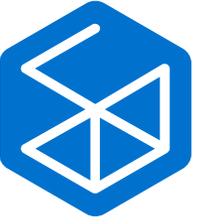


10-19-2018

## Envision Sustainable Infrastructure

Allyson Monsour

John Parkinson



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# Envision Sustainable Infrastructure

## Marshview Park

Allyson Monsour, PE, ENV SP, LEED Green Associate

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# What Is Sustainability?



- **Social Sustainability**

- Fair and beneficial labor practices
- Community involvement
- Corporate and labor interests

- **Environmental Sustainability**

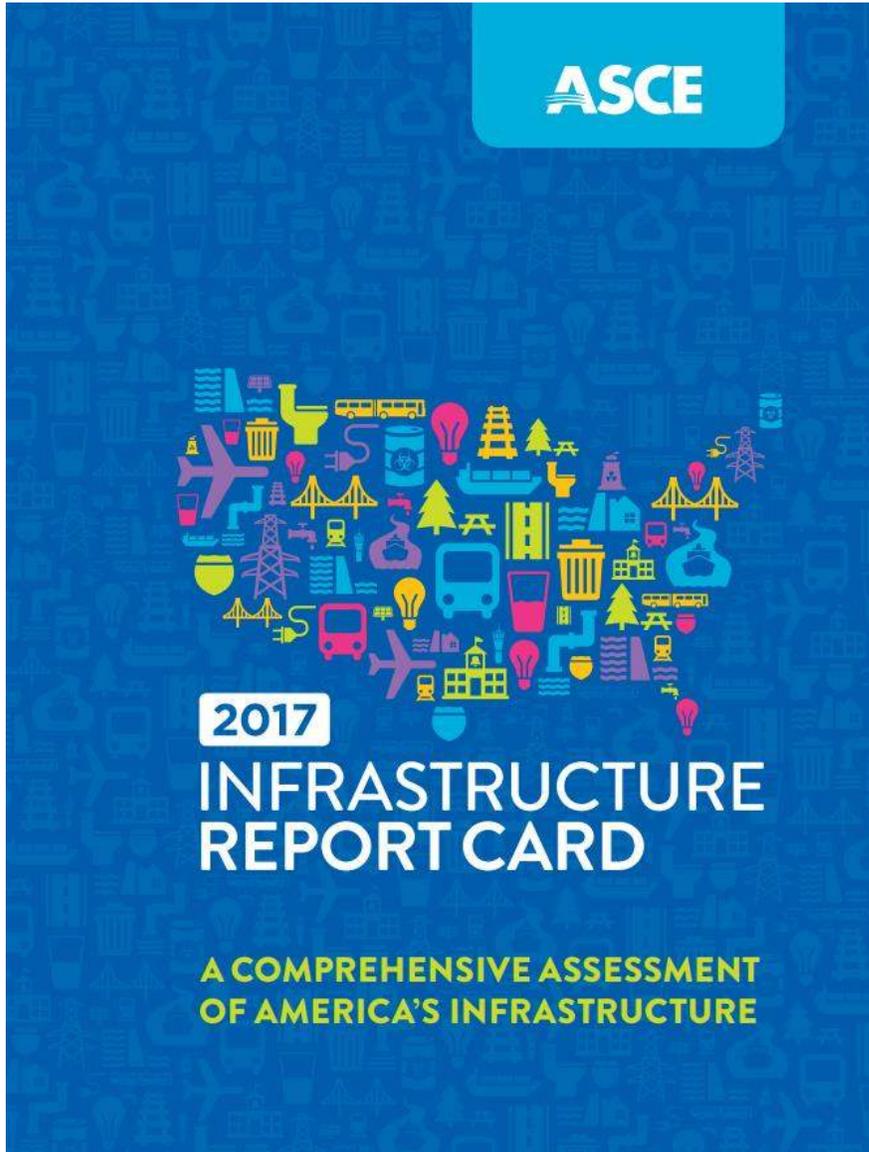
- Consuming less natural resources
- Managing, monitoring, and reporting consumption, waste, and emissions

- **Economic Sustainability**

- Successful businesses that strengthen the economy



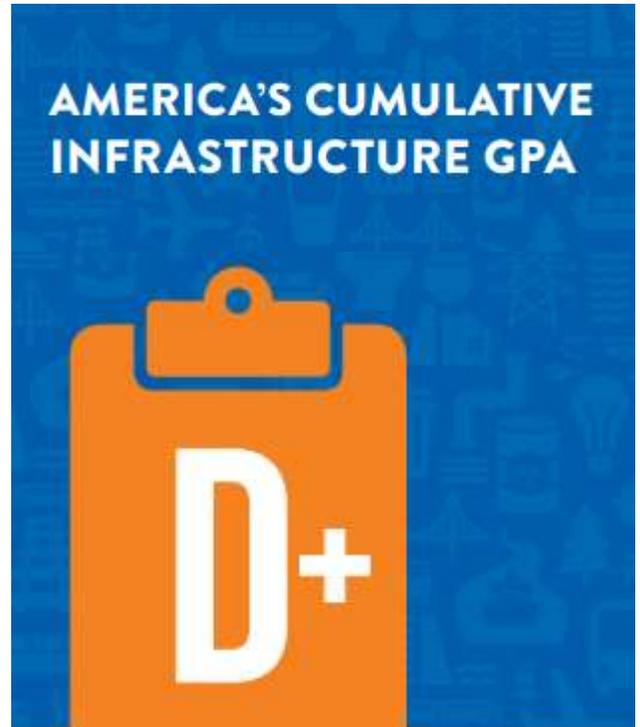
# Why Does It Matter?



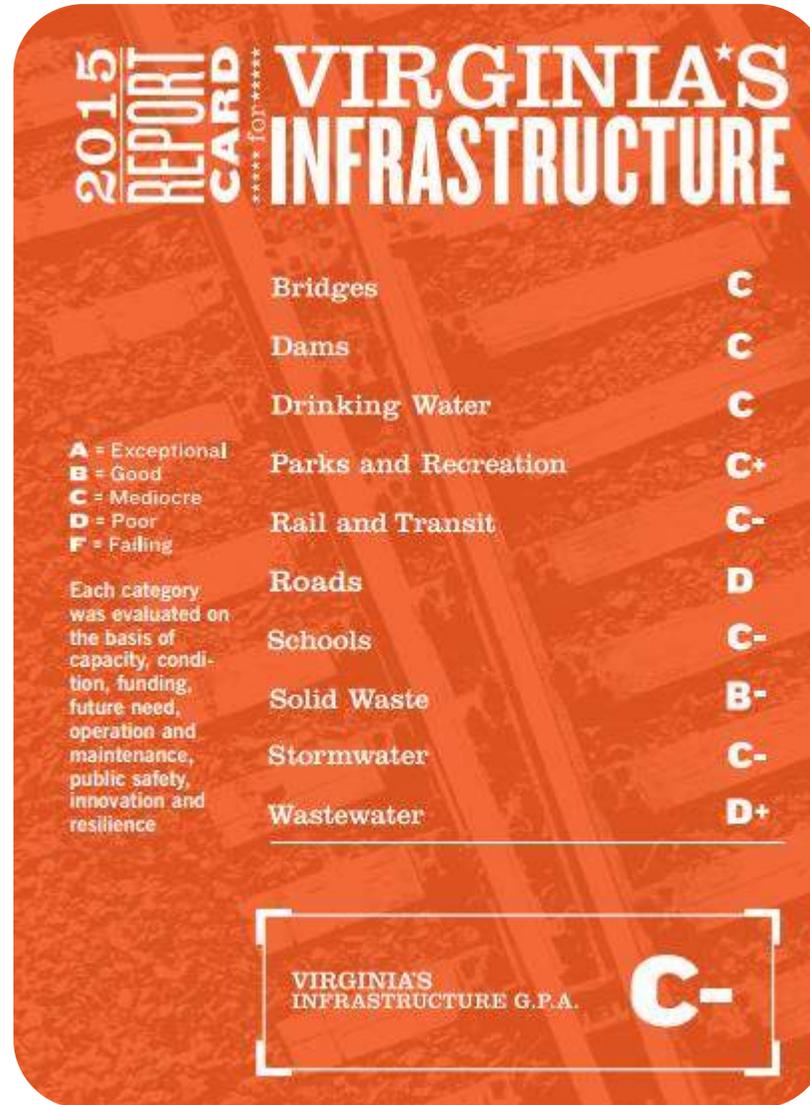
## 2017 INFRASTRUCTURE REPORT CARD

Over the last four years, several infrastructure categories showed progress, resulting in grade increases. However, the 2017 Report Card's cumulative GPA of D+ reflects the significant backlog of needs facing our nation's infrastructure writ large. Underperforming, aging infrastructure remains a drag on the national economy, and costs every American family \$3,400 a year.

AVIATION	D	PARKS & RECREATION	D+
BRIDGES	C+	PORTS	C+
DAMS	D	RAIL	B
DRINKING WATER	D	ROADS	D
ENERGY	D+	SCHOOLS	D+
HAZARDOUS WASTE	D+	SOLID WASTE	C+
INLAND WATERWAYS	D	TRANSIT	D-
LEVEES	D	WASTEWATER	D+



# Public Parks Report Card



- Return on investment of almost \$11 for every \$1 of general fund spending
- Consistently ranked as some of the best in the nation
- Leadership is needed to reverse recent trends.

## What Is Envision?



“A comprehensive framework of **60 criteria** that encompass the full range of **environmental, social, and economic impacts** that should be addressed in order to determine how a project has incorporated **sustainability** in its design, construction, and operation”



# How Can Envision Help?



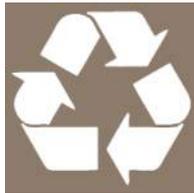
## QUALITY OF LIFE

Purpose, Community, Wellbeing



## LEADERSHIP

Collaboration, Management, Planning



## RESOURCE ALLOCATION

Materials, Energy, Water



## NATURAL WORLD

Siting, Land and Water, Biodiversity



## CLIMATE AND RISK

Emission, Resilience

# How Can Envision Be Used?

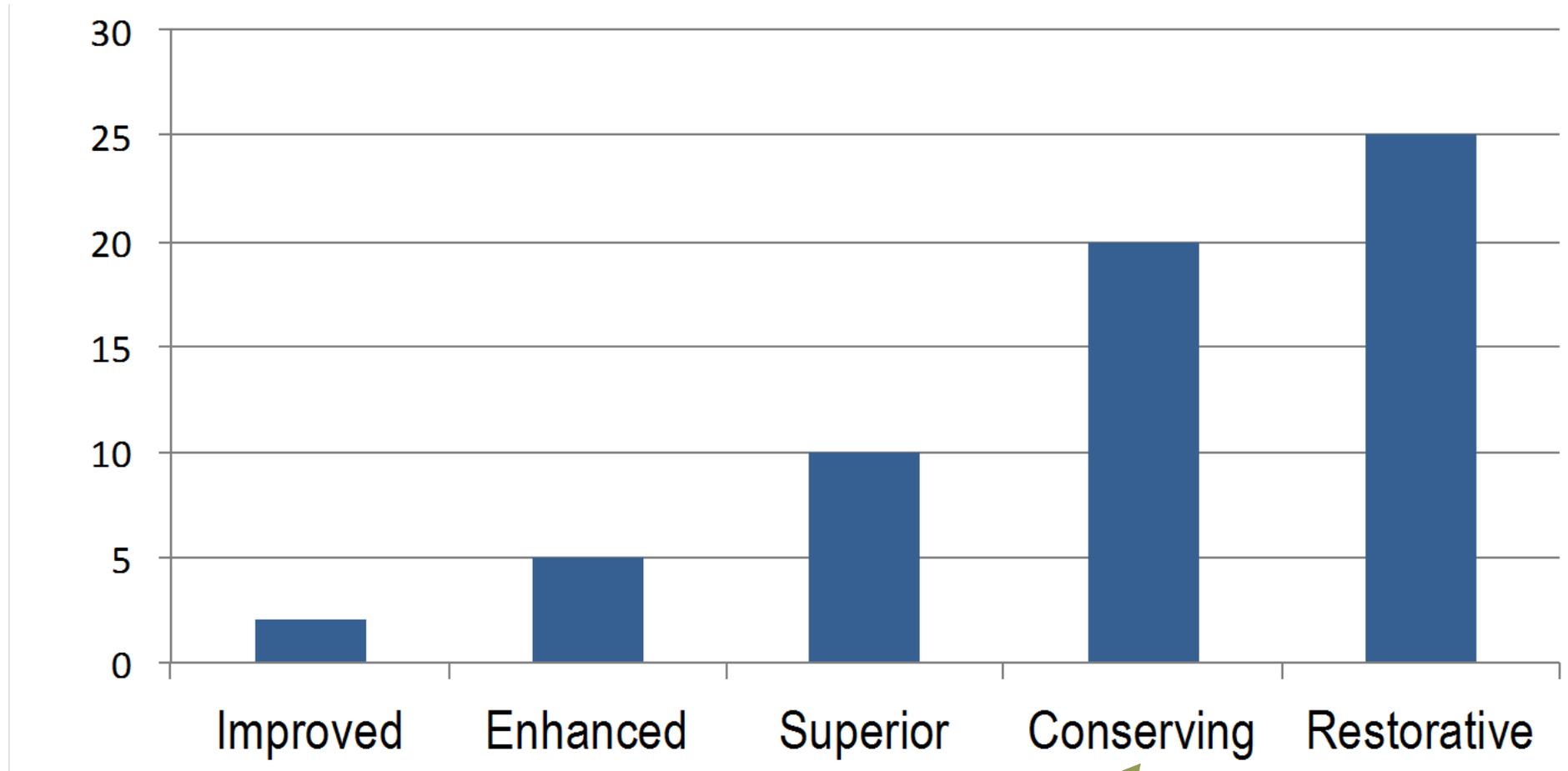
- **Educate** the community on sustainability
- **Communicate** social, environmental, and economic impacts to the public
- **Guide** planning and design decisions
- **Framework** for establishing sustainability goals
- **Assessment** tool to monitor sustainability performance
- **Recognize** projects that improve sustainability
- **Demonstrate** achievement and foster community pride
- **Internal accountability** through third-party verification
- **Public accountability** demonstrating that taxpayer funds have been used for the public good



# Levels Of Achievement



## QL 1.1 Improve Community Quality of Life



No Negative Impact



# Envision and Marshview Park

# Marshview Park



# Marshview Park

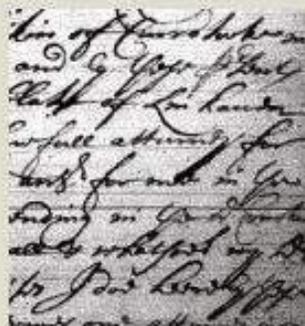


Aerial showing development patterns immediately surrounding Marshview Park



## Property Timeline

Marshview Park



### 1767

Henry Lamount was granted a 186-acre tract situated on the north side of "Old's Creek," the name of a prominent Princess Anne County family (early 19th century deed books began to use the variant "Owls Creek.")

### Early 1800s-1937

Project area encompassed by a 126-acre farm owned by John Whitehurst. Property transferred hands many times. The first detailed map of the project area indicates what appear to be two farmsteads. Much of the project area consisted of cleared agricultural land with the portion nearest Owls Creek remaining wooded. In 1937, the earliest aerial photograph of the area was taken, showing the same agricultural and wooded patterns. The American entry into World War II prompted the development of a substantial military presence in the region.

### 1952

At the end of World War II, Princess Anne County's rural past was being replaced with a sprawling suburban city. The 100-acre farm was sold to Triangle Construction Company and Chesapeake Housing Inc.

### 1979

Land is sold to the development firm of Hudgins & Associates, and they begin development of the property for an expansion of the Salt Marsh Point neighborhood.



### 1983/84

U.S. Government purchased the property to limit residential development in the AICUZ zone for the use of Naval Air Station Oceana.

### 2010

U.S Government deeded the property to the City of Virginia Beach for a public park.



## 2012 Preferred Master Plan

The two conceptual alternatives were presented to key stakeholders such as adjacent civic leagues, the Virginia Aquarium/Owls Creek Plan Steering Committee, and the Rudee Inlet Foundation. The following comments were received that helped to guide the development of the final preferred master plan on pages 26-27.

### Preferred Master Plan Key Aspects

- Dog Park and Multipurpose Fields
- Playground at end of Virginia Avenue
- Improved multi-use trail and soft trails
- Bike recreation area (BMX or pump track)
- Disc golf
- Preservation and Interpretation of historic site
- Perimeter buffers
- Limited parking at entrances
- Park office/restroom
- Tree preservation





# Marshview Park Master Plan



BMX Track

## Recreational Amenities

Development of the Marshview Park property fills a need in the Oceanfront area for additional park acreage. The location and characteristics of the property offer it the opportunity to serve both adjacent residents and visitors to the area. As such, it can have attributes of both a metro park and community or neighborhood park. Metro parks are typically 50-100 acres, staffed full time and have a number of recreational opportunities. Community parks are typically 15-50 acres, and generally not staffed. Neighborhood parks are typically five to 15 acres which are not staffed and provide a basic level of outdoor recreational amenities.

Two existing parks are near the Marshview property: Seatack Community Park which serves the Seatack Neighborhood, and Salt Marsh Point Neighborhood Park which serves the Salt Marsh Neighborhood. There is a need for a neighborhood park to serve the Shadowlawn neighborhood. This need can be accommodated in the northeastern section of the site adjacent to Virginia and Indian Avenues. The remainder of the site can be utilized to accommodate metro and community park level improvements with the northern section providing improvements such as a dog park and informal play fields. The central and southeastern portions of the park can provide the metro level of improvements such as a mountain bike or BMX track facility, cultural/historic interpretation of the site and its resources, a network of trails, and potential water access to the site. Each of these recreational opportunities are discussed in the following paragraphs.

### Trail Network

The use of the site for informal walking and biking trails has occurred for many years. The formalization and strategic modification, where needed to avoid obstacles or link to features, of those trails will be an important component of the parks long term development. The first phase of trail improvements should include a multi-use trail linking Marshview Drive to Virginia Avenue and the soft trail loop on

the peninsula adjacent to Owls Creek. The developed trail network should integrate aspects of historical, cultural and environmental interpretation.

The Virginia Aquarium/Owls Creek Master Plan calls for the development of Research Center Buildings for local and visiting researchers on Owls Creek Point. It also proposes a trail network that would link up with the overall trail system throughout the Marshview Park property.

### Off Road Biking and/or Pump Track Facility

Unless you are an avid mountain biker, you probably have not heard of the latest craze to hit the mountain bike world - the pump track. The local youth surrounding the Marshview property have, and have constructed several small renditions on the site. A pump track is basically a small, looping trail system that you can ride continuously without pedaling. Once you master your "pump," the track becomes like a freestyle bobsled course. Currently, Virginia Beach has limited areas for off-road biking. The City should work with the local bike organizations to explore the development of a pump track or off-road bike trail at Marshview.

### Informal Practice Fields

The Virginia Beach Outdoors Plan identifies a need for additional sports fields. While the deed restrictions on the Marshview property do not allow lighted fields or organized team play, they do not preclude informal practice fields.

### Playgrounds

As mentioned previously the Shadowlawn Community does not have a park with play equipment. Development of a neighborhood park type facility at the northeast portion of the park is recommended.

### Water Access

While the addition of a public canoe/kayak launch at the site seems like a reasonable idea, the distance from the parks entrance and characteristics of the shoreline at the appropriate location make it problematic. However, exploring the possibility of a location on the peninsula where canoe/kayaks could be rented or establishing a canoe/kayak landing point to the site are feasible alternatives. This type of facility could be programmed in association with potential future canoe/kayak tours Virginia Beach Parks & Recreation, the Virginia Aquarium, or another outfit may provide.

### Dog Park

Dog walking is currently a popular activity on the Marshview property. The addition of a dog park would provide a much welcomed enhancement to the area.

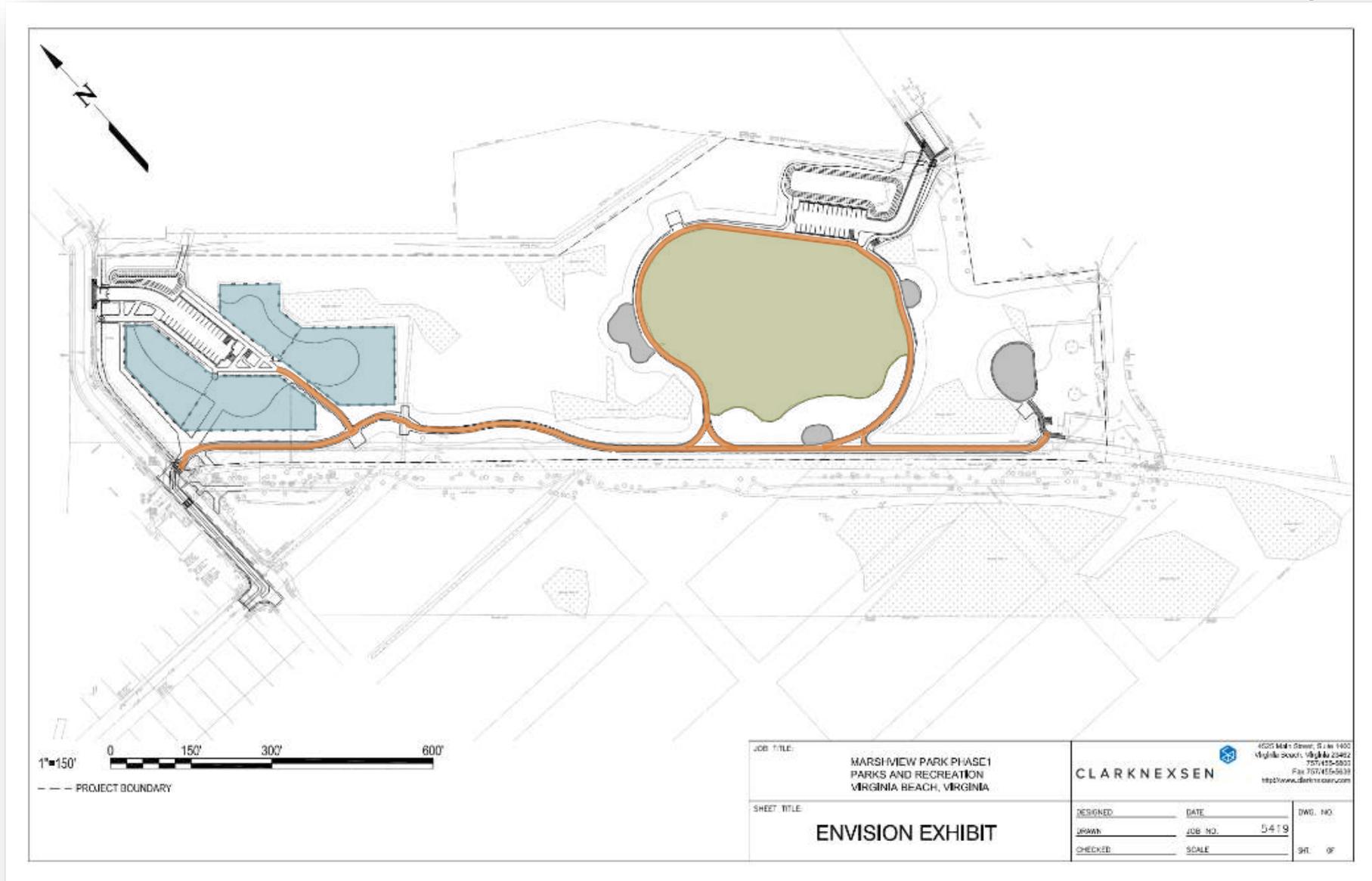
### Crime Prevention Through Environment and Design (CPTED)

Due to the wooded and secluded aspects of portions of the site, CPTED principles should be applied to all development phases. These principals are: natural surveillance, natural access control, natural territorial reinforcement, maintenance, and activities support. These principles will become extremely important as the central and southeastern sections of the park are developed. Activation of these areas through a variety of potential uses will reinforce the ownership and management of the property and discourage undesired activities.

# Marshview Park Credits Complying with Master Plan



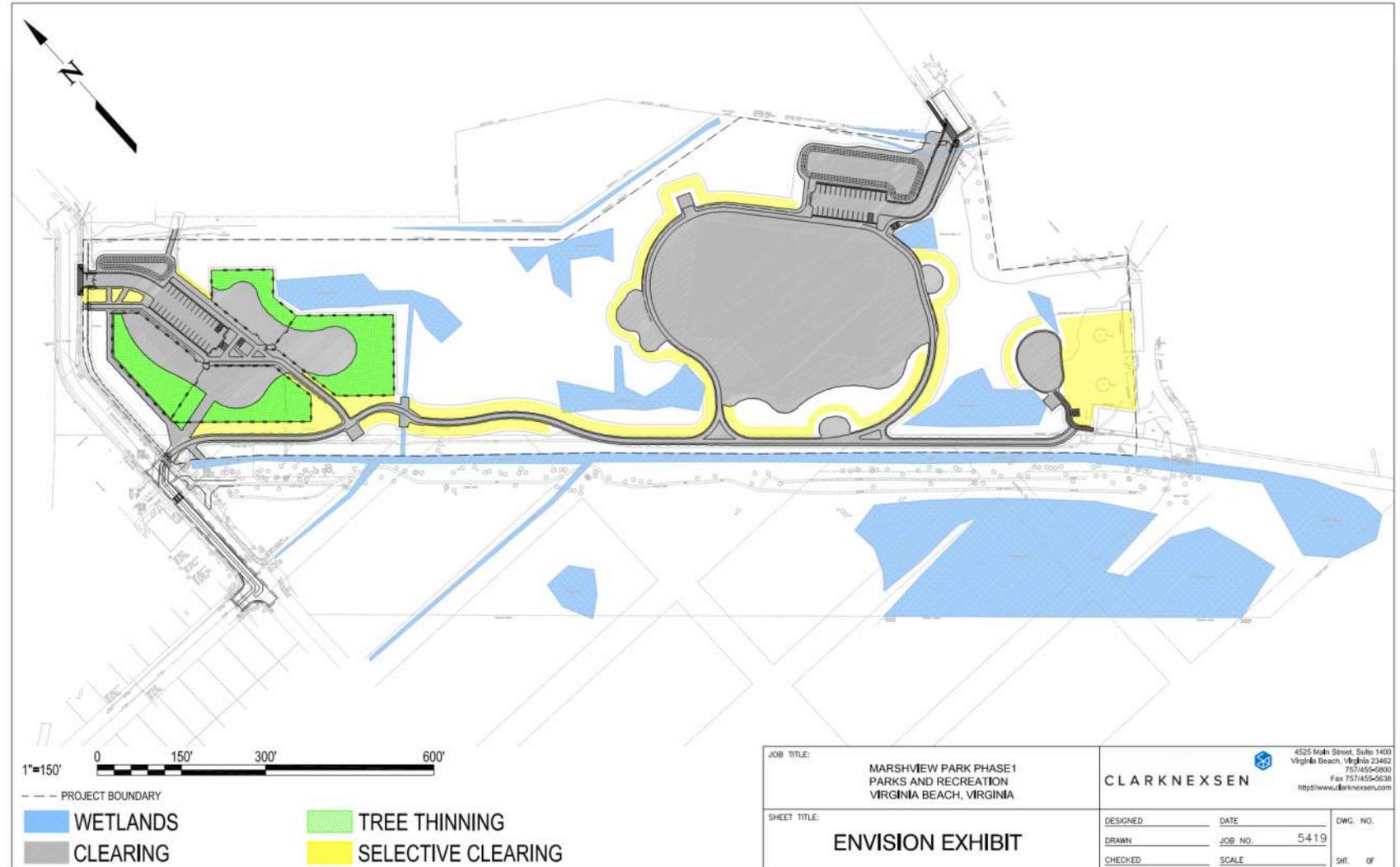
- Comprehensive Plan
- Sustainability Plan
- Outdoors Plan
- Bikeways and Trails Plan



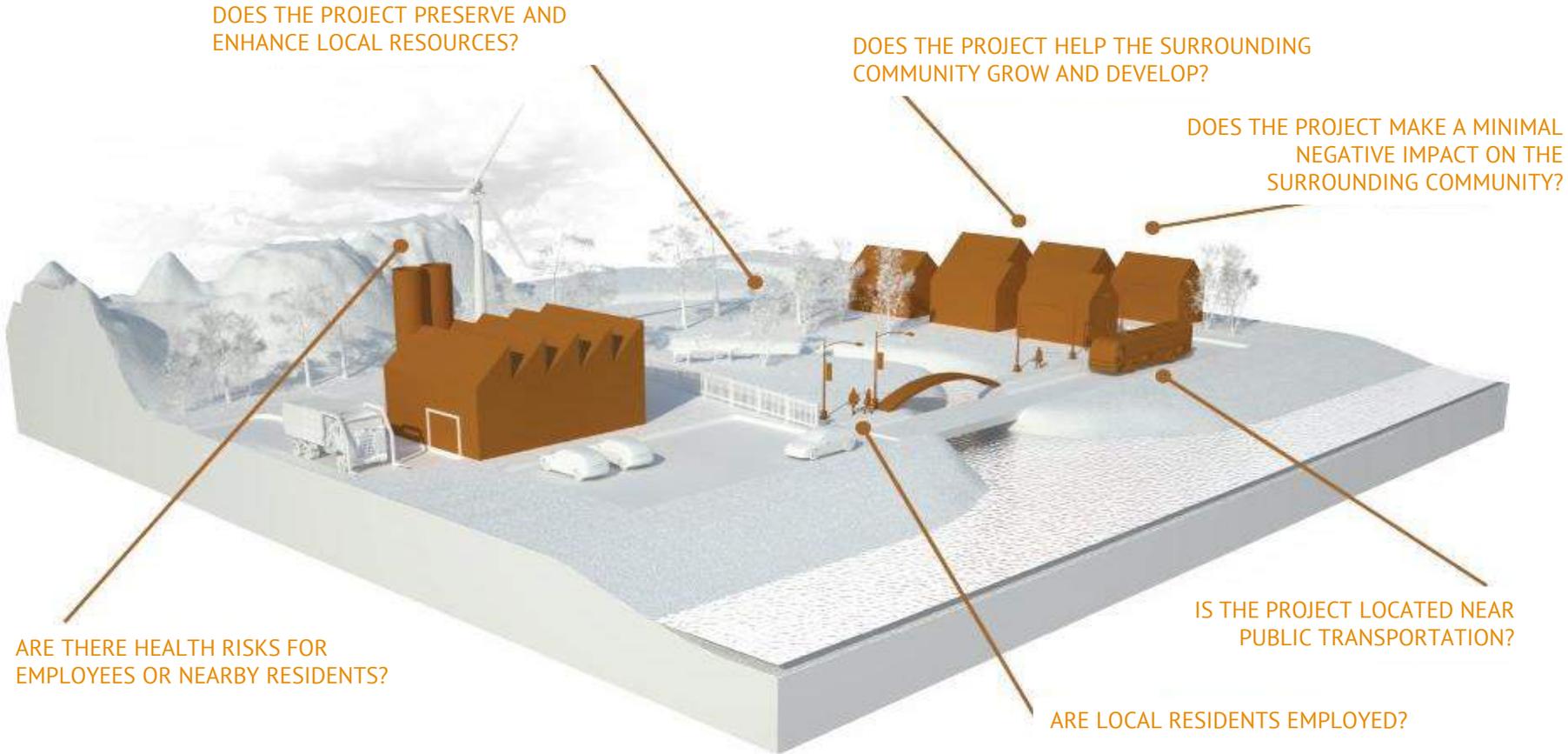
# Marshview Park Credits Complying with Parks



**NATURAL  
WORLD**



# QUALITY OF LIFE



# Quality of Life 1.1 – Improve Community Quality of Life



N/A	0	Improved	Enhanced	Superior	Conserving	Restorative
	0	2	5	10	20	25

- Through rehabilitation of important community assets (e.g., upgraded and extended access, increased safety, improved environmental quality, and additional infrastructure capacity) the project substantially reinvigorates the host and nearby communities.
- Working in genuine collaboration with stakeholders and community decision makers, the project owner and the project team scope the project in a way that elevates community awareness and pride. Overall quality of life in these communities is markedly elevated.
- **11 documents submitted**

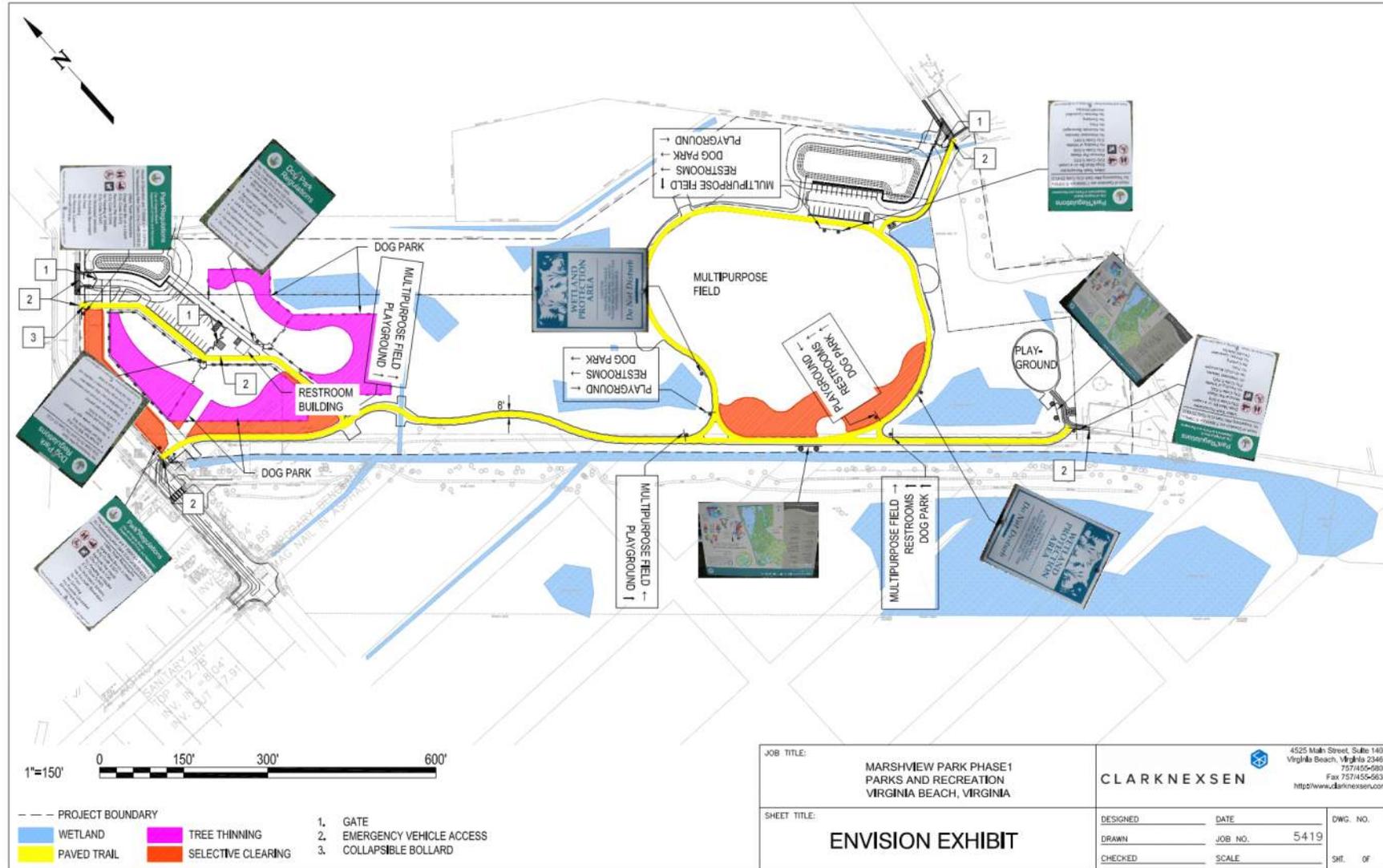


# Quality of Life 2.6 Improve Site Accessibility, Safety and Wayfinding



N/A	Improved	Enhanced	Superior	Conserving	Restorative
0	-	3	6	12	15

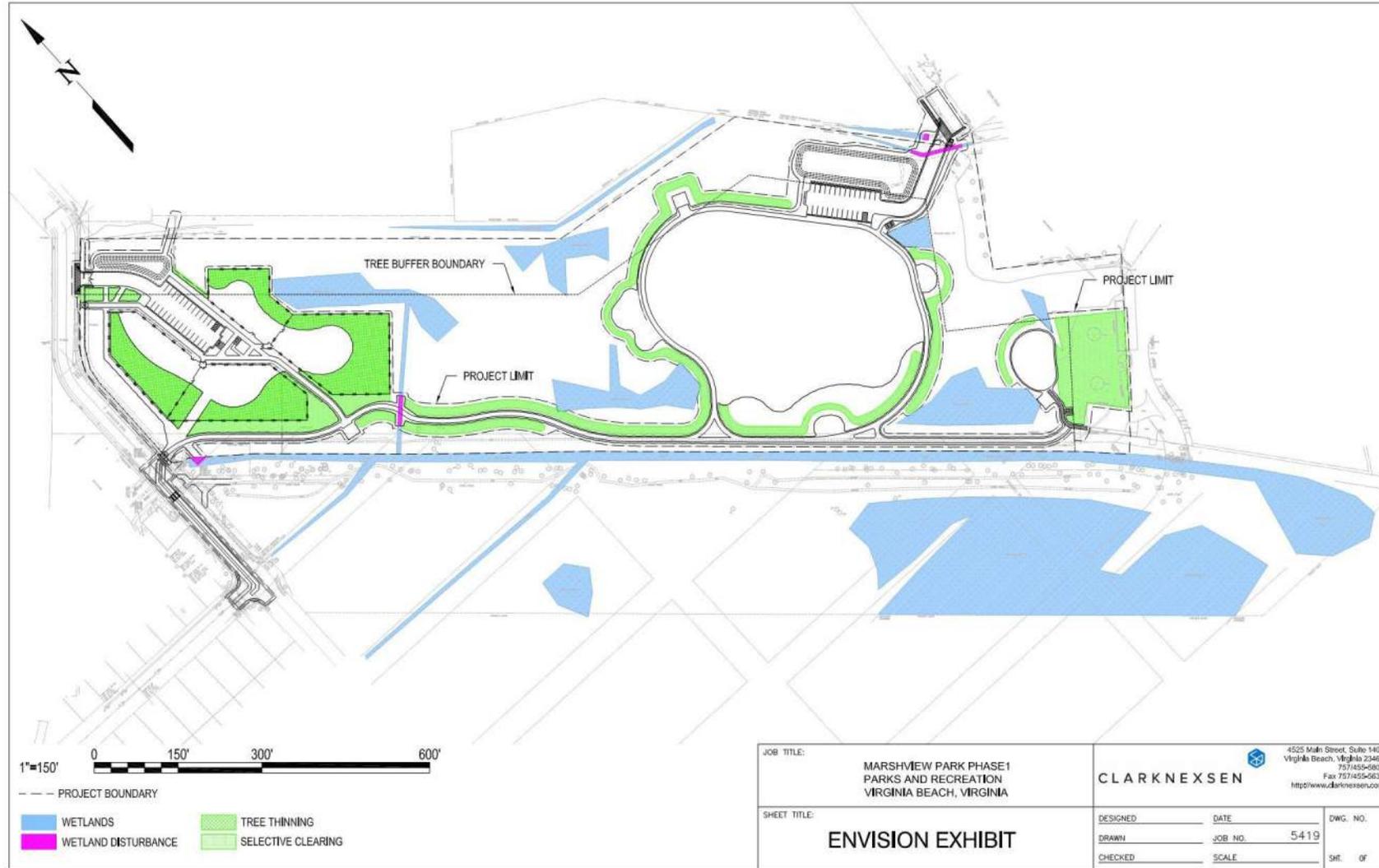
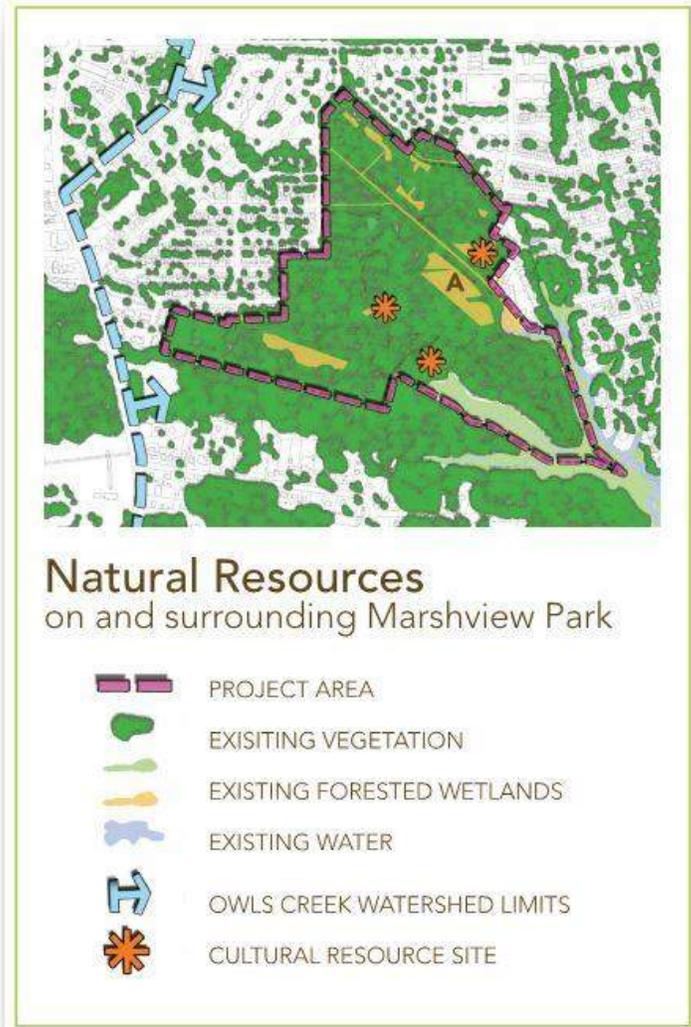
- Beyond the accessibility, safety, and wayfinding aspects of the project, the changes made to the site and general vicinity of the completed project improve overall access and safety of the adjacent neighborhoods, providing an increase from previous levels.



# Quality of Life 3.2 – Preserve Views and Local Character



N/A	0	Improved	Enhanced	Superior	Conserving	Restorative
	0	1	3	6	11	14

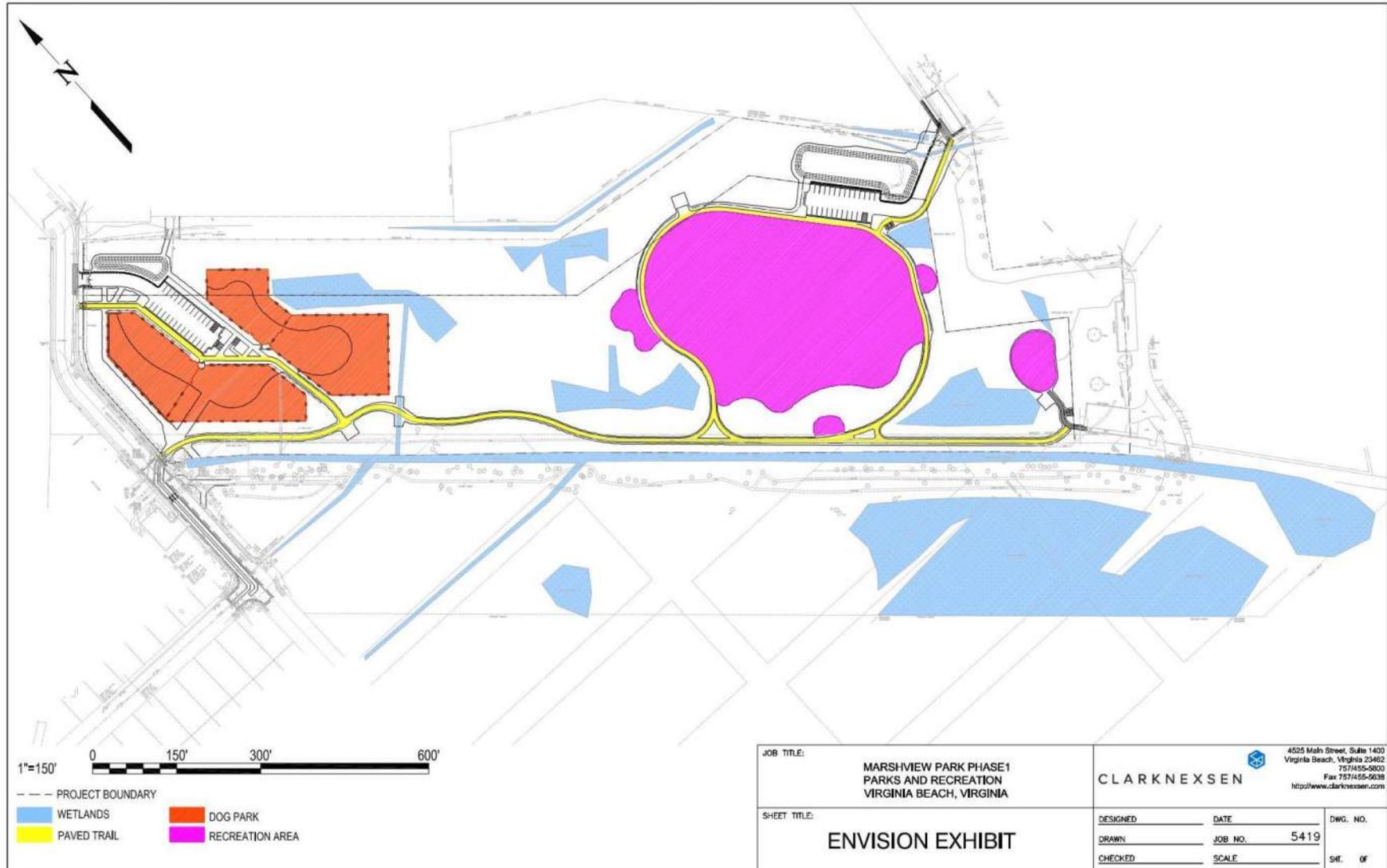


# Quality of Life 3.3 – Enhance Public Space

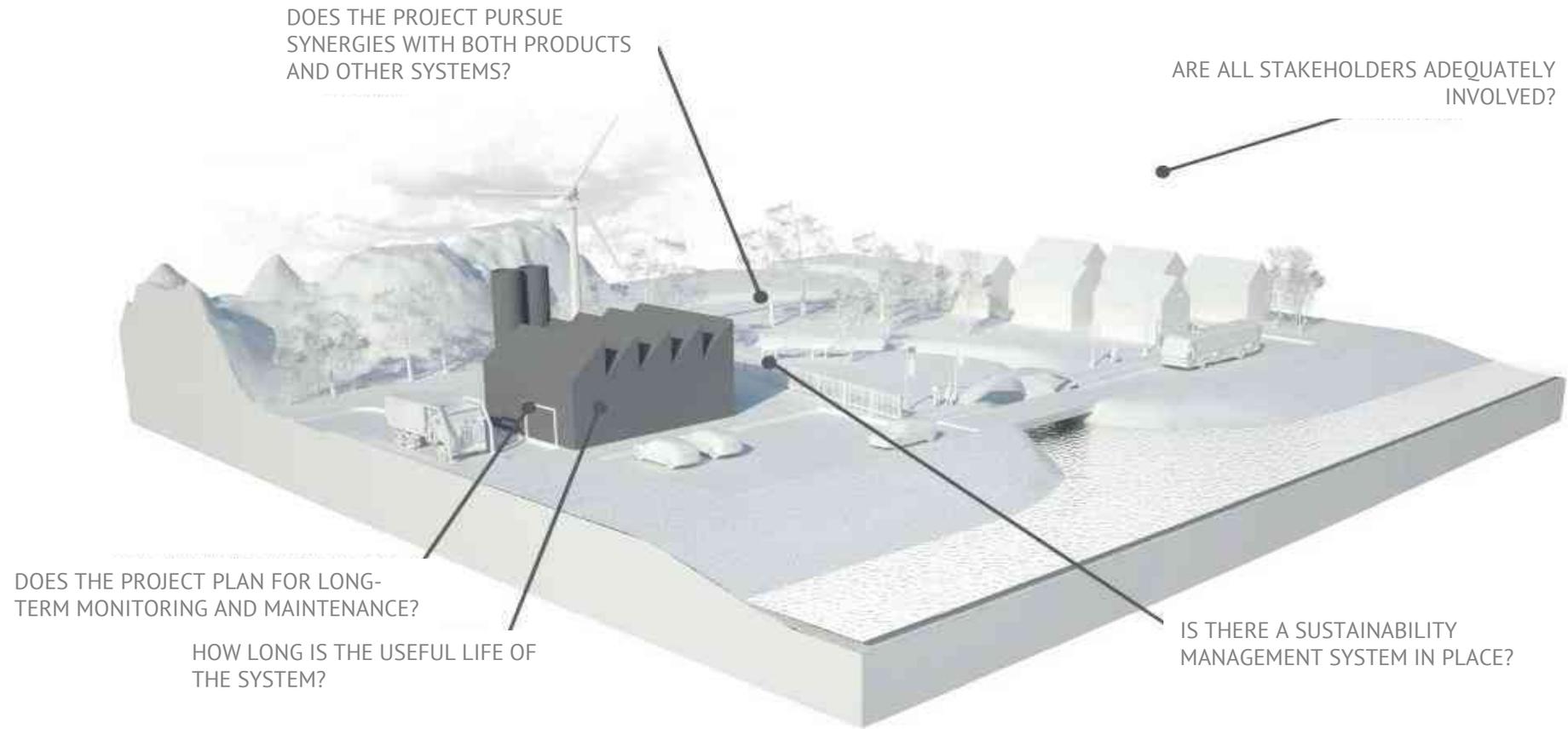


N/A	Improved	Enhanced	Superior	Conserving	Restorative
0	1	3	6	11	13

- Will the project add to public space in a way that significantly enhances community livability?
- Studies and assessments of the impact of the project on existing public space.
- Design documents describing any new public space developed as part of the project.
- Reports documenting determination of benefits, improvements, negative impacts.
- Reports documenting determination of risks to public health and safety.
- Acceptance by the appropriate public agencies.
- Letters, memoranda, and minutes of meetings with stakeholders showing stakeholder satisfaction.
- Plans and drawings showing the scope and extent of any restoration efforts to be made on public space.



# LEADERSHIP



# Leadership 1.4 – Provide for Stakeholder Involvement



N/A	0	Improved	Enhanced	Superior	Conserving	Restorative
	0	1	5	9	14	



- Citizen Information Meetings, City Officials Meeting, Virtual Town Hall Forum
- Key stakeholders are Clark Nexsen, Virginia Beach Parks and Recreation, Virginia Beach residents, the U.S. Navy Oceana

**CITIZEN INFORMATION MEETING**  
**Marshview Park Phase I**  
**CIP 4-306.011**  
**Thursday, August 20, 2015**  
**Seatack Recreation Center Program Annex Building**  
**5:00 p.m. – 7:00 p.m.**

### COMMENTS SUMMARY

13 comment forms were received during the CIM and 19 additional comment forms were received via the on-line City Virtual Town Hall for a total of 32 respondents.

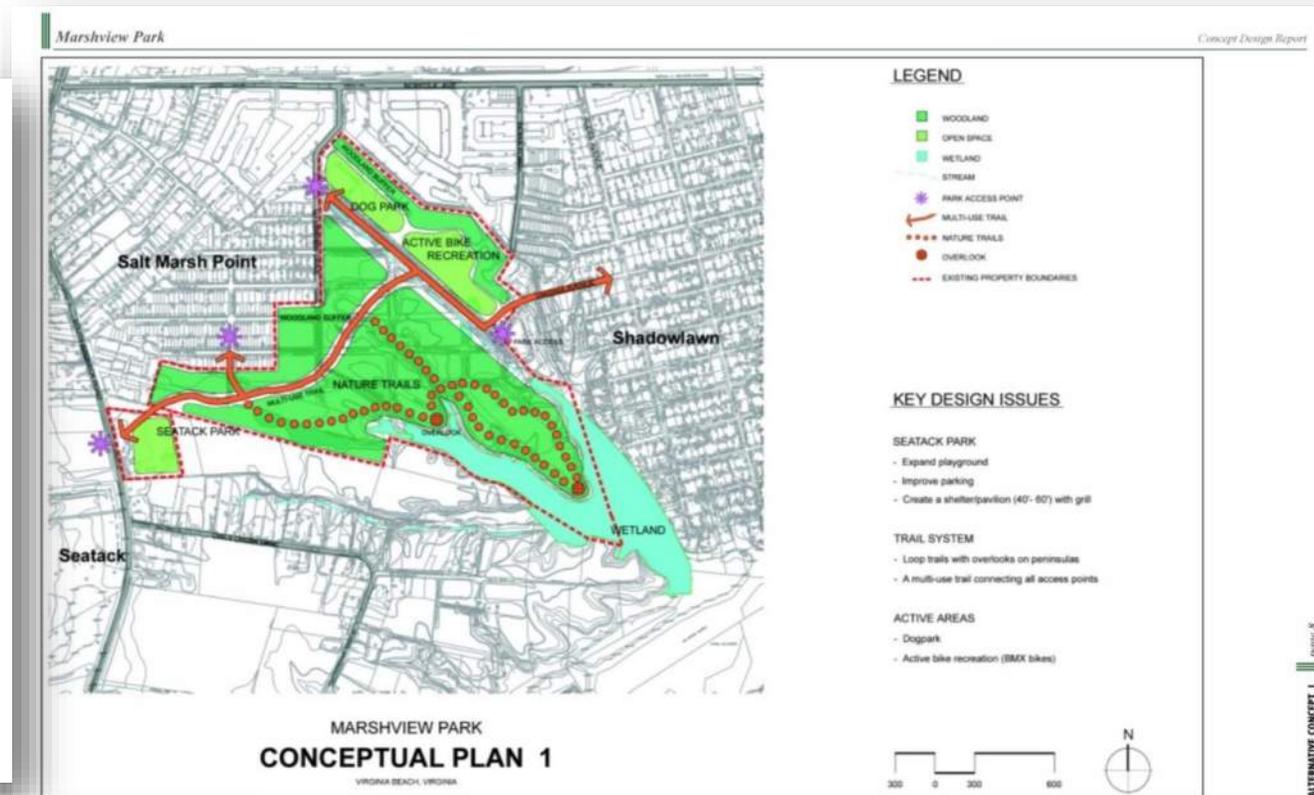
The majority of the respondents support the project.

75% of respondents support the project.

3% of respondents do not support the project.

22% of respondents answered both “Yes” and “No”, or did not provide a specific response.

Many of the comments received focused on potential safety concerns and the request for disc golf.



# Citizen Information Meeting



Citizen Information Meeting  
**Marshview Park Phase I**  
 CIP 4-306.011  
 Thursday, August 20, 2015, 5:00-7:00 p.m.  
 Seatack Recreation Center Program Annex Building

(Please Print)

Name: Elaine  
 Street Address: \_\_\_\_\_

Telephone Number: \_\_\_\_\_ Email: \_\_\_\_\_

1. Do you support the improvements to Marshview Park as presented tonight? Yes  No \_\_\_\_\_

Why or why not? Provides for buffers to neighboring housing and "natural" themes, like dog parks.

2. Please provide us with information you believe will assist in developing the final design of this project. Minimize formal structures. I like the tree-based play areas in the photos (top, middle + 1,20 photos)

3. Other comments: what can be done to minimize vandalism?

4. Do you feel the information was clearly presented at this meeting? Yes  No \_\_\_\_\_

5. Were your questions adequately answered? yes

Please leave this comment sheet at the designated location or mail your comments WITHIN 25 CALENDAR DAYS (September 14, 2015) to the addressee on the reverse.

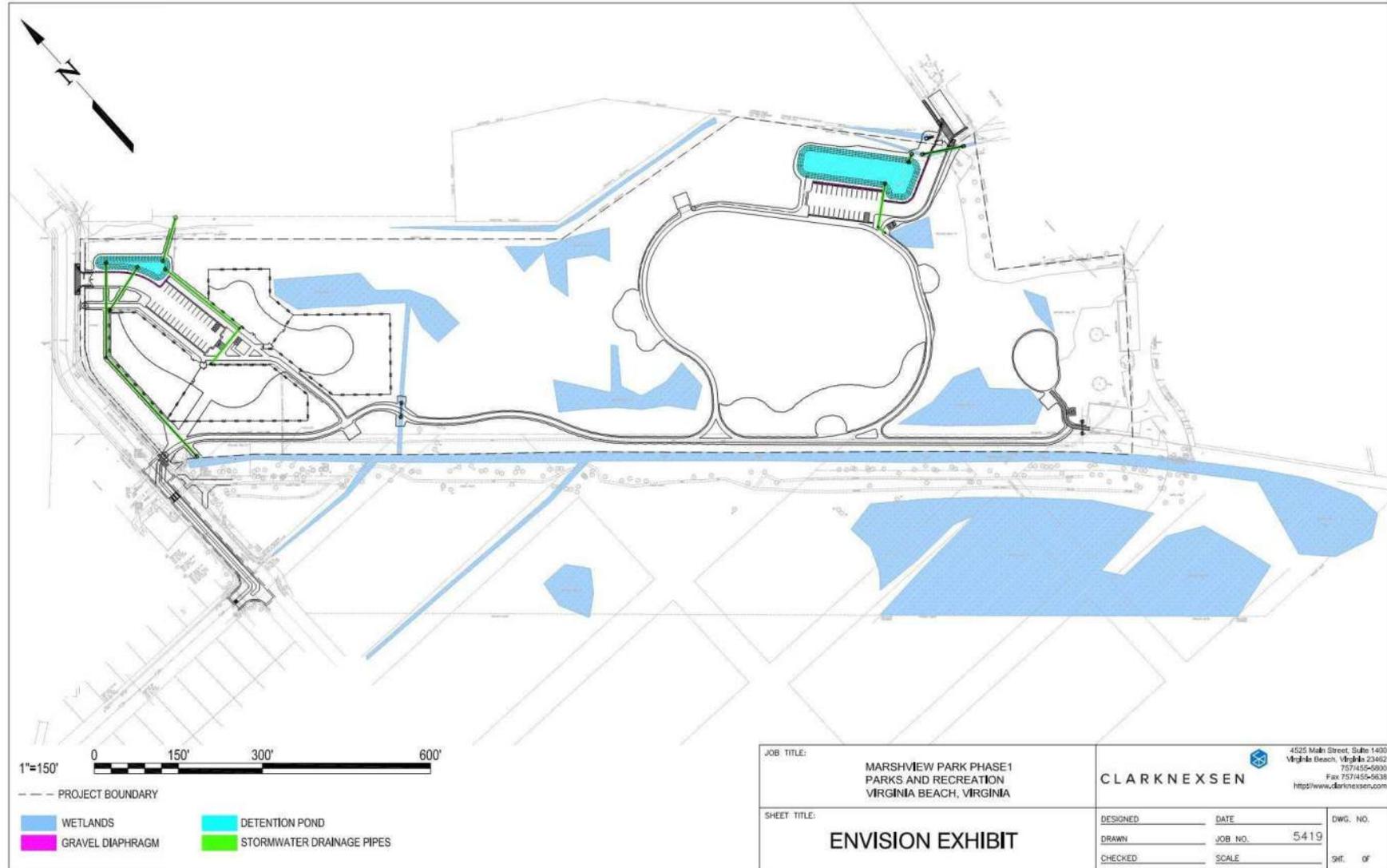


# Leadership 2.2 – Improve Infrastructure Integration



N/A	Improved	Enhanced	Superior	Conserving	Restorative
0	1	3	7	13	16

- Design documents showing improvements made and the degree to which these improvements were integrated with other community infrastructure elements.
- Documentation of the extent to which the project design explicitly brought other community infrastructure projects and designs into consideration.



# Leadership 3.1 – Plan for Long-term Monitoring and Maintenance



N/A		Improved	Enhanced	Superior	Conserving	Restorative
	0	1	3	-	10	-

- The city already had comprehensive maintenance plan, includes mowing, playground equipment installation/maintenance, fence and sign installation/maintenance, etc.
- VB Municipal code already in place outlining the funding for park maintenance, landscape management, and the planning, design, and development

Sec. 24-2. - Functions of department.

The department of parks and recreation shall be responsible for operating and maintaining all public parks, playgrounds and recreation facilities and grounds within the city government and organizing and conducting recreation programs, and shall have such other powers and duties as may be assigned by the council.

(Code 1965, § 2-145; Ord. No. 2824, 5-25-04)



## Landscape Management

Our mission is to provide internal support for the external delivery of parks facilities, recreation programs, public spaces, schools, and roadways through proactive asset management that focuses organizational resources and processes toward improving/enhancing the long-term value and viability of public assets and protects public investment.

The Landscape Management Division is responsible for all landscaping and grounds maintenance of City building sites, school sites, park sites, roadways and the resort area, including:

- 512 building sites
- 82 school sites
- 5,500 acres of parks
- 816 miles of roadway
- 1,700 individual locations and land parcels dispersed throughout the City

Our Services

- Request Landscape Services
- Customer Service Evaluation
- Beautification Program

# Leadership 0.0 – Innovate or Exceed Credit Requirements

[Maximum Level 6]	1	2	3	4	5	6
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- Sought 6 additional points for exceeding this category, verifier agreed to 2
- This credit is being applied along with credit LD 1.4 because the project includes extensive stakeholder involvement.
- Unique use of the land.
- Property was originally zoned for residential, where several streets and over 400 residential lots were planned.
- Prevented the residential expansion and preserved the forest and wetlands on the site.
- Collaboration between the U.S. Navy, City of Virginia Beach, key stakeholders from the U.S. Navy, the City of Virginia Beach, the general public, and the initial design team.

**Verifier**

Updated on 12-12-2016

There is no question the team did an excellent job engaging a wider community for this project. Much of the rationale provided for exceeding the credit requirements for LD1.4 point to actions that took place years ago, making it difficult for the verifier to award more points for the current project being submitted.



## Public Involvement

Key stakeholders, adjacent residents and general citizens have been engaged in discussion about the future development of Marshview Park since 2002 with the development of the first conceptual master plan. Below is a list of public comments from those meetings. These comments along with the performance of a detailed contextual and site analysis led to the development of two conceptual master plan alternatives described below.

### 2002 Public Input and Guidance

- Expansion of existing Seatack Park to west of park
- Multi-use path system
- More active recreation opportunities near the entrance

### Top 5 Desired Park Elements

- Trail network
- Community gardens
- Non-motorized bike trails
- Keep Seatack park name
- Multipurpose pathways

### 2002 Informal Public Input

*Seatack:* more parking, fix drainage, larger family gathering opportunities

*Condos:* no parking, looking forward to trails

*Youth:* BMX



### 2012 Preliminary Site Concepts

#### 2012 Concept 1 Key Aspects

(see pages 22-23)

- Responds to existing trail alignment integrity
- Provides active recreation areas at the park perimeter
- Acquires the triangular piece of property adjacent to the northern edge of Seatack Community Park to facilitate access to the southwest portion of the site across City owned property, as well as to provide additional buffer space
- Trail linkage to the Virginia Aquarium proposed research buildings
- Develops a comprehensive multi-use path system through the property for passive recreational use
- Provides wooded buffers for surrounding existing residential development
- Activates the center of the park with a centrally located park office
- Dog park and multipurpose fields
- Playground at end of Virginia Avenue
- Preservation and interpretation of historic site
- Small parking areas at key entrances
- Park restroom
- Tree preservation

#### Concept 2 Key Aspects

(see pages 24-25)

- Activates the center of the park with bike trails/pump tracks and a central park office/interpretative center
- Creates a destination, provides something unique to the area oceanfront tourism
- Provides for both community park and metro park elements
- Trail linkage to the Virginia Aquarium proposed research buildings
- Expands and improves Seatack Community Park providing more parking for special events
- Incorporates three (3) multi-purpose fields
- Acquires and utilizes the vacant parcels south of the park for park improvements
- Dog park
- Playground at end of Virginia Avenue
- Improved multi-use trail and soft trails
- Bike recreation area (BMX or pump track)
- Perimeter buffers
- Preservation and interpretation of the historic site
- Stormwater quality improvements
- Limited parking around the perimeter, bulk of parking is provided in the center portion of the park
- Restroom
- Tree preservation

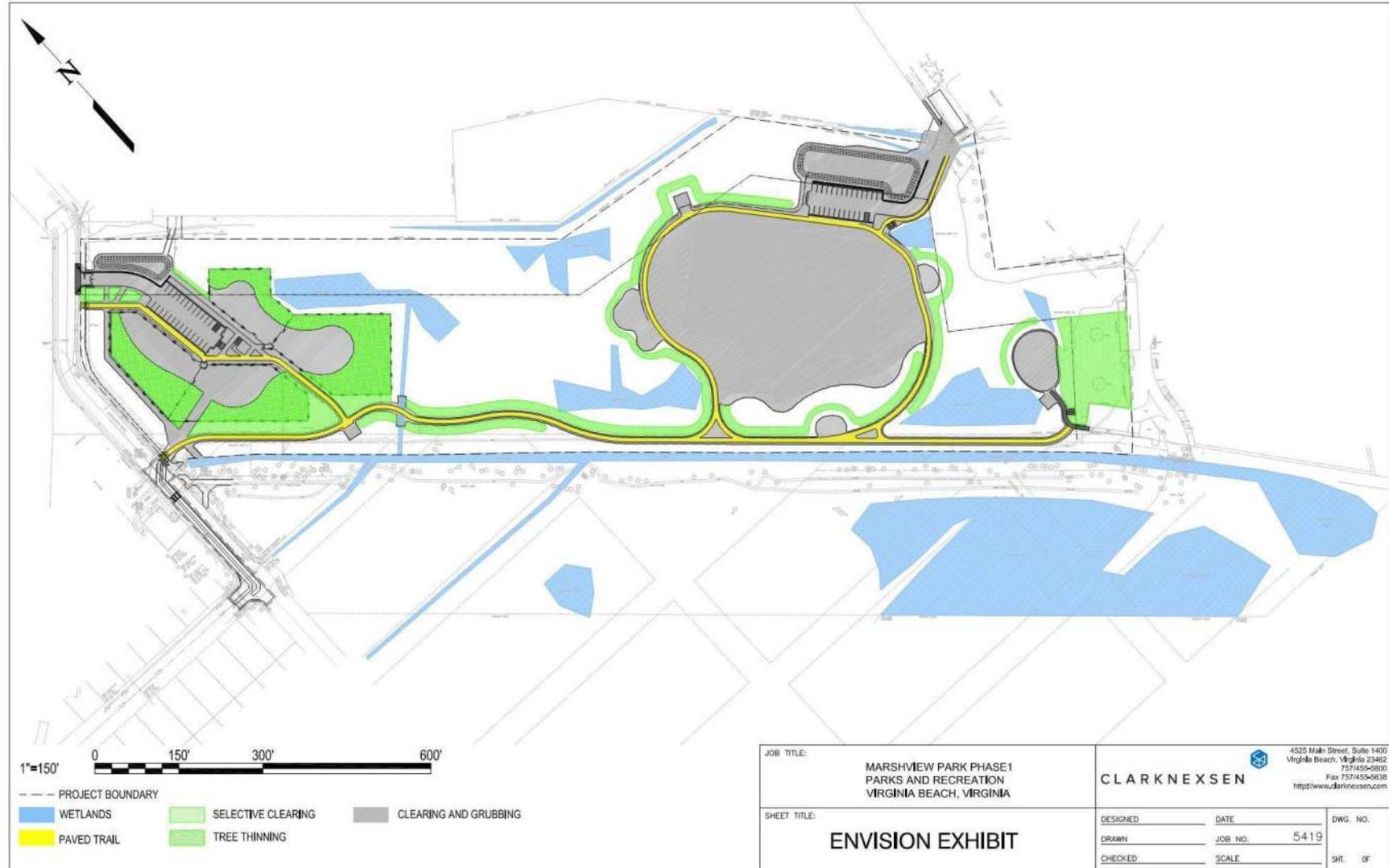


# Natural World 1.1 – Preserve Prime Habitat



N/A	Improved	Enhanced	Superior	Conserving	Restorative
0	-	-	9	14	18

- No critical habitats located in the project area
- Design team minimized impacts to other habitats on site, such as the wetlands and forests

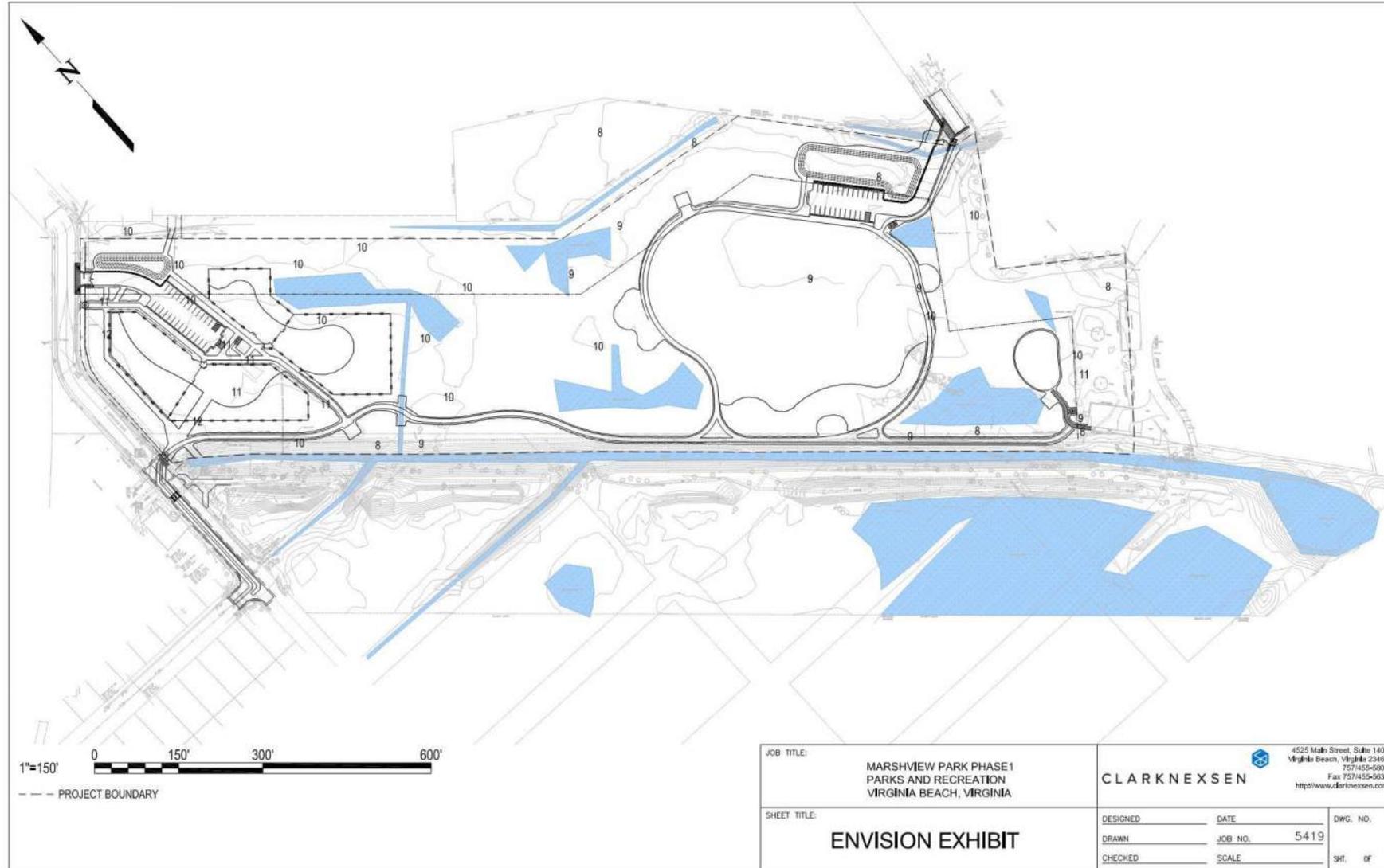


# Natural World 1.6 – Avoid Unsuitable Development on Steep Slopes



N/A		Improved	Enhanced	Superior	Conserving	Restorative
	0	-	-	4	6	-

- No steep slopes on the site.
- The location is in the flat, coastal area with slopes from 1-2.5% on most of the property.
- The steeper slopes on the southwestern border are the banks of a creek and will not be disturbed during construction.



# Natural World 3.2 – Control Invasive Species

N/A		Improved	Enhanced	Superior	Conserving	Restorative
	0	-	-	5	9	11



## Virginia Invasive Plant Species List

Scientific Name	Common Name	Virginia Invasiveness Rank	Mountain	Piedmont	Coastal
<i>Ailanthus altissima</i>	Tree-of-heaven	High	*	*	*
<i>Alliaria petiolata</i>	Garlic Mustard	High	*	*	*
<i>Alternanthera philoxeroides</i>	Alligator-weed	High	*	*	*
<i>Ampelopsis brevipedunculata</i>	Porcelain-berry	High	*	*	*
<i>Carex kobomugi</i>	Japanese Sand Sedge	High	*	*	*
<i>Celastrus orbiculatus</i>	Oriental Bittersweet	High	*	*	*
<i>Centaurea stoebe</i> ssp. <i>micranthus</i>	Spotted Knapweed	High	*	*	*
<i>Cirsium arvense</i>	Canada Thistle	High	*	*	*
<i>Dioscorea polystachya</i>	Cinnamon Vine	High	*	*	*
<i>Elaeagnus umbellata</i>	Autumn Olive	High	*	*	*
<i>Euconymus alatus</i>	Winged Euonymus	High	*	*	*
<i>Ficaria verna</i>	Lesser Celandine	High	*	*	*
<i>Hydrilla verticillata</i>	Hydrilla	High	*	*	*
<i>Iris pseudacorus</i>	Yellow Flag	High	*	*	*
<i>Lespedeza cuneata</i>	Chinese Lespedeza	High	*	*	*
<i>Ligustrum sinense</i>	Chinese Privet	High	*	*	*
<i>Lonicera japonica</i>	Japanese Honeysuckle	High	*	*	*
<i>Lonicera maackii</i>	Amur Honeysuckle	High	*	*	*
<i>Lonicera morrowii</i>	Morrow's Honeysuckle	High	*	*	*
<i>Lythrum salicaria</i>	Purple Loosestrife	High	*	*	*
<i>Microstegium vimineum</i>	Japanese Stiltgrass	High	*	*	*
<i>Murdannia kelsak</i>	Marsh Dewflower	High	*	*	*
<i>Myriophyllum aquaticum</i>	Parrot Feather	High	*	*	*
<i>Myriophyllum spicatum</i>	Eurasian Water-milfoil	High	*	*	*
<i>Persicaria perfoliata</i>	Mill-a-minute	High	*	*	*
<i>Phragmites australis</i> ssp. <i>australis</i>	Common Reed	High	*	*	*
<i>Pueraria montana</i> var. <i>lobata</i>	Kudzu	High	*	*	*
<i>Reynoutria japonica</i>	Japanese Knotweed	High	*	*	*
<i>Rosa multiflora</i>	Multiflora Rose	High	*	*	*
<i>Rubus phoenicolasius</i>	Wineberry	High	*	*	*
<i>Sorghum halepense</i>	Johnson Grass	High	*	*	*
<i>Urtica dioica</i>	European Stinging Nettle	High	*	*	*
<i>Acer platanoides</i>	Norway Maple	Medium	*	*	*
<i>Agrostis capillaris</i>	Colonial Bent-grass	Medium	*	*	*
<i>Akebia quinata</i>	Five-leaf Akebia	Medium	*	*	*
<i>Albizia julibrissin</i>	Mimosa	Medium	*	*	*
<i>Anthraxan hispidus</i> var. <i>hispidus</i>	Joint Head Grass	Medium	*	*	*
<i>Berberis thunbergii</i>	Japanese Barberry	Medium	*	*	*
<i>Cirsium vulgare</i>	Bull Thistle	Medium	*	*	*
<i>Dipsacus fullonum</i>	Wild Teasel	Medium	*	*	*
<i>Egeria densa</i>	Brazilian Waterweed	Medium	*	*	*
<i>Eucnymus fortunei</i>	Winter Creeper	Medium	*	*	*
<i>Glechoma hederacea</i>	Gill-over-the-ground	Medium	*	*	*
<i>Hedera helix</i>	English Ivy	Medium	*	*	*

VIRGINIA BEACH PARKS & RECREATION

### meadow management



Meadow management is a method of converting manicured lawn to meadows to protect our waterways, while also establishing more efficient maintenance and management practices. Meadow management limits woody vegetation growth by annual mowing, while allowing grassy, native vegetation to become established. Meadows are better buffers than manicured lawns because they:

- Filter sediment, excess nutrients and other pollutants before they enter our waterways;
- Protect sensitive wildlife and plant species;
- Reduce shoreline erosion;
- Reduce labor & fuel costs; and
- Reduce potential for injuries or equipment damage.

#### Where can meadows be established?

- As buffers along natural shorelines and streams, but only to the top of bank
- As buffers for man-made ponds and canals, but only to the top of bank
- Areas required to be vegetated by the Chesapeake Bay Preservation Area Ordinance
- Areas required to be vegetated by the Southern Watersheds Management Ordinance
- Other areas may be suitable for meadow management. Please refer to City Code Section 23-50 at [www.vbgov.com](http://www.vbgov.com) or contact Landscape Management at (757) 385-4461 for more information.
- The Chesapeake Bay Preservation Area Ordinance and the Southern Watersheds Management Ordinance may prohibit clearing a forested shoreline buffer to create a managed meadow. Please contact the Environment & Sustainability Office at (757) 385-4621 for more information.

#### How are meadows created & maintained?

- Identify the area to become a meadow. To gain environmental benefits, a minimum 20-foot wide meadow buffer is desirable, but the buffer cannot extend beyond the top of bank unless exempted under City Code.
- Establish a new mowing cycle. This is determined by the meadow location and the amount of woody vegetation. To control woody vegetation, mow no more than once per year, to a minimum height of 6 inches, in November to February.
- Selectively remove woody shrubs and trees, and control invasive species using approved practices.
- Meadows may be enhanced by seeding wildflowers or planting other perennials that tolerate winter mowing.
- Meadows will begin to appear in a month or two, with native wildflowers blooming in a year or more.

**Experience the Fun!**  
Virginia Beach Parks and Recreation  
Landscape Management Division  
4141 Dam Neck Road • Virginia Beach, VA 23456  
[VBgov.com/parks](http://VBgov.com/parks) • [fun@VBgov.com](mailto:fun@VBgov.com)  
757-385-4461 (TTY: Dial 711)

The Department of Parks and Recreation is accredited by DAWPA, the accrediting agency of the National Recreation and Park Association.

VBGOV.COM/PARKS • FUN@VBGOV.COM

Printed on recycled paper with soy based ink. rev 5/11

**Conserving: Invasive species control.** The project team works with state and local agencies to identify current invasive species on the project site. The team establishes a comprehensive multiyear management plan to control invasive species.

# RESOURCE ALLOCATION



DOES THE PROJECT MINIMIZE THE USE OF FOSSIL-FUEL BASED ENERGY?

CLARK NEXSEN

DOES THE PROJECT UTILIZE LOCAL MATERIALS?

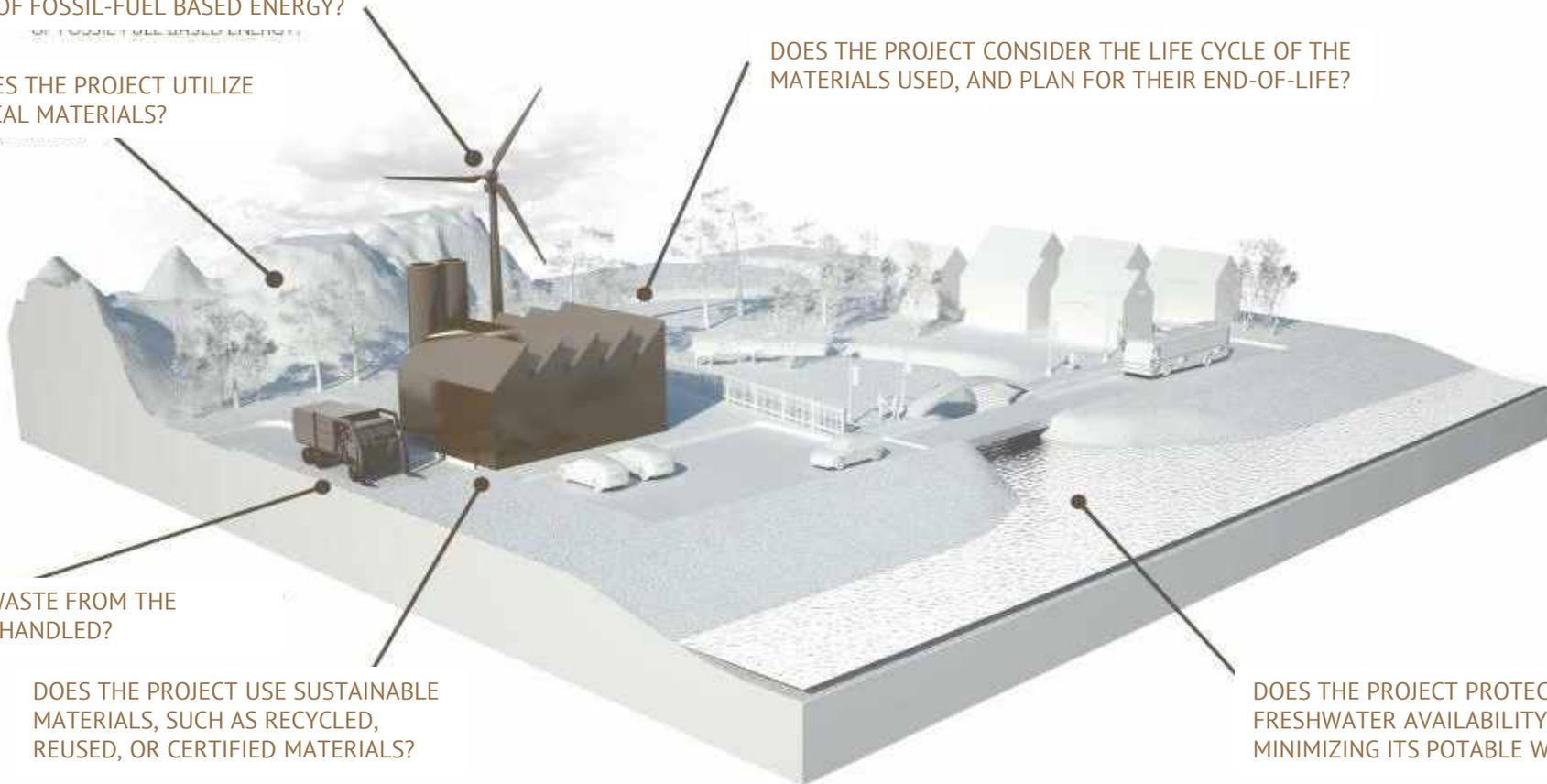
CLARK NEXSEN

DOES THE PROJECT CONSIDER THE LIFE CYCLE OF THE MATERIALS USED, AND PLAN FOR THEIR END-OF-LIFE?

HOW IS WASTE FROM THE PROJECT HANDLED?

DOES THE PROJECT USE SUSTAINABLE MATERIALS, SUCH AS RECYCLED, REUSED, OR CERTIFIED MATERIALS?

DOES THE PROJECT PROTECT FRESHWATER AVAILABILITY BY MINIMIZING ITS POTABLE WATER USE?

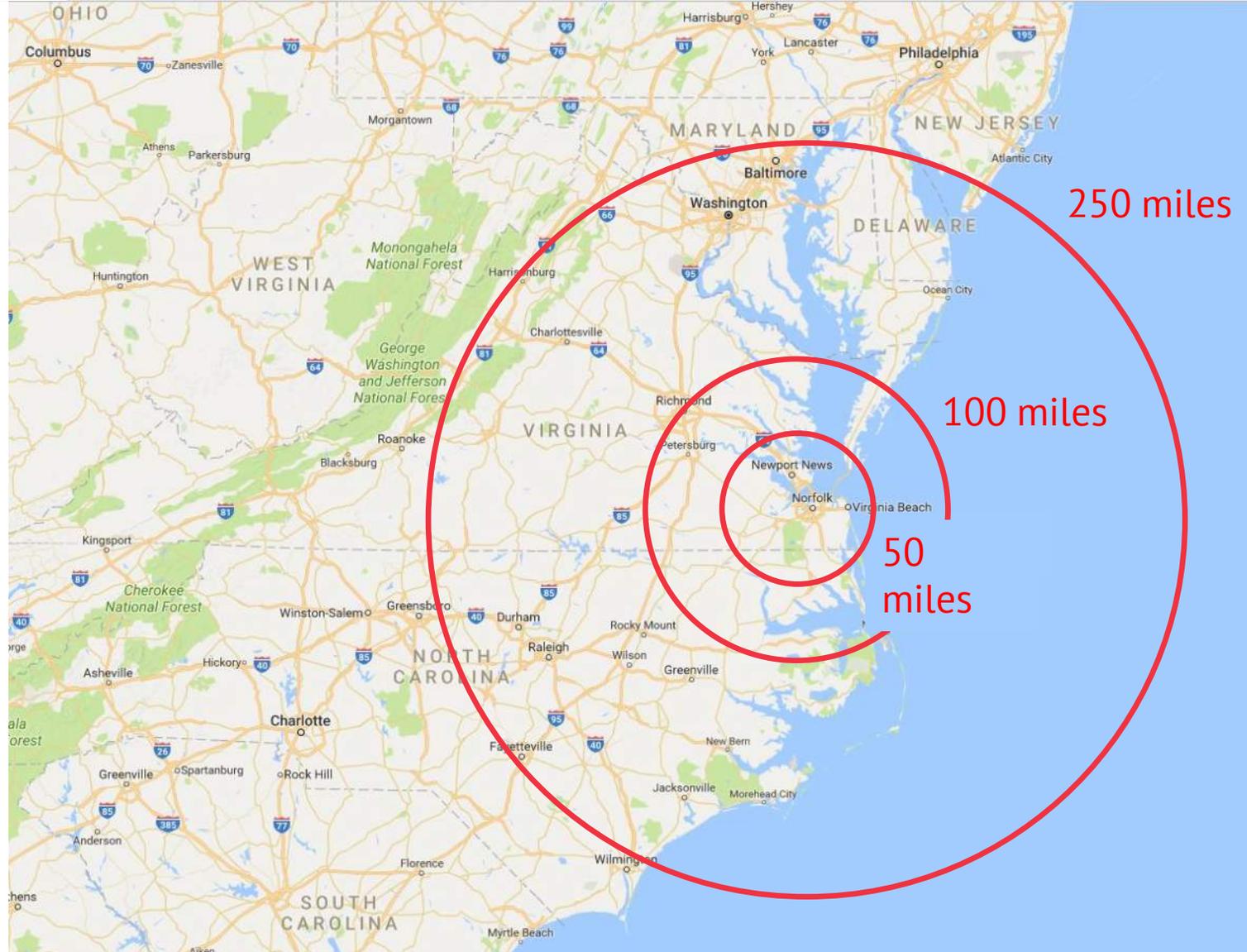


# Resource Allocation 1.4 – Use Regional Materials



N/A	Improved	Enhanced	Superior	Conserving	Restorative
0	3	6	9	10	-

- **At least 95% locally sourced.** At least 95% of all materials, plants, and soils are sourced within the distances specified: soils (50 mi, 80 km), aggregate (50 mi, 80 km), concrete (100 mi, 160 km), plants (250 mi, 400 km), and all other materials (500 mi, 800 km).



# Resource Allocation 1.4 – Use Regional Materials

1. THE CONTRACTOR SHALL CONTACT THE UTILITY OF ANY UNKNOWN LOCATION PRIOR TO BEGINNING WORK IN ORDER TO DETERMINE THE EXTENT AND LOCATION OF ALL UNDERGROUND UTILITIES WITHIN THE PROJECT LIMITS. UTILITY COMPANIES SHALL BE NOTIFIED THROUGH THE UTILITY OF ANY UNKNOWN LOCATION 48 HOURS PRIOR TO ANY EXCAVATION WITHIN THE PROJECT LIMITS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING OR REPLACING AT HIS OWN EXPENSE ANY EXISTING UTILITIES, PAVEMENT, CONCRETE FIBER PIPES, ETC. THAT ARE DAMAGED DURING CONSTRUCTION.
2. THE LOCATION AND EXTENT OF EXISTING UTILITY FACILITIES ARE SHOWN BASED UPON INFORMATION AVAILABLE AT THE TIME OF DESIGN.
3. UNLESS OTHERWISE NOTED, RELOCATION OF UTILITIES SHALL BE COMPLETED PRIOR TO PLACEMENT OF BASE MATERIAL OR PAVEMENTS.
4. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND IDENTIFYING ALL VALVES AND AIR VENTS OF EXISTING UTILITIES PRIOR TO STARTING CONSTRUCTION.
5. THE CONTRACTOR SHALL MAINTAIN FULL ACCESS TO VALVES AND HYDRANTS.
6. WHEN IT IS NECESSARY TO DESTURB EXISTING DRAINWAYS BEYOND THE PROPOSED PROJECT FROM THE CONTRACTOR SHALL NOTIFY THE EXISTING OWNERS, THE CITY ENGINEER WHEN CONSTRUCTING THE TRAIL.
7. THE CONTRACTOR SHALL KEEP THE PROJECT AREA IN A CLEAN CONDITION THROUGHOUT CONSTRUCTION.
8. WHEN MATERIAL UNSUITABLE FOR FOUNDATIONS, SUBGRADE OR OTHER ROADWAY PURPOSES WITHIN THE LIMITS OF CONSTRUCTION SHALL BE EXCAVATED SUCH MATERIAL SHALL BE STOCKPILED IN THOSE EXCAVATED AREAS WITH APPROVED MATERIALS. THE CONTRACTOR SHALL NOTIFY THE PUBLIC WORKS ENGINEERING CONSTRUCTION INSPECTOR AT HIS OWN EXPENSE.
9. THE CONTRACTOR SHALL GRADE DISTURBED AREAS TO THE FOLLOWING SPECIFICATIONS: ENGINEER OR NOTED BY THE PLANS, CUT SLOPES 3:1 (H) AND FILL SLOPES 3:1 (H).
10. THE CONTRACTOR SHALL PLACE A MINIMUM OF FOUR INCHES OF TOPSOIL ON ALL DISTURBED AREAS.
11. THE CONTRACTOR SHALL REPLACE ANY VALVE BOXES, REBERS, COVERS LOST OR DAMAGED.
12. ALL VALVE BOXES AND MANHOLES WITHIN THE LIMITS OF CONSTRUCTION SHALL NOT BE EXCAVATED AND ELEVATION ADJUSTED ACCORDINGLY, AND THE ELEVATION CHANGE BY BUILDING UP THE BRICKS, UNLESS OTHERWISE NOTED.
13. ALL EXISTING UTILITY APPURTENANCES (VALVES, WATER METERS, CLEANOUTS, ETC.) TO REMAIN SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE.
14. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACCESS TO ALL STREETS, POWER, SIGNAL, AND TELEPHONE LINES.
15. SANITARY LATERAL SERVICE CONNECTIONS, SERVICES AND SANITARY CLEANOUTS SHALL BE REPAIRED TO THE RIGHT OF WAY LINE AND CONNECTED TO THE EXISTING LATERAL.
16. THE CONTRACTOR SHALL CAREFULLY EXCAVATE DOWN TO THE EXISTING UTILITY LINES OR STORM DRAIN PIPES AND VERIFY THE OUTSIDE DIAMETER OF THE UTILITY OR STORM DRAIN PIPE FOR EACH CONNECTION TO EXISTING UTILITY OR STORM DRAIN. THE CONTRACTOR SHALL FENCE AND SAFELY MAINTAIN ANY EXISTING UTILITY OR STORM DRAIN PIPES.
17. THE CONTRACTOR SHALL WORK WITHIN THE RIGHT-OF-WAY AND CITY ZONED PROPERTY, UNLESS SPECIFICALLY AUTHORIZED TO WORK IN EASEMENTS.
18. THE CONTRACTOR SHALL INSPECT TEMPORARY PAVEMENT PATCHES AT THE END OF EACH DAY AND AFTER RAINFALL FOR DAMAGE. THE CONTRACTOR SHALL HAVE THE REPAIRS REQUIRED TO PATCH TO A SMOOTH, STABLE FINISH SURFACE. TEMPORARY PAVEMENT PATCHES SHALL BE INCLUDED IN THE COST OF THE PROJECT.
19. PROPOSED ROADWAY DRAINAGE SYSTEM CONSTRUCTION SHALL BE TO MATCH EXISTING ELEVATIONS. THE CONTRACTOR SHALL VERIFY THE EXISTING TOP OF CURB AND PAVEMENT ELEVATIONS PRIOR TO ANY DEMOLITION AT DRAINAGE STRUCTURE AND SLOPE ADJUSTING LOCATIONS. THE NEW ROADWAY ELEVATION AND SLOPE AFTER NEW CONSTRUCTION SHALL BE MATCHED WITH EXISTING PAVEMENT PLANS AND PAVEMENT OVERLAP. PROPOSED GRADES CONVEY DRAINAGE INTENT AND GRADES MAY VARY SLIGHTLY BASED ON FIELD CONDITIONS. POSITIVE GRADES MUST BE MAINTAINED AT ALL TIMES. ALL CONCRETE ITEMS SUCH AS SIDEWALK, CURB AND GUTTER, AND DRAINAGE STRUCTURES SHALL BE CHECKED AND VERIFIED FOR CORRECT ELEVATION IN THE FIELD BEFORE THEY ARE CONSTRUCTED.
20. ALL ELEVATIONS FOR DRAIN AND OTHER MANHOLES, WATER VALVE COVERS, GAS GATES, ELECTRIC AND TELEPHONE PULL BOXES AND OTHER SUCH ITEMS, ARE APPROXIMATE AND SHALL BE SET BACK FLUSH WITH PROPOSED SURFACES.
21. CONCRETE SIDEWALK SHALL BE 4" THICK 3000 PSI CONCRETE, EXCLUDING 0.5:1 RAMP WHICH SHALL BE 7" THICK.
22. HALL ROUTE FOR LOGGING TRUCKS SHALL BE VIA MARSHVIEW DRIVE TO NORFOLK AVENUE. HALL ROUTE FOR OTHER MATERIALS SHALL BE VIA MARSHVIEW DRIVE OR VIA NORFOLK AVENUE. CONTRACTOR SHALL OBTAIN HAULING PERMIT FROM THE DEPARTMENT OF PLANNING.
23. THE CONTRACTOR SHALL MAINTAIN A MINIMUM OF FOUR FOOT HORIZONTAL CLEARANCE BETWEEN UTILITY LINES AND OTHER APPURTENANCES UNLESS OTHERWISE NOTED ON THE PLANS.
24. UNLESS OTHERWISE NOTED, RELOCATIONS ARE TO EDGE OF PAVEMENT AND FACE OF CURB.
25. UNLESS OTHERWISE NOTED, FROM AREAS.
26. WORK SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE, NFPA 70 (2017), AND LOCAL CODES AND REGULATIONS, OBTAIN AND PAY FOR PERMITS AND INSPECTIONS REQUIRED BY THE BUILDING AND SAFETY CODES AND ORDINANCES, AND ALL RULES AND REGULATIONS OF ANY LEGAL BODY HAVING JURISDICTION.
27. RESURFACING SHALL BE BASE OF FREE TRAFFIC.
28. AS NECESSARY, REGRADE DISTURBED AREAS WITH NEW CULVERT PIPES TO ENSURE POSITIVE DRAINAGE.
29. THE CONTRACTOR SHALL PROVIDE WRITTEN NOTIFICATION TO ALL OWNERS AND RESIDENTS OF ANY PROPERTY ADJACENT TO A DEVELOPMENT OR OFF-ROUTE IMPROVEMENTS SUBJECT TO THE CONSTRUCTION OF WORK UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER.
30. STORM SEWER IN AREAS OF EXISTING PAVEMENT SHALL BE A STOCKPILE FOR DISTRIBUTION IN GRASSY AREAS, SOILS BELOW TOPSOIL SHALL BE PLACED IN A STOCKPILE FOR FILL.
31. RELOCATION OF UTILITIES:
  - A. SOILS: EXTRACTION, HARVEST, OR RECOVERY AND MANUFACTURE MUST OCCUR WITHIN 50 MILES
  - B. AGGREGATE: EXTRACTION, HARVEST, OR RECOVERY AND MANUFACTURE MUST OCCUR WITHIN 50 MILES
  - C. PLANTING: ALL GROWING FACILITIES FOR THE PLANT MUST BE LOCATED WITHIN 250 MILES
  - D. CONCRETE: MIX SHALL BE FROM WITHIN 100 MILES
  - E. ALL OTHER MATERIALS: EXTRACTION, HARVEST, OR RECOVERY AND MANUFACTURE MUST OCCUR WITHIN 500 MILES
32. ALL THERMOPLASTIC HOPE, PE AND NON-CONCRETE PIPE JOINTS AND CONNECTIONS SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH THE DETAILS SUPPLIED BY THE MANUFACTURE AND SHOWN ON THE PLAN. WHEN CONNECTING TO DRAINAGE STRUCTURES (PRECAST CAST-IN-PLACE CONCRETE BLOCK, BRICK, ETC.) ALL PIPES MUST BE INSTALLED IN ACCORDANCE WITH ASTM AND VDOT REQUIREMENTS AND THE PUBLIC WORKS SPECIFICATIONS AND STANDARDS SECTION 2.2.2 TO ELIMINATE THE POTENTIAL FOR LEAKAGE/Failure. TO BE SOIL TIGHT, AND LEAK RESISTANT (FLEXIBLE CONNECTORS)
33. TRASH RECEPTACLES WILL BE ON PADS THAT PARKS AND RECREATION WILL MAINTAIN

## FOR MATERIAL ACQUISITION:

- A. SOILS: EXTRACTION, HARVEST, OR RECOVERY AND MANUFACTURE MUST OCCUR WITHIN 50 MILES
- B. AGGREGATE: EXTRACTION, HARVEST, OR RECOVERY AND MANUFACTURE MUST OCCUR WITHIN 50 MILES
- C. PLANTS: ALL GROWING FACILITIES FOR THE PLANT MUST BE LOCATED WITHIN 250 MILES
- D. CONCRETE: MIX SHALL BE FROM WITHIN 100 MILES
- E. ALL OTHER MATERIALS: EXTRACTION, HARVEST, OR RECOVERY AND MANUFACTURE MUST OCCUR WITHIN 500 MILES

## INCIDENTAL DRAINAGE

1. TEMPORARY DRAINAGE DURING CONSTRUCTION SHALL BE PROVIDED BY THE CONTRACTOR TO RELIEVE AREAS THAT MAY CAUSE DAMAGE TO ROADWAYS ADJACENT PROPERTIES AS DIRECTED BY PUBLIC WORKS ENGINEERING CONSTRUCTION INSPECTOR (973-964-4131).
2. THE PUBLIC WORKS ENGINEERING CONSTRUCTION INSPECTOR SHALL PERFORM AN ON-SITE INSPECTION OF STORM SEWER PIPE INSTALLATION PRIOR TO ANY BACKFILLING OF THE INSTALLED PIPE.
3. EXISTING DRAINAGE STRUCTURES ARE USED. SHOP DRAWINGS SHALL BE SUBMITTED TO THE CITY ENGINEER BY THE CONTRACTOR, ALONG WITH THE PROPER CERTIFICATES, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER'S OFFICE.
4. ALL PROPOSED PUBLIC STORM DRAINAGE (18" OR LARGER) SHALL UTILIZE INLET SHAWING IN ACCORDANCE WITH VDOT 814-1 WITH FLOW BARRIERS, UNLESS OTHERWISE NOTED ON THE PLANS FOR EACH STRUCTURE.
5. MINIMUM 2" THICK COVER FOR ALL STORM SEWER PIPES. SHALL BE TWO FEET (2') OR MANUFACTURER'S RECOMMENDATION, SEE THE PHWS, SECTION 2.2.2.2 FOR FURTHER REQUIREMENTS.
6. ALL CONCRETE STORM SEWER PIPES IN THE CITY RIGHT-OF-WAYS AND EASEMENTS WILL BE TONGUE AND GROOVE PIPES SUBJECT TO TRAFFIC LOADING WILL BE REINFORCED CONCRETE PIPE AND CONFORM TO THE SPECIFICATIONS FOR CONCRETE STORM SEWER PIPE, ASHOTO DESIGNATION 8410, WITH THE RELOCATION THAT ALL PIPES SHALL BE MANUFACTURED WITH 4.00MPA CONCRETE. ALL PIPE JOINTS WILL BE SEALS IN ACCORDANCE WITH SECTION 2.2.2.2 OF THE VIRGINIA DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE SPECIFICATIONS (2017).
7. ALL STORM SEWER PIPE JOINTS SHALL BE RUBBER GASKET TYPE (ASTM G42).
8. ALL PIPE CULVERTS (WATER, SEWER, AND STORM SEWER), LOCATED WITHIN RIGHT-OF-WAY EXCAVATION AREAS THAT ARE SUBJECT TO TRAFFIC LOADS SHALL BE BACKFILLED WITH SELECT OR GRANULAR MATERIALS AND PLACED IN BENCH (IF) LAYERS AND COMPACTED TO 95 PERCENT THEORETICAL AIRFOOT DENSITY IN ACCORDANCE WITH SECTION 2.2.2.2 OF THE VIRGINIA DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE SPECIFICATIONS (2017).
9. ENDS ALLS AND FLARED END SECTIONS WILL NOT BE CONSTRUCTED ON OUTFALL PIPES UNTIL THE OWNER GIVES APPROVAL ON SITE.
10. HIRAP MUST BE PROVIDED AT ALL ENDS ALLS AND FLARED END SECTIONS AS REQUIRED BY THE PLANS.
11. RUBBER CONNECTORS MUST BE INSTALLED BETWEEN STORM STRUCTURES AND STORM PIPES.
12. NOTIFY THE CITY INSPECTOR SPOT GRADES ALONG PATHWAYS WILL INCLUDE LOW SPOTS THAT WILL POND WATER.
13. MAINTAIN POSITIVE DRAINAGE THROUGHOUT TREE REMOVAL AND PROJECT CONSTRUCTION.

## LEGEND

EXISTING	NEW
	SPT SOIL BORING
	SPT SOIL BORING WITH CURB
	SPT SOIL BORING AND INFILTRATION TEST
	GRAVEL DRAINAGE
	SANITARY SEWER
	SANITARY SEWER MANHOLE
	CONCRETE STEEL PIPE
	SURVEY TRAVELER LINE
	TEMPORARY SEWER TRAP
	SANITARY SEWER FORCE MAIN
	TREE LINE
	FIRE HYDRANT

## CONCRETE

THE CONTRACTOR SHALL CONFORM TO THE REQUIREMENTS OF THE VIRGINIA DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE SPECIFICATIONS (2017), UNLESS OTHERWISE SPECIFIED.

CONCRETE SHALL BE CAST IN SECTIONS OF UNIFORM LENGTHS, APPROXIMATELY TEN FEET LONG, WITH JOINTS PLACED AT THE MIDSPAN OF EACH SECTION. JOINTS SHALL BE FORMED AT EACH PRECASTED, ULTIMATE JOINT. JOINT FILLER, CONSTRUCTION JOINTS SHALL BE CONSTRUCTED IN SECTIONS OF UNIFORM LENGTHS, APPROXIMATELY TEN FEET LONG, WITH JOINTS PLACED AT THE MIDSPAN OF EACH SECTION. JOINT FILLER, CONSTRUCTION JOINTS SHALL BE FORMED AT EACH PRECASTED, ULTIMATE JOINT. JOINT FILLER, CONSTRUCTION JOINTS SHALL BE FORMED AT EACH PRECASTED, ULTIMATE JOINT.

## LEGEND (CONTINUED)

EXISTING	NEW
	ASPHALT
	CONCRETE
	DEMOLITION
	WETLANDS
	SELECTIVE CLEARING
	TREE THINNING
	MULCH OVERLAY
	PROPERTY TO BE ACQUIRED
	CONCRETE CURB AND GUTTER
	CONCRETE CURB

- ## UTILITY NOTES
1. THE RELOCATION OF ANY UTILITIES (PUBLIC OR PRIVATE) LOCATED WITHIN THE CITY RIGHT-OF-WAY WILL BE AT THE CONTRACTOR'S EXPENSE AND COMPLETED PRIOR TO THE COMMENCEMENT OF ANY PROPOSED ROADWAY WORK. MATERIALS OR PAVEMENT IN COLLISION WITH THE SITE WORK, ALL NEW UTILITY LINE INSTALLATIONS MUST BE UNDERGROUND SUCH AS UNDERGROUND POWER, CABLE TELEVISION, ETC.
  2. DEFLECTING, OFFSETTING, OR RELOCATING EXISTING UTILITY MARKS WILL NOT BE ALLOWED EXCEPT UNDER EXTREME CIRCUMSTANCES. SUCH EXEMPTIONS WILL BE SUBMITTED TO THE CITY PUBLIC UTILITIES ENGINEER FOR APPROVAL.

**CLARKNEXSEN**

4525 MAIN STREET, SUITE 1400  
VIRGINIA BEACH, VIRGINIA 23462  
757-455-9800

**MARSHVIEW PARK PHASE**  
PARKS AND RECREATION  
VIRGINIA BEACH, VIRGINIA

CN NO: 5419  
DATE: 8/18/17  
DESIGN: AMM  
DRAWING: NAL  
REVIEW: CTA

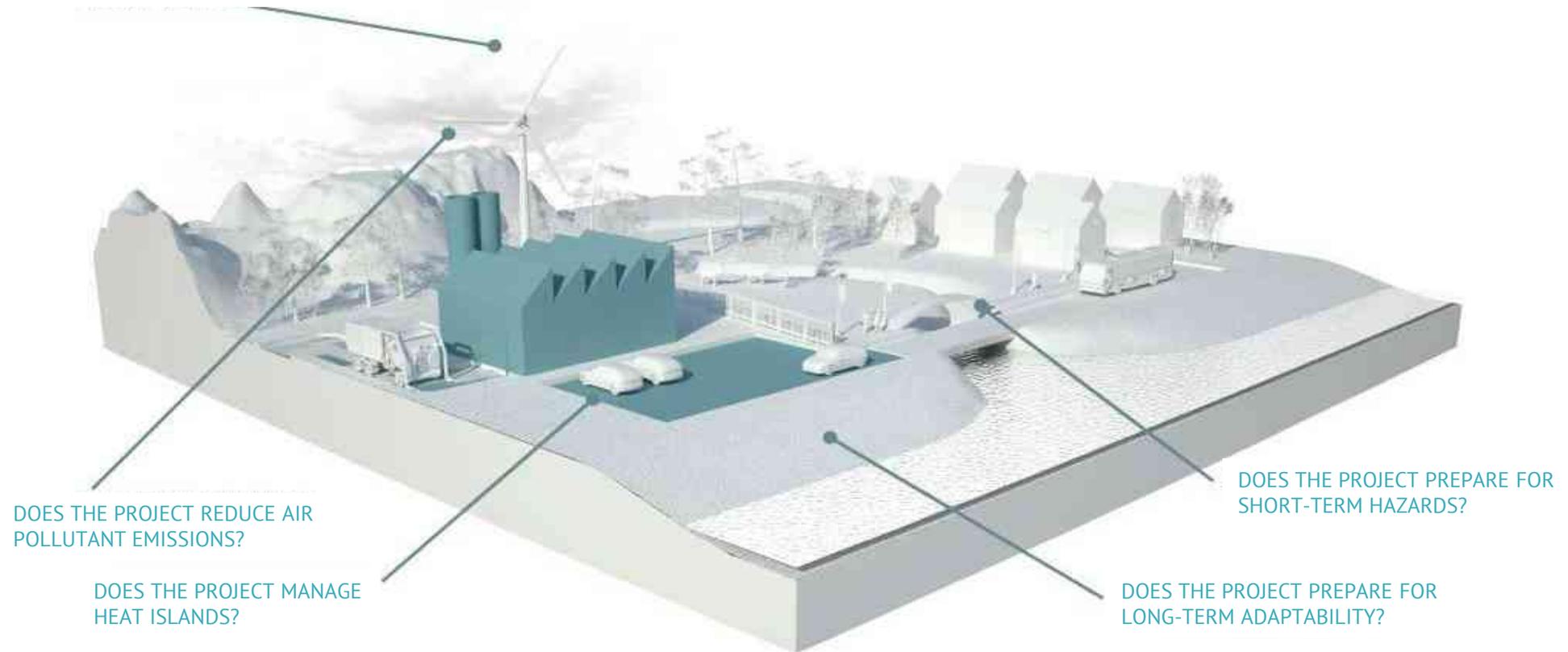
**GENERAL NOTES, LEGEND AND ABBREVIATIONS**

**C001**  
SHEET 2 OF 42

# CLIMATE AND RISK



DOES THE PROJECT MINIMIZE GREENHOUSE GAS EMISSIONS?



DOES THE PROJECT REDUCE AIR POLLUTANT EMISSIONS?

DOES THE PROJECT MANAGE HEAT ISLANDS?

DOES THE PROJECT PREPARE FOR SHORT-TERM HAZARDS?

DOES THE PROJECT PREPARE FOR LONG-TERM ADAPTABILITY?





# Key Sustainability Features

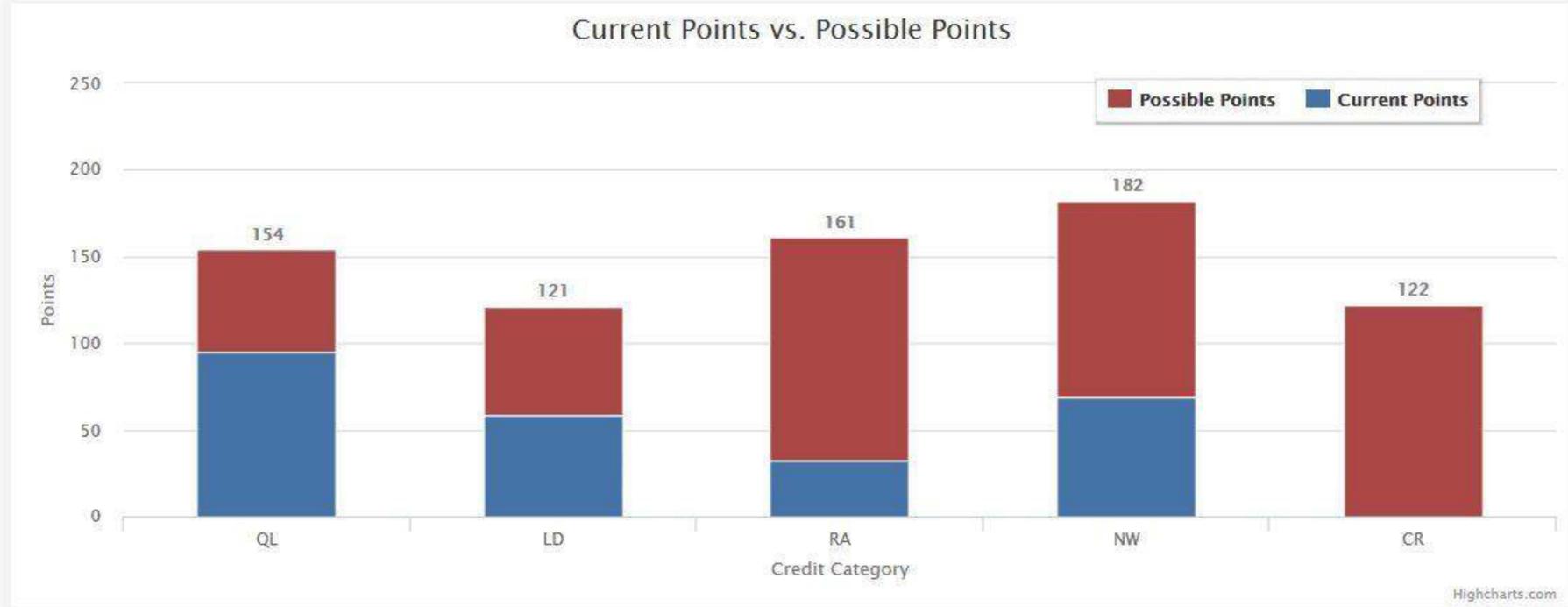
- Design was developed with **input** from the **City, residents, and other stakeholders**  
*QL 1.1 • QL 1.2 • QL 2.4 • QL 3.2 • QL 3.3 • LD 1.4*
- Park will be **accessible for cars, pedestrians, and bicycles**  
*QL 1.1 • QL 1.2 • QL 2.4 • QL 2.5 • LD 2.2*
- Park will be **family-friendly, pet-friendly, and safer** than the undeveloped park  
*QL 1.1 • QL 2.4 • QL 2.6 • QL 3.3*
- Preservation of wetlands and forests retains **aesthetic views, natural habitat, and stormwater functions**  
*QL 2.6 • QL 3.2 • QL 3.3 • LD 2.2 • NW 1.1 • NW 1.5 • NW 3.1 • NW 3.2 • NW 3.4*
- Budgeting and Operations and Maintenance Plans help ensure **quality and longevity** of the project  
*QL 1.2 • LD 3.1 • LD 3.3 • NW 1.2 • NW 2.3 • NW 3.2*

# Project Summary

[Refresh Summary](#)



Credit Category	Submitted Score Information			Verified Score Information		
	Applicable	Submitted	Percentage	Applicable	Verified	Percentage
QUALITY OF LIFE	154	95	62%	154	53	34%
LEADERSHIP	121	58	48%	121	50	41%
RESOURCE ALLOCATION	161	32	20%	182	7	4%
NATURAL WORLD	182	69	38%	182	53	29%
CLIMATE AND RISK	122	0	0%	122	0	0%
<b>Total Points / %</b>	<b>740</b>	<b>254</b>	<b>34%</b>	<b>761</b>	<b>163</b>	<b>21%</b>



# Verification Process



- Register the project, pay registration fee
- Verification fee, (varies based on the project size/cost) project is assigned a third-party verifier
- Conference call with POC at ISI, verifier, and project team involved with the envision submission
  - Conversation about project and background info to familiarize the group with the project before the verifier starts reviewing credits
- Verifier has a 90 day period to review credits and provide feedback and the initial verified score



# Re-Verification Process



- Set up another conference call (with ISI POC and verifier) after reviewing verifier's comments to talk through the credits that we thought we may resubmit to gather any additional information that he may like to see for specific credits
- Evaluating the verifier's comments led us to go through the re-submittal process and we realized that the amount of credits we could resubmit (fairly easily), could give us enough points to reach the Silver Level

## Team

Updated on 08-23-2016

A. The trail and the southern parking lot entrance will cross over existing wetland channels. In order to maintain wetland function and flow, culverts will be installed under the trail and entrance to provide connectivity between the two areas. This will maintain wetland flow and help eliminate the need to re-route water to another area. Other wetland disturbances are on the edge of a wetland and will not restrict drainage or flow of the area.

## Verifier

Updated on 12-12-2016

Agree.

## Verifier

Updated on 12-12-2016

The verifier acknowledges that the project team has put plans in place to reduce future contamination. However, a Restorative level of achievement requires that existing contamination be remediated and plans be put in place to reduce future contamination. Since there does not appear to be any contamination on the site that required remediating by the project team, a Conserving level of achievement has been assessed for this credit.

## Verifier

Updated on 12-12-2016

The narrative and supporting documentation for this credit more closely align with a Conserving level of achievement. I would like to see more direct evidence to support criterion F. Namely, what were the existing community conditions that this project will substantially rehabilitate? And how specifically will these community conditions be rehabilitated by this project?

# Resource Allocation 3.2 – Reduce Potable Water Consumption



N/A		Improved	Enhanced	Superior	Conserving	Restorative
	0	4	9	13	17	21

N/A for this credit means the point calculation would be 0/0

A "0" for this credit means the point calculation is 0/21

## Water Demand Volume:

Average Domestic Water Demand:	0.75 gpm			
Average Daily Water Demand:	360 gpd	48 cf		Assumes 8-hour day
48-hour Average Water Demand:	720 gal	96 cf		Total of 16 hour usage

## Team

Updated on 07-28-2016

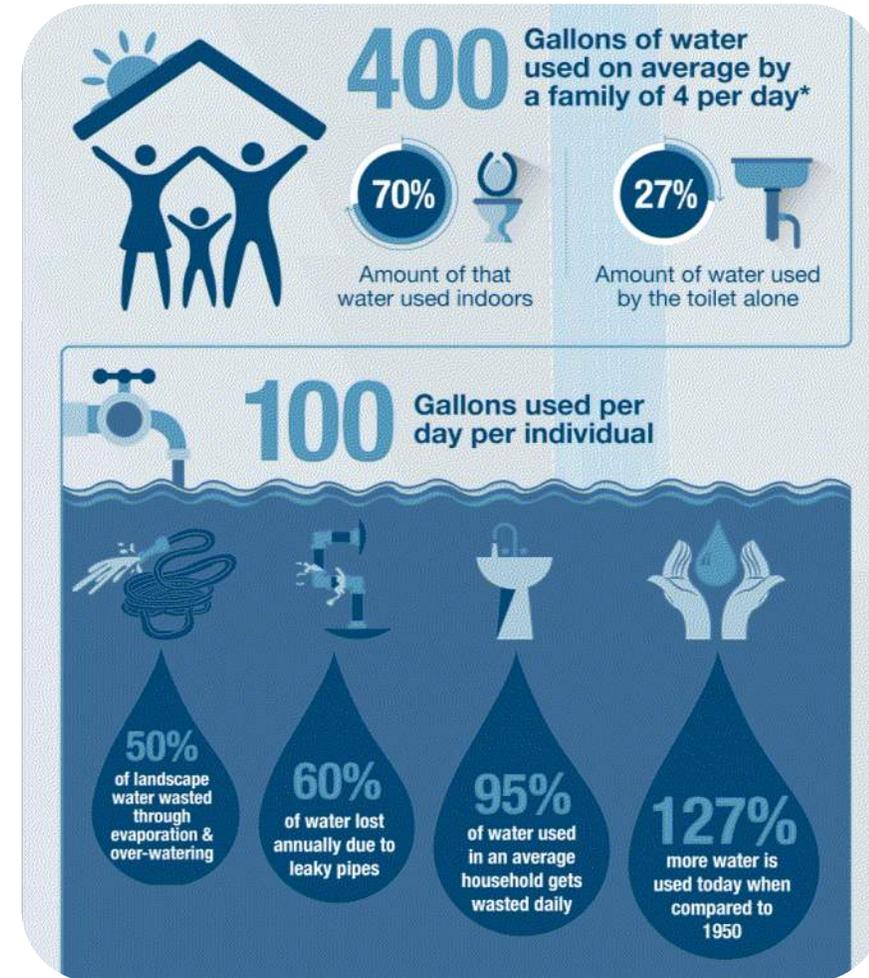
This credit is not applicable to the project because the only potable water that will be used in this phase of the project is for the pet fountains. Because the pet fountains must use potable water, there is no opportunity to reduce potable water consumption for the park. Restrooms will be added in the future, but these are not part of the current construction phase and no designs have been developed.

## Verifier

Updated on 12-12-2016

This credit is applicable as there are water consuming features on the site (though very limited). Note that the following are not acceptable reasons for determining a credit's "not applicability":

- The scope of the project does not address the issue;
- Achieving the criteria would be too expensive;
- Local laws or regulations prohibit meeting the requirements;
- Those conducting the Envision assessment do not have decision-making authority;
- Achieving the credit requirements would be too difficult; and
- Stakeholders indicated the issue is not a priority.



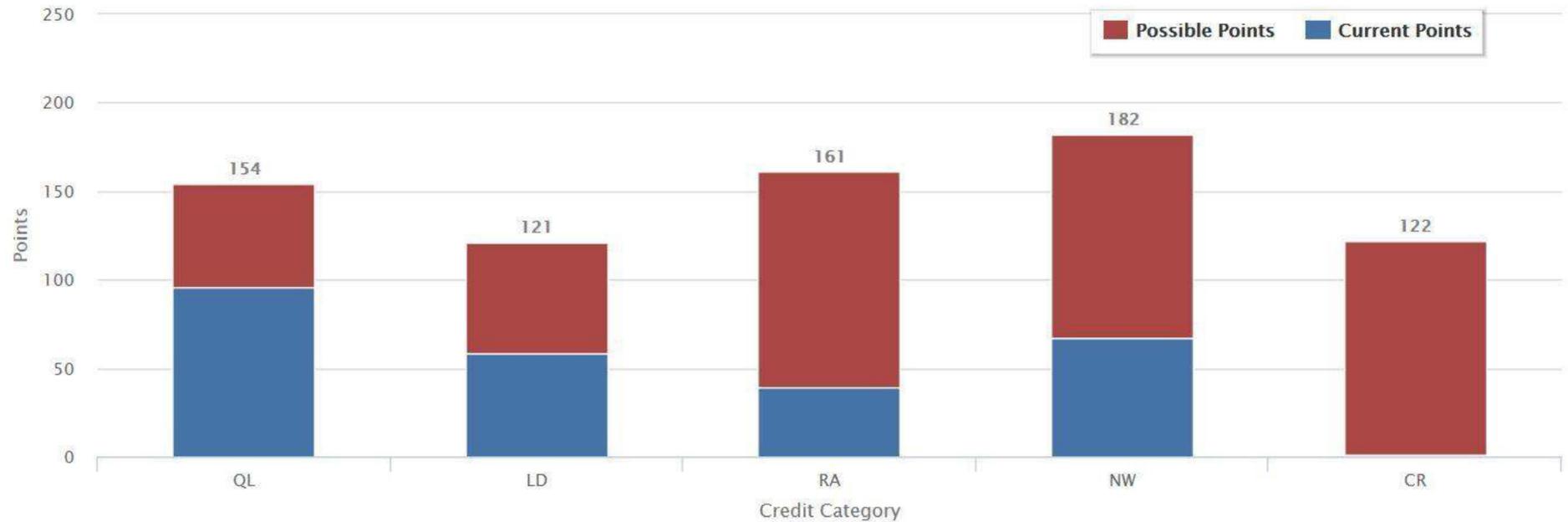


Credit Category	Submitted Score Information			Verified Score Information		
	Applicable	Submitted	Percentage	Applicable	Verified	Percentage
QUALITY OF LIFE	154	96	62%	181	0	0%
LEADERSHIP	121	58	48%	121	0	0%
RESOURCE ALLOCATION	161	39	24%	182	0	0%
NATURAL WORLD	182	67	37%	203	0	0%
CLIMATE AND RISK	122	1	1%	122	0	0%
Total Points / %	740	261	35%	809	0	0%



Silver

Current Points vs. Possible Points



Highcharts.com



# MARSHVIEW PARK PHASE 1

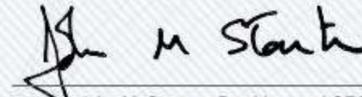
Virginia Beach, Virginia

HAS SUCCESSFULLY ACHIEVED THE FOLLOWING AWARD LEVEL IN THE ENVISION RATING SYSTEM  
ESTABLISHED AND VERIFIED BY THE INSTITUTE FOR SUSTAINABLE INFRASTRUCTURE

# ENVISION SILVER

June 2017



  
John M. Stanton, President and CEO  
Institute for Sustainable Infrastructure



Silver

# Envision Flexibility

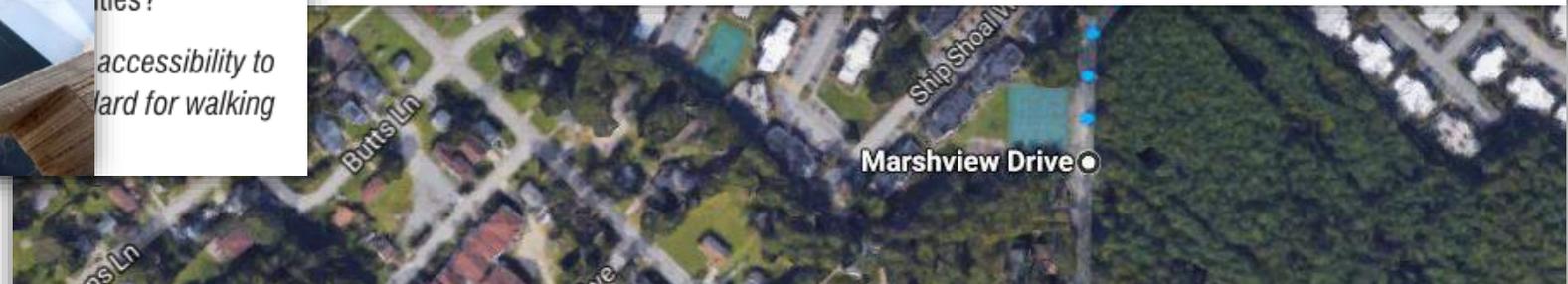
## QL2.5: Encourage Alternate Modes of Transportation



ENHANCED	SUPERIOR	CONSERVING	RESTORATIVE
<p>...rized or transit</p> <p>...project creates or ...nt access to transit. ...project is designed ...e in movement ...es. Extended ...s and bicycle ...ect to the site and/or ...project.</p>	<p><b>(6) Non-motorized and transit friendly.</b></p> <p>The completed project is located in a place and configured in such a way that encourages the use of nonmotorized transportation and transit for access. The location selected is convenient to extended and contiguous walking and bike paths. Secure bicycle lockers are available. Facilities for users of the completed project incorporate appropriate support policies.</p> <p>(A, B, C, D)</p>	<p><b>(12) Public transportation enhancements.</b></p> <p>The project enhances public transportation facilities or implements programs to encourage the use of public and nonmotorized transportation. Enhancements include provisions for sheltered and well-lit bus stops, tram stops, or transit access points. Enhancements also include effective display of information such as time and route of public transportation.</p> <p>(A, B, C, D, E)</p>	<p><b>(15) Reviving transportation options.</b></p> <p>The project is designed and constructed in a way that rehabilitates pathways, bike paths, rail and/or water modes of transportation that were unused and/or in disrepair and/or removes barriers to the use of alternative modes of transportation. The project integrates these underutilized assets to the existing transportation infrastructure and the larger transportation infrastructure strategy.</p> <p>(A, B, C, D, E, F)</p>

...ance and is it  
...ities?

...accessibility to  
...ard for walking



# ENVISION V3 CREDIT CHANGES OVERVIEW

<b>Quality of Life</b>	<b>Wellbeing</b>	QL1.1 Improve Community Quality of Life	Improved
		QL1.2 Enhance Public Health & Safety	<b>REWRITTEN</b>
		QL1.3 Improve Access, Safety, & Wayfinding	Improved
		QL1.4 Improve Construction Safety	<b>NEW!</b>
		QL1.5 Minimize Noise	Improved
		QL1.6 Minimize Light Pollution	Improved
	<b>Community</b>	QL2.1 Advance Equity & Social Justice	<b>NEW!</b>
		QL2.2 Improve Community Mobility	Improved
		QL2.3 Encourage Active, Shared, & Mass Transportation	Improved
		QL2.4 Preserve Historic & Cultural Resources	Improved
QL2.5 Enhance Views & Local Character		Improved	
		QL2.6 Enhance Public Space & Amenities	Improved
		QL0.0 Innovate or Exceed Credit Requirements	Same
<b>Leadership</b>	<b>Collaboration</b>	LD1.1 Provide Effective Leadership & Commitment	Improved
		LD1.2 Foster Collaboration & Teamwork	Improved
		LD1.3 Provide for Stakeholder Involvement	Improved
	<b>Planning</b>	LD2.1 Establish a Sustainability Management Plan	Improved
		LD2.2 Plan for Sustainable Communities	<b>NEW!</b>
		LD2.3 Plan for Long-Term Monitoring & Maintenance	Improved
		LD2.4 Plan for End of Life	<b>NEW!</b> (formerly RA1.7 Provide for Deconstruction and Recycling)
	<b>Economy</b>	LD3.1 Stimulate Economic Prosperity & Development	Improved
		LD3.2 Develop Local Skills & Capabilities	Improved
		LD3.3 Conduct a Lifecycle Economic Evaluation	<b>NEW!</b>
		LD0.0 Innovate or Exceed Credit Requirements	Same



	<b>Materials</b>	RA1.1 Reduce Energy Intensity of Materials	<b>REWRITTEN</b> (combines former RA1.4)	
		RA1.2 Support Sustainable Procurement Practices	Improved	
		RA1.3 Use Recycled Materials	Improved	
		RA1.4 Divert Operational Waste from Landfills	Improved	
		RA1.5 Divert Construction Waste from Landfills	<b>NEW!</b>	
		RA1.6 Balance Earthwork On Site	Improved	
<b>Energy</b>		RA2.1 Reduce Operational Energy Consumption	Improved	
		RA2.2 Reduce Construction Energy Consumption	<b>NEW!</b>	
		RA2.3 Use Renewable Energy	Improved	
		RA2.4 Commission & Monitor Energy Systems	Improved	
<b>Water</b>		RA3.1 Preserve Water Resources	Improved	
		RA3.2 Reduce Operational Water Consumption	Improved	
		RA3.3 Reduce Construction Water Consumption	<b>NEW!</b>	
		RA3.4 Monitor Water Systems	Improved	
<b>Natural World</b>	<b>Siting</b>	RA0.0 Innovate or Exceed Credit Requirements	Same	
		NW1.1 Preserve Sites of High Ecological Value	Improved (formerly NW1.1 Preserve Prime Habitat)	
		NW1.2 Provide Wetland & Surface Water Buffers	Improved	
		NW1.3 Minimize Disturbing Prime Farmland	Improved	
	<b>Conservation</b>		NW1.4 Preserve Undeveloped Land	Improved
			NW2.1 Reclaim Brownfields	<b>NEW!</b> (from aspects of former NW1.7 Preserve Greenfields)
			NW2.2 Manage Stormwater	Improved
			NW2.3 Reduce Pesticide & Fertilizer Impacts	Improved
	<b>Ecology</b>		NW2.4 Protect Surface & Groundwater Quality	Improved
			NW3.1 Enhance Functional Terrestrial Habitats	<b>REWRITTEN</b> (formerly NW3.1 Preserve Species Biodiversity)
			NW3.2 Enhance Wetland & Surface Water Functions	Improved
			NW3.3 Maintain Natural Floodplains	Improved
			NW3.4 Control Invasive Species	Improved
	<b>Risk and Resilience</b>	<b>Emissions</b>	NW3.5 Protect Soil Health	Improved (formerly NW3.3 Restore Disturbed Soils)
			NW0.0 Innovate or Exceed Credit Requirements	Same
RR1.1 Reduce Greenhouse Gas Emissions			Improved	
<b>Resilience</b>			RR1.2 Reduce Air Pollutant Emissions	Rewritten
			RR2.1 Assess Climate Threat	<b>REWRITTEN</b>
			RR2.2 Evaluate Risk and Resilience	<b>NEW!</b> (aspects of former CR2.2 Assess Traps and Vulnerabilities)
			RR2.3 Establish Resilience Goals and Strategies	<b>NEW!</b>
			RR2.4 Improve Infrastructure Integration	Improved (formerly LD2.2)
			RR2.5 Maximize Durability	<b>NEW!</b> (aspects of former CR2.4 Prepare for Short-Term Hazards)
		RR2.6 Maximize Adaptability	<b>NEW!</b>	
		RR2.7 Maximize System Recovery	<b>NEW!</b>	
		RR2.8 Maximize Co-Benefits and Synergies	<b>REWRITTEN</b> (formerly LD2.1 Pursue Byproduct Synergy Opportunities)	
		RR0.0 Innovate or Exceed Credit Requirements	Same	

# How Much Does it Cost?

- **Engineering Fee: \$11,000 (Varies)**

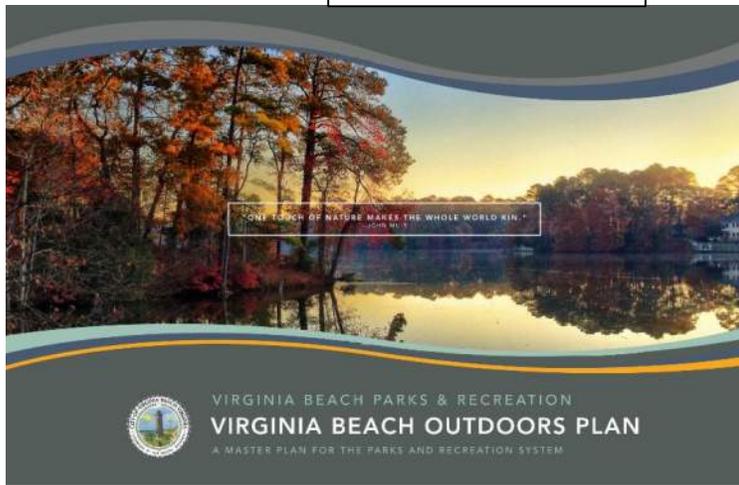
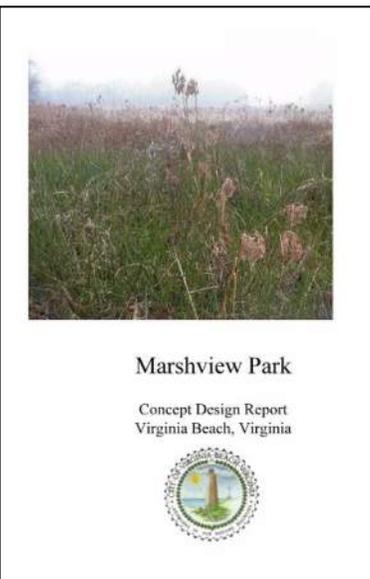
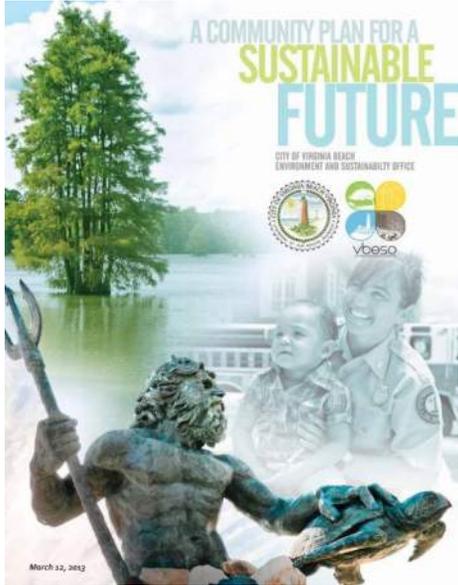
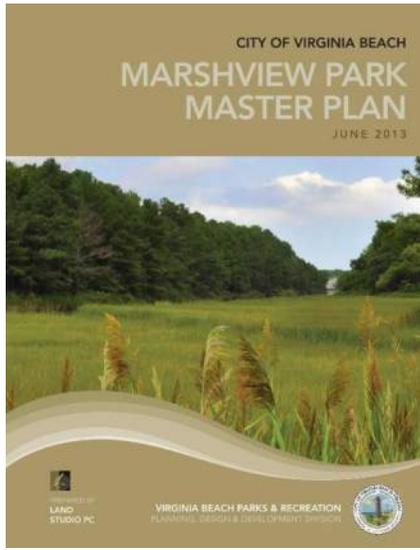
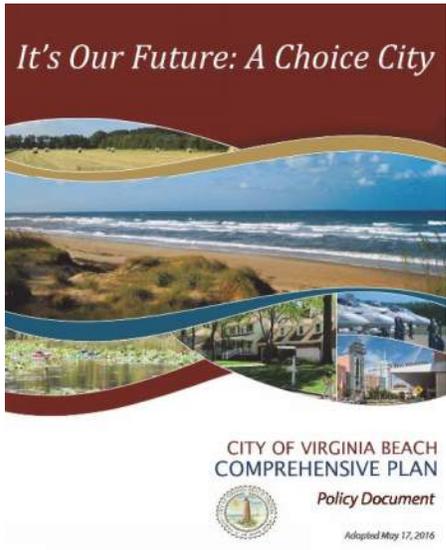
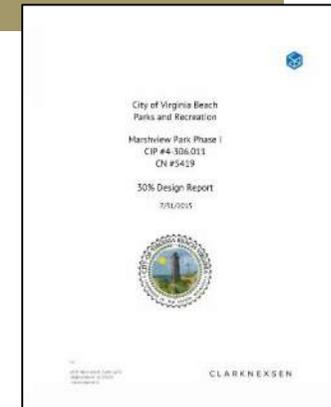
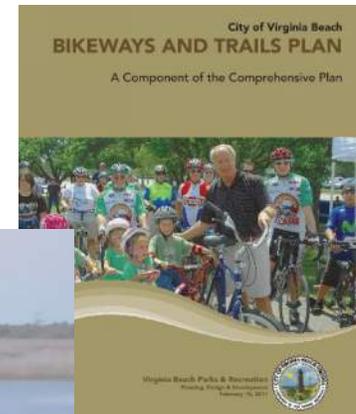
## ENVISION VERIFICATION COSTS

Project Size (\$)	Non-Member Price	ISI Member Price
Up to 2 M	\$3,000	\$2,400
2-5 M	\$8,500	\$7,000
5-25 M	\$17,000	\$14,000
25-100 M	\$25,000	\$21,000
100-250 M	\$33,000	\$28,000
Over 250 M	Contact ISI for large or multi-phase projects	



# Lessons Learned

- Wide variety of infrastructure projects means a wide variety of documentation
- Qualitative credits were much easier to comply with
- Not all credits are applicable to all projects
- Find areas where your project excels



Questions?

