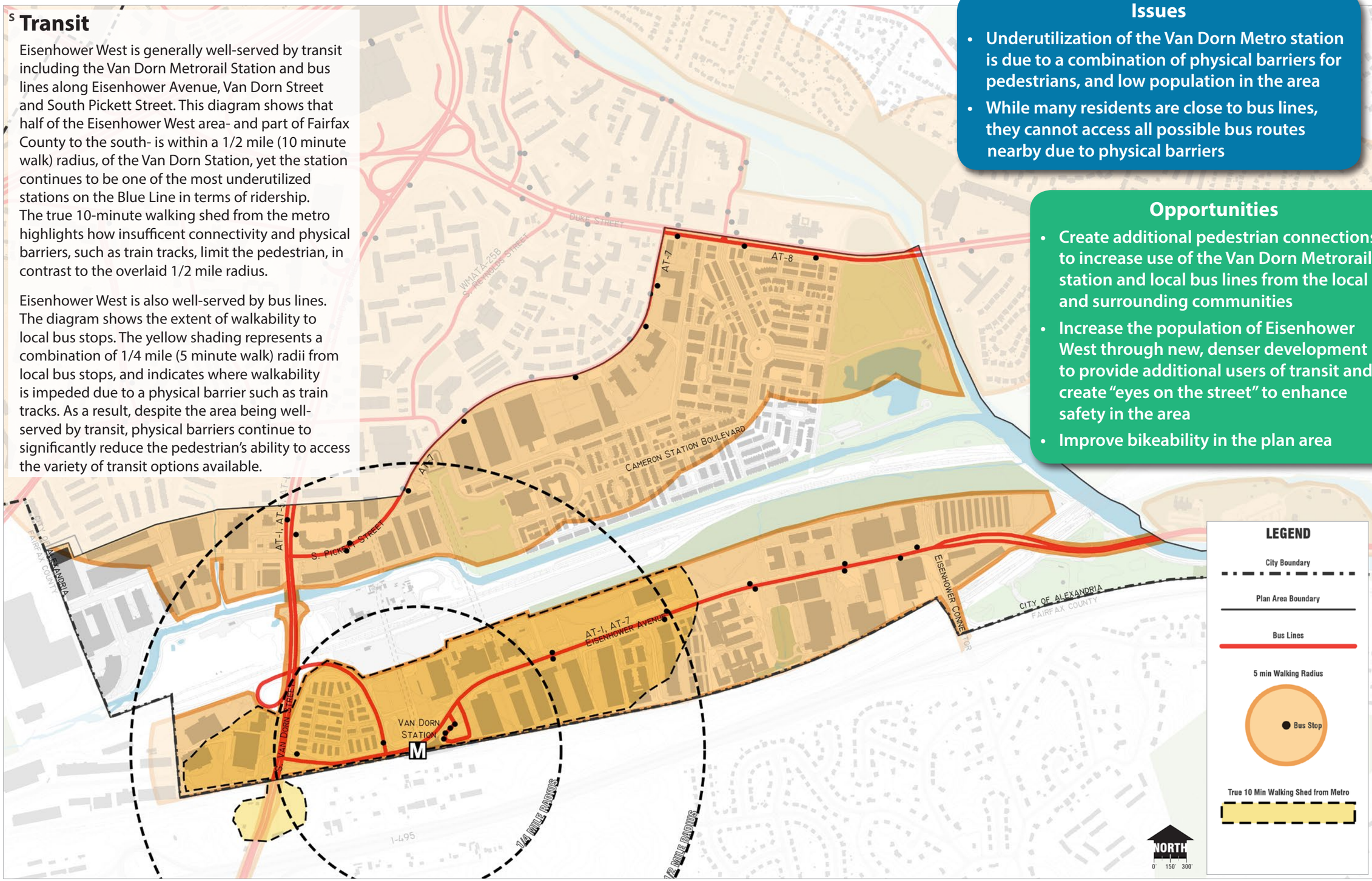
Eisenhower West is also well-served by bus lines. The diagram shows the extent of walkability to local bus stops. The yellow shading represents a combination of 1/4 mile (5 minute walk) radii from local bus stops, and indicates where walkability is impeded due to a physical barrier such as train tracks. As a result, despite the area being well-served by transit, physical barriers continue to significantly reduce the pedestrian's ability to access the variety of transit options available.

Issues

- Underutilization of the Van Dorn Metro station is due to a combination of physical barriers for pedestrians, and low population in the area
- While many residents are close to bus lines, they cannot access all possible bus routes nearby due to physical barriers

Opportunities

- Create additional pedestrian connections to increase use of the Van Dorn Metrorail station and local bus lines from the local and surrounding communities
- Increase the population of Eisenhower West through new, denser development to provide additional users of transit and create "eyes on the street" to enhance safety in the area
- Improve bikeability in the plan area



Parks and Green Space

The Eisenhower West area is home to several parks which together provide approximately 105 acres of green space in the plan area:

- **Ben Brenman Park** has a stormwater management pond, green spaces , a dog park, and playing fields used by the local and regional community. A Community Center, which could include a Senior Center, is planned for the future.
- **Armistead Boothe Park** provides green space, a picnic area, sports courts, and a playground.
- **Hensley Park** has athletic fields and a picnic area.
- **Clermont Natural Park** is primarily a wooded area.
- **Cameron Station Linear Park** provides a trail wedged between the Cameron Station development and Backlick Run.

Ben Brenman Park, Hensley Park, and Boothe Park all have approved plans in the Citywide Park Plan.

Issues

- Lack of significant, accessible green space south of the tracks
- Lack of accessibility to parts of Backlick Run on the west end of the study area

Opportunities

- Enhance existing parks
- Create north-south connections between parks on either side of tracks
- Increase access to quality park space
- Increase variety of types of parks and public spaces
- Celebrate and increase access to Backlick Run
- Expand Clermont Natrual Park - a priority in the Open Space Master Plan

Surface Environment

The large footprints of light industrial/ commercial/ warehouse buildings, extensive surface parking areas, roadways, residential development, and heavy industrial sites combine to create a very impervious environment in Eisenhower West. These elements contribute to the heat island effect, stormwater runoff, low water quality, and a lack of tree-cover in the built-up areas and have negative impacts on the environment. The parks and green spaces in Eisenhower West do provide some relief from these conditions but future redevelopment should prioritize reducing impervious area, improving the resource protection area adjacent to streams and increasing the tree cover to improve the overall environment.

Issues

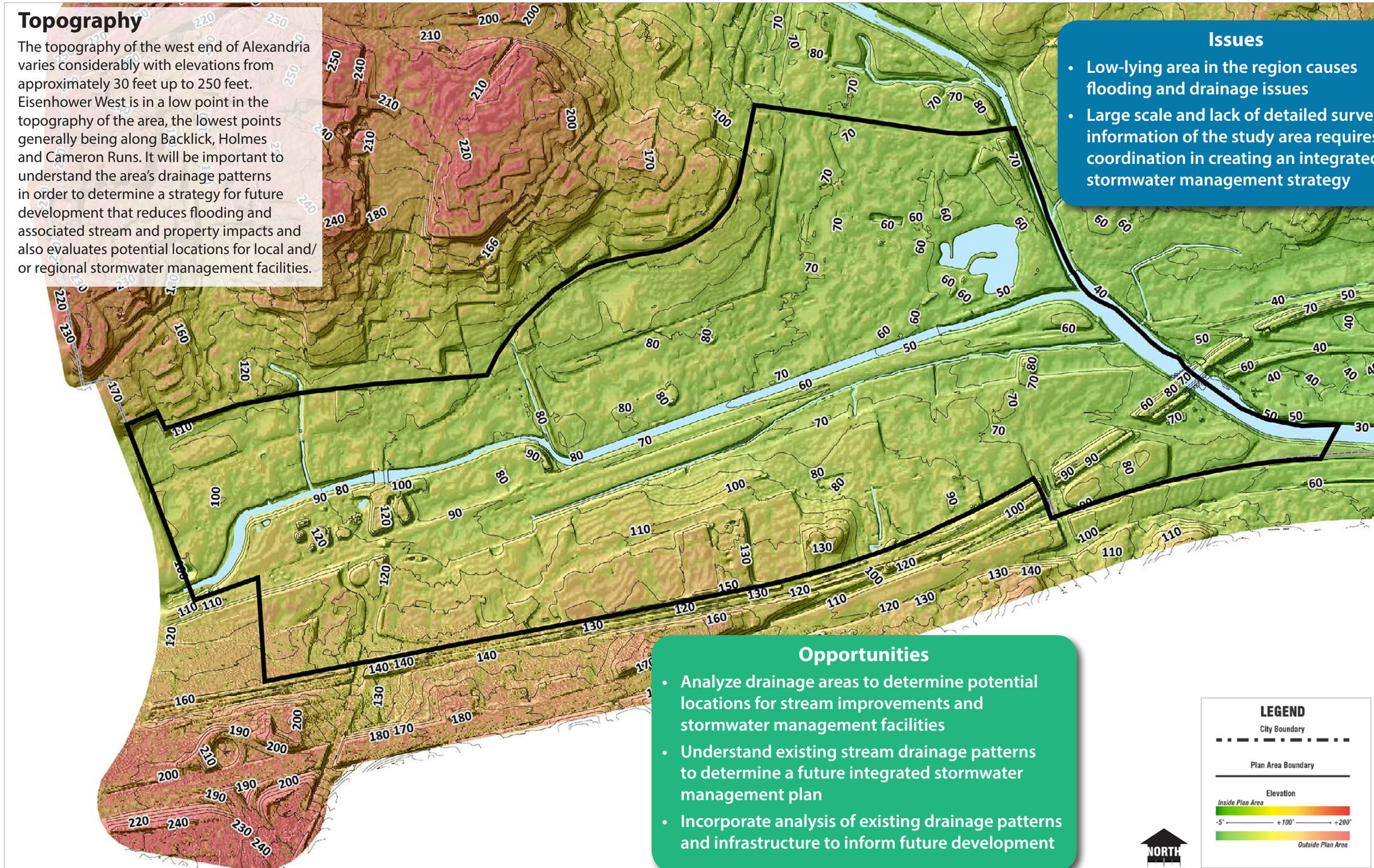
- High percentage of impervious surfaces
- Heat islands
- Stormwater runoff
- Lack of tree cover

Opportunities

- Incorporate green roofs in new buildings or collect and reuse stormwater
- Integrate green and LID (Low Impact Development) strategies in site development
- Increase tree cover to provide shade, cooling, and to sequester greenhouse gasses (GHGs)

Topography

The topography of the west end of Alexandria varies considerably with elevations from approximately 30 feet up to 250 feet. Eisenhower West is in a low point in the topography of the area, the lowest points generally being along Backlick, Holmes and Cameron Runs. It will be important to understand the area's drainage patterns in order to determine a strategy for future development that reduces flooding and associated stream and property impacts and also evaluates potential locations for local and/or regional stormwater management facilities.



Issues

- Low-lying area in the region causes flooding and drainage issues
- Large scale and lack of detailed survey information of the study area requires coordination in creating an integrated stormwater management strategy

Opportunities

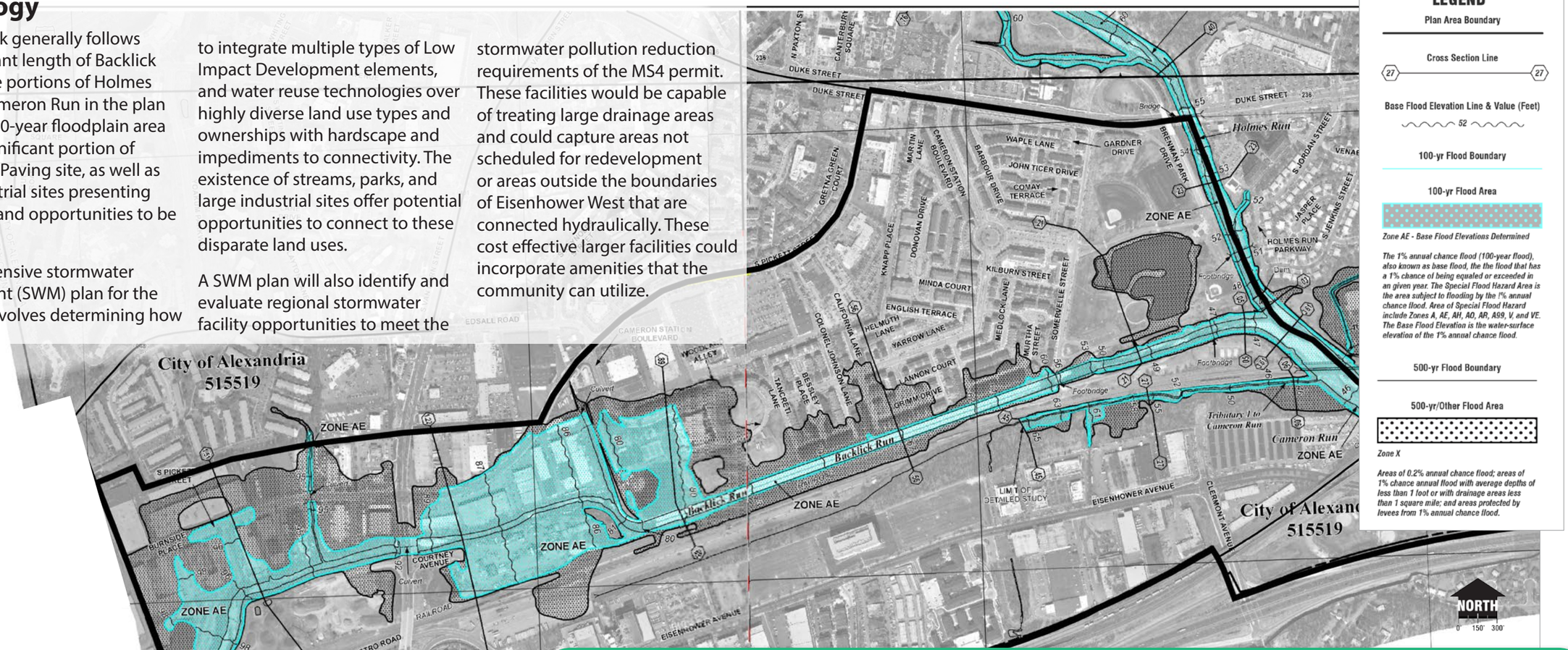
- Analyze drainage areas to determine potential locations for stream improvements and stormwater management facilities
- Understand existing stream drainage patterns to determine a future integrated stormwater management plan
- Incorporate analysis of existing drainage patterns and infrastructure to inform future development

Hydrology

Flooding risk generally follows the significant length of Backlick Run and the portions of Holmes Run and Cameron Run in the plan area. The 100-year floodplain area covers a significant portion of the Virginia Paving site, as well as other industrial sites presenting challenges and opportunities to be considered.

A comprehensive stormwater management (SWM) plan for the plan area involves determining how to integrate multiple types of Low Impact Development elements, and water reuse technologies over highly diverse land use types and ownerships with hardscape and impediments to connectivity. The existence of streams, parks, and large industrial sites offer potential opportunities to connect to these disparate land uses.

A SWM plan will also identify and evaluate regional stormwater facility opportunities to meet the stormwater pollution reduction requirements of the MS4 permit. These facilities would be capable of treating large drainage areas and could capture areas not scheduled for redevelopment or areas outside the boundaries of Eisenhower West that are connected hydraulically. These cost effective larger facilities could incorporate amenities that the community can utilize.



Issues

- Large percentage of impervious area
- Periodic flooding
- Lack of sufficient existing stormwater management facilities
- Property ownership complicates access to and location of stormwater management technologies
- Creating rights-of -way within private properties
- Coordinating intra-agency involvement
- Maintenance responsibilities

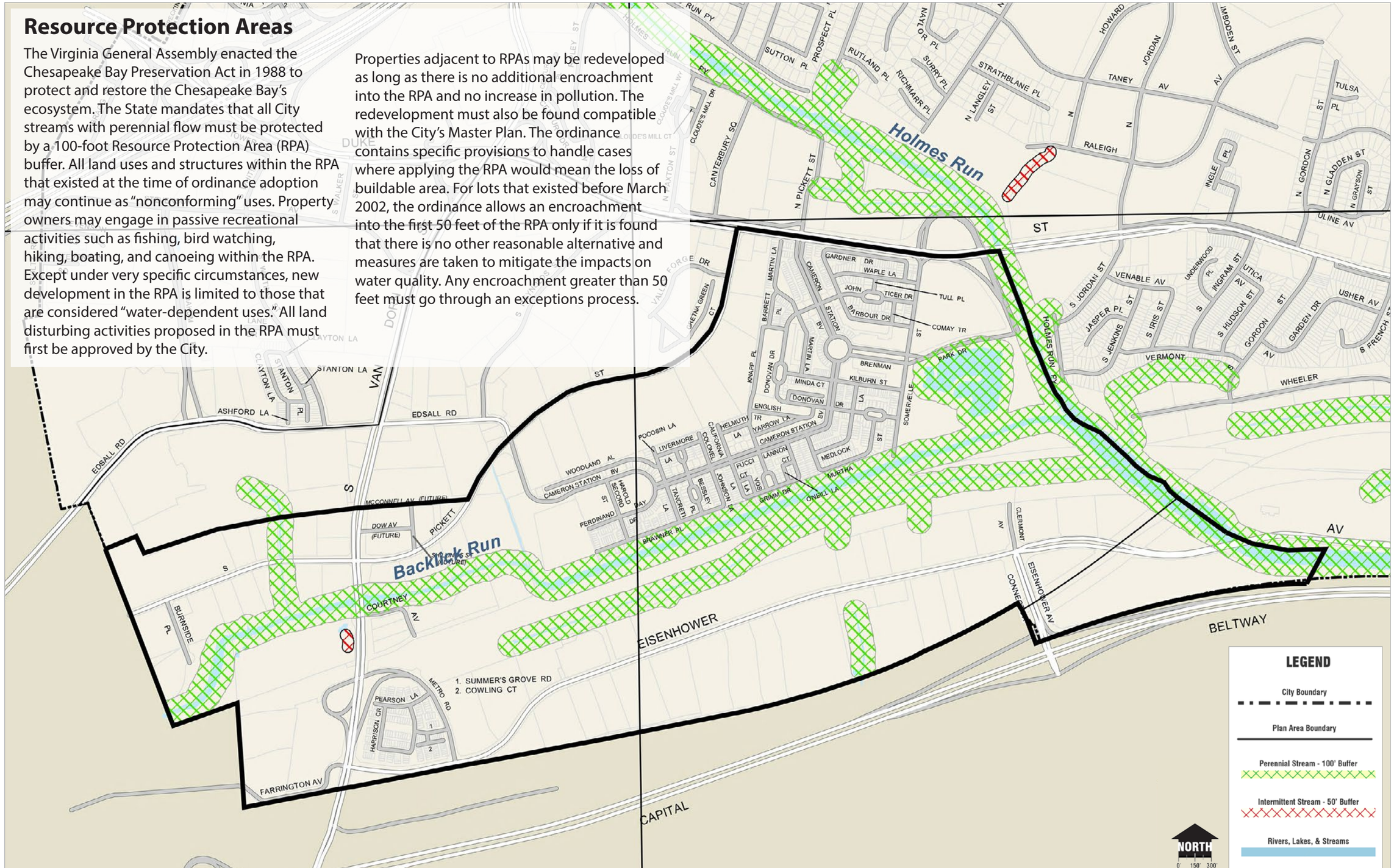
Opportunities

- Develop a stormwater management (SWM) plan to reduce flooding and improve water quality, which could include restoring sections of the streams to enhance public access, providing educational opportunities, integrating green infrastructure such as water reuse and providing new passive recreational amenities
- Integrate periodic flooding into water reuse strategy
- Integrate green infrastructure strategies and technologies into industrial sites
- Integrate green infrastructure strategies at Backlick Run and Holmes Run connection points
- Integrate flood mitigation strategies in future redevelopment plans
- Coordinate overall SWM strategies with Alexandria's MS4 permit requirements
- Plan and share local and regional SWM facilities among new developments
- Restore Resource Protection Area (RPA)
- Create more open space, parks, and trails that can be used within the floodplain

Resource Protection Areas

The Virginia General Assembly enacted the Chesapeake Bay Preservation Act in 1988 to protect and restore the Chesapeake Bay's ecosystem. The State mandates that all City streams with perennial flow must be protected by a 100-foot Resource Protection Area (RPA) buffer. All land uses and structures within the RPA that existed at the time of ordinance adoption may continue as "nonconforming" uses. Property owners may engage in passive recreational activities such as fishing, bird watching, hiking, boating, and canoeing within the RPA. Except under very specific circumstances, new development in the RPA is limited to those that are considered "water-dependent uses." All land disturbing activities proposed in the RPA must first be approved by the City.

Properties adjacent to RPAs may be redeveloped as long as there is no additional encroachment into the RPA and no increase in pollution. The redevelopment must also be found compatible with the City's Master Plan. The ordinance contains specific provisions to handle cases where applying the RPA would mean the loss of buildable area. For lots that existed before March 2002, the ordinance allows an encroachment into the first 50 feet of the RPA only if it is found that there is no other reasonable alternative and measures are taken to mitigate the impacts on water quality. Any encroachment greater than 50 feet must go through an exceptions process.



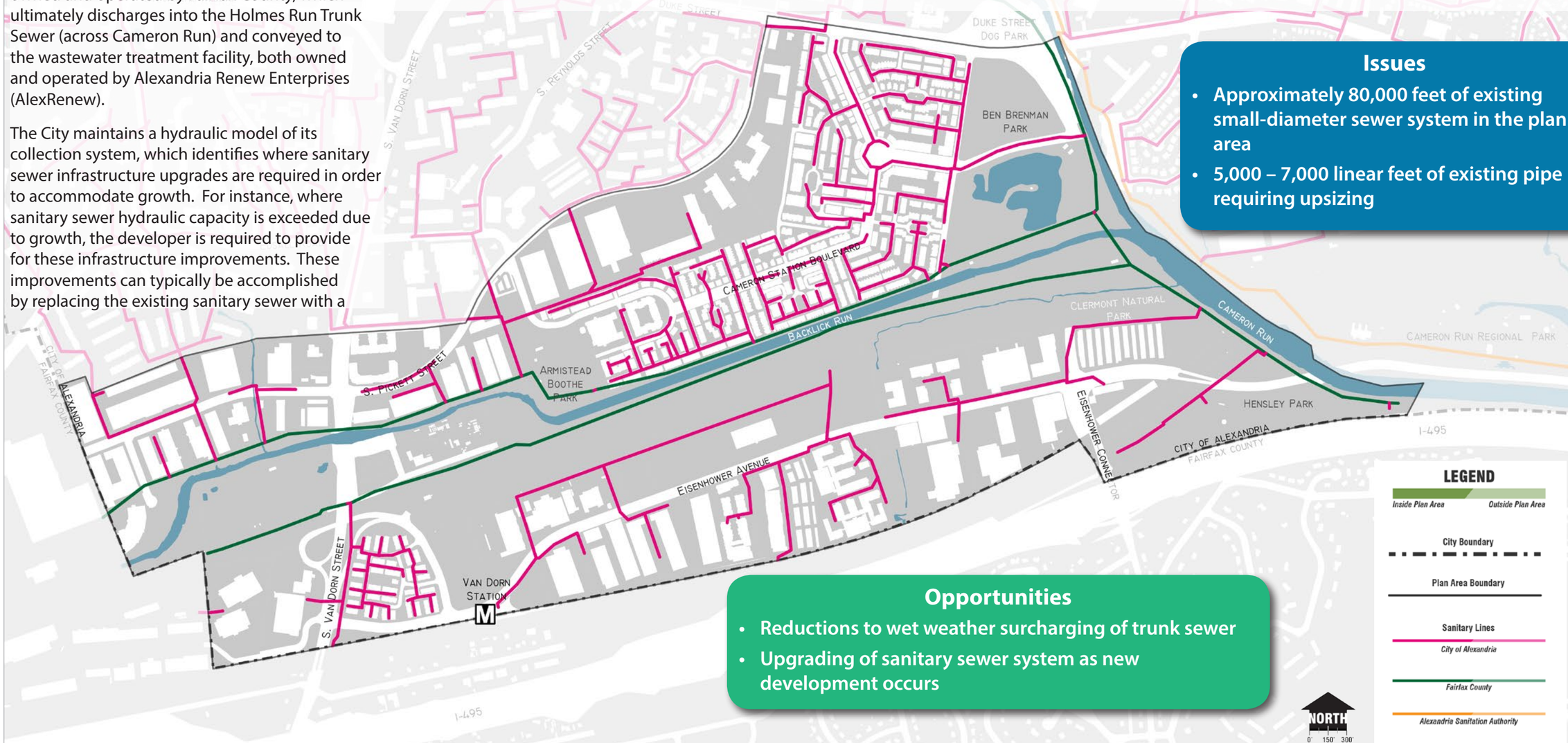
Sanitary Sewer

The Eisenhower West Small Area Plan (SAP) will likely result in significantly more wastewater than what is currently generated. There are a total of approximately 80,000 feet of sanitary sewer within the plan area. The majority of these sewers are small diameter (10-12 inches) collector sewers, which are owned by the City of Alexandria (City). The small diameter collector sewers convey the wastewater to larger interceptor sanitary sewers owned and operated by Fairfax County, which ultimately discharges into the Holmes Run Trunk Sewer (across Cameron Run) and conveyed to the wastewater treatment facility, both owned and operated by Alexandria Renew Enterprises (AlexRenew).

The City maintains a hydraulic model of its collection system, which identifies where sanitary sewer infrastructure upgrades are required in order to accommodate growth. For instance, where sanitary sewer hydraulic capacity is exceeded due to growth, the developer is required to provide for these infrastructure improvements. These improvements can typically be accomplished by replacing the existing sanitary sewer with a larger pipe. For the Eisenhower West SAP, several infrastructure upgrades to the existing City-owned collector sewers are anticipated to serve proposed development/redevelopment. Based on previous planning forecasts and current modeled results, a total of 5,000-7,000 feet of sanitary sewer pipe will need to be upsized in the future.

Fairfax County maintains a hydraulic model of its own collection system. When development/redevelopment occurs in portions of the City impacting the sewer system, it is required of the developer to contact Fairfax County early in the development process to ensure sufficient sanitary sewer capacity is available.

The Holmes Run Trunk Sewer, owned by AlexRenew, serves both the City and Fairfax County. Currently, all three parties are involved in a joint study to develop and implement a plan to provide for additional capacity in order to reduce wet weather surcharging in the sewer due to flows from both the City and County. As development occurs in areas served by the Holmes Run Trunk Sewer, developers are required to acknowledge that future investments to reduce wet weather surcharging of this trunk sewer may be required. These investments will be based on equal and proportionate participation and, if required, must be made prior to the release of the Final Site Plan.



Issues

- Approximately 80,000 feet of existing small-diameter sewer system in the plan area
- 5,000 – 7,000 linear feet of existing pipe requiring upsizing

Opportunities

- Reductions to wet weather surcharging of trunk sewer
- Upgrading of sanitary sewer system as new development occurs

Covanta Waste-to-Energy Plant

The Alexandria/Arlington Resource Recovery Facility operated by Covanta began commercial operation in 1988 and serves residents of Arlington County and the City of Alexandria, which jointly own the site. The facility has 45 full time employees. Three, 325 ton-per-day furnaces process nearly 1000 tons of solid waste per day, generating up to 23 megawatts of renewable energy that is sold to Dominion Virginia Power Company. It receives and processes 350,000 tons of Municipal Solid Waste annually. This powers up to 20,000 homes continuously. The plant runs on approximately 50,000 to 70,000 tons of waste annually, 30% of that contributed from Alexandria. The facility is currently being operated under a User's Agreement between Covanta and the City of Alexandria through 2038.

- **Site:** 4 acres
- **Energy-from-Waste System:** Three 325, ton-per-day waterwall furnaces with Martin® reverse-reciprocating grates and ash handling system
- **Boiler Design:** 600 pounds per square inch gauge/700°F superheater outlet conditions
- **Air Pollution Control Equipment:** Semi-dry flue gas scrubbers injecting lime, fabric filter baghouses, nitrogen oxide control system, mercury control system, and continuous emissions monitoring (CEM) system
- **Rated Refuse Capacity:** 975 tons per day
- **Energy Generation @ Rated Capacity:** up to 23 megawatts from two condensing steam turbine generators

- **Traffic Impact:** The facility currently sees approximately 200 trucks per day delivering waste to the facility and operates with hours for Alexandria residents. There is also outgoing traffic for trucks delivering the ash from the process to Fairfax for disposal and delivering ferrous and scrap material that cannot be burned to recyclers.

Sustainability Opportunities for Consideration:

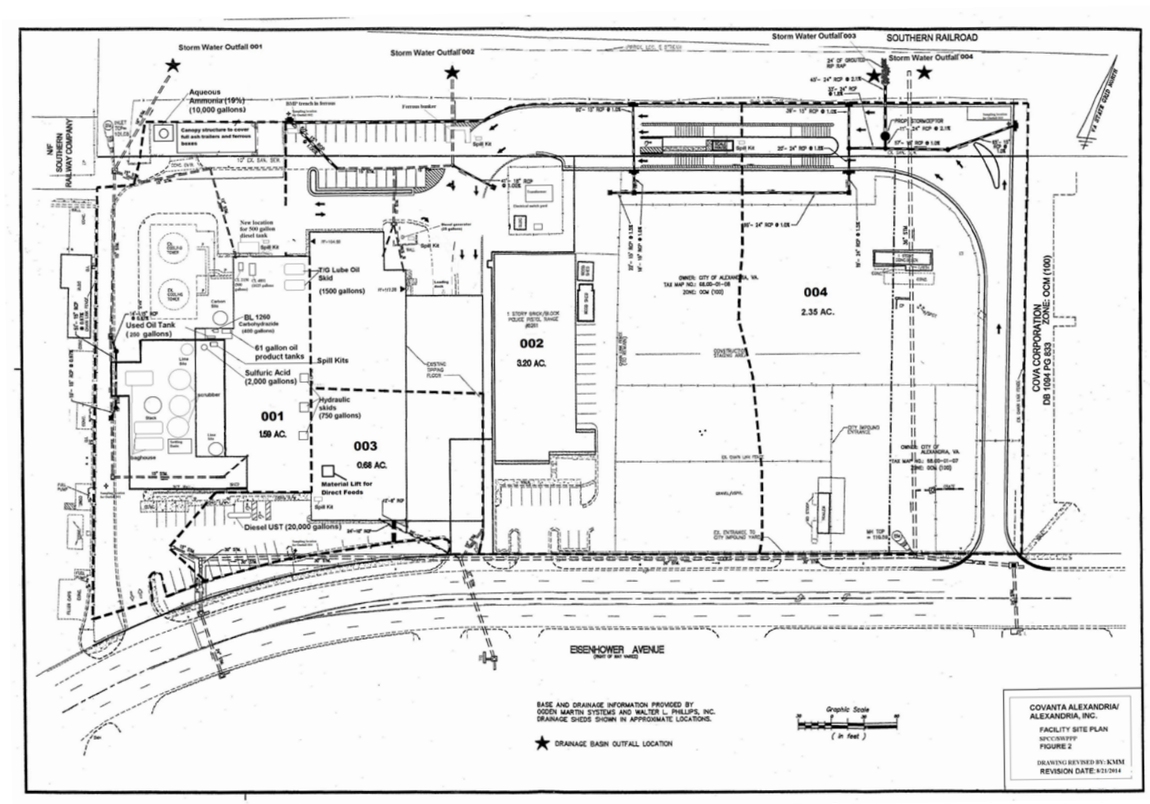
1. **Convert Facility to Combined Heat & Power (CHP) plant.** This would require having Covanta design and install additional heat exchangers that would convert the waste heat currently being discharged to the facilities cooling towers to heating hot water or steam. This waste heat could then be utilized by industrial or commercial users in the Eisenhower West Development. This will require an assessment during the planning process of potential users in the future development for this waste heat, and a strategy for how to get the piping to the future uses.

2. **Extend Non-Potable Water from Alexandria Renew for Cooling Tower Make-Up.** Under a potential agreement between the City of Alexandria and Alexandria Renew Enterprises (AlexRenew), the city's wastewater treatment facility, AlexRenew would provide a non-potable water source and piping system from the Alexandria treatment facility to the Covanta site for use by Covanta as make-up water for its cooling towers. Since Covanta is the largest potable water user in the City, this would significantly reduce the potable water usage for the development. This will require an assessment during the planning process of other potential users, in addition to Covanta, for the non-potable water in the future Eisenhower West development. The more users that can be found the more economically viable the proposal will be for AlexRenew.

3. **Extend Non-Potable Water from Alexandria Renew for Heat Rejection.** Under a similar agreement between the City of Alexandria and AlexRenew as indicated above, piping would be provided to and from the Covanta site for use as a heat rejection system in-lieu-of utilizing the cooling towers on-site.

Issues

- Location of Covanta near the Van Dorn Metrorail Station
- Issues of odor with its proximity of this heavy industrial use to future new development including residential uses
- Approximately 350 feet of frontage on Eisenhower Avenue

Opportunities

- Convert facility to Combined Heat & Power (CHP) plant
- Extend non-potable water from AlexRenew for cooling tower make-up
- Extend non-potable water from AlexRenew for heat rejection
- Potential for a more active frontage along Eisenhower Avenue