

**Kerr-McGee Chemical Corp Site – Navassa**

# **Opportunities and Constraints**

## **Summary**

**December 2, 2017**

**Prepared for**

**Greenfield Environmental Multistate Trust**

**Trustee of the Multistate Environmental Response Trust**



**Prepared by Benchmark Planning**

# Opportunities and Constraints Outline

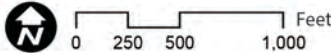
- Transportation
- Environmental Factors
- Utility Infrastructure
- Land Use Planning and Regulation



# Site Overview



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**Site Overview Map / Aerial Photo**

- Kerr-McGee Site Boundary
- Internal Parcel Boundary + Upland / Lowland Boundary



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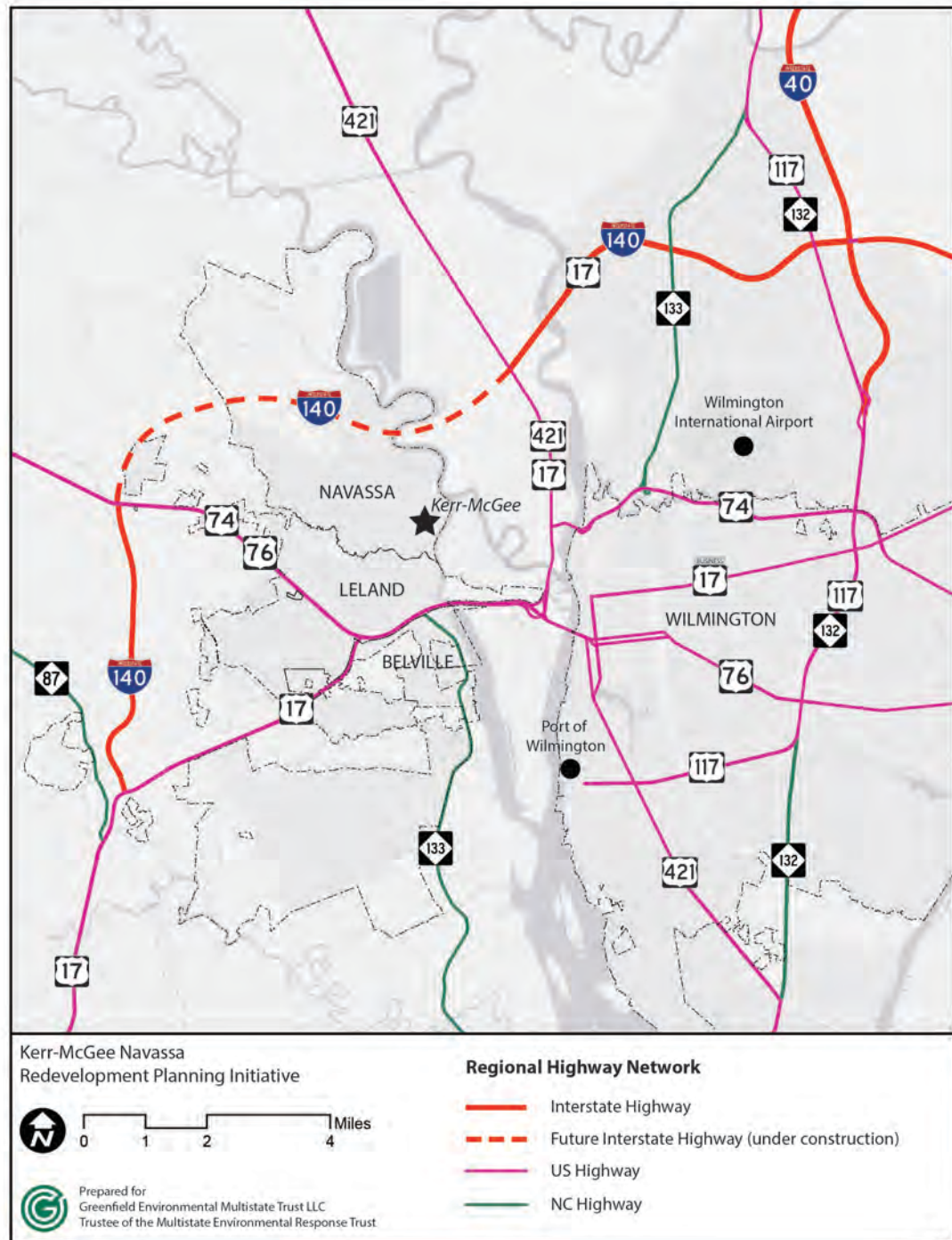
# Transportation

- Regional Highway Network
- Road Access
- Rail Access
- Water Transportation
- Other



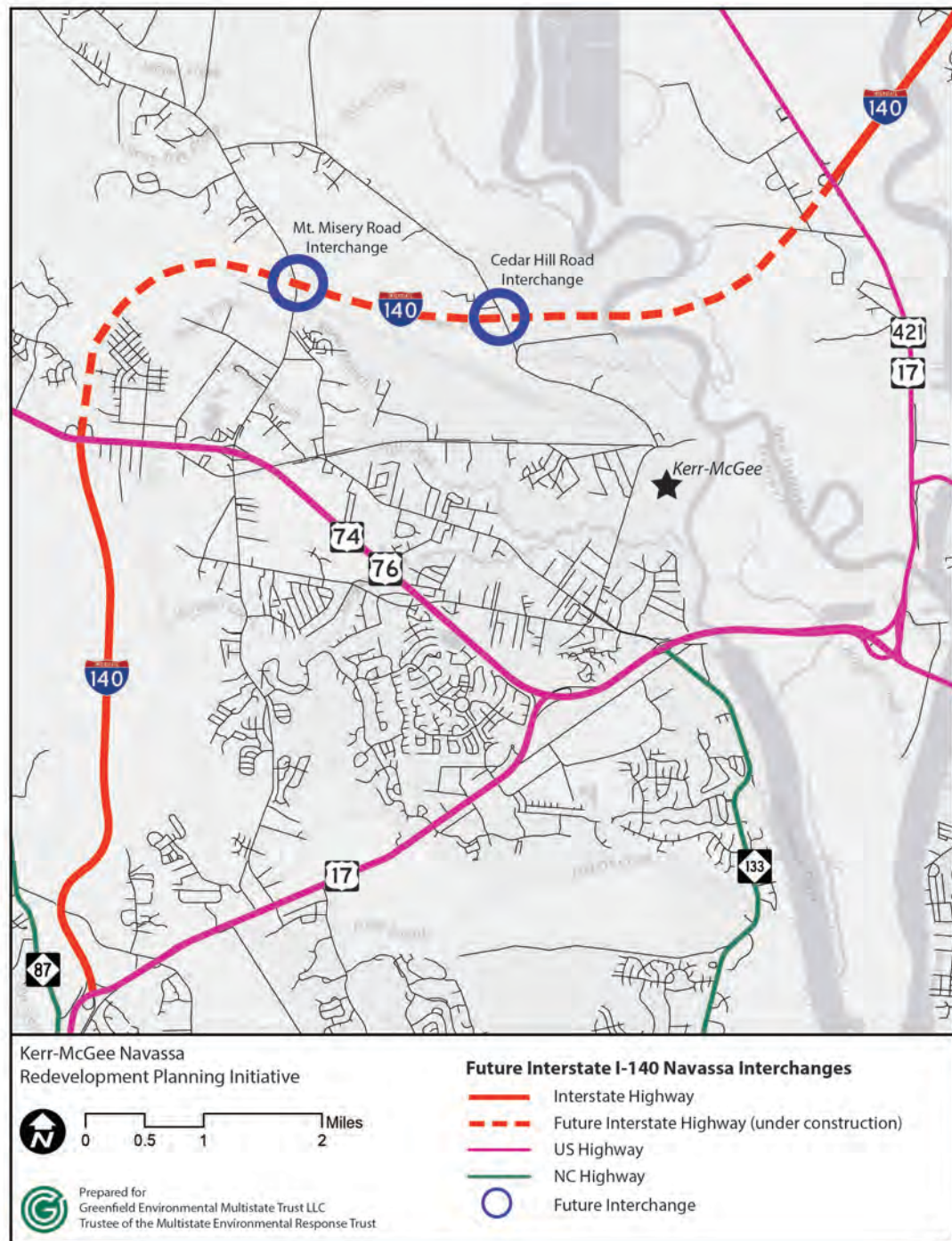
# Regional Highway Network

- Major highway access:
  - US 74
  - US 76
  - US 17
  - US 421
  - I-40
  - I-140 (future)
- Potential Constraints:
  - Old Mill / Navassa Road intersection – programmed for improvement
  - CSX grade crossing on Cedar Hill Road
  - No plans to widen Navassa Road



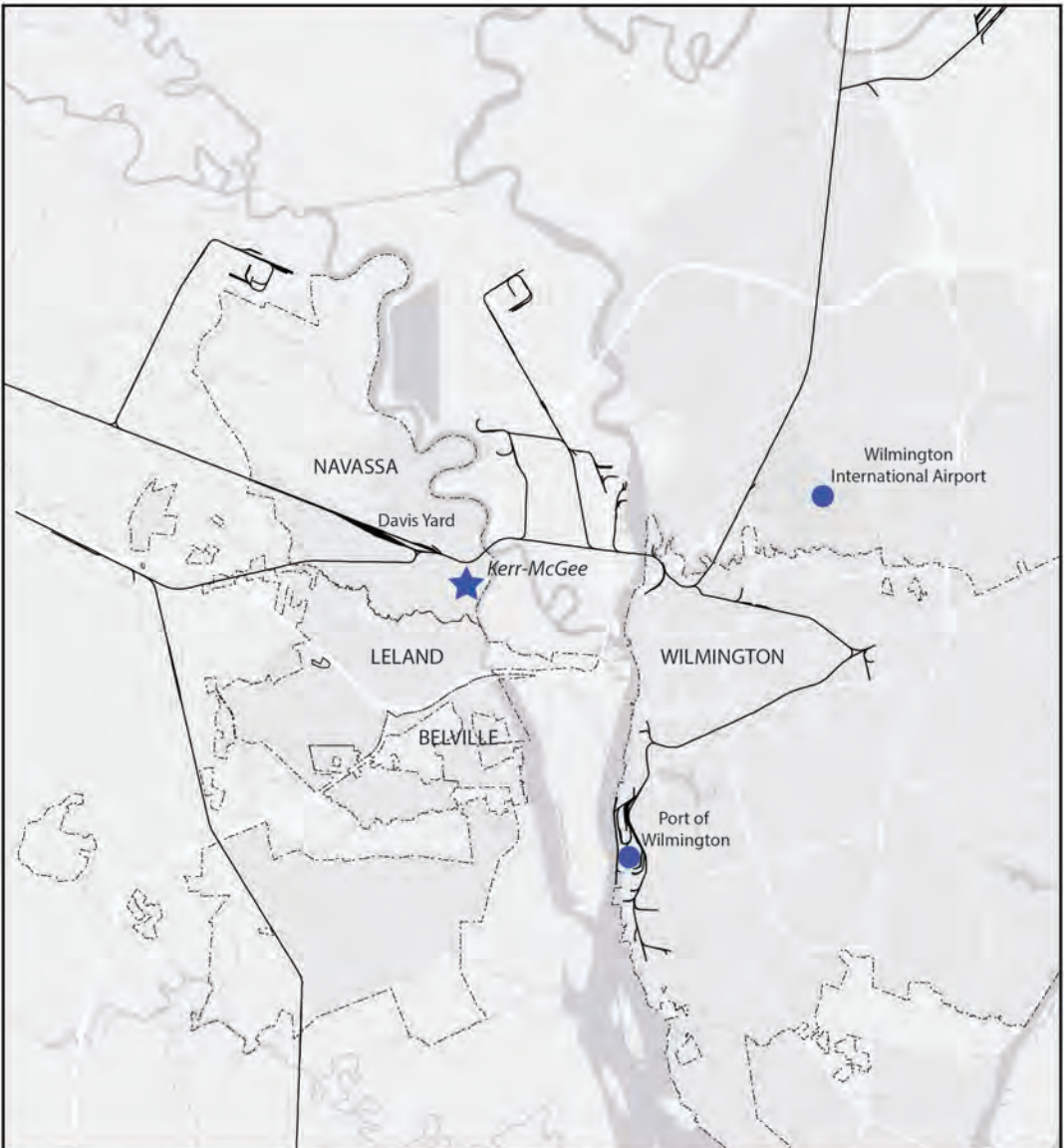
# Future I-140 Interchanges

- Interchanges Opening Soon:
  - Cedar Hill Road – 2 miles from the site
  - Mt. Misery Road – provides alternative access
- Improved access to I-40
- Improved access to US 74/76 westbound
- Improved access to US 17 southbound



# Regional Rail Network

- CSX Rail service across Quality Drive
- Very close to Davis Yard (main CSX rail hub in southeastern NC)
- Provides access to the Port of Wilmington
- Westbound freight corridor to Charlotte and the CSX interchange in Pembroke



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**Regional Railway Network**  
— Railroad

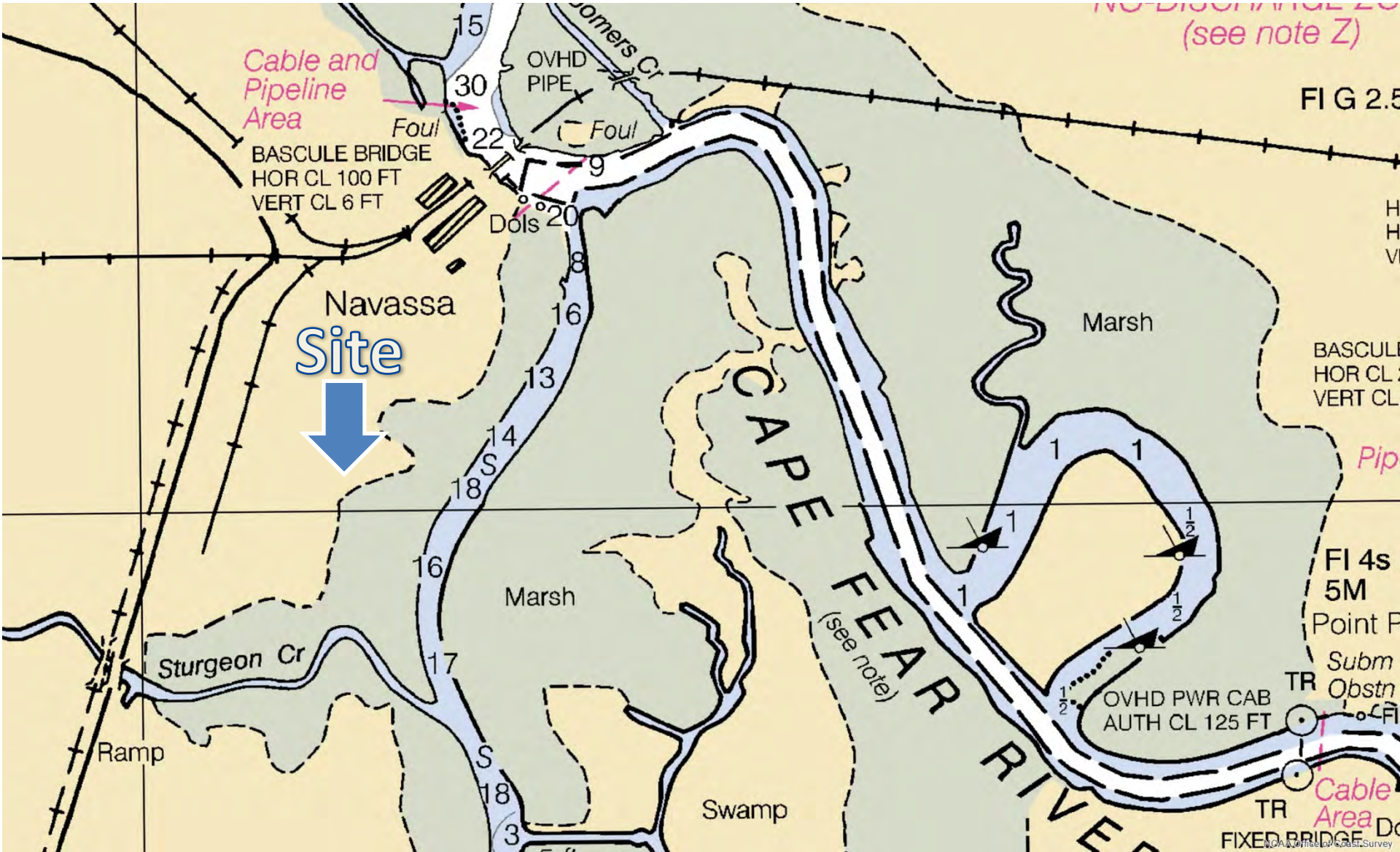
# Transportation

- Water Transportation Considerations
  - Barge access on the Brunswick River
  - Potential ferry service to Wilmington
  - US 74/76 causeway height has been increased – better access for recreational boating

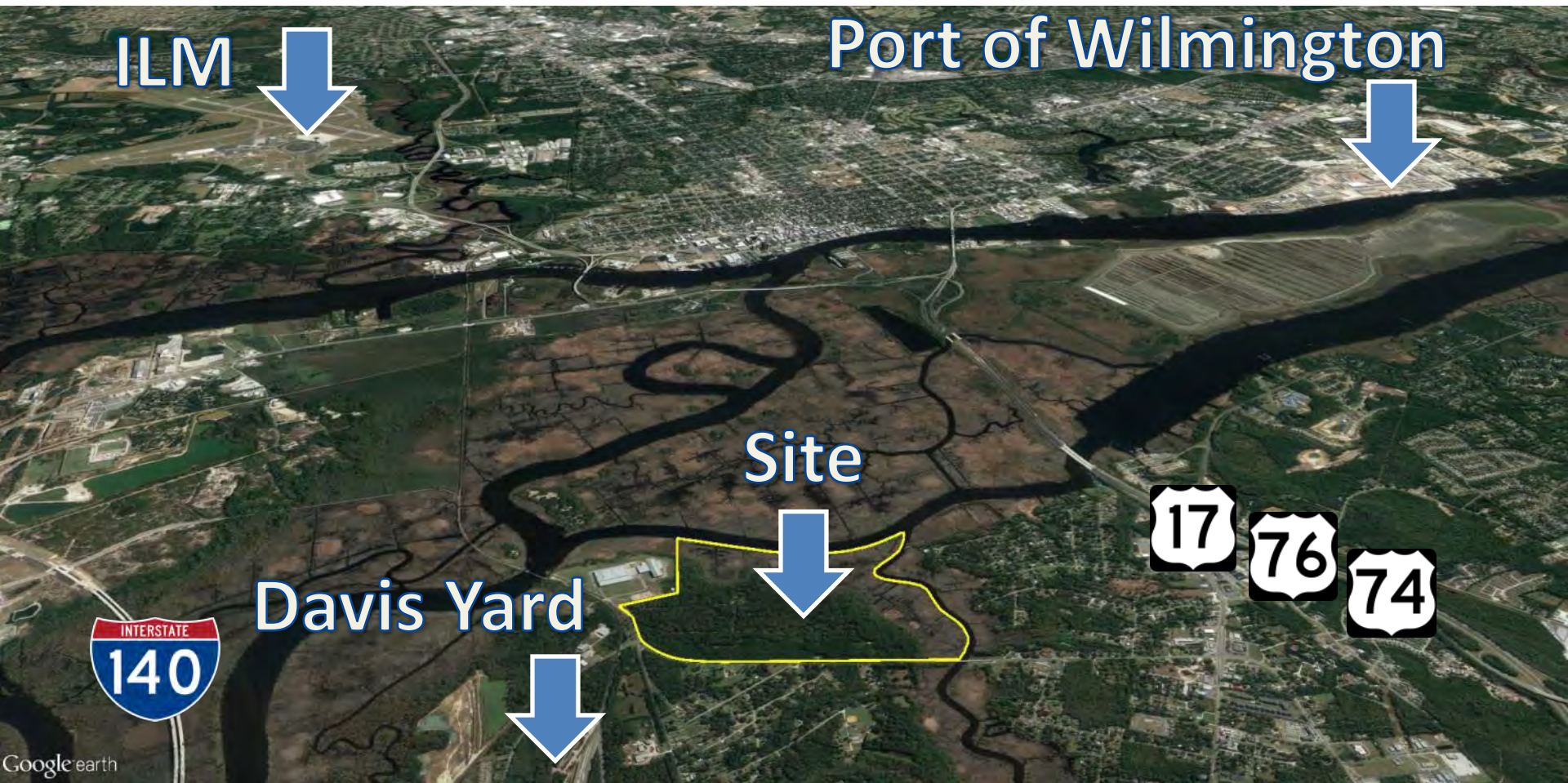




# Nautical Chart



# Proximity to Major Transportation Assets



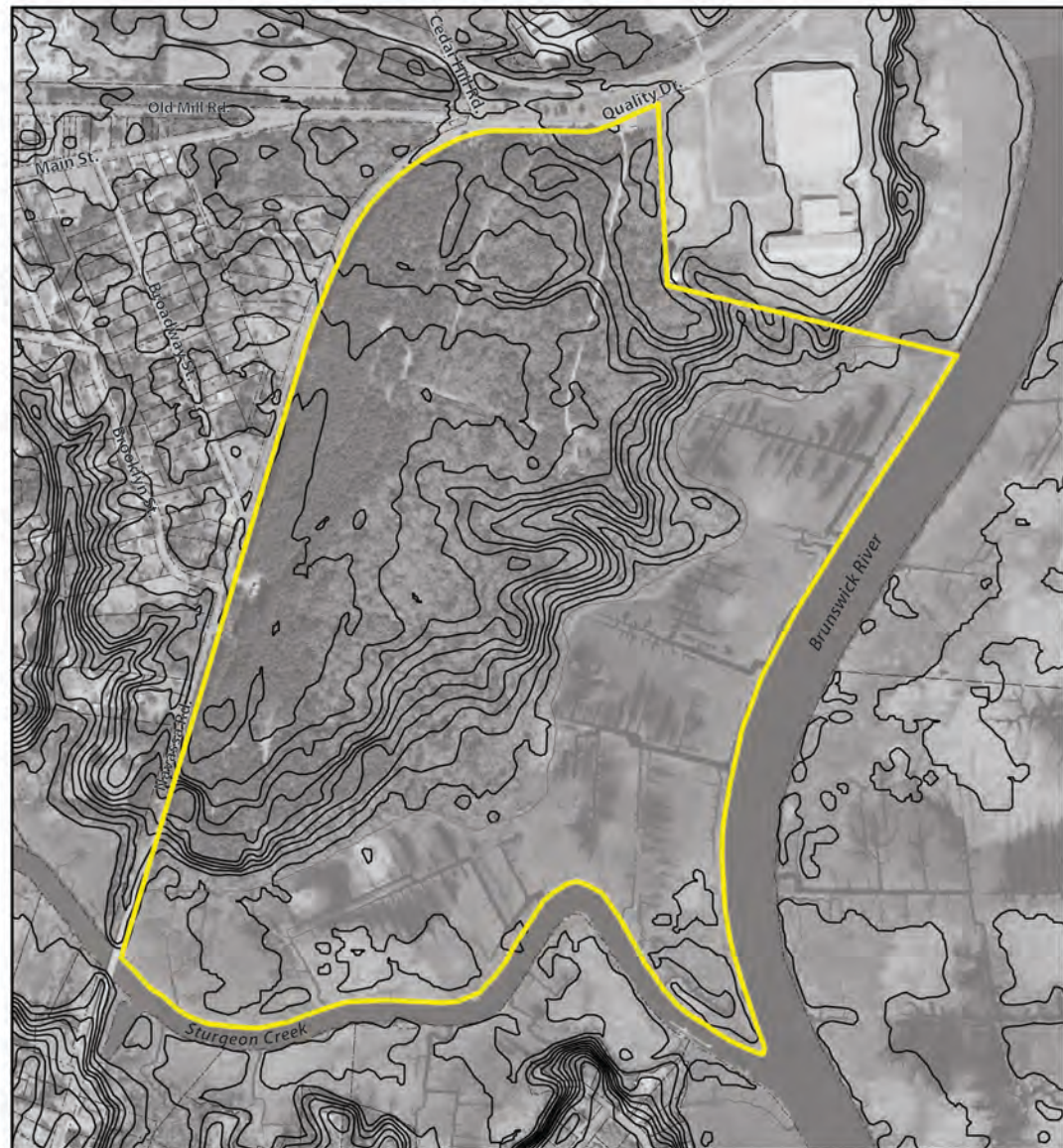
# Environmental Factors

- Topography
- Flood Hazards
- Storm Surge Hazards
- Wetlands
- Biodiversity / Wildlife Habitat
- Natural Heritage
- Soil Conditions



# Topography

- Large relatively flat expanse of land on the upland portion of the site.
- Relatively gentle slope towards the lowland marshes along the Brunswick River.



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0 250 500 1,000 Feet

## Topography

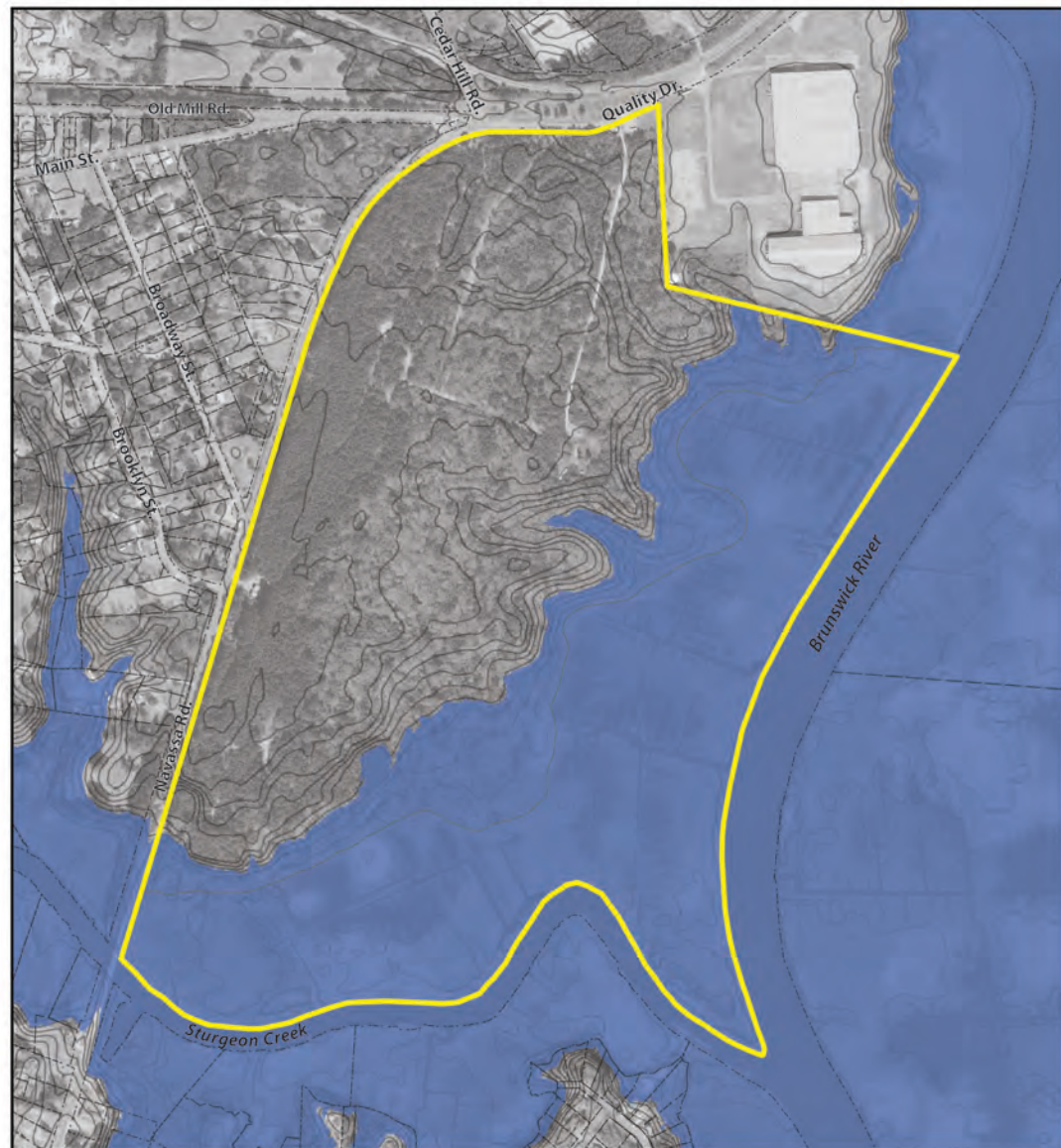
— Elevation Contours - 2 Foot Interval



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# Flood Hazard Area (100 Year Floodplain)

- Floodplain areas are generally associated with the lowland portion of the site.
- “100 year” floodplain area = 1% annual chance of flooding each year – but this can occur multiple times per year



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0 250 500 1,000 Feet

**100 Year Floodplain (1% annual flood risk)**

 100 Year Floodplain

 Elevation Contours - 2 Foot Interval

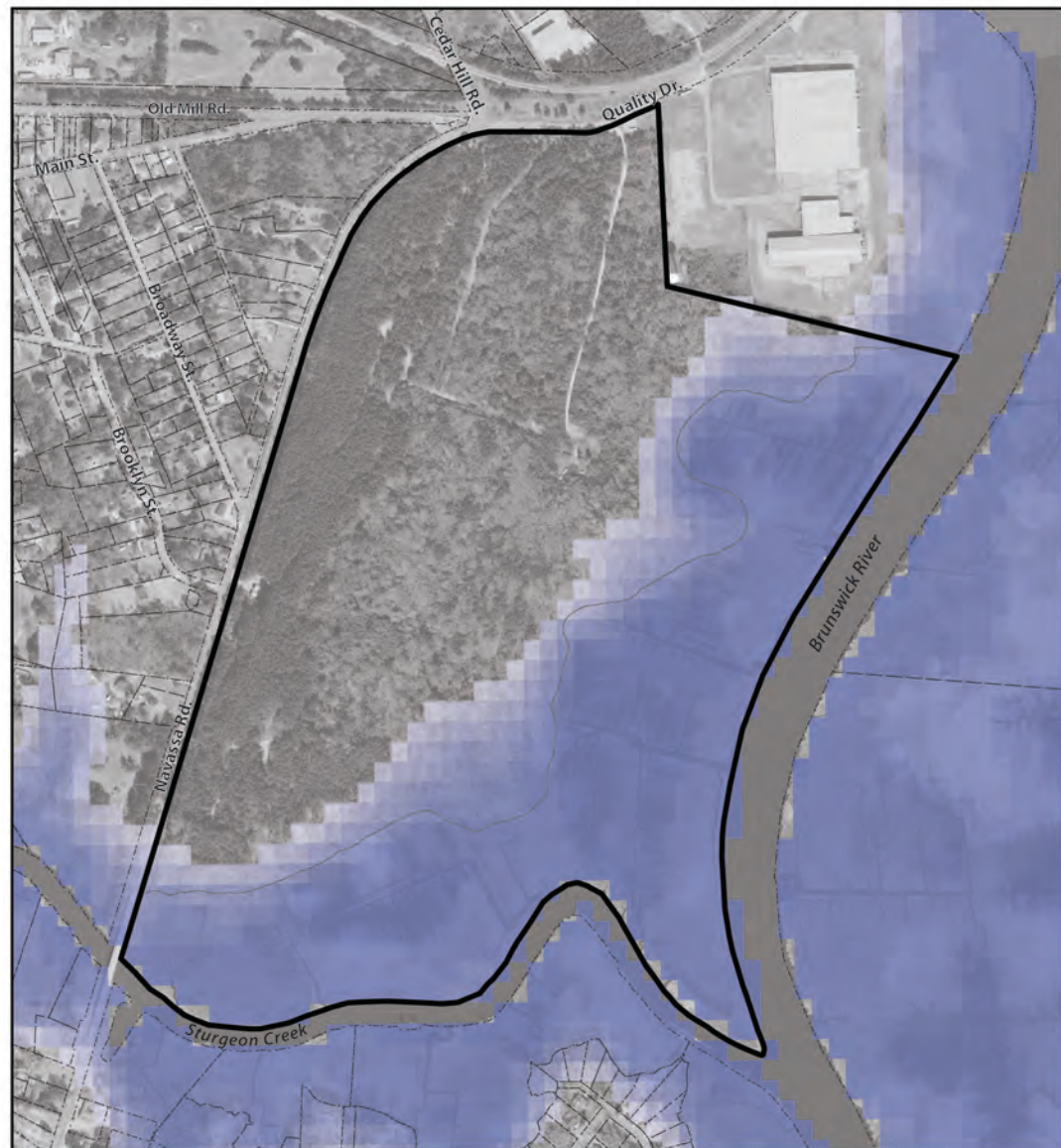


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# Storm Surge Hazard (Category 3 Storm)

- Category 3 (Major Tropical Storm) surge potential mostly coincides with the 100 year floodplain



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**Category 3 Hurricane Storm Surge Inundation**

Water Depth

Low (less than 1 foot)

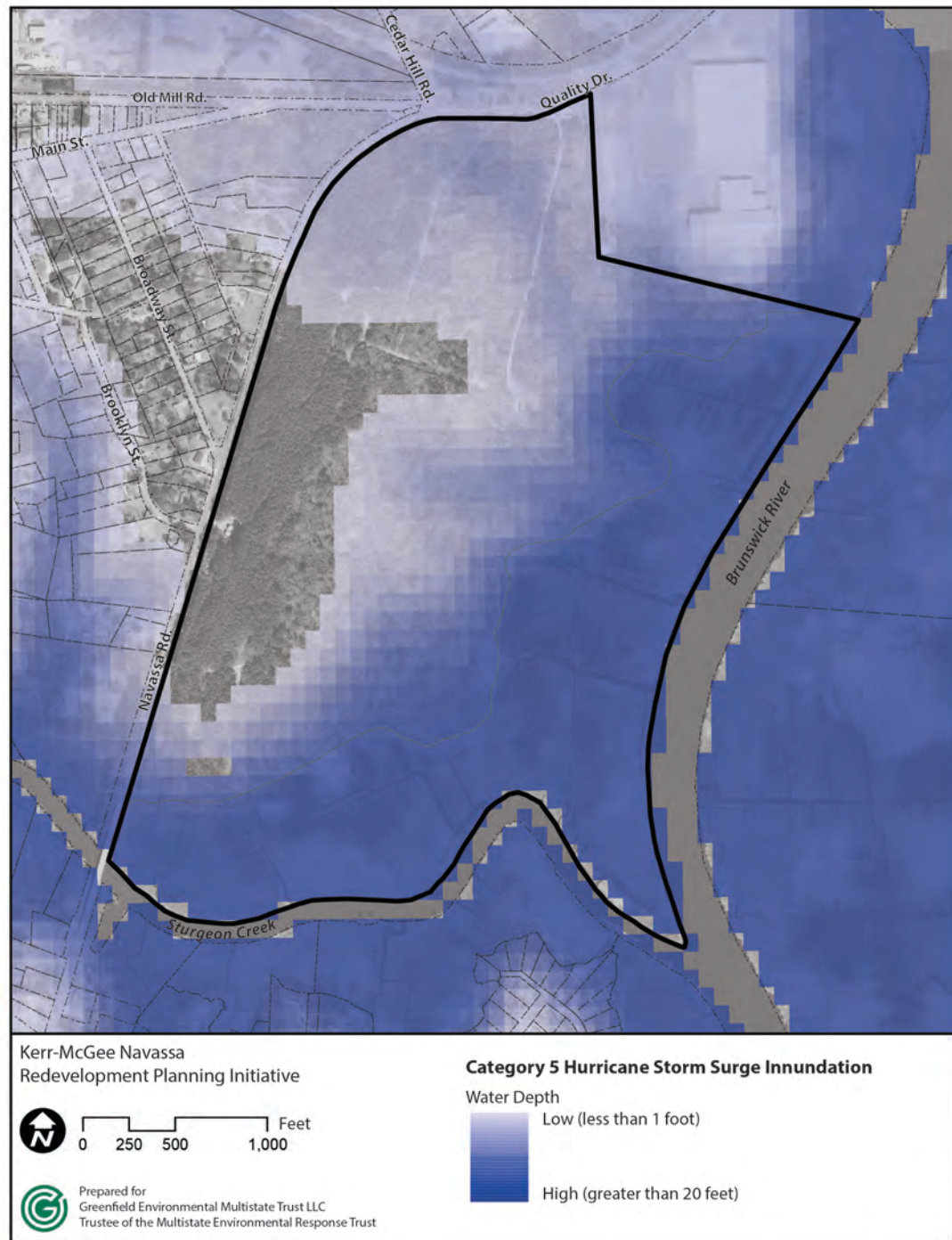


High (greater than 20 feet)



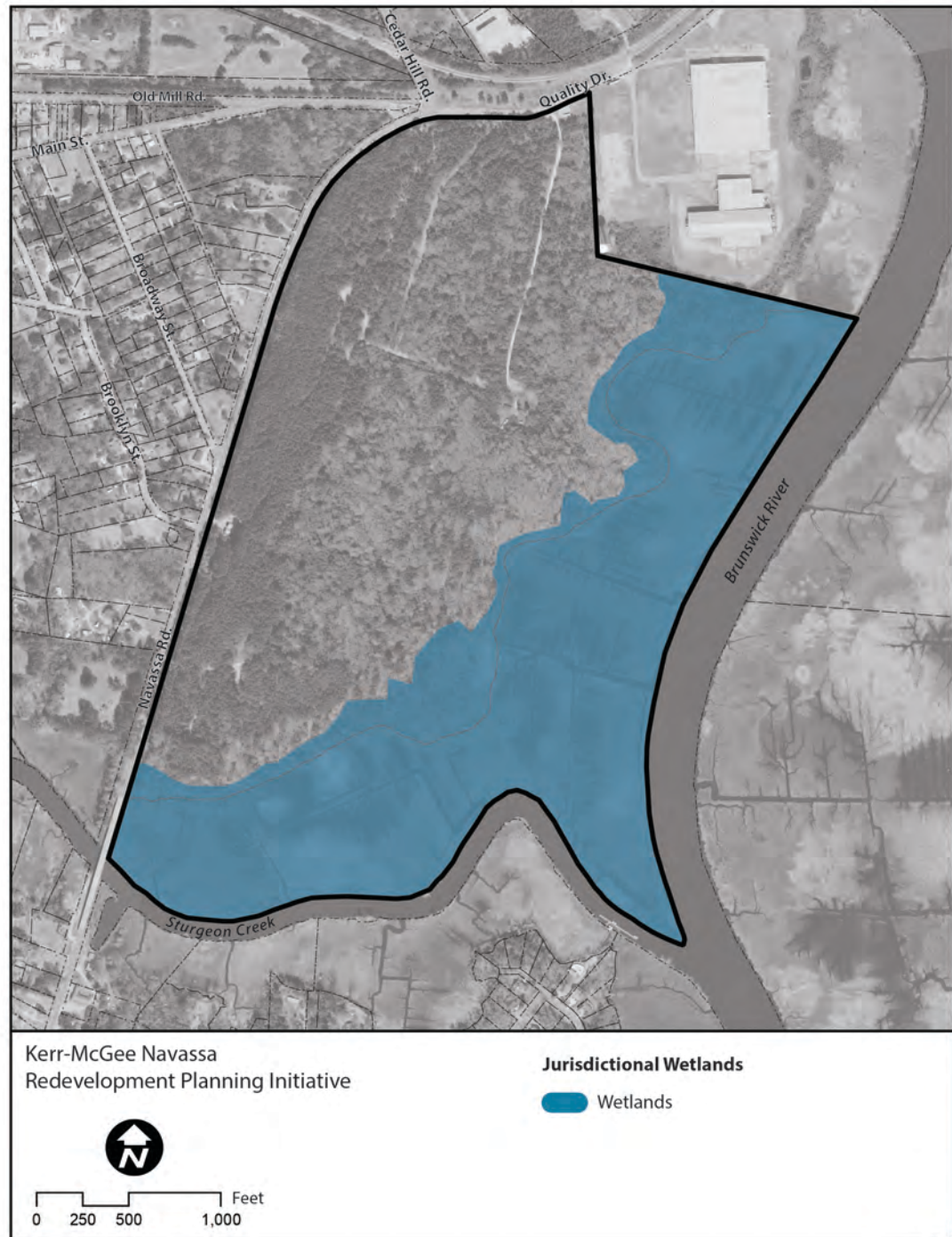
# Storm Surge Hazard (Category 5 Storm)

- Represents the amount of storm surge potential from a “catastrophic” hurricane



# Wetlands

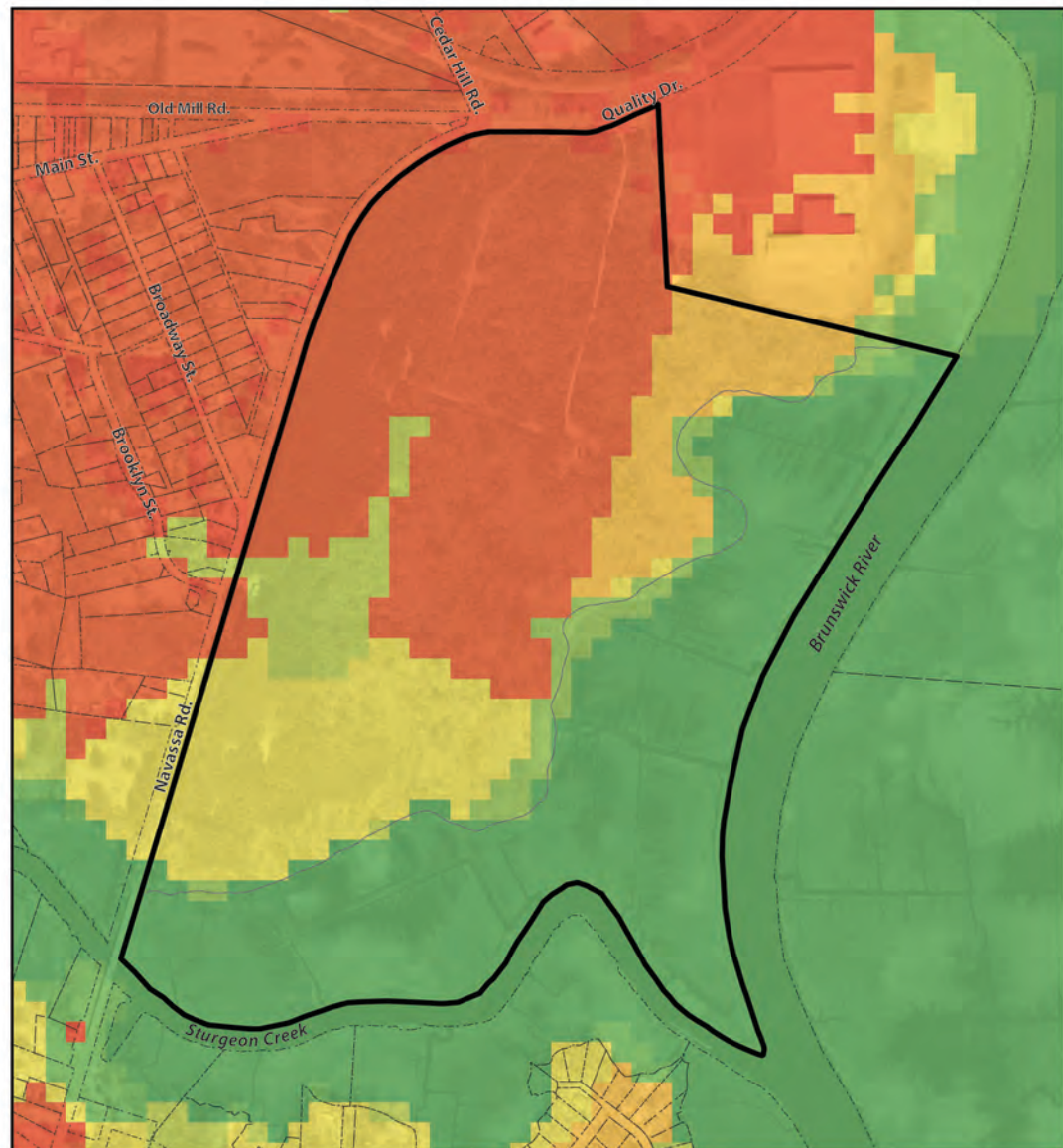
- The extent of the “jurisdictional” wetlands mostly coincides with the 100 year floodplain.
- The term “jurisdictional” means that they are subject to regulation and development is extremely limited in these areas.
- Wetland areas have been delineated by a survey of the site.





# Biodiversity and Wildlife Habitat Rating

- Significant conservation and wildlife habitat rating along the Brunswick River and Sturgeon Creek marsh areas.
- Data is from the NC Wildlife Resources Commission's Green Growth planning tool.



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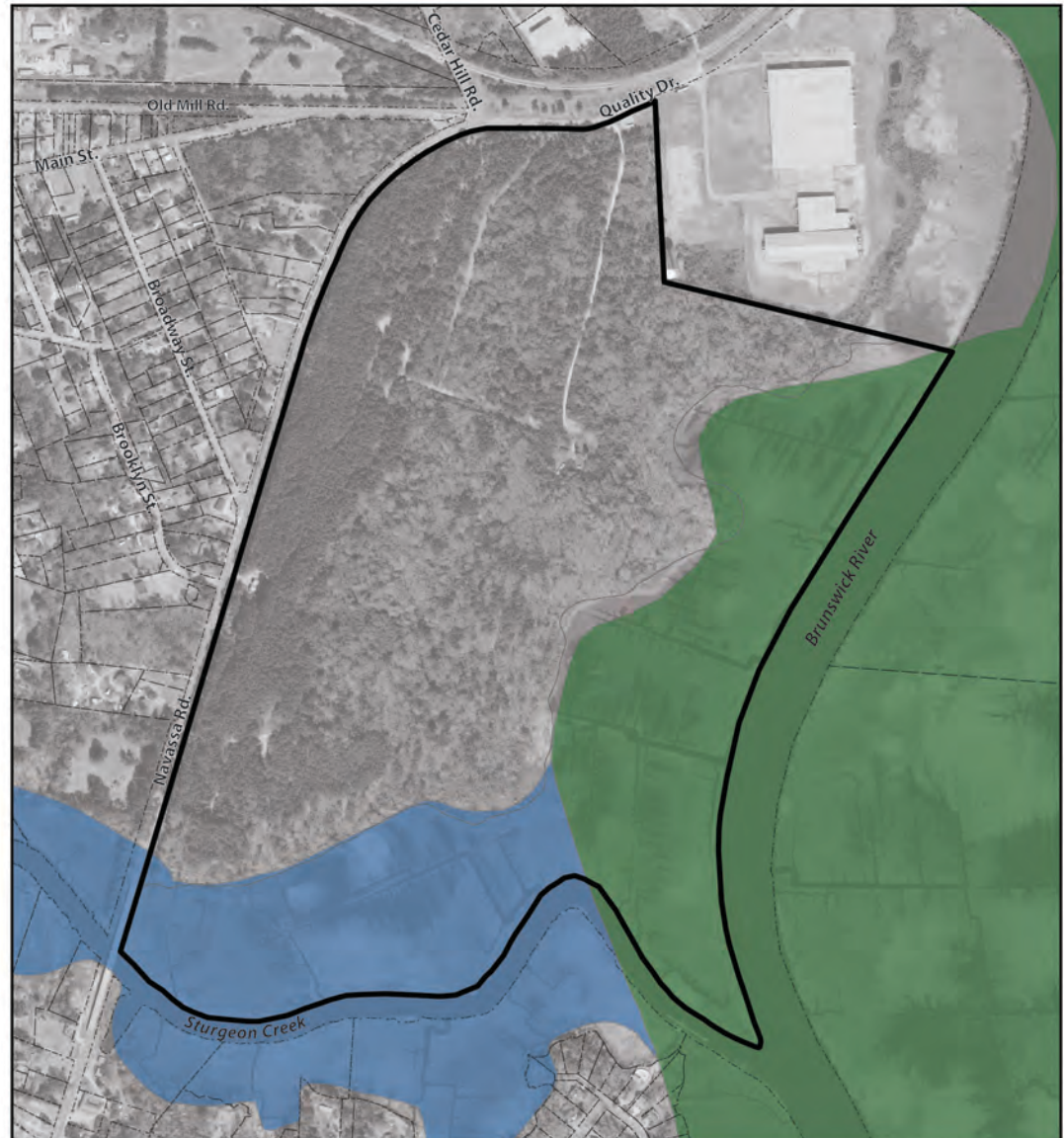
## Biodiversity / Wildlife Habitat Rating

- Significant
- High
- Average
- Below Average
- Low

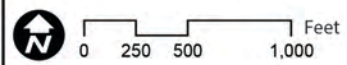


# Natural Heritage Areas



- Areas found to have significant biodiversity have been identified by the NC Natural Heritage Program.
- Found along the Brunswick River and Sturgeon Creek marsh areas.



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**Designated Natural Heritage Areas**

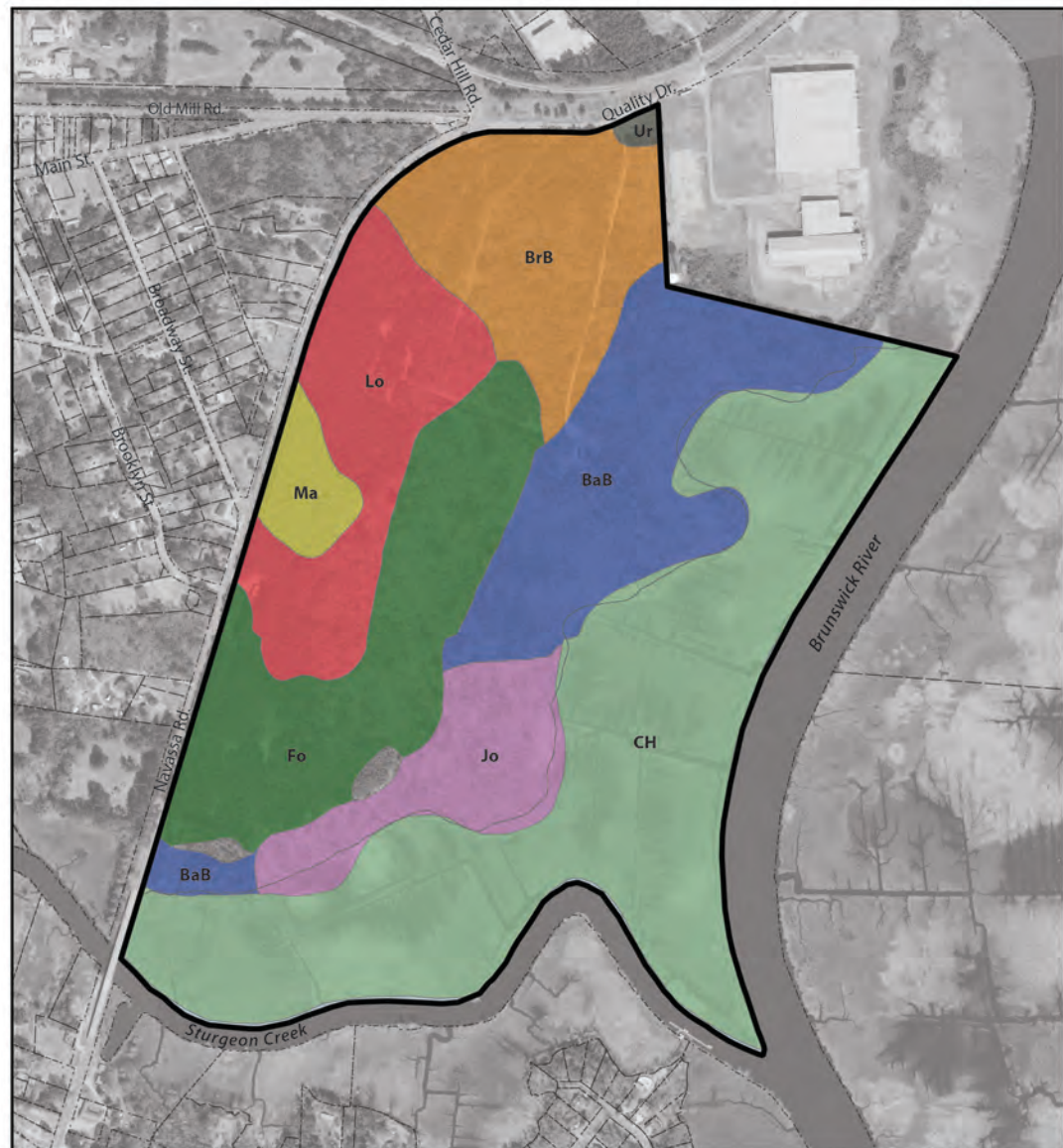
-  Brunswick River / Cape Fear River Marshes
-  Sturgeon Creek Tidal Wetlands



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# Soil Types

- 8 different soil types found on the site.
- Data derived from the Natural Resources Conservation Service Soil Survey for Brunswick County.
- Soil properties analysis for a variety of limitations:
  - Corrosion potential
  - Suitability for residential and commercial buildings
  - Road construction
  - Recreation areas and facilities



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0 250 500 1,000 Feet



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## Soil Types

Ur	Urban	Jo	Johns Fine Sandy Loam
BrB	Bragg Fine Sandy Loam	Fo	Foreston Loamy Fine Sand
BaB	Baymeade Fine Sand	Lo	Leon Fine Sand
CH	Chowan Silt Loam	Ma	Mandarin Fine Sand



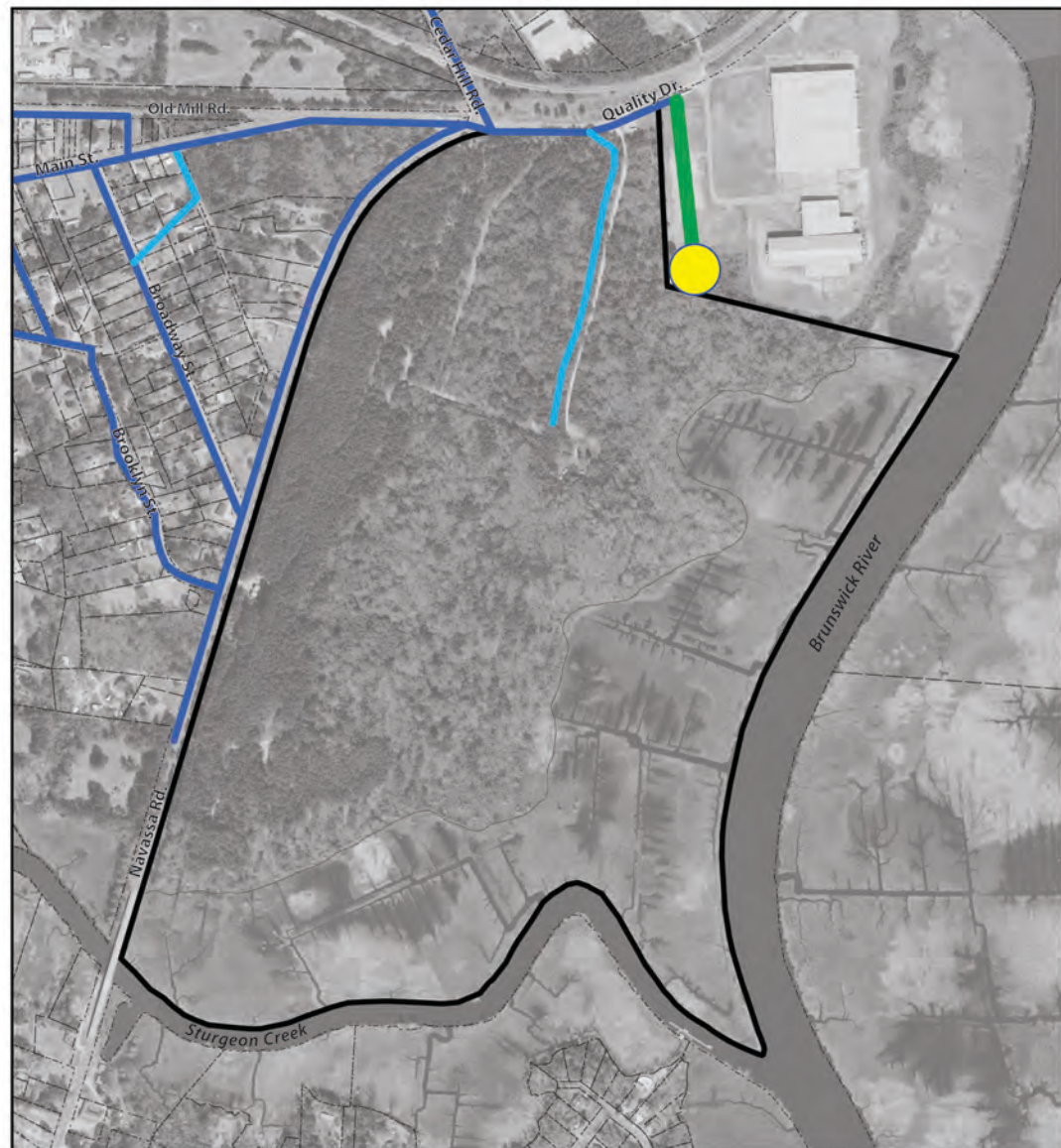
# Utility Infrastructure

- Water Distribution System
- Wastewater Collection System
- Electric Service
- Natural Gas Service
- Data / Telecommunications



# Water Distribution System

- Wholesale water provided by Brunswick County
- Major elevated storage tank located on adjacent property
- 6" distribution lines around the property.
- Additional water capacity should be available from the County



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## Town of Navassa Water System

— 2" - 4" Distribution Lines

— 6" Distribution Lines

— 12" Transmission Line (County)

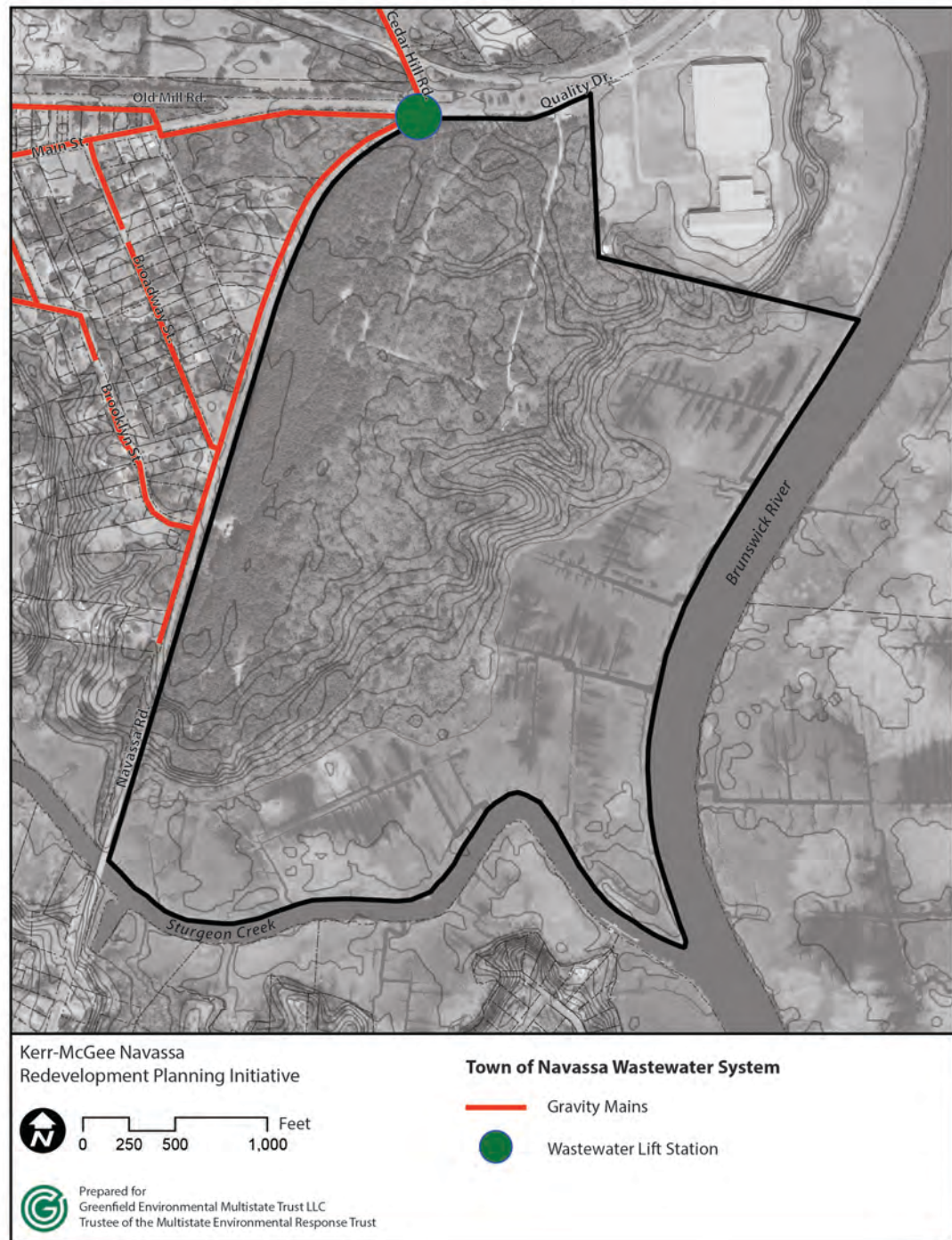


Brunswick County Elevated Storage Tank



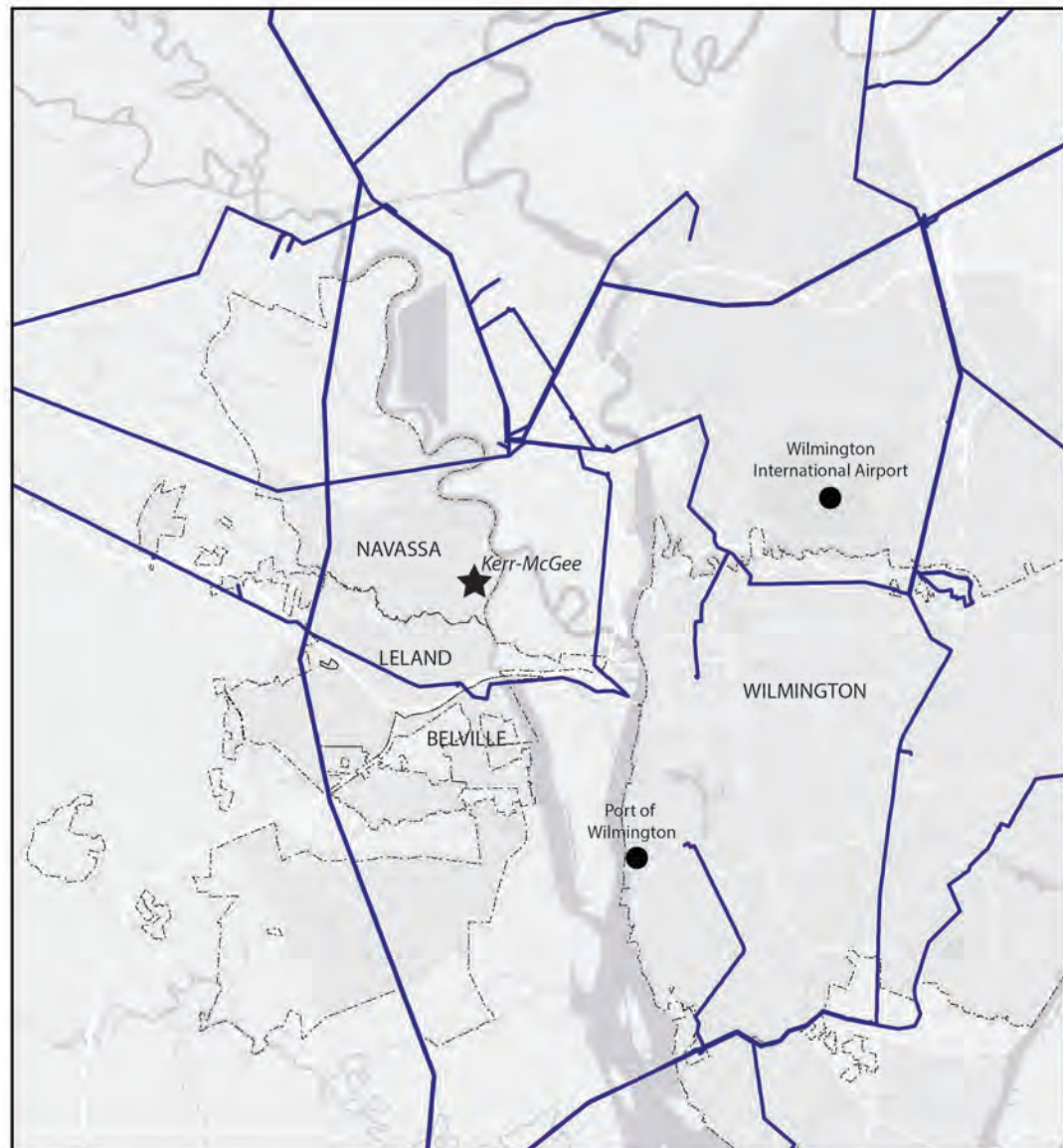
# Wastewater Collection System

- Gravity sewer lines located along Navassa Road.
- Pump station at intersection of Old Mill Rd.
- Currently at capacity for sewer flow
- Pump station can be expanded, but collection permit needs to be modified.
- Treatment provided at the County's Northwest Treatment Plant.
- Currently at capacity, but expansion is possible, and under study.



# Regional Electric Transmission Network

- Within 2 miles of high voltage transmission lines for heavy energy users
- Power available from two sources – Sutton Steam Plant and Brunswick Nuclear Station



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**Regional Electric Transmission Network**



0 1 2 4 Miles

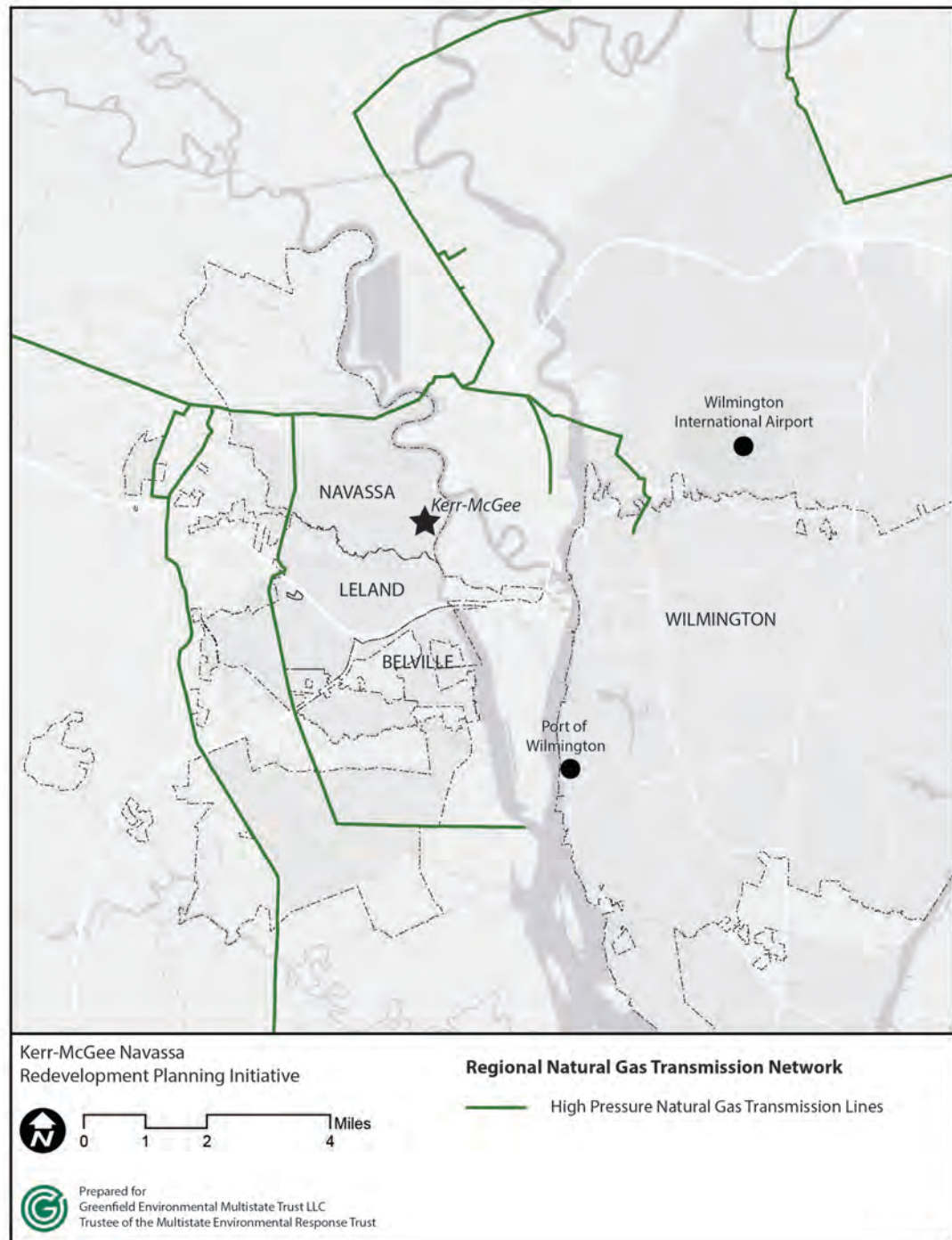
— High Voltage Electric Transmission Lines



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# Regional Natural Gas Transmission Network

- Within 2 miles of high pressure natural gas transmission lines for heavy natural gas users
- Gas distribution lines serve the site





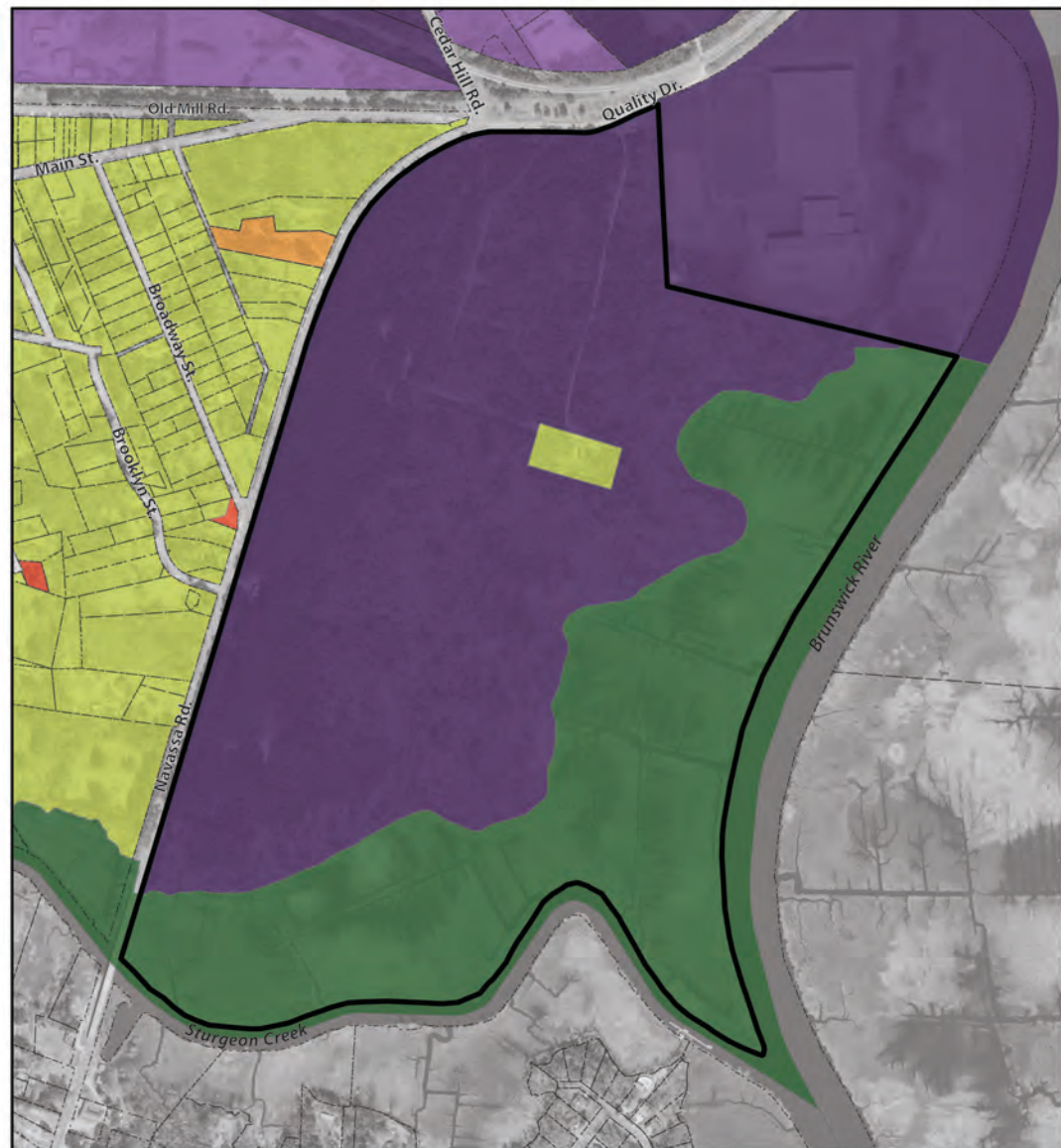
# Land Use Planning and Regulation

- Zoning Regulations
- Future Land Use Plan



# Town of Navassa Zoning Districts

- Currently Zoned with 3 different districts:
  - Heavy Industrial
  - Conservation & Recreation
  - R-10



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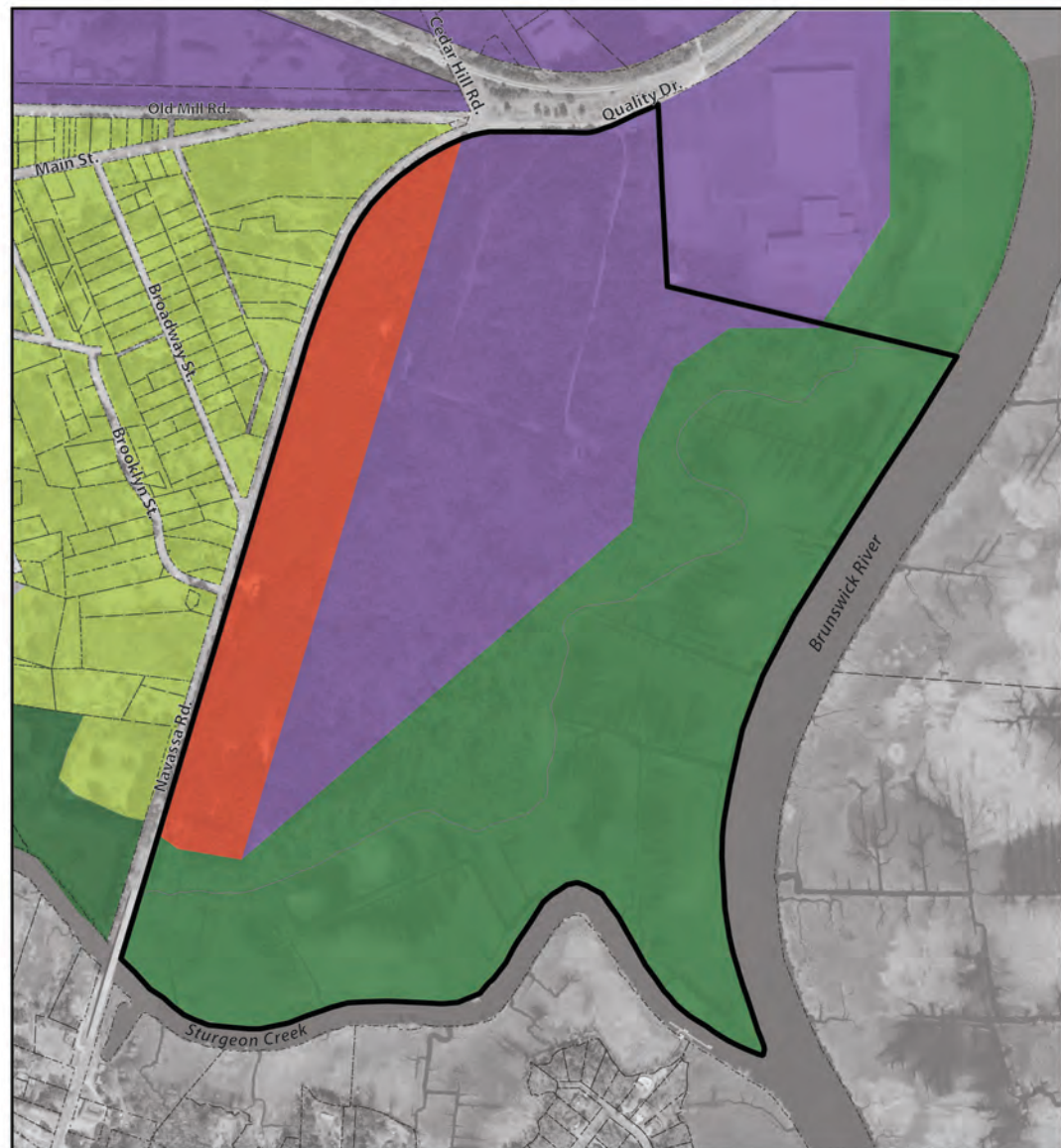
## Town of Navassa Zoning Districts

- |                                    |                            |
|------------------------------------|----------------------------|
| Conservation & Recreation (CR)     | Neighborhood Business (NB) |
| R-10 (Single Family Residential)   | Light Industrial (LI)      |
| Multiple-Family Residential (R-MF) | Heavy Industrial (HI)      |



# Town of Navassa Future Land Use Map

- The Town's comprehensive plan designates portions of the site for:
  - Light Industrial
  - General Commercial
  - Conservation



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## Town of Navassa Future Land Use Categories

- Conservation
- Medium Density Residential
- General Commercial
- Light Industrial

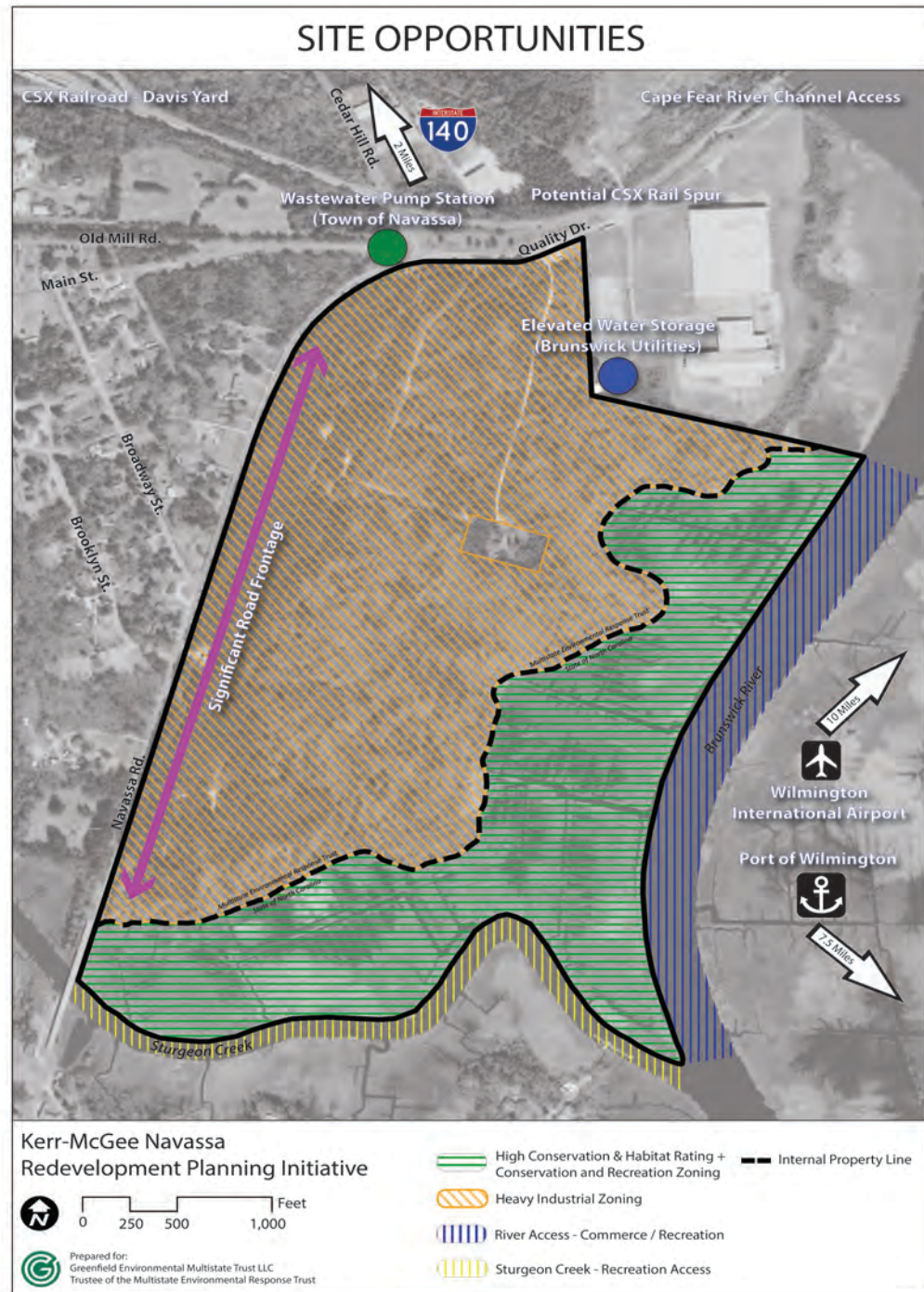


# Opportunities Summary

- High conservation value and zoning for conservation and recreation (lowland area)
- Industrial zoning (upland area)
- Transportation assets – I-140, CSX, Port of Wilmington, ILM, significant road frontage
- Water and sewer utilities adjacent to the site
- River access for commerce and recreation
- Sturgeon Creek access for recreation



# Opportunities Map



# Constraints Summary

- Need for remediation in portions of the former industrial process areas
- Jurisdictional wetlands in the lowland portion of the site.
- 100 year floodplain (primarily in the lowland area)
- Soil limitations along a portion of the Navassa Road frontage.
- Primary Nursery Area in the Brunswick River
- Transportation access issues - CSX crossing, intersection configurations



# Constraints Map

