

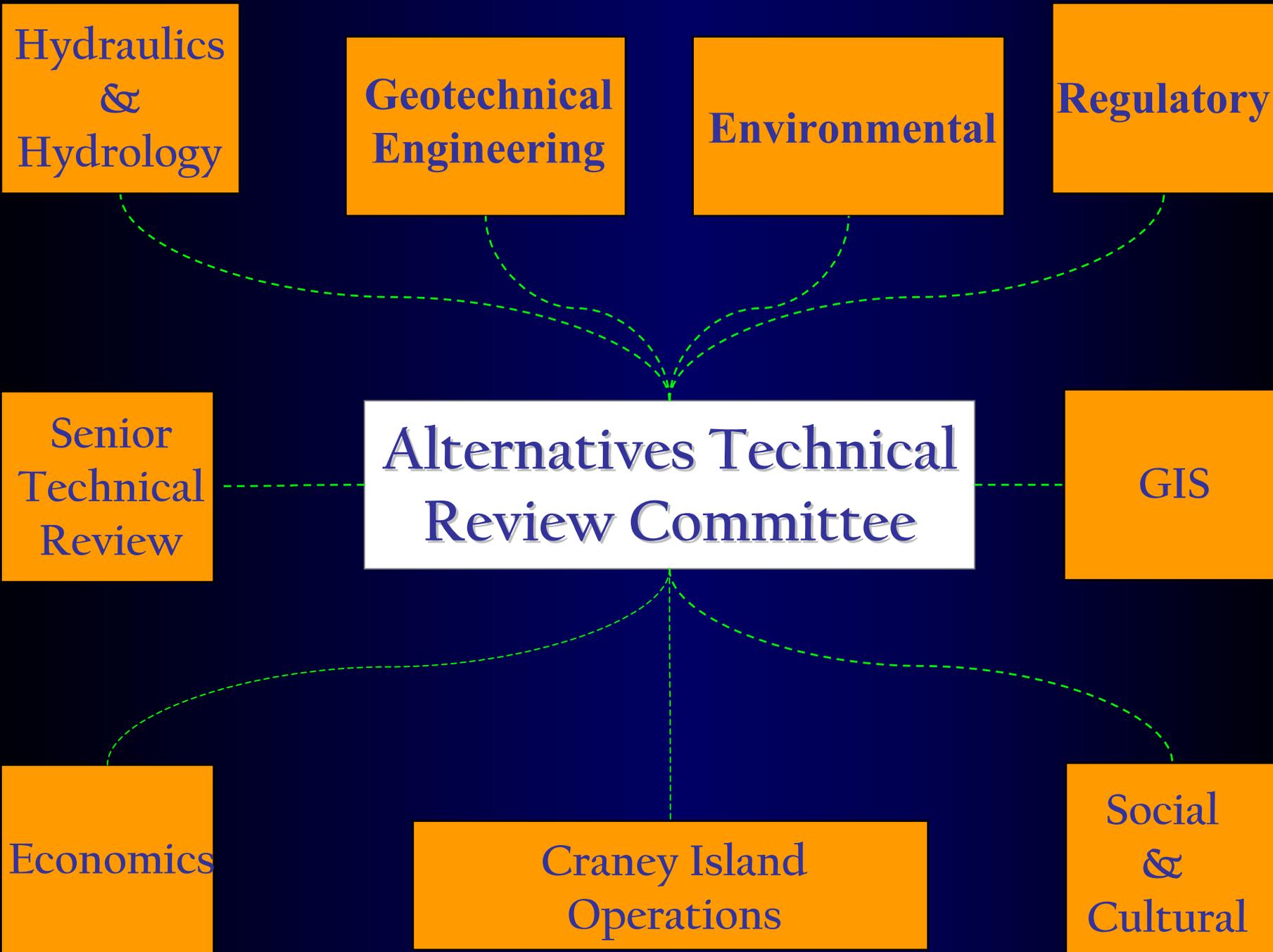
An aerial photograph of Craney Island, showing a long pier extending from the mainland into the water. The island is surrounded by water, and there is a small settlement with several buildings and a road on the mainland. The text is overlaid on the image in a yellow, serif font.

Craney Island Feasibility Study Alternative Analysis

Presented by:
Michelle Banton

Objectives of Alternatives Briefing to Stakeholders

- Provide new stakeholders with...
 - Background information on the Alternatives Technical Review Committee
 - Alternatives considered and rationale for keeping/discarding alternatives.
 - Discuss Analysis Process
- Provide status of Alternative Analysis



Hydraulics
&
Hydrology

Geotechnical
Engineering

Environmental

Regulatory

Senior
Technical
Review

Alternatives Technical
Review Committee

GIS

Economics

Craney Island
Operations

Social
&
Cultural

Objectives of Alternatives Briefing to Stakeholders

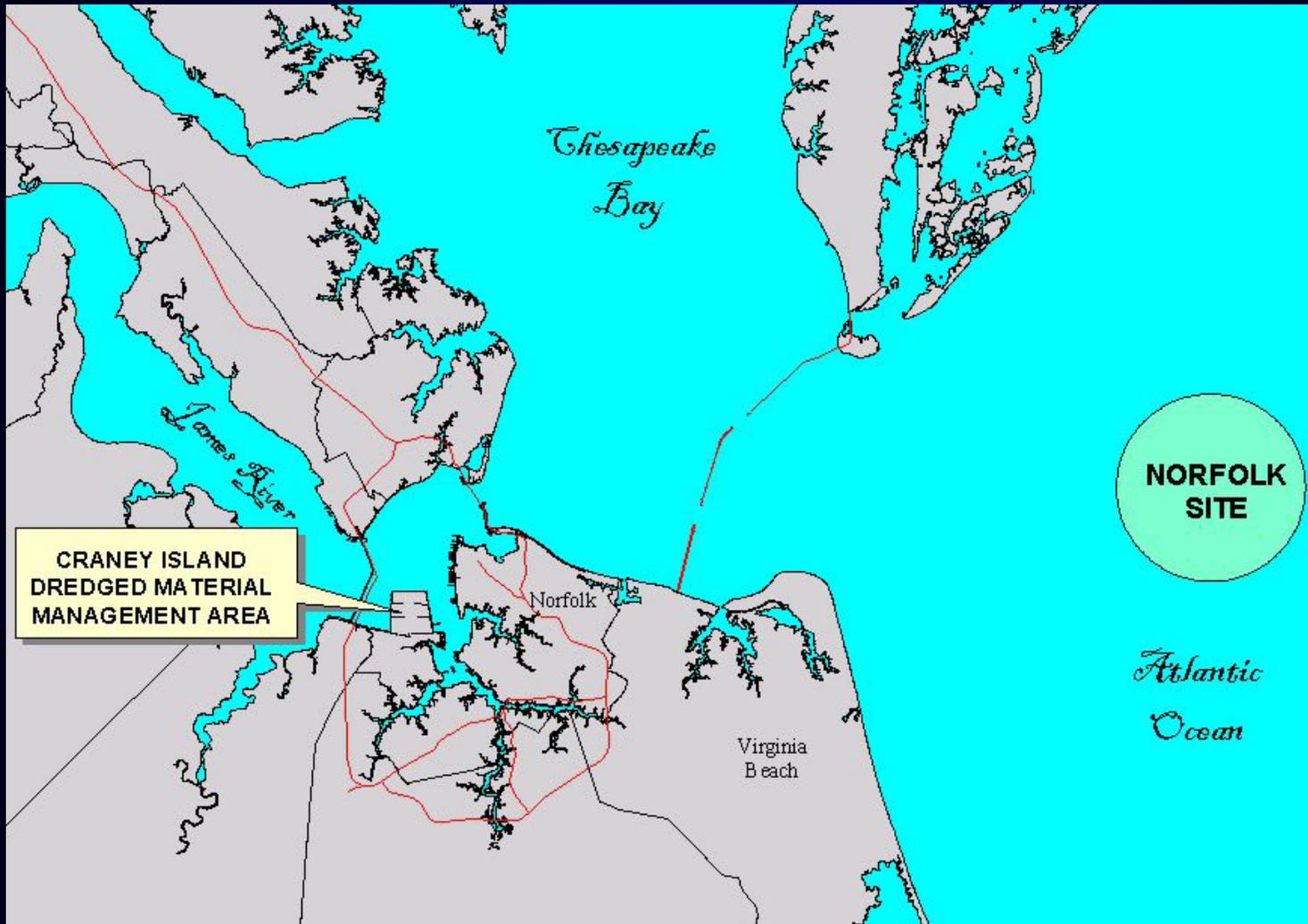
- Provide new stakeholders with...
 - Background information on the Alternatives Technical Review Committee
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 - Discuss Analysis Process and status

Alternatives Considered

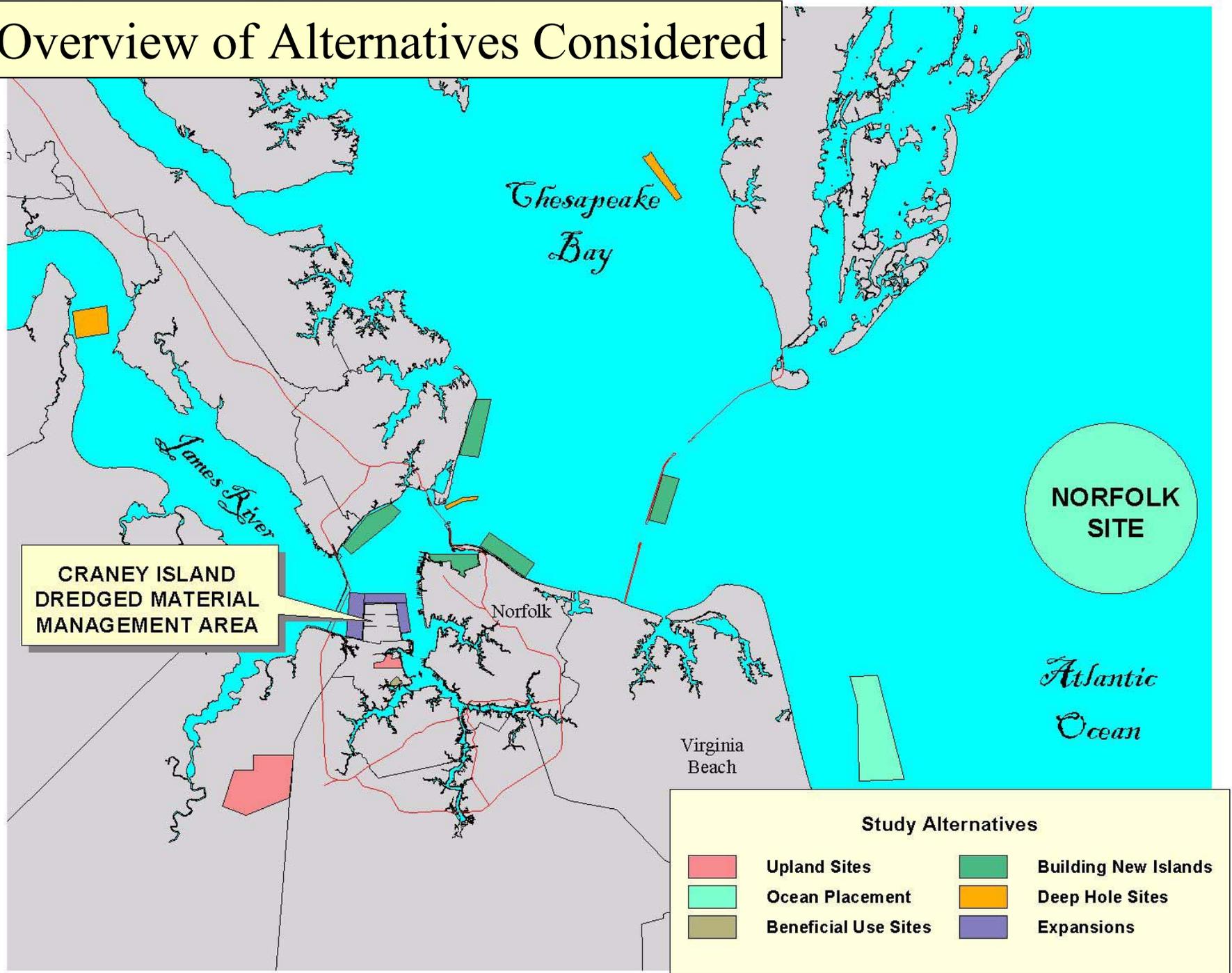
- Alternatives Covering a wide spectrum of areas
 - **OFF-SITE**
 - Upland
 - Beneficial Use
 - Islands
 - Combined Aquatic Disposal Facilities
 - Deep Holes
 - Ocean Placement
 - **ON-SITE**
 - Footprint Options (including base condition)

Baseline Condition

Combined Use of Craney Island and Ocean Placement (Norfolk Site)



Overview of Alternatives Considered



CRANEY ISLAND
DREDGED MATERIAL
MANAGEMENT AREA

NORFOLK
SITE

Study Alternatives			
	Upland Sites		Building New Islands
	Ocean Placement		Deep Hole Sites
	Beneficial Use Sites		Expansions

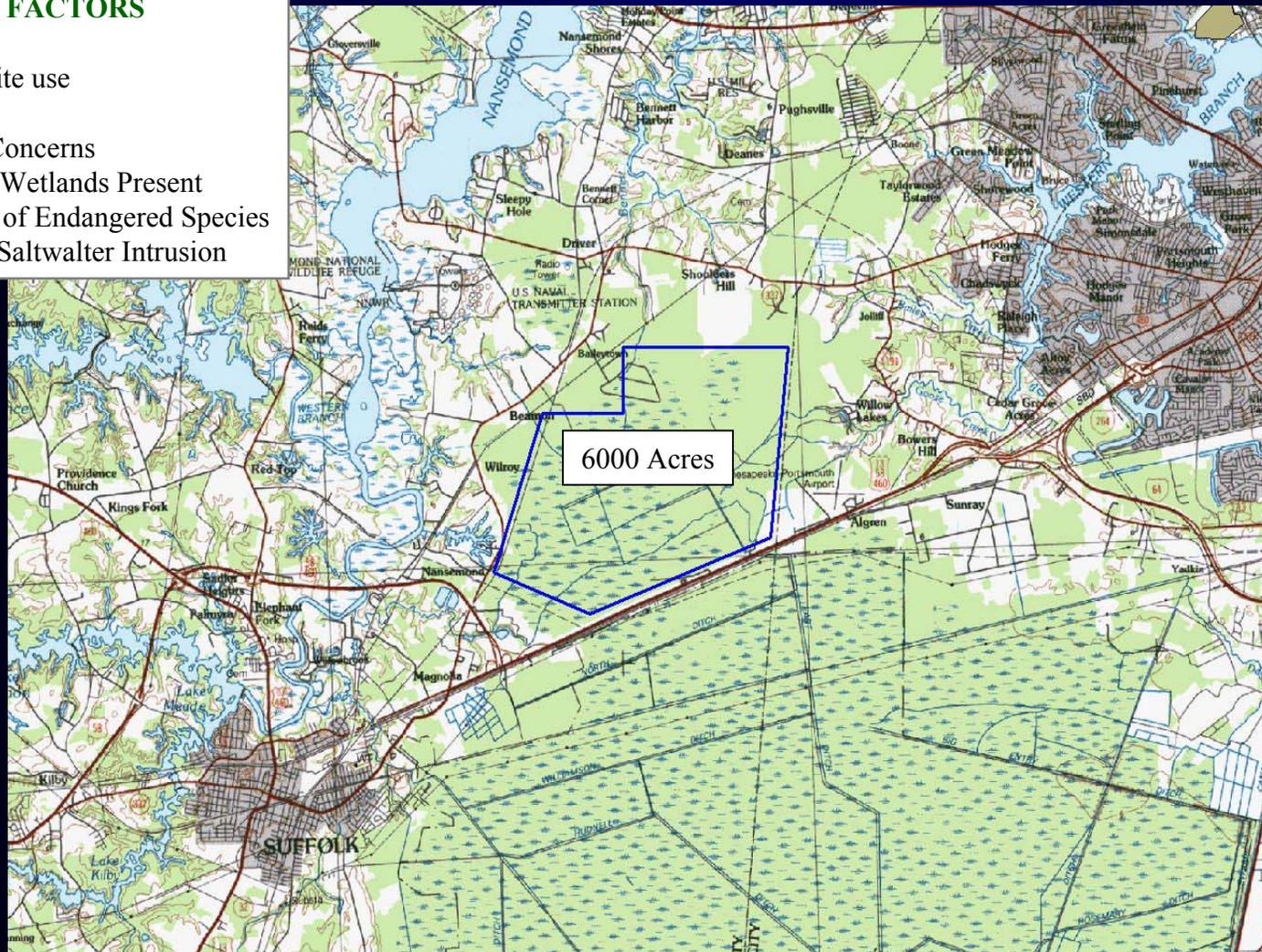
OFF-SITE Alternatives



Upland Sites – Suffolk SPSA Site

ELIMINATION FACTORS

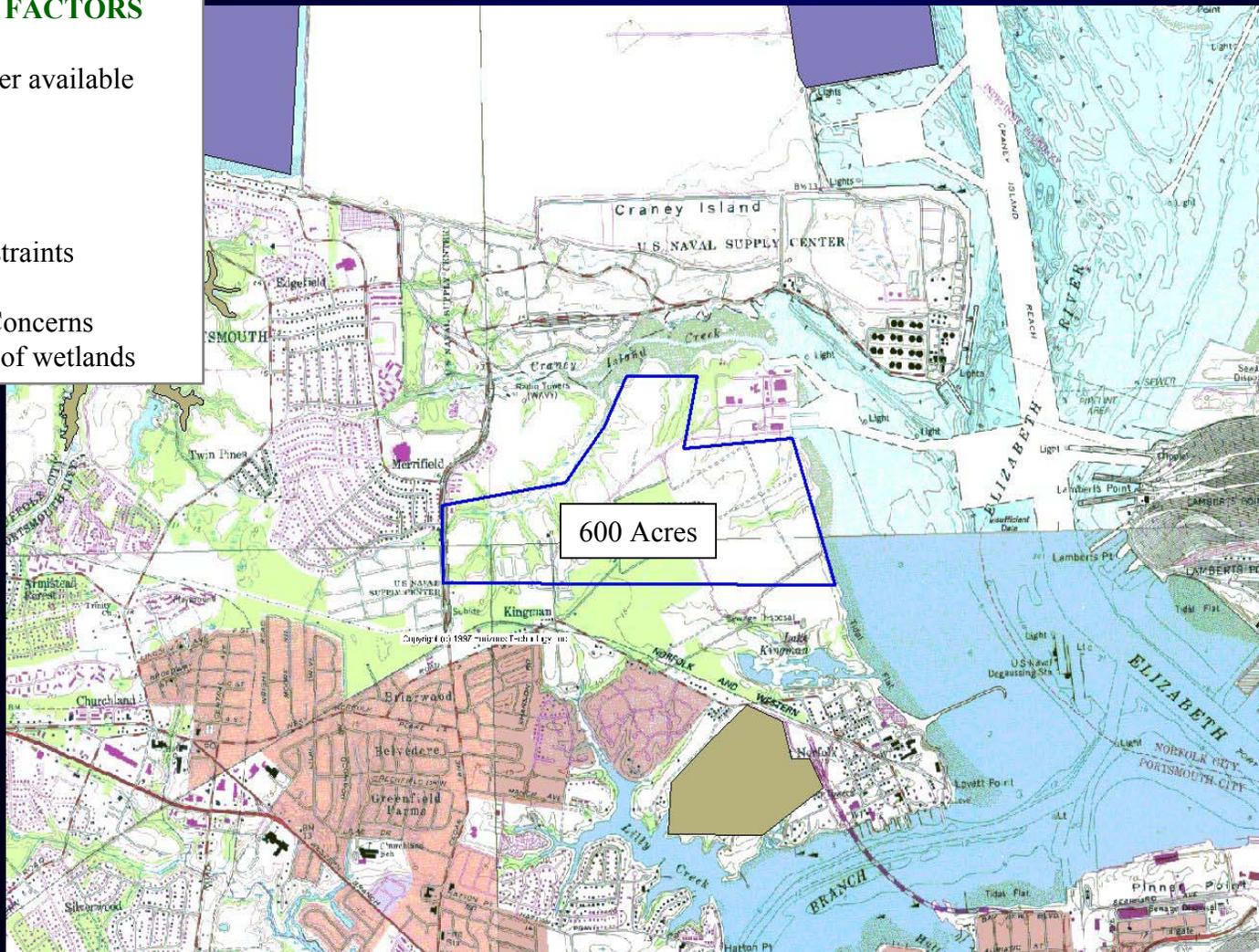
- Conflicting on-site use
- Environmental Concerns
 - Forested Wetlands Present
 - Presence of Endangered Species
 - Possible Saltwater Intrusion



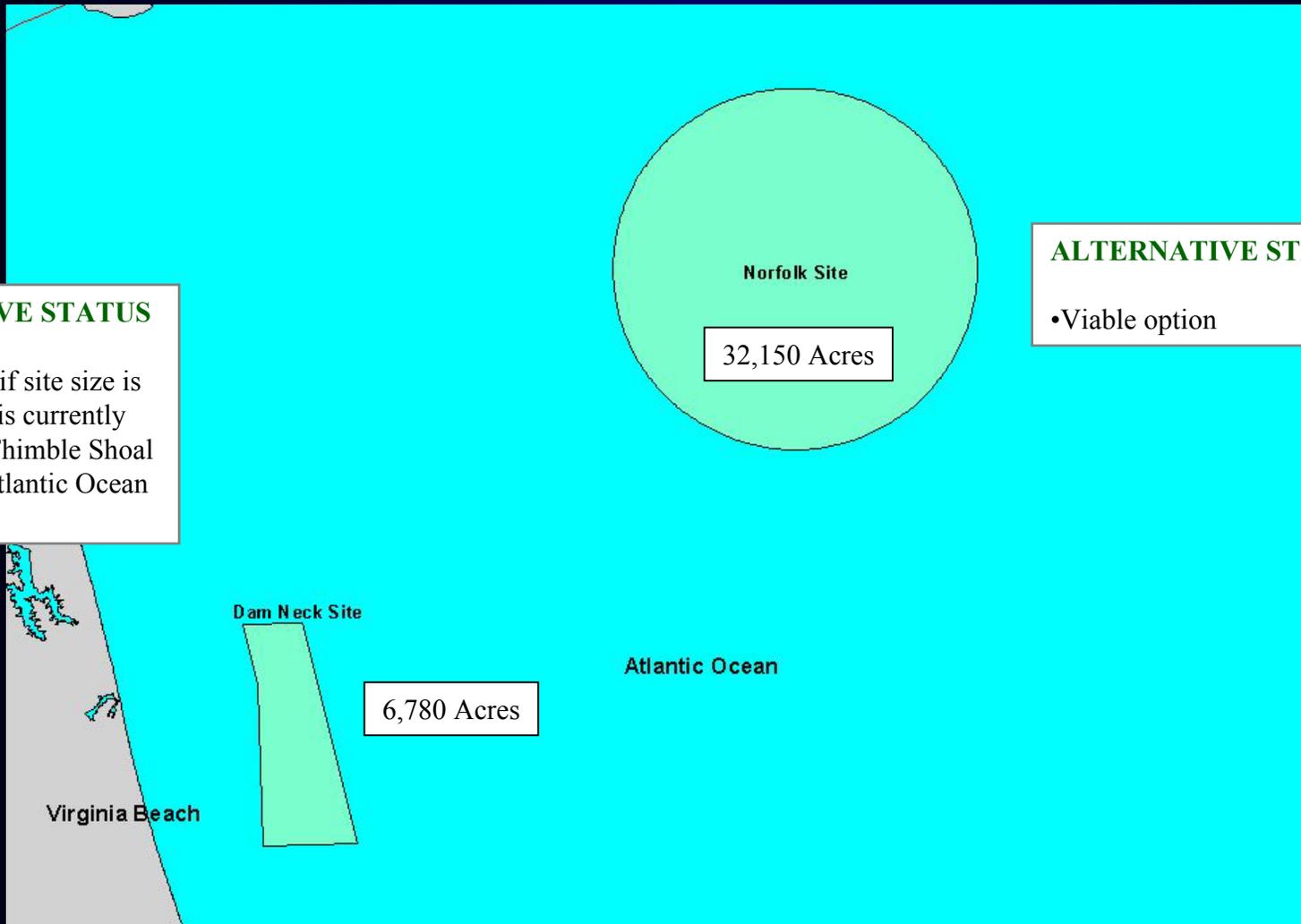
Upland Sites – Portsmouth Sites

ELIMINATION FACTORS

- Property no longer available sold to Maersk
- Capacity Issues
- Operational constraints
- Environmental Concerns
 - Presence of wetlands



Ocean Placement – Norfolk Site & Dam Neck



ALTERNATIVE STATUS
•Viable option

ALTERNATIVE STATUS
•Viable option if site size is expanded; site is currently committed to Thimble Shoal Channel and Atlantic Ocean Channel.

Beneficial Use – Hoffler Creek

ELIMINATION FACTORS

- Site Constraints
- Capacity Issues
- Designated as Wildlife Refuge

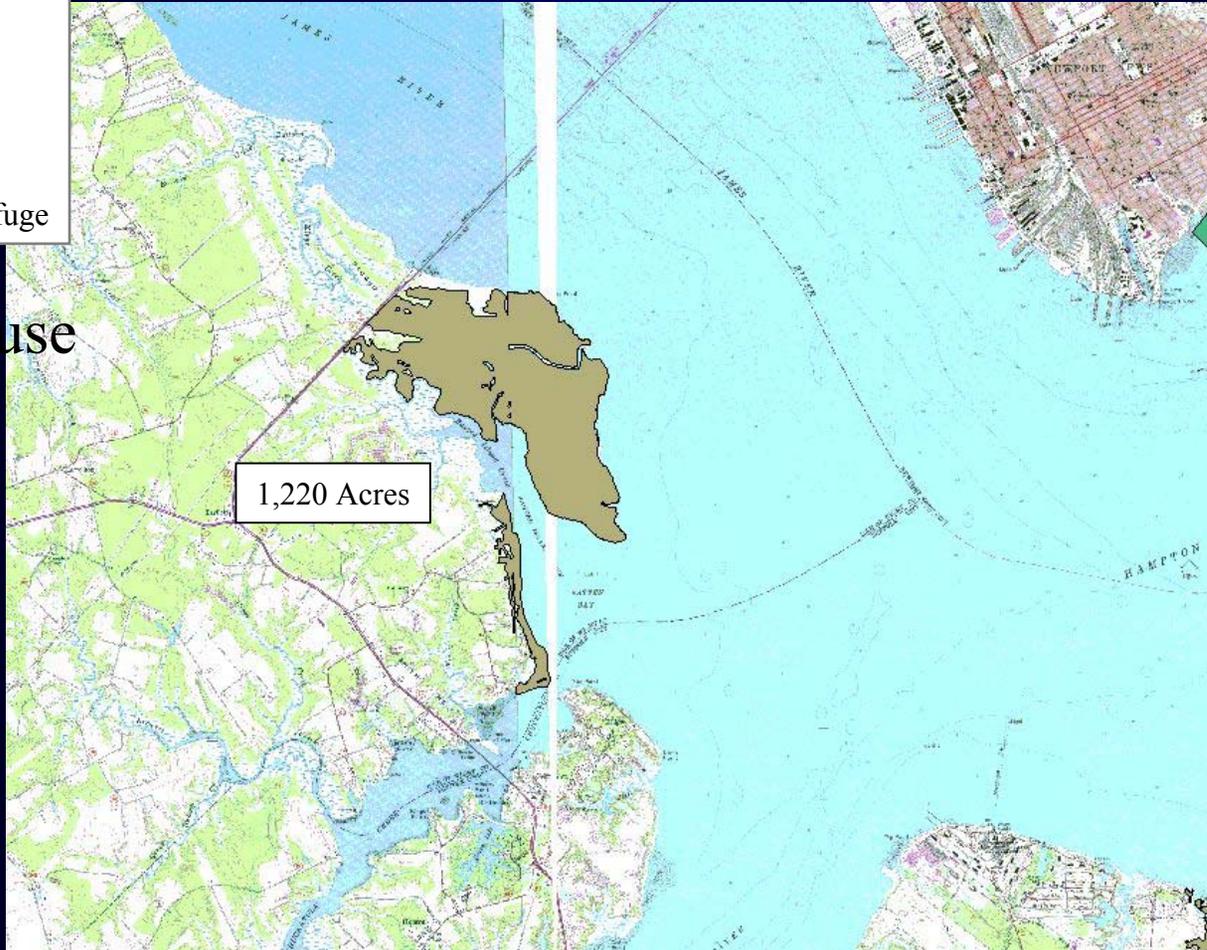


Beneficial Use – Ragged Island

ELIMINATION FACTORS

- Site Constraints
- Capacity Issues
- Designated as Wildlife Refuge

Beneficial use



Building New Islands – Hampton Flats

ELIMINATION FACTORS

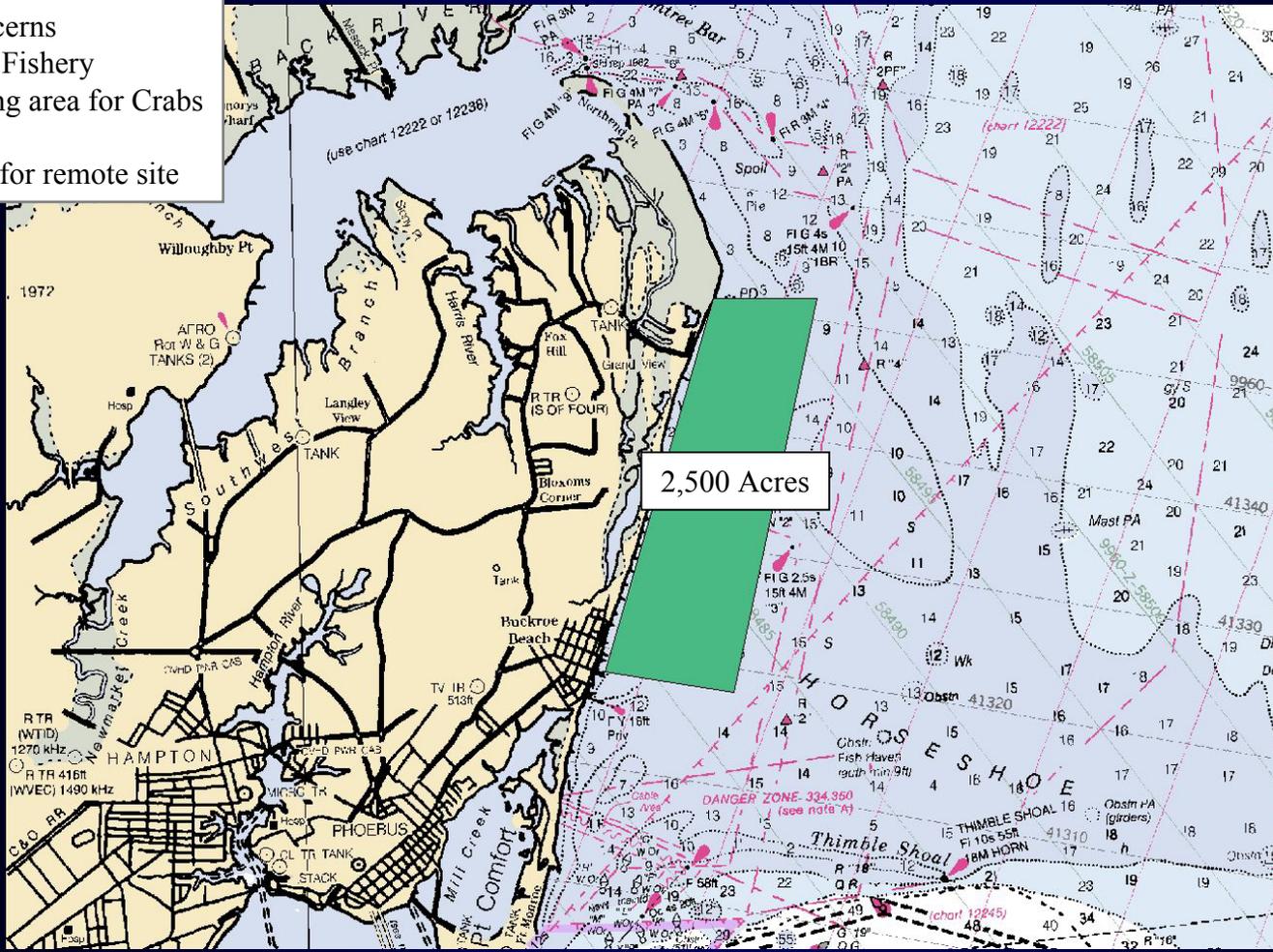
- Environmental Concerns
 - Plunging Front
 - Commercial Fishery



Building New Islands – Buckroe Beach Offshore / Horseshoe

ELIMINATION FACTORS

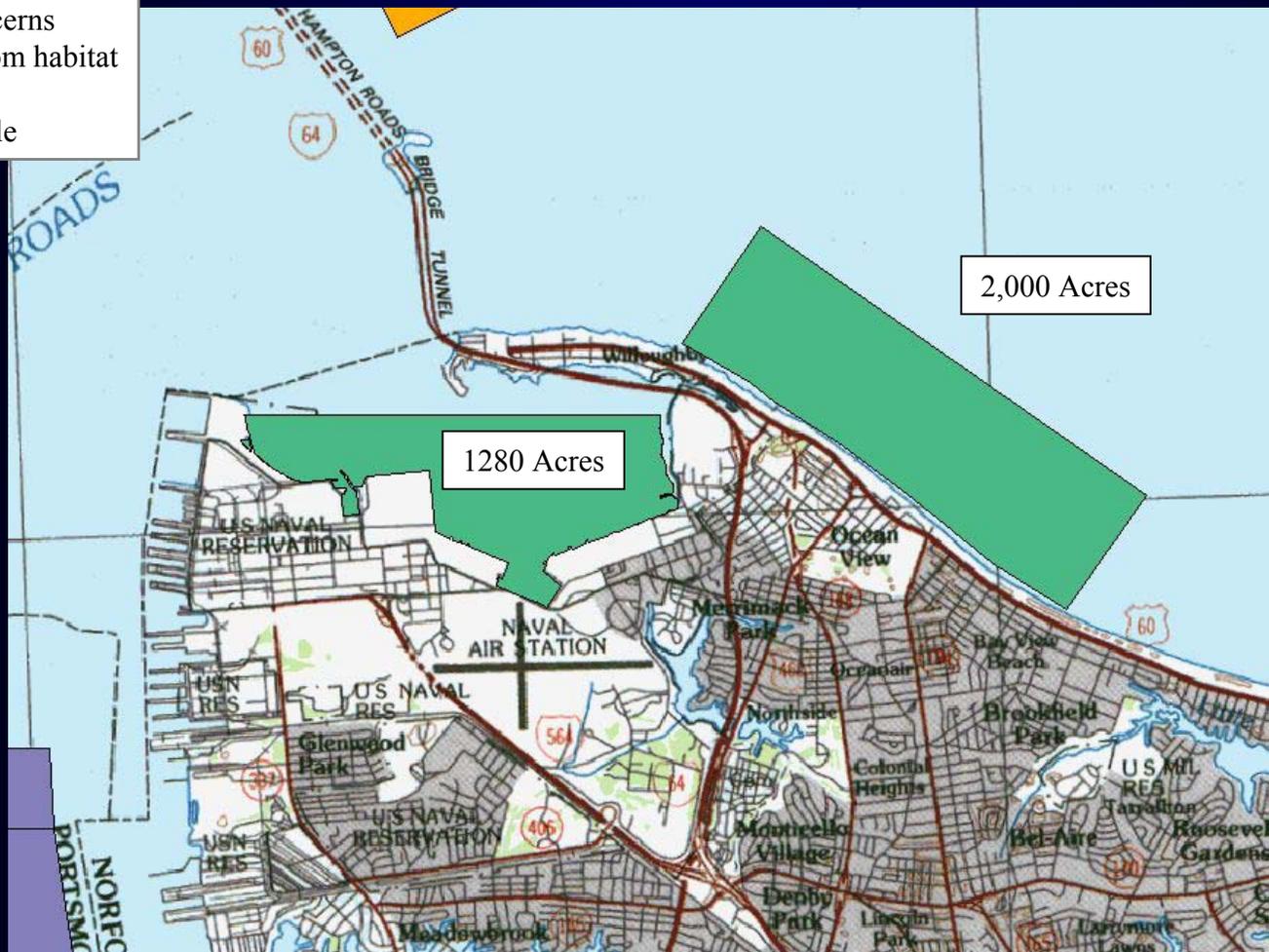
- Environmental Concerns
 - Commercial Fishery
 - Overwintering area for Crabs
- Operations difficult for remote site



Building New Islands – Ocean View Offshore Island & Willoughby Bay Island

ELIMINATION FACTORS

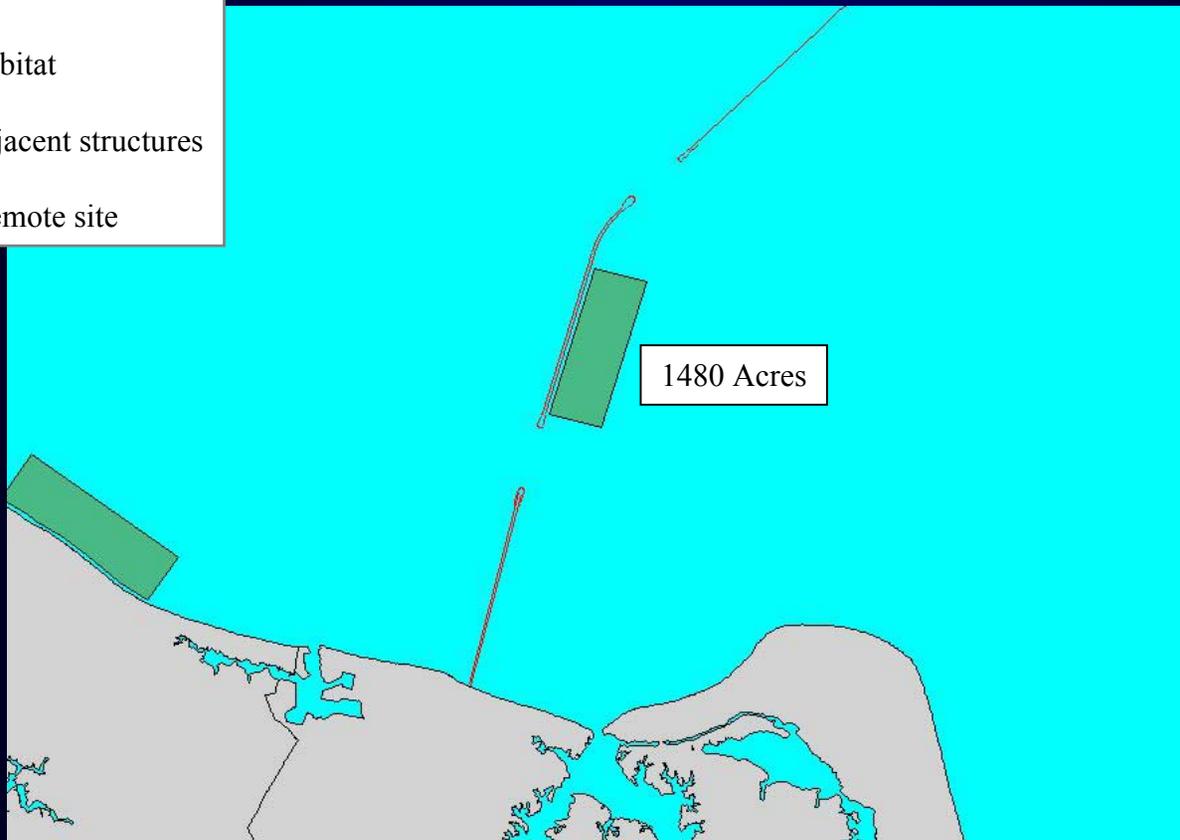
- Environmental Concerns
 - Loss of bottom habitat
- Socially unacceptable



Building New Islands – Island East of Chesapeake Bay Bridge Tunnel

ELIMINATION FACTORS

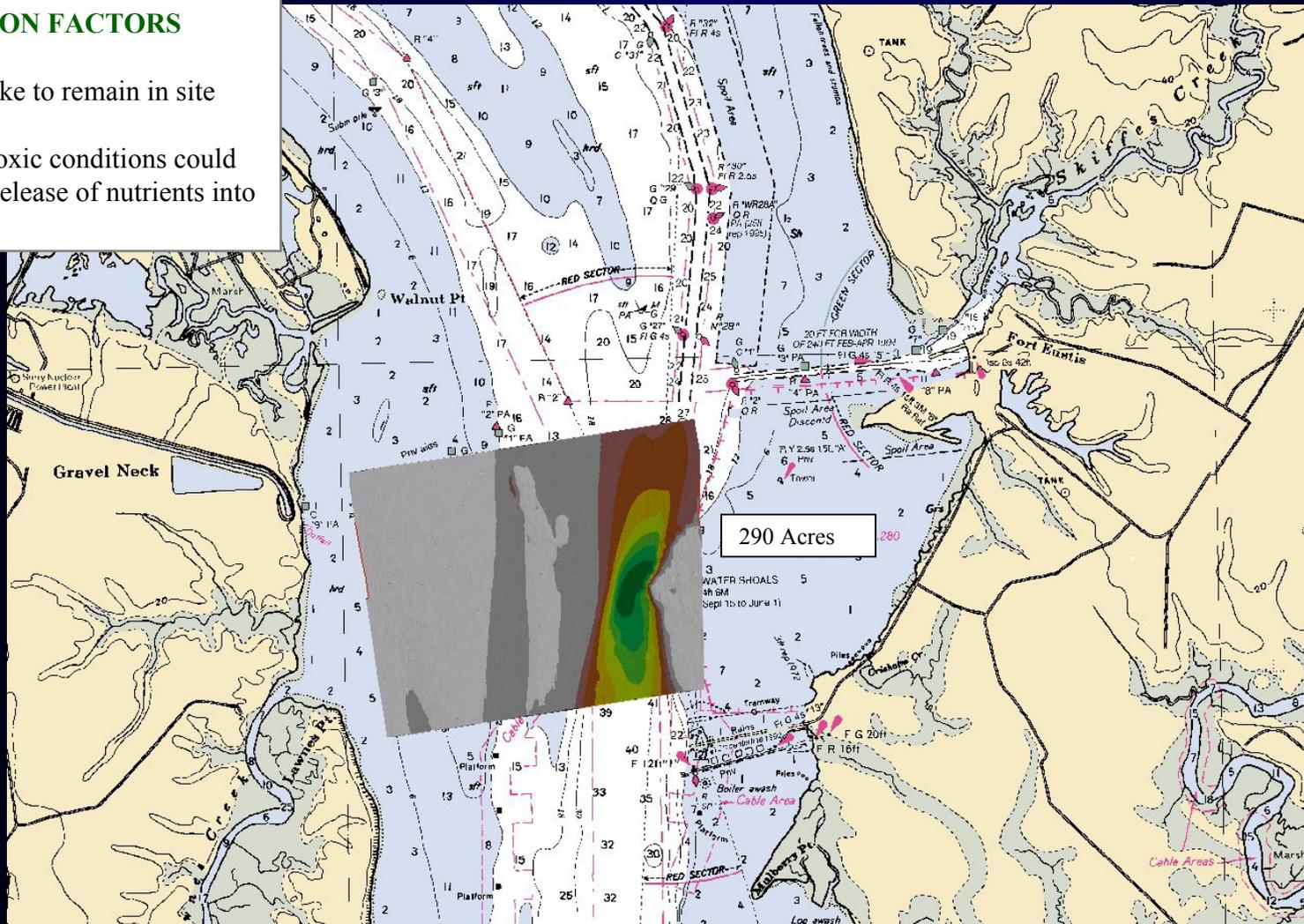
- Environmental Concerns
 - Loss of bottom habitat
- May adversely impact adjacent structures
- Operations difficult for remote site



Deep Hole Sites- James River

ELIMINATION FACTORS

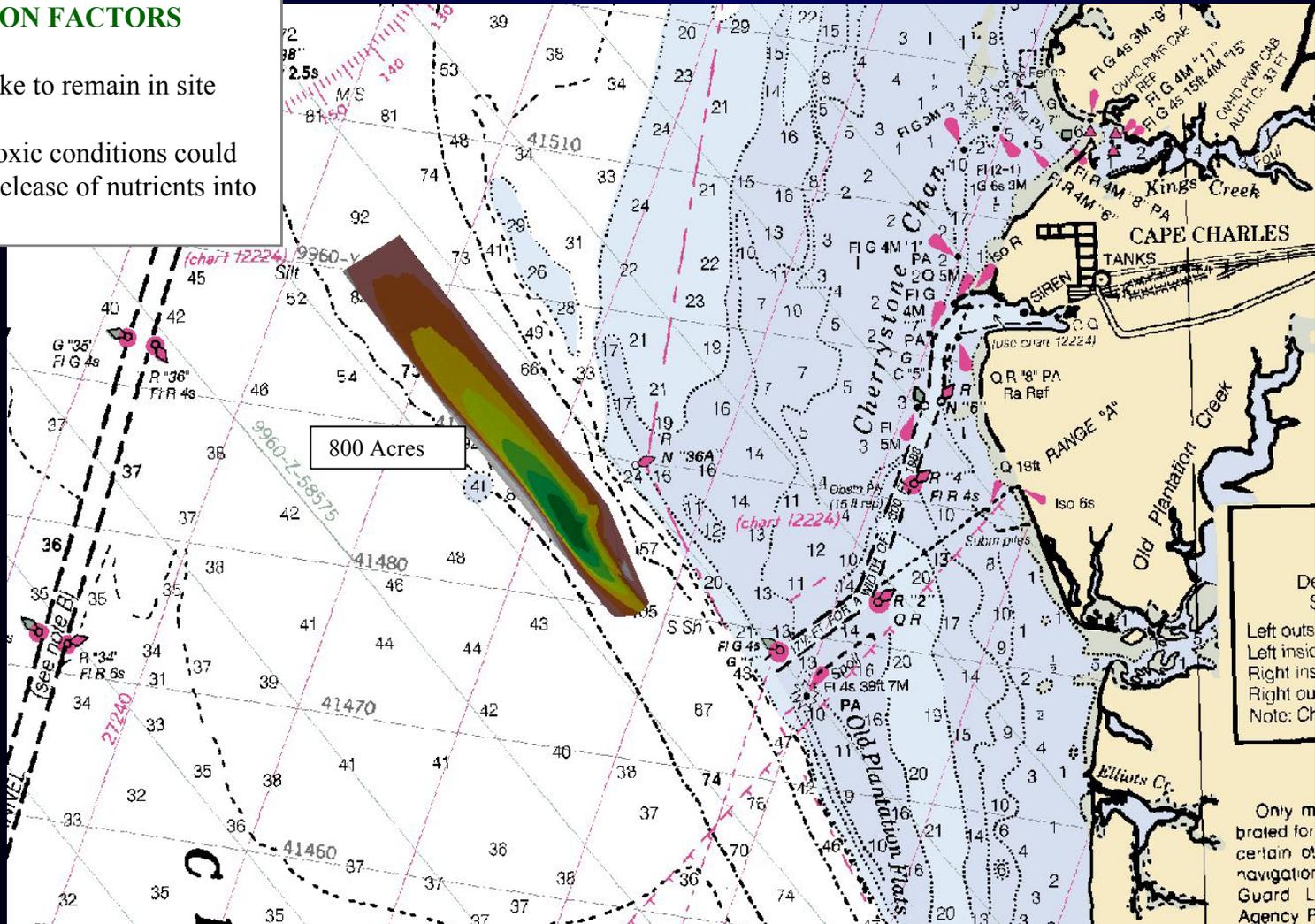
- Material unlikely to remain in site
- Seasonal Anoxic conditions could facilitate the release of nutrients into water column



Deep Hole Sites - Chesapeake Bay Offshore Site

ELIMINATION FACTORS

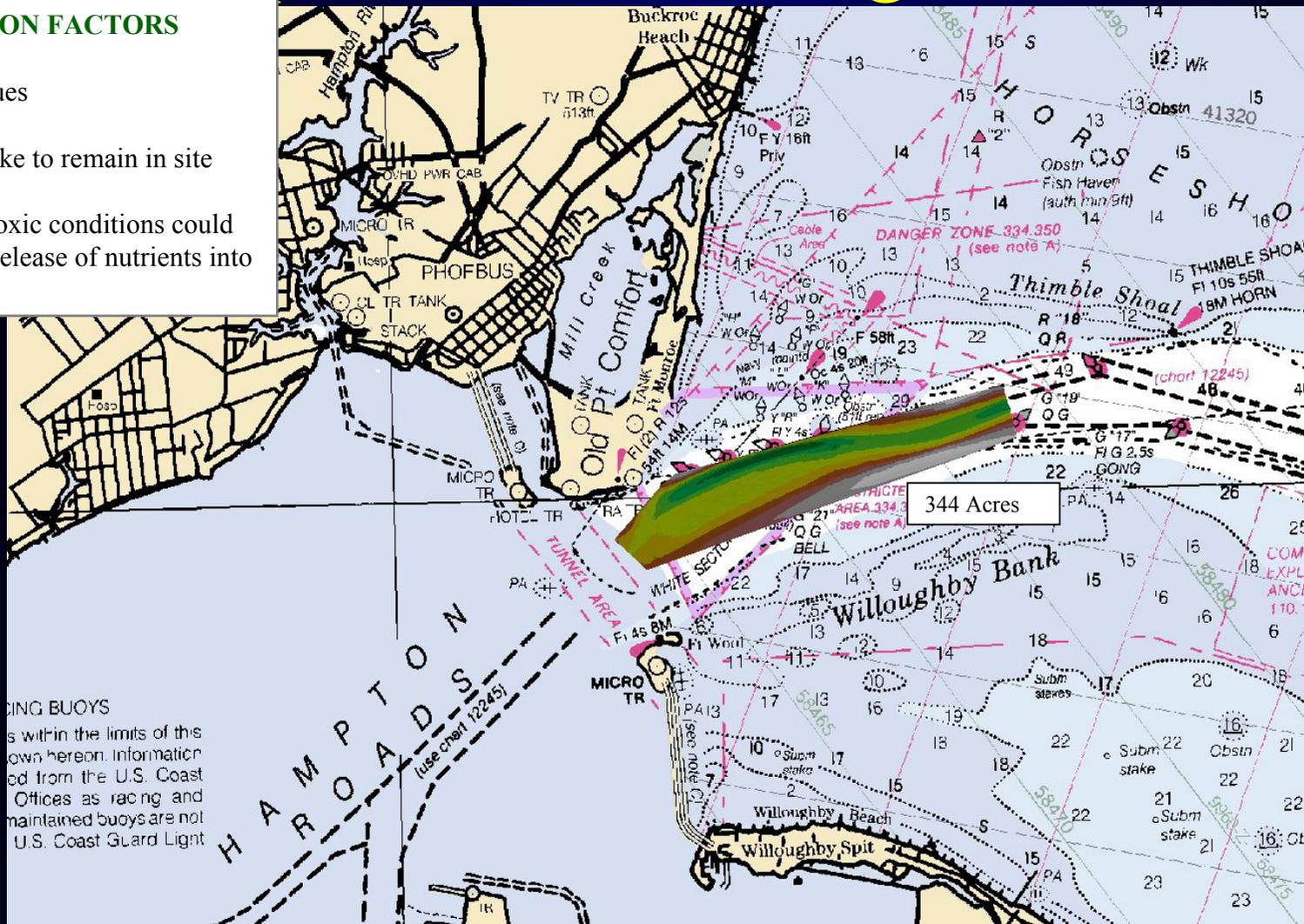
- Material unlike to remain in site
- Seasonal Anoxic conditions could facilitate the release of nutrients into water column



Deep Hole Sites – Hampton Roads Bridge Tunnel

ELIMINATION FACTORS

- Capacity Issues
- Material unlike to remain in site
- Seasonal Anoxic conditions could facilitate the release of nutrients into water column



ING BUOYS
s within the limits of this
own hereon. Information
od from the U.S. Coast
Offices as ranging and
maintained buoys are not
U.S. Coast Guard Light

COMBINED AQUATIC DISPOSAL FACILITIES

1. Offshore of River Shore
2. Offshore of TCC - Portsmouth
3. Mouth of Nansemond River
4. Offshore of Pike Point
5. West of I-664, Monitor-Merrimac Bridge Tunnel
6. Middle Ground Site
7. Newport News Bar Site
8. Channel to Newport News Site
9. Hampton Flats West
10. Hampton Flats East
11. Sewells Point Spit
12. Norfolk Navy Base near Carrier Pier
13. Norfolk Harbor Channel
14. Norfolk International Terminal Sites
15. Eastside of Craney Island

0 7000 Feet

Scale is approximate



Combined Aquatic Disposal Facilities (CADFs)

- | | | |
|-----|---|---|
| 1. | Offshore of River Shore Neighborhood | Capacity issues/ environmental concerns |
| 2. | Offshore TCC-Portsmouth | Capacity issues/ environmental concerns |
| 3. | South of Entrance of Nansemond River | Capacity issues/ environmental concerns |
| 4. | Offshore of Pike Point | High Commercial Value Fishery |
| 5. | West of I-664 | High Commercial Value Fishery |
| 6. | Middle Ground Site | Environmental issues |
| 7. | Adjacent to Hampton Creek Entrance | Capacity issues, proximity to Channel and Hampton Flats |
| 8. | Channel of Newport News Site | Co-existence of Federal Channel |
| 9. | Hampton Flats West Site | High Commercial Value / Proximity to Hampton Flats |
| 10. | Hampton Flats East Site | High Commercial Value / Proximity to Hampton Flats |
| 11. | Adjacent to Willoughby Federal Navigation Channel | High Commercial Value / Proximity to Federal Channel |
| 12. | Navy Base North of Carrier Docks | Capacity issues, Navy berthing area |
| 13. | Adjacent to NIT North | Capacity issues, port operation issues |
| 14. | Adjacent to NIT South | Capacity issues, port operation issues, |
| 15. | East side of Craney Island Facility | Disruptions of Craney Island Operations |

On-site Alternatives Footprint Options



Option 1 Eliminated

ELIMINATION FACTORS

- Not compatible with VDOT's Third Crossing
- Negative impacts to Operation of Existing CIDMMA
- Significant reduction in dredged material placement capacity of existing CIDMMA

Revised Third Crossing
(Shifted West & 1200' South)

VDOT's Proposed
Third Crossing

1770 Acres

Proposed
Placement
Area

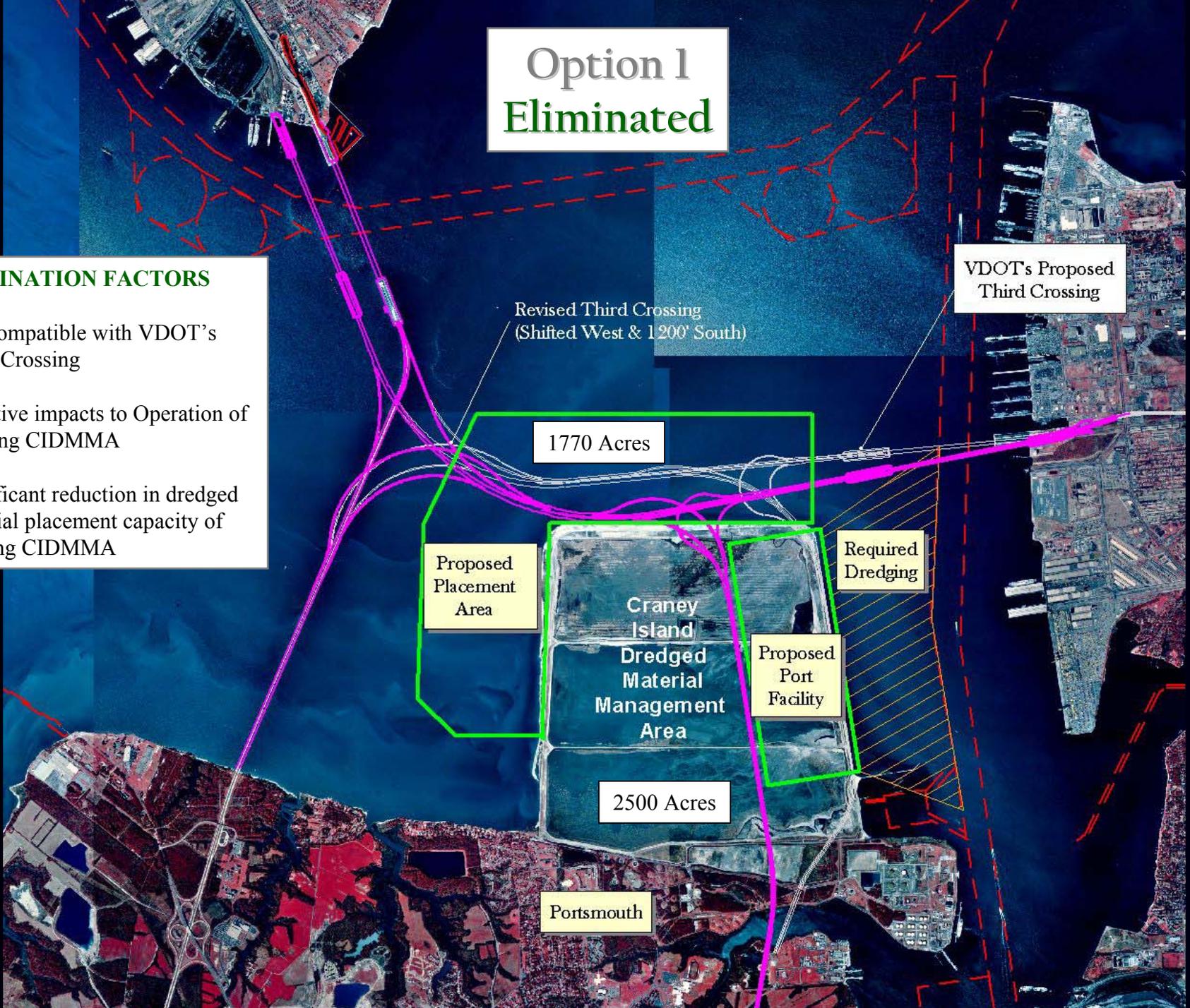
Craney
Island
Dredged
Material
Management
Area

Required
Dredging

Proposed
Port
Facility

2500 Acres

Portsmouth



Option 3 Eliminated

ELIMINATION FACTORS

- Not compatible with VDOT's Third Crossing
- Negative impacts to Operation of Existing CIDMMA
- Significant reduction in dredged material placement capacity of existing CIDMMA

VDOT's Proposed Third Crossing

Revised Third Crossing (Shifted West)

Proposed Placement Area

700 Acres

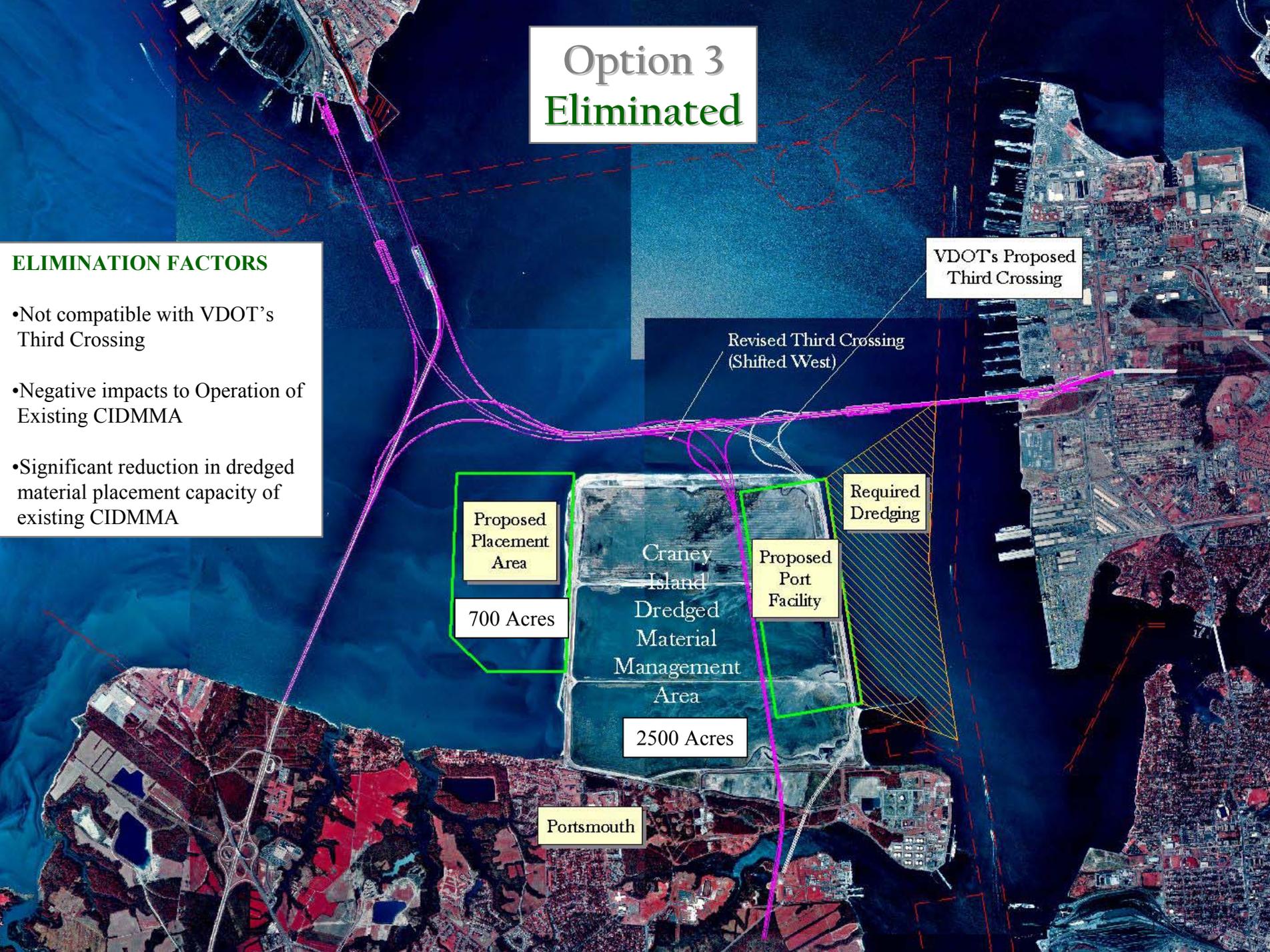
Craney Island Dredged Material Management Area

2500 Acres

Required Dredging

Proposed Port Facility

Portsmouth



Option 4 Eliminated

Hampton Roads Crossing Study
Alternate 9 (Shifted West)

ELIMINATION FACTORS

- Significant Environmental / Social Concerns
- Not compatible with VDOT's Third Crossing
- Negative impacts to Operation of Existing CIDMMA
- Significant reduction in dredged material placement capacity of existing CIDMMA

Proposed
Placement
Area

1430 Acres

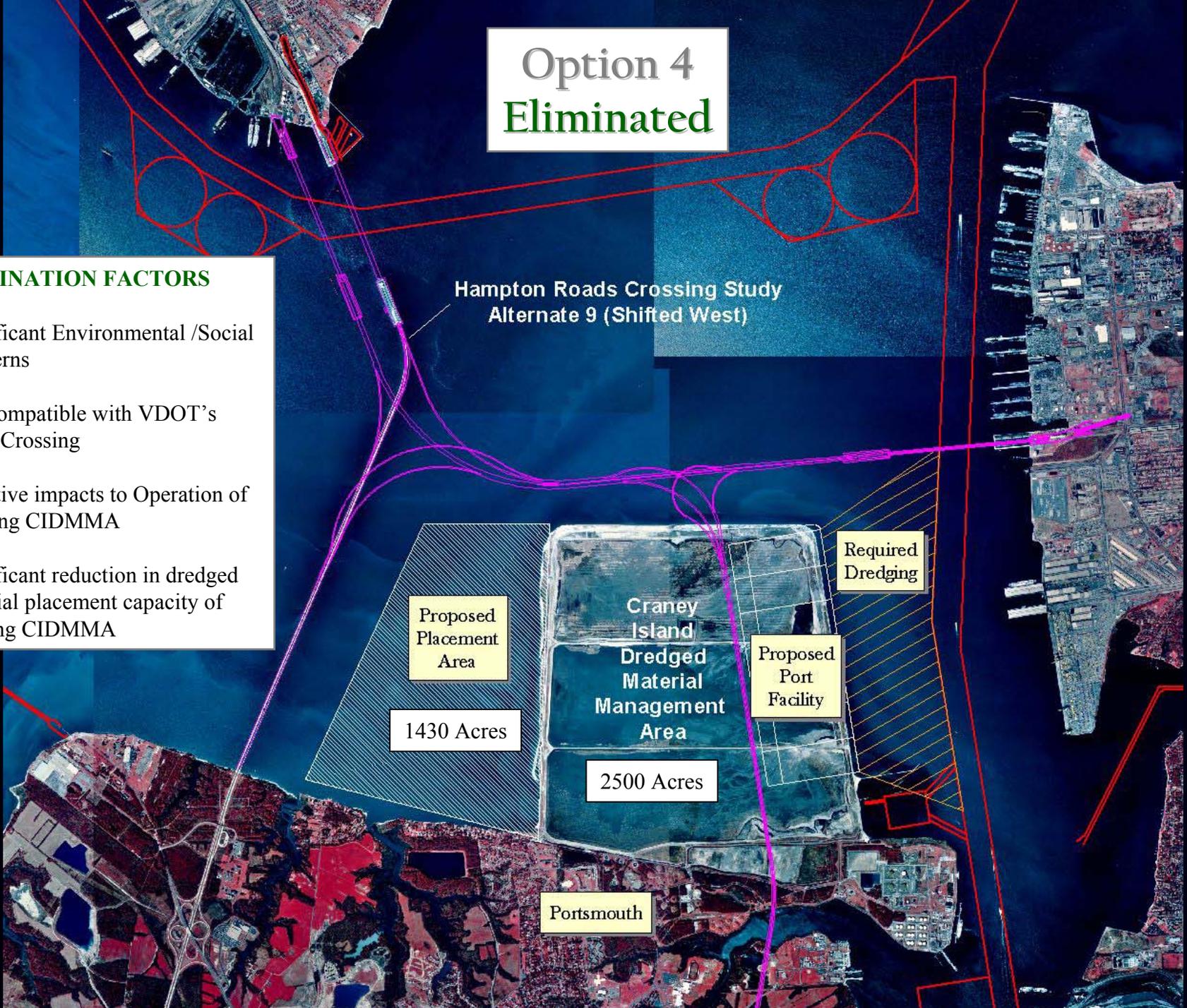
Craney
Island
Dredged
Material
Management
Area

2500 Acres

Required
Dredging

Proposed
Port
Facility

Portsmouth



Option 5 Eliminated

Hampton Roads Crossing Study
Alternate 9 (Shifted West)

ELIMINATION FACTORS

- Not compatible with VDOT's Third Crossing
- Negative impacts to Operation of Existing CIDMMA
- Significant reduction in dredged material placement capacity of existing CIDMMA

1013 Acres

Proposed
Placement
Area

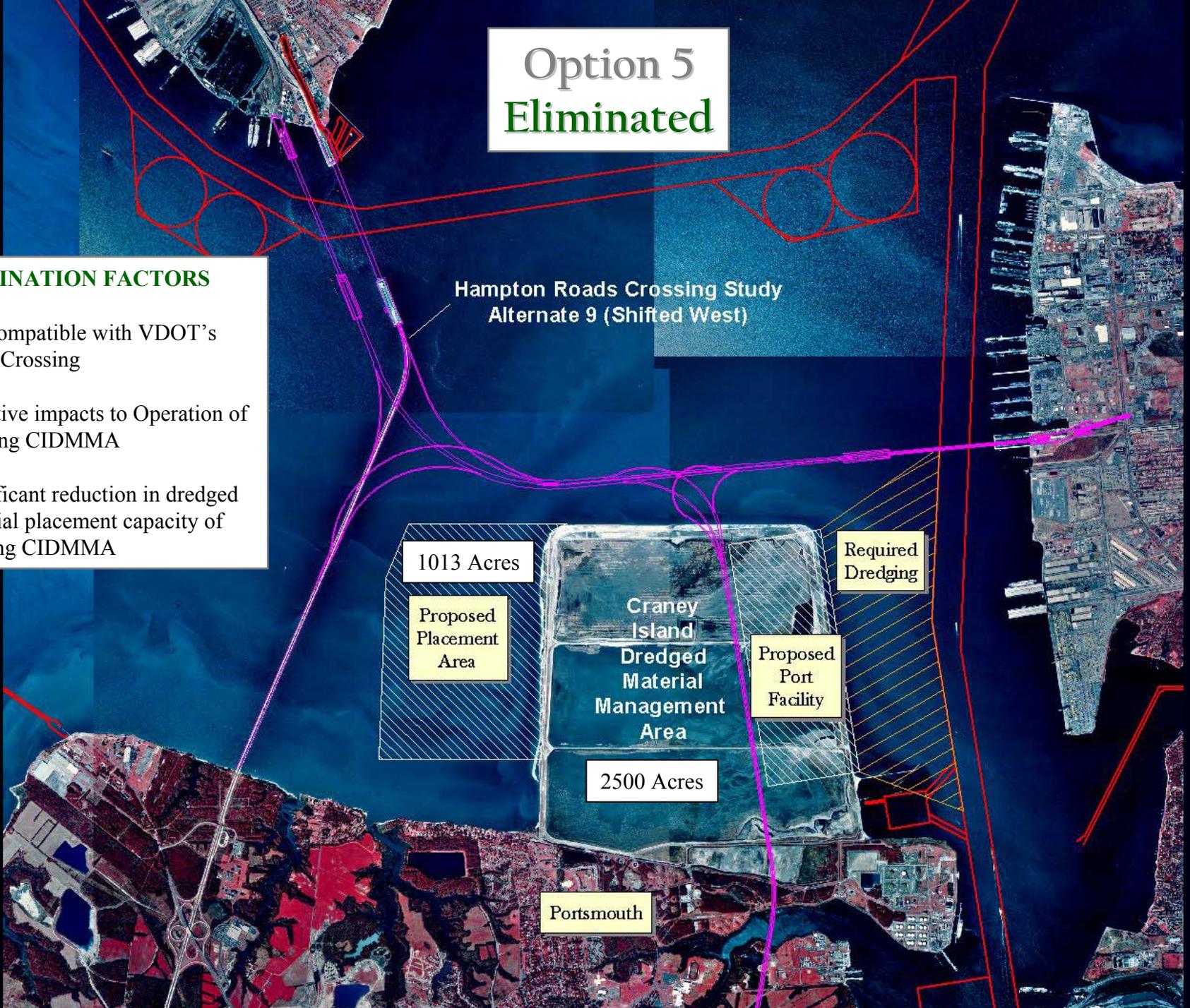
Craney
Island
Dredged
Material
Management
Area

2500 Acres

Required
Dredging

Proposed
Port
Facility

Portsmouth



Modified Option 5

Modeled in VIMS Single Variable Run

SELECTION FACTORS

- Modeling results showed that footprint presented the second least amount of change on the surrounding environment.
- Selected by Stakeholders for additional modeling.

Hampton Roads Crossing Study
Alternate 9

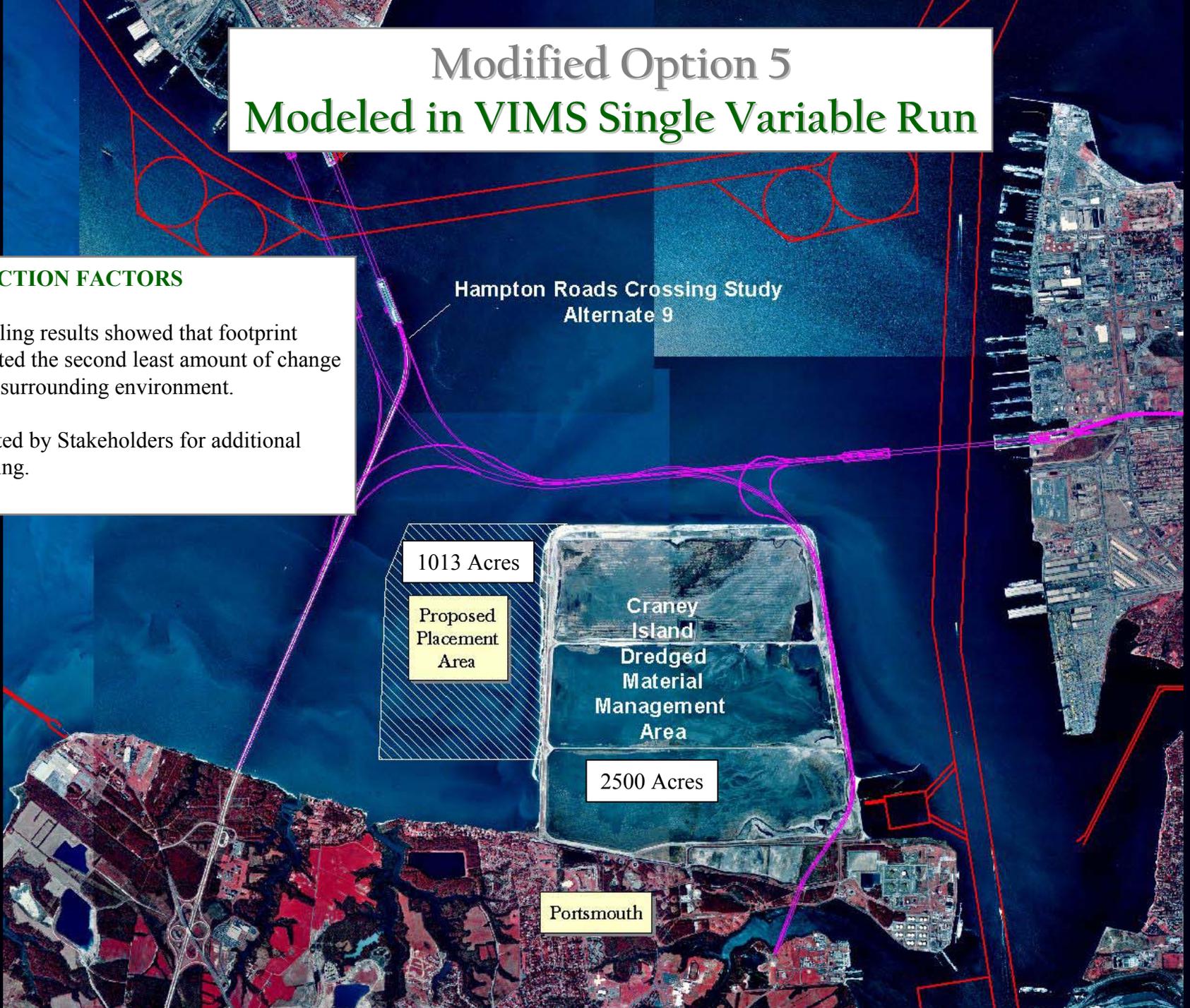
1013 Acres

Proposed
Placement
Area

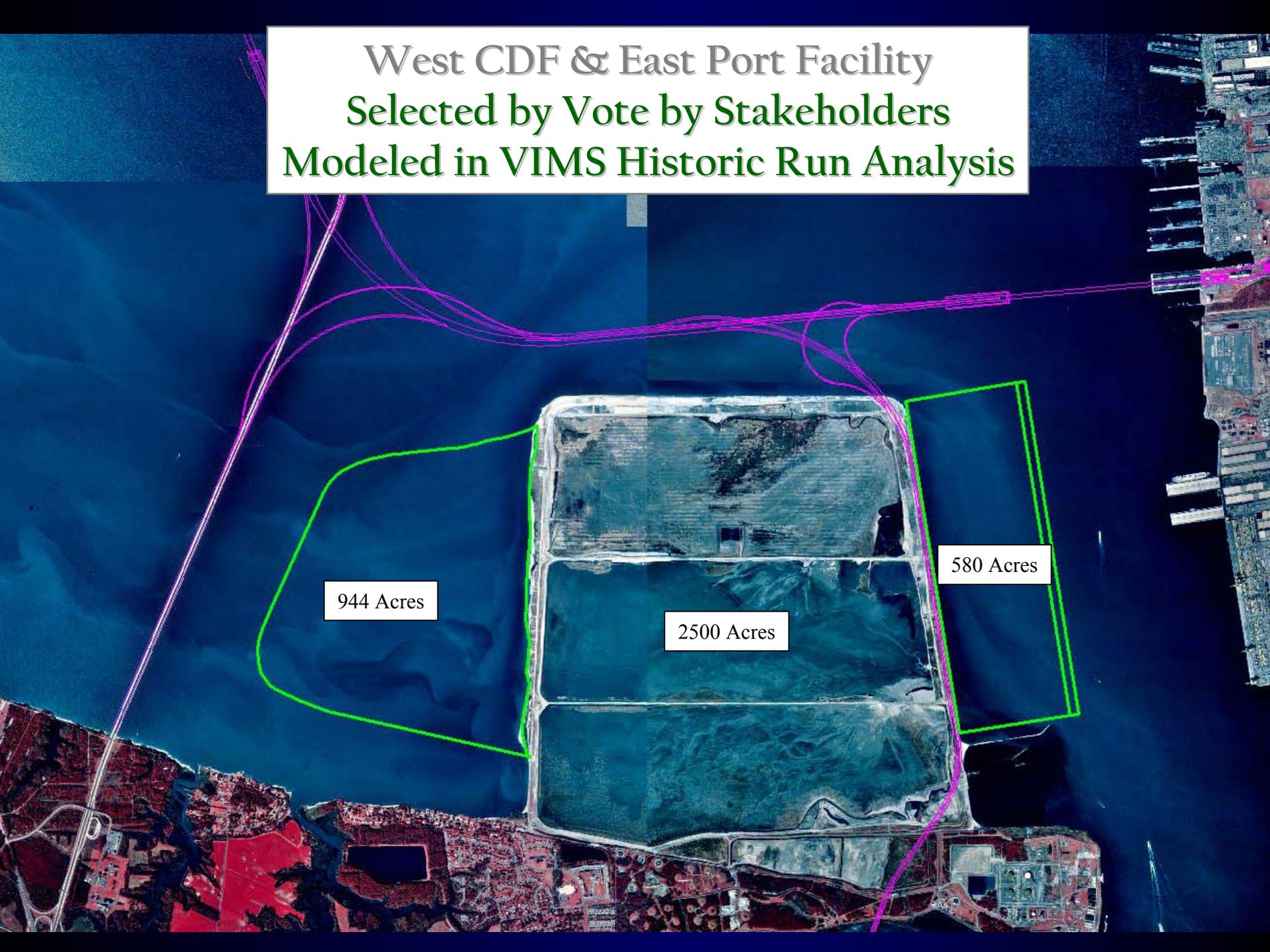
Craney
Island
Dredged
Material
Management
Area

2500 Acres

Portsmouth



West CDF & East Port Facility
Selected by Vote by Stakeholders
Modeled in VIMS Historic Run Analysis



944 Acres

2500 Acres

580 Acres

Option 6 Modeled and Eliminated

SELECTION FACTORS

- Modeling results showed greater change with northward expansion.

Hampton Roads Crossing Study
Alternate 9 (shifted 1200' South)

Required Dredging

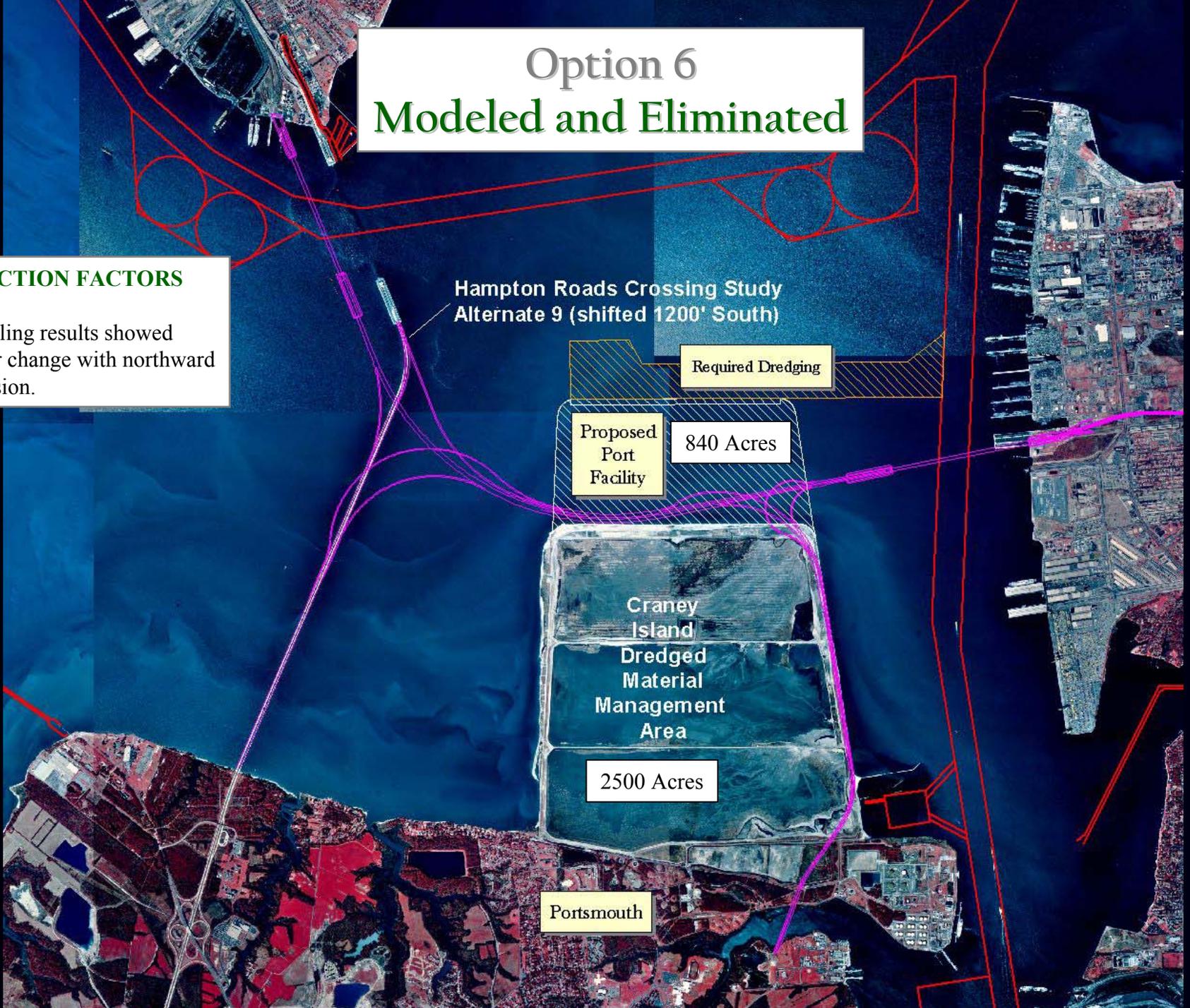
Proposed
Port
Facility

840 Acres

Craney
Island
Dredged
Material
Management
Area

2500 Acres

Portsmouth



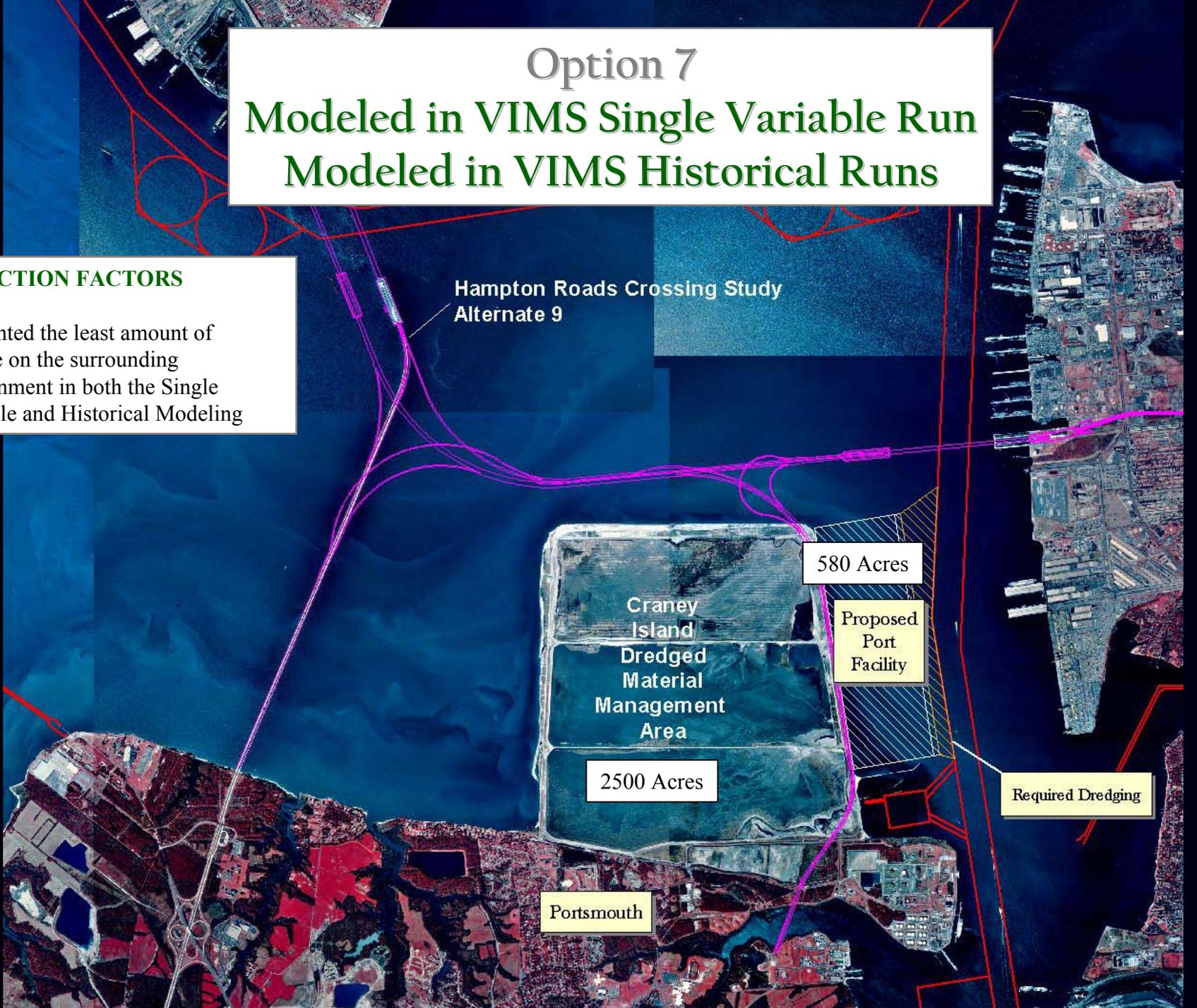
Option 7

Modeled in VIMS Single Variable Run

Modeled in VIMS Historical Runs

SELECTION FACTORS

- Presented the least amount of change on the surrounding environment in both the Single Variable and Historical Modeling



Hampton Roads Crossing Study
Alternate 9

580 Acres

Proposed
Port
Facility

2500 Acres

Portsmouth

Required Dredging

Option 8 Eliminated

ELIMINATION FACTORS

- Not compatible with VDOT's Third Crossing
- Negative impacts to Operation of Existing CIDMMA
- Significant reduction in dredged material placement capacity of existing CIDMMA

Hampton Roads Crossing Study
Alternate 9 (shifted 1400' North)

Proposed
Placement
Area

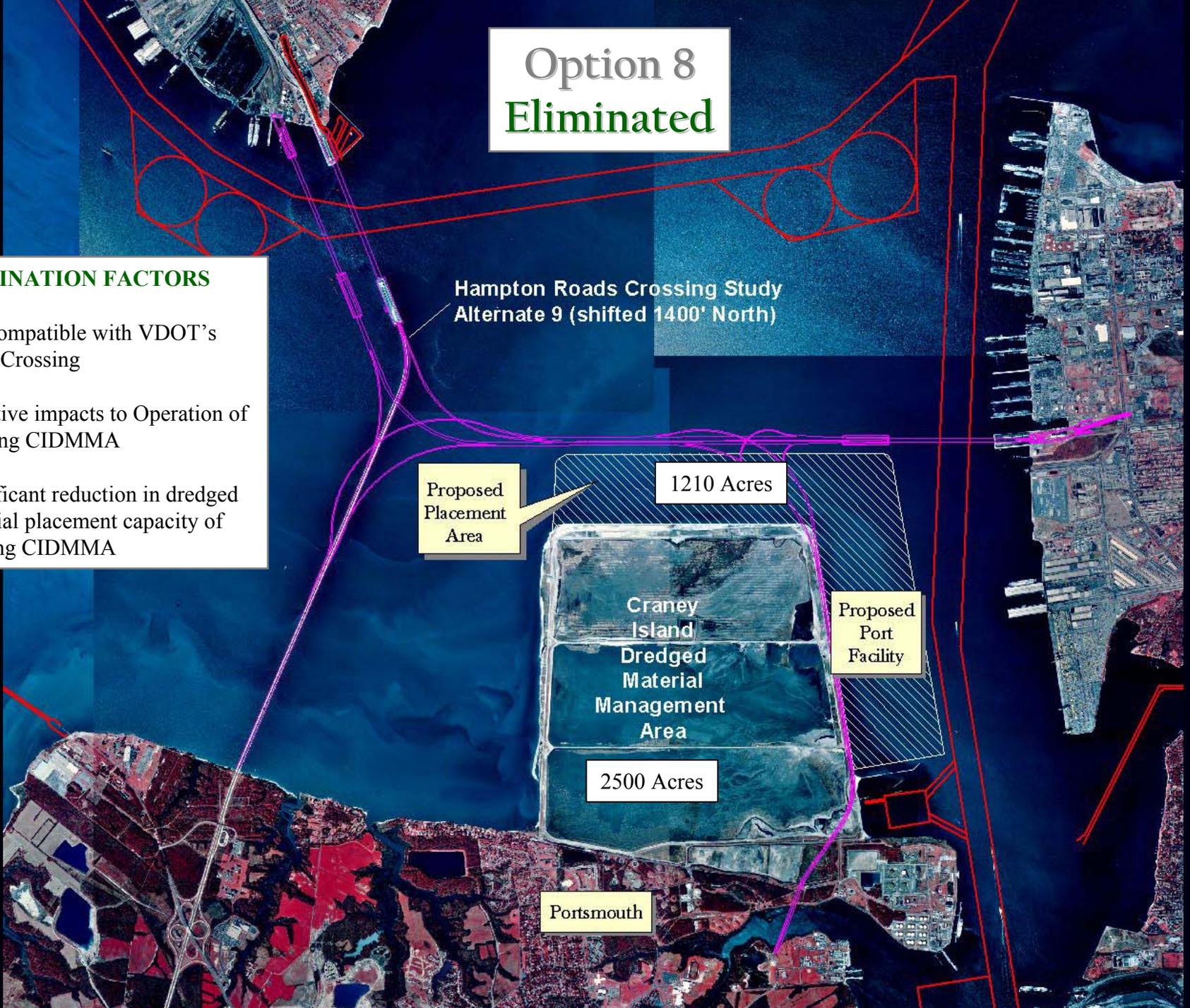
1210 Acres

Craney
Island
Dredged
Material
Management
Area

Proposed
Port
Facility

2500 Acres

Portsmouth



Option 9 Eliminated

ELIMINATION FACTORS

- Not compatible with VDOT's Third Crossing
- Negative impacts to Operation of Existing CIDMMA
- Significant reduction in dredged material placement capacity of existing CIDMMA

Revised Third Crossing
(Shifted 1200' South)

Required Dredging

Proposed Port Facility

1710 Acres

Craney Island
Dredged Material Management Area

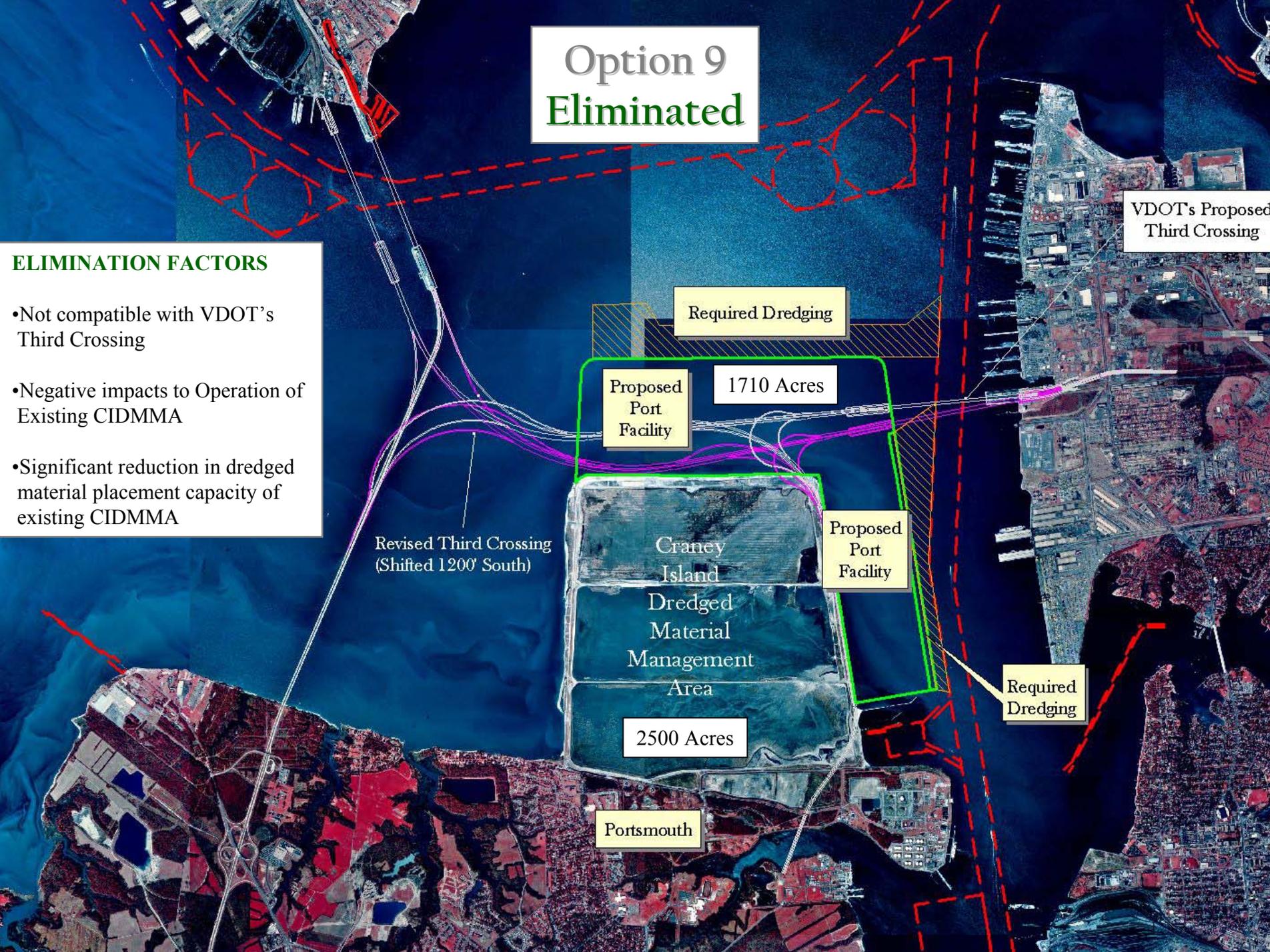
2500 Acres

Proposed Port Facility

Required Dredging

Portsmouth

VDOT's Proposed Third Crossing



Modified Option 9 Modeled and Eliminated

SELECTION FACTORS

- Modeling results showed greater change with northward expansion.

Revised Third Crossing
(Shifted 1200' South)

Proposed
Placement
Area

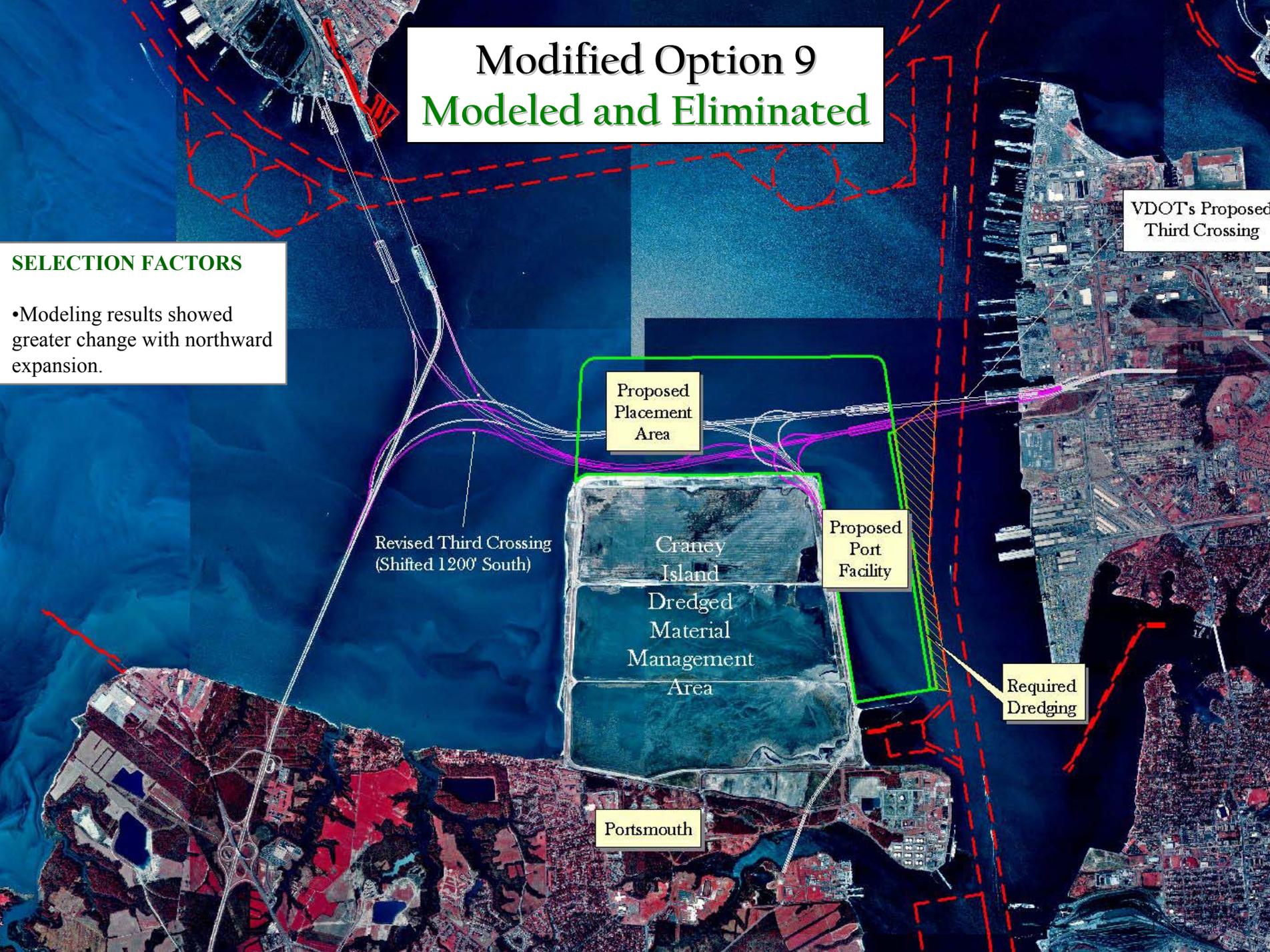
Craney
Island
Dredged
Material
Management
Area

Proposed
Port
Facility

Required
Dredging

Portsmouth

VDOT's Proposed
Third Crossing



Option 10 Eliminated

ELIMINATION FACTORS

- Not compatible with VDOT's Third Crossing
- Negative impacts to Operation of Existing CIDMMA
- Significant reduction in dredged material placement capacity of existing CIDMMA

VDOT's Proposed Third Crossing

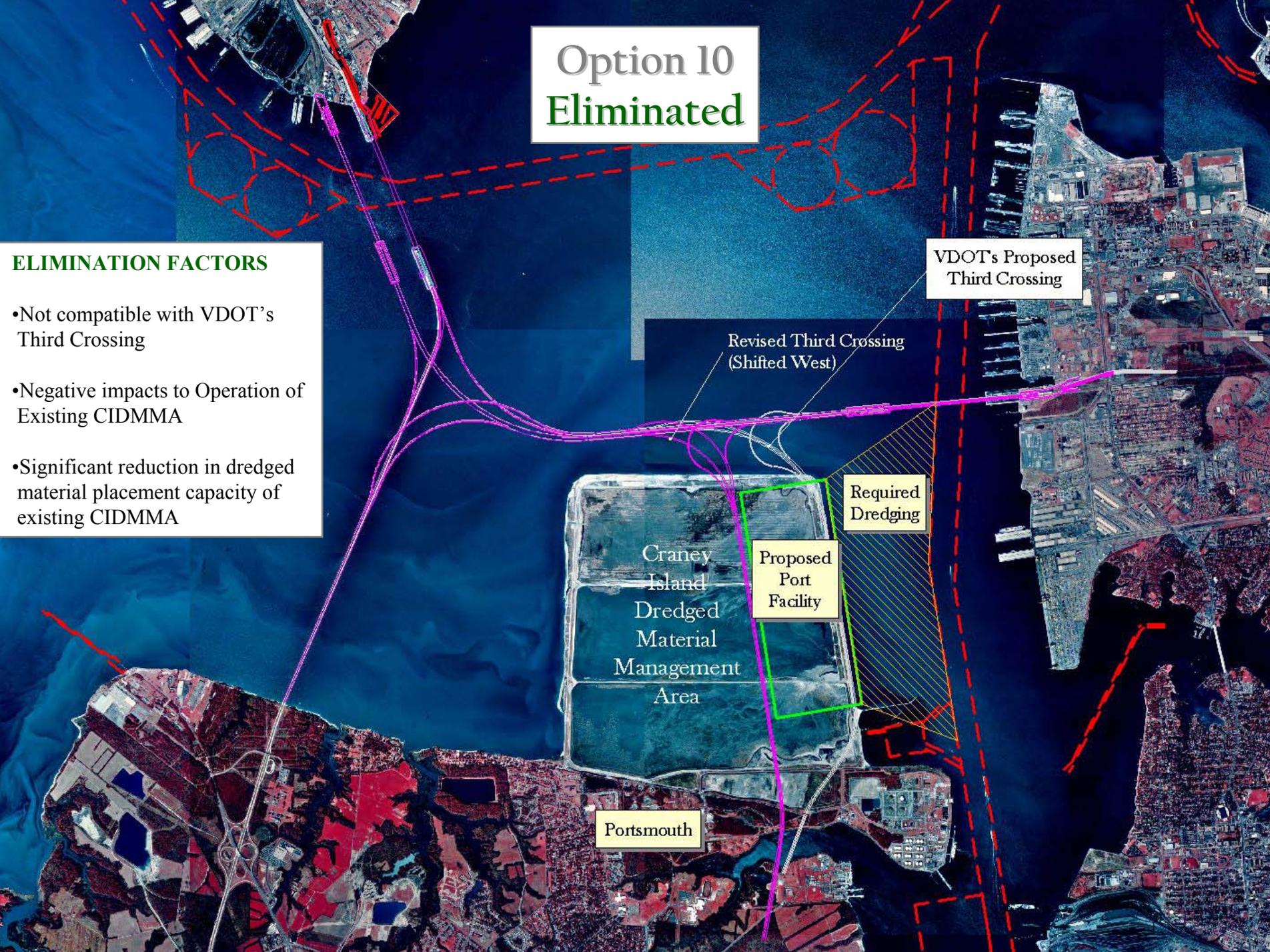
Revised Third Crossing
(Shifted West)

Required Dredging

Proposed Port Facility

Craney Island
Dredged Material
Management
Area

Portsmouth



Option 11 Eliminated

VDOT's Proposed
Third Crossing

Proposed Placement
Area

Revised Third Crossing
(Shifted West & 1200' South)

Required
Dredging

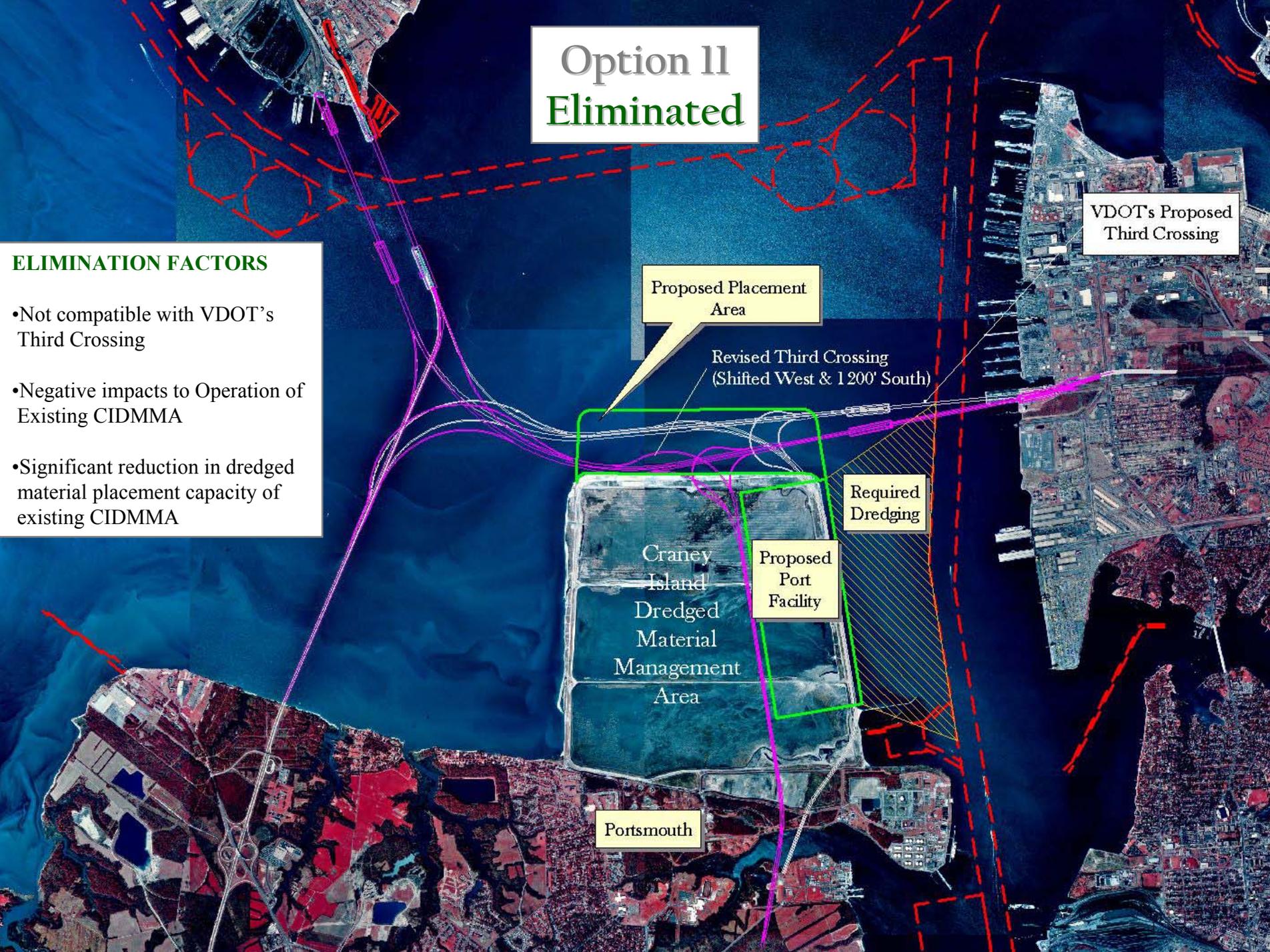
Craney
Island
Dredged
Material
Management
Area

Proposed
Port
Facility

Portsmouth

ELIMINATION FACTORS

- Not compatible with VDOT's Third Crossing
- Negative impacts to Operation of Existing CIDMMA
- Significant reduction in dredged material placement capacity of existing CIDMMA



Option 12 Eliminated

ELIMINATION FACTORS

- Not compatible with VDOT's Third Crossing
- Negative impacts to Operation of Existing CIDMMA
- Significant reduction in dredged material placement capacity of existing CIDMMA

Revised Third Crossing
(Shifted West & 1200' South)

VDOT's Proposed
Third Crossing

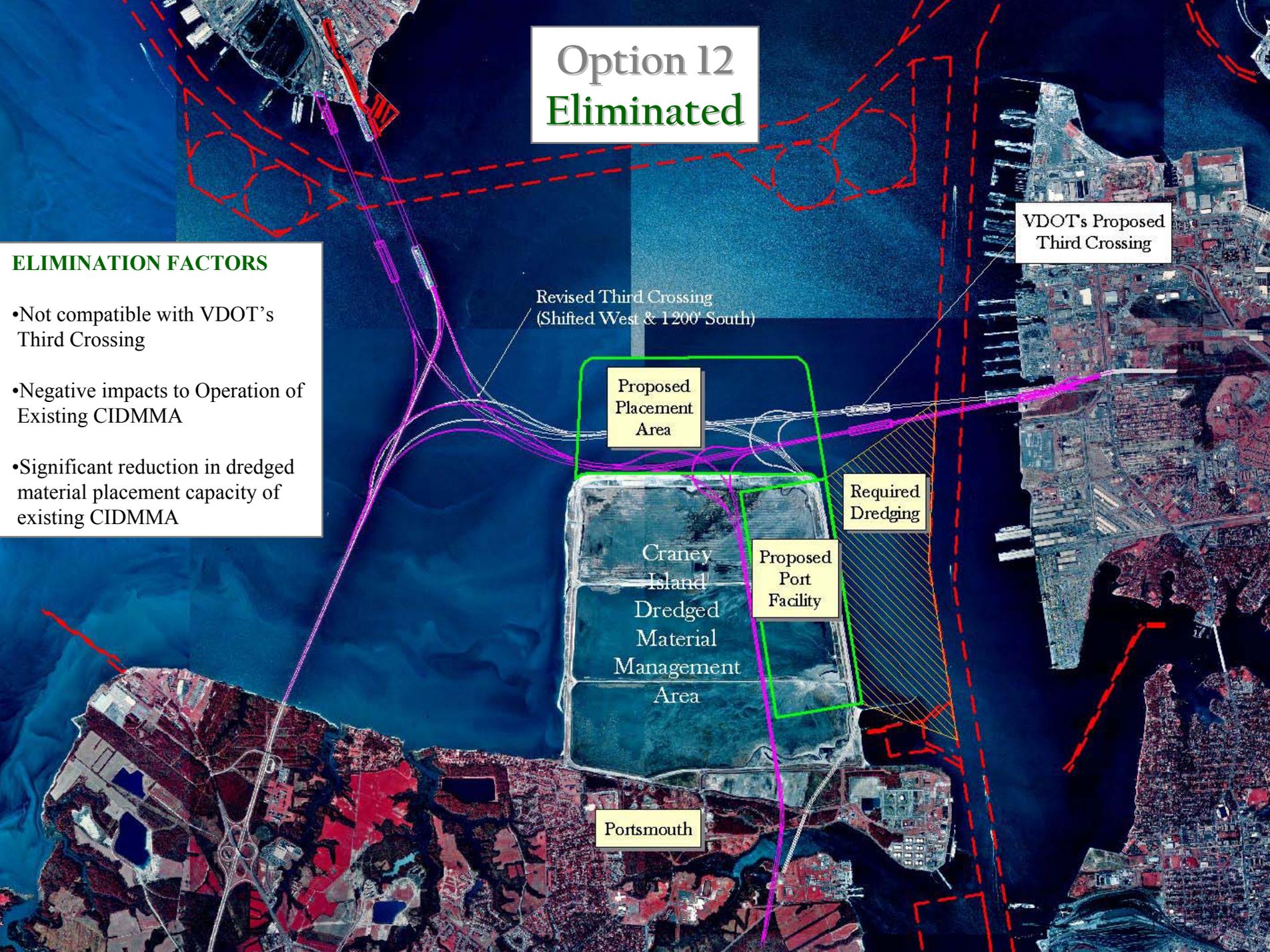
Proposed
Placement
Area

Required
Dredging

Craney
Island
Dredged
Material
Management
Area

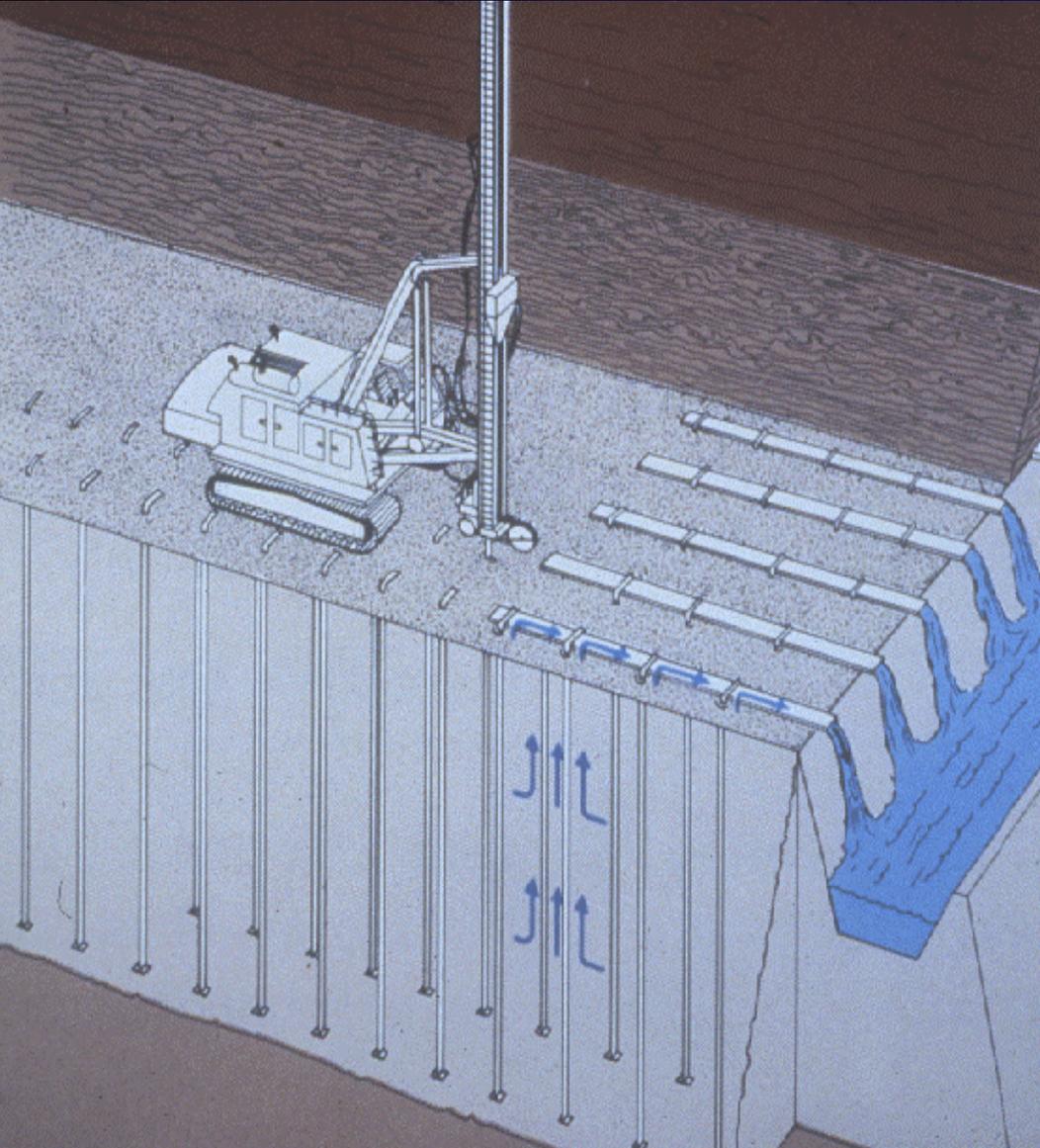
Proposed
Port
Facility

Portsmouth

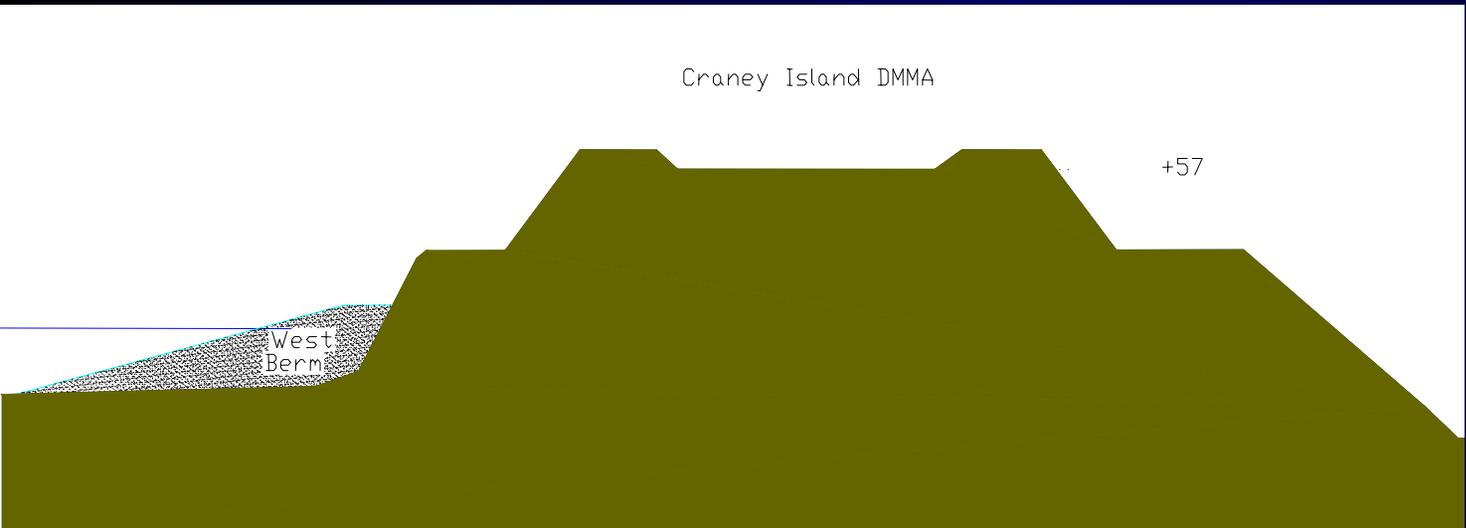
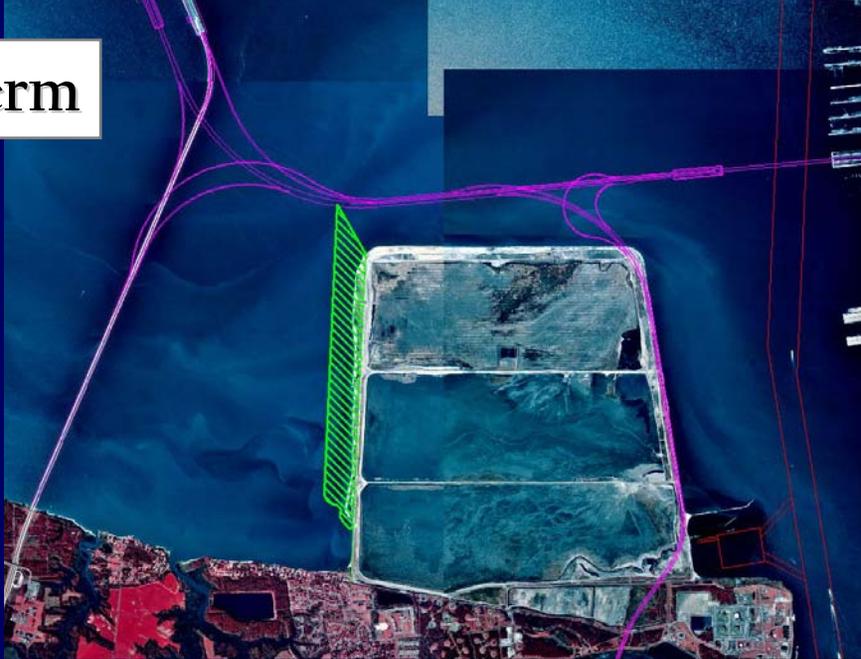


Additional
Footprints
Considered

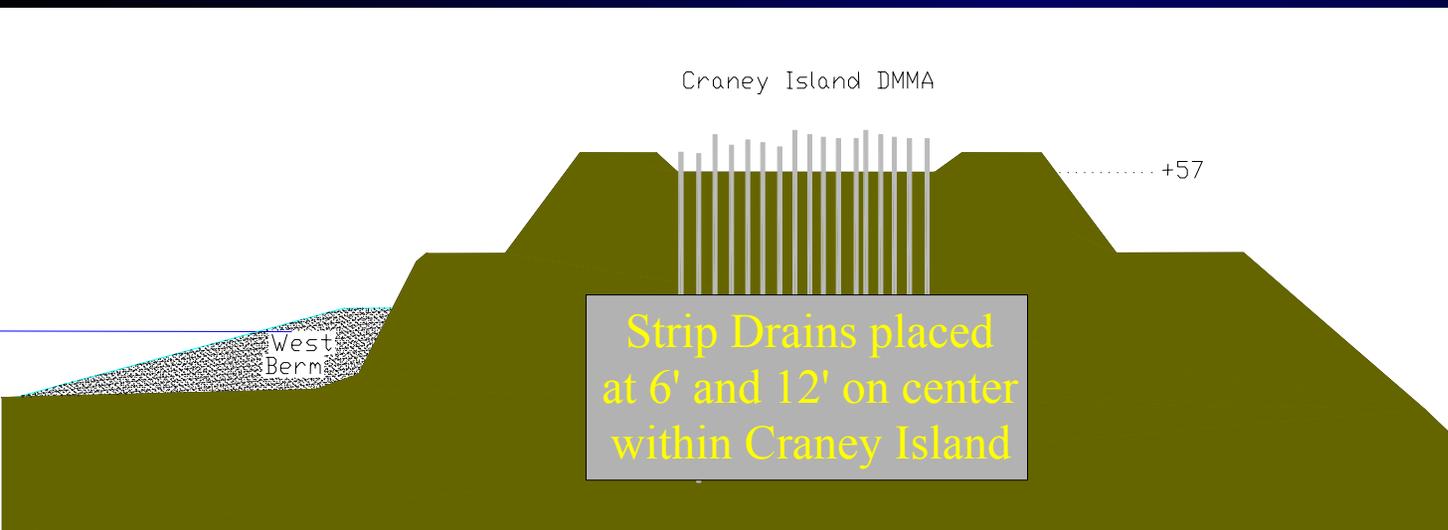
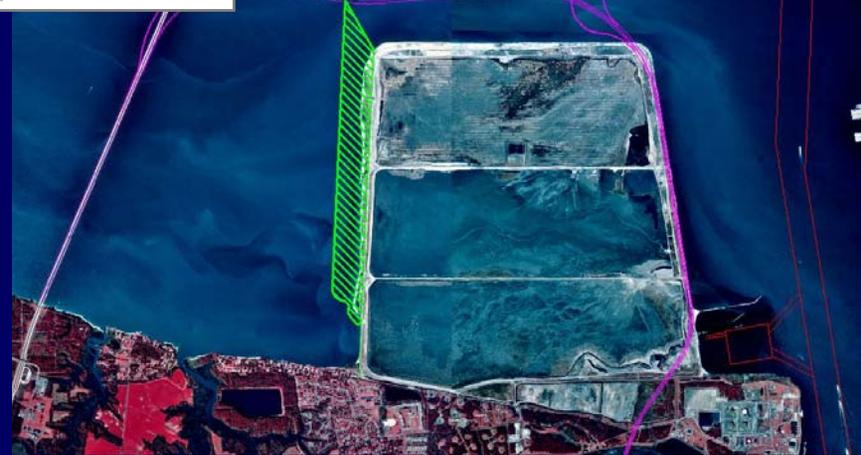
Enhanced Mgmt Interior Strip Drains



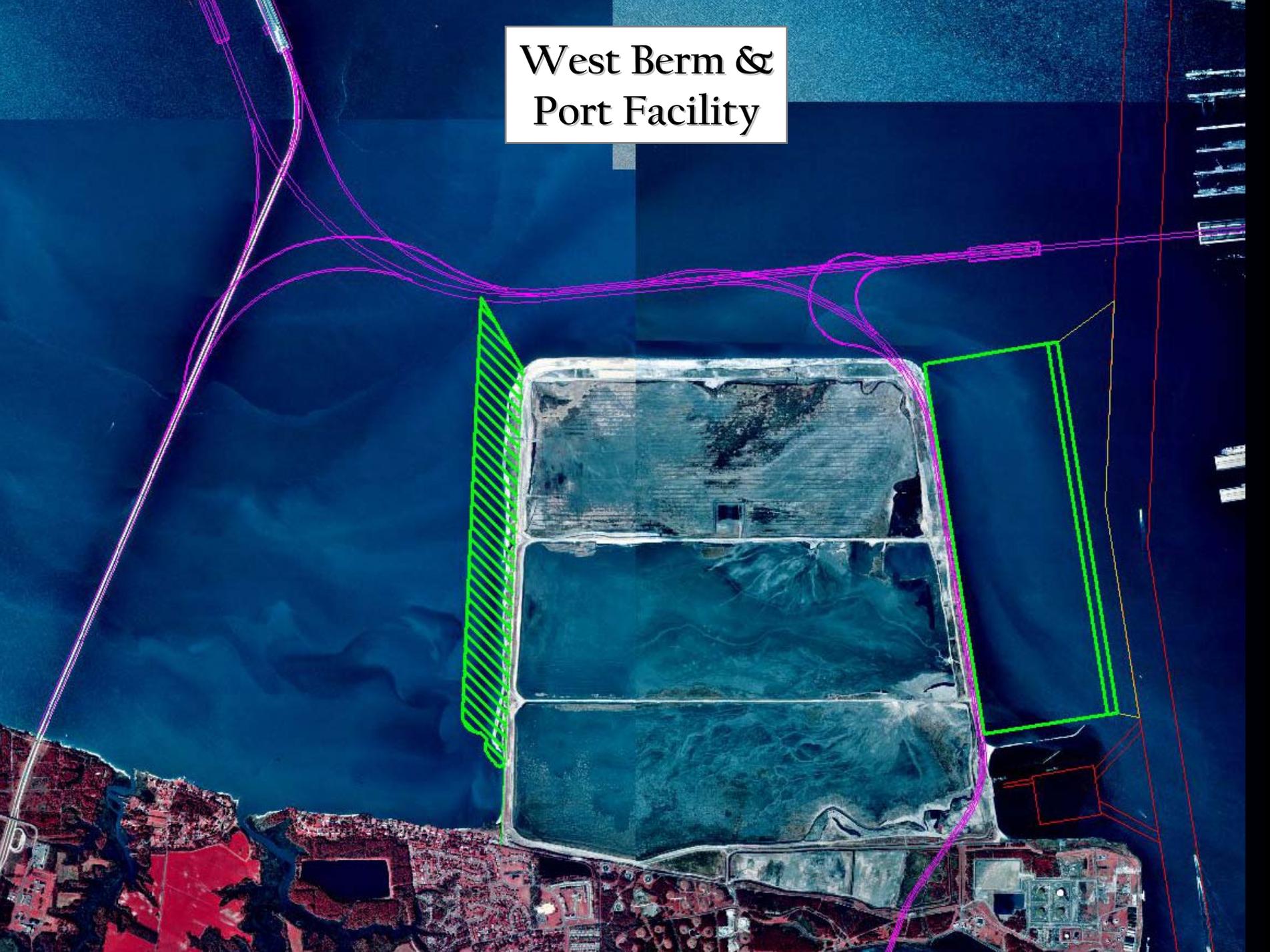
West Berm



West Berm & Interior Strip Drains



West Berm & Port Facility



West Berm & East CDF

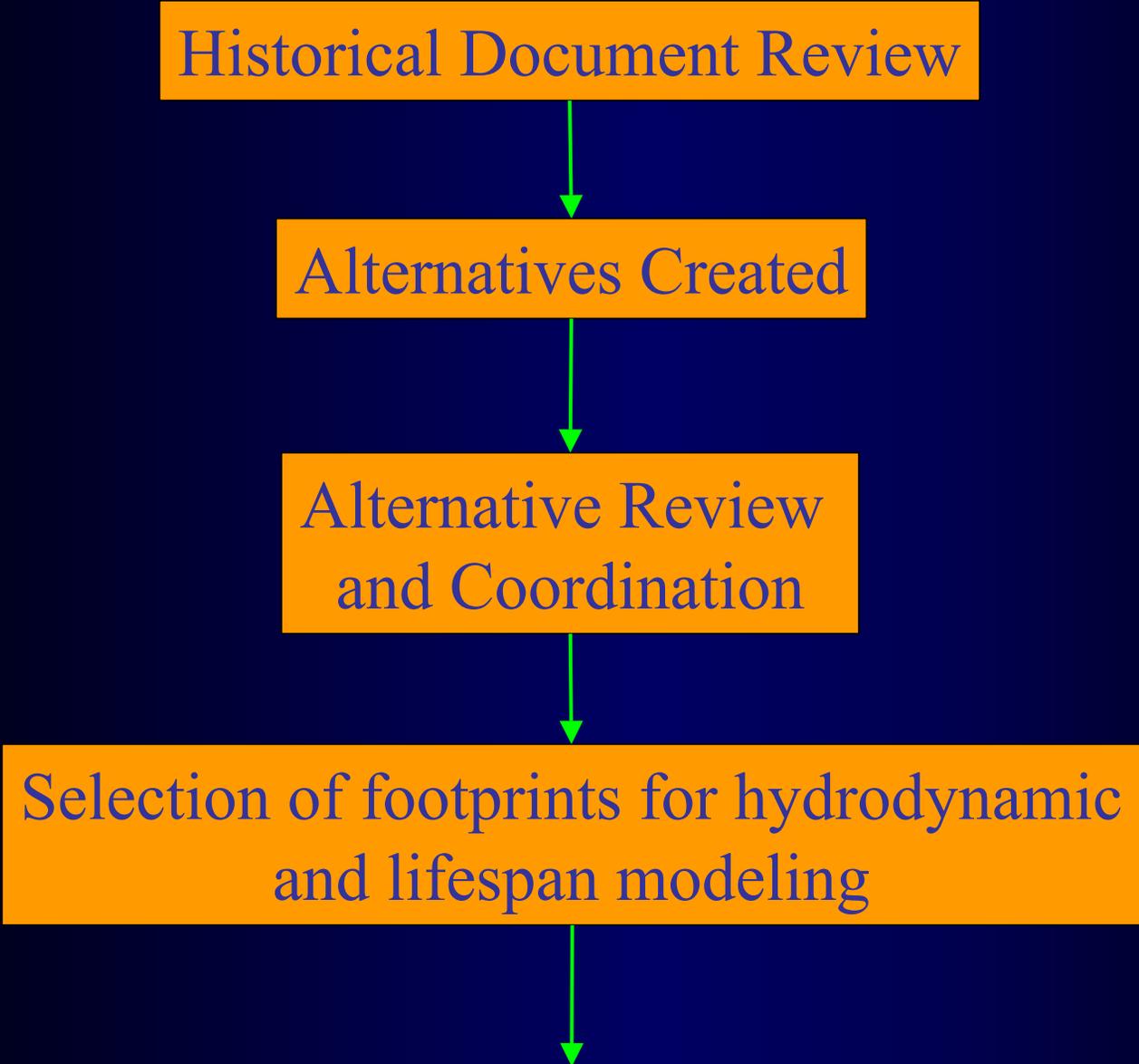


Objectives of Alternatives Briefing to Stakeholders

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 - Background information on the Alternatives Technical Review Committee
 - Alternatives considered and rationale for keeping/discarding alternatives.
 - Discuss Analysis Process and status

Alternative Analysis Process

Historical Document Review



```
graph TD; A[Historical Document Review] --> B[Alternatives Created]; B --> C[Alternative Review and Coordination]; C --> D[Selection of footprints for hydrodynamic and lifespan modeling]; D --> E[ ];
```

The diagram illustrates a five-step process for alternative analysis. It begins with 'Historical Document Review', followed by 'Alternatives Created', 'Alternative Review and Coordination', and 'Selection of footprints for hydrodynamic and lifespan modeling'. A fifth step, represented by a downward arrow, is not explicitly labeled but indicates the continuation of the process.

Alternatives Created

Alternative Review
and Coordination

Selection of footprints for hydrodynamic
and lifespan modeling

Alternative Analysis Process

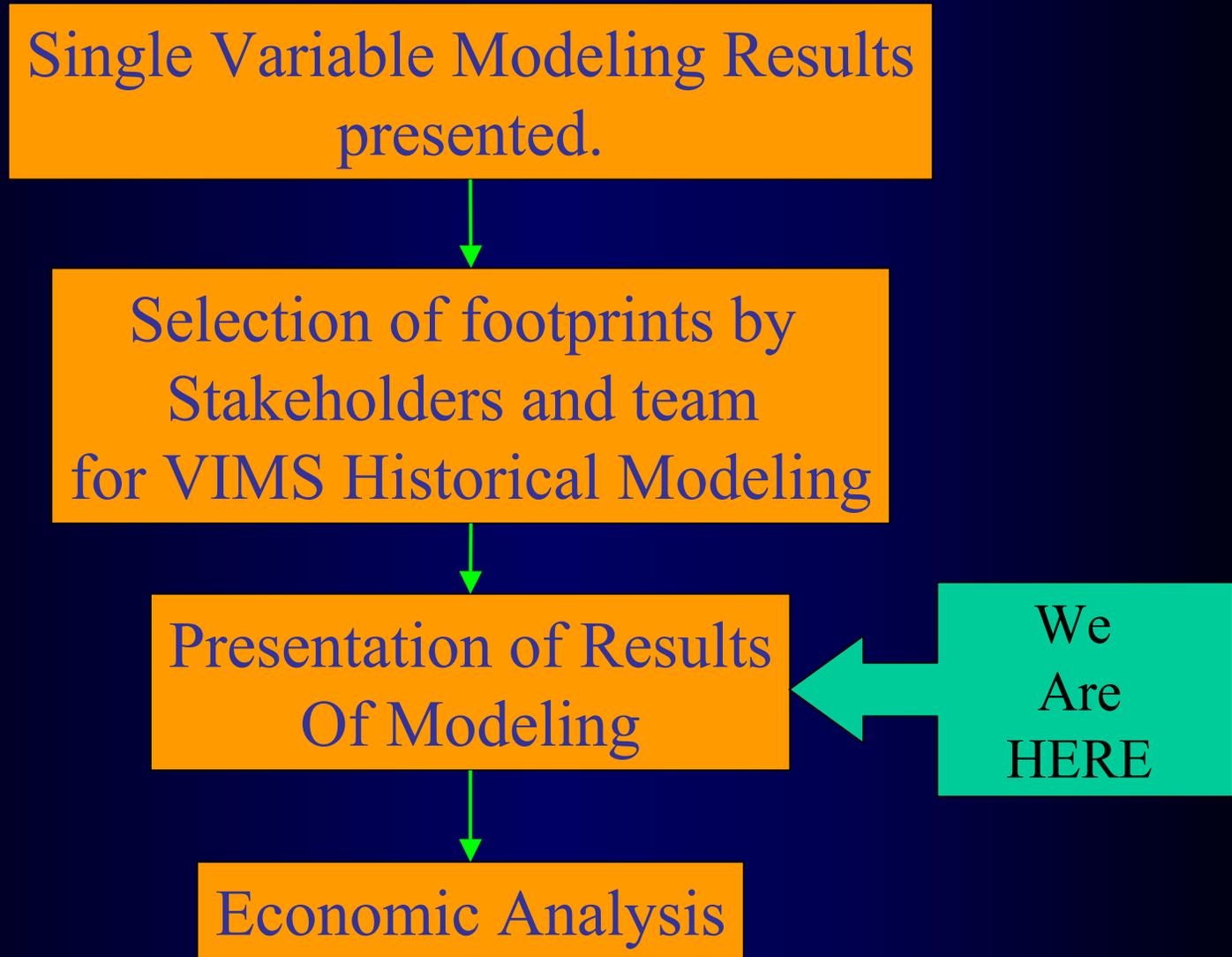
Single Variable Modeling Results presented.

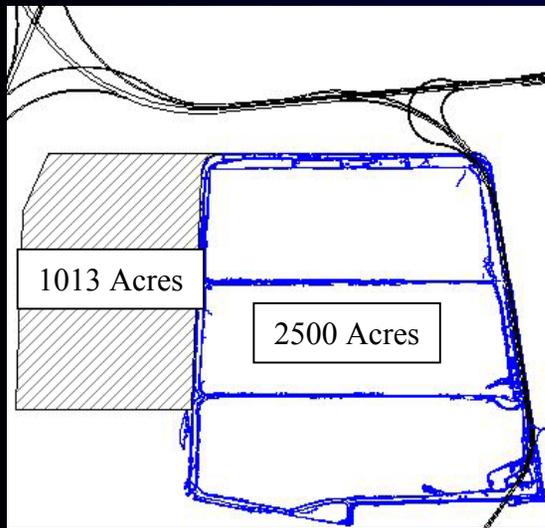
Selection of footprints by Stakeholders and team for VIMS Historical Modeling

Presentation of Results Of Modeling

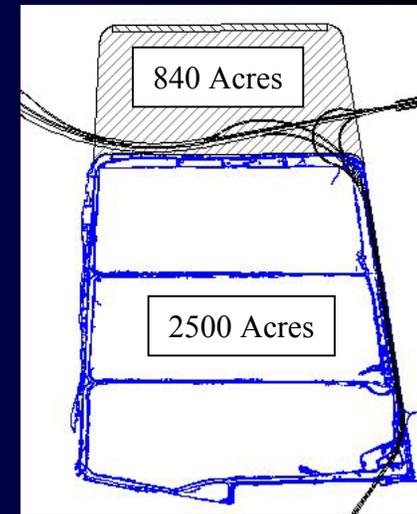
Economic Analysis

We
Are
HERE



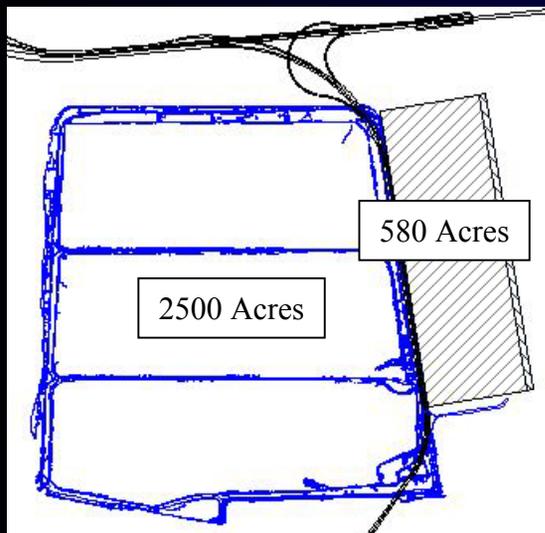


Modified Option 5

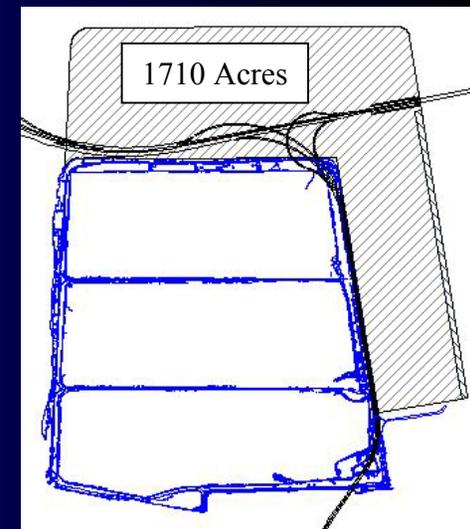


Option 6

Option 7



Modified Option 9

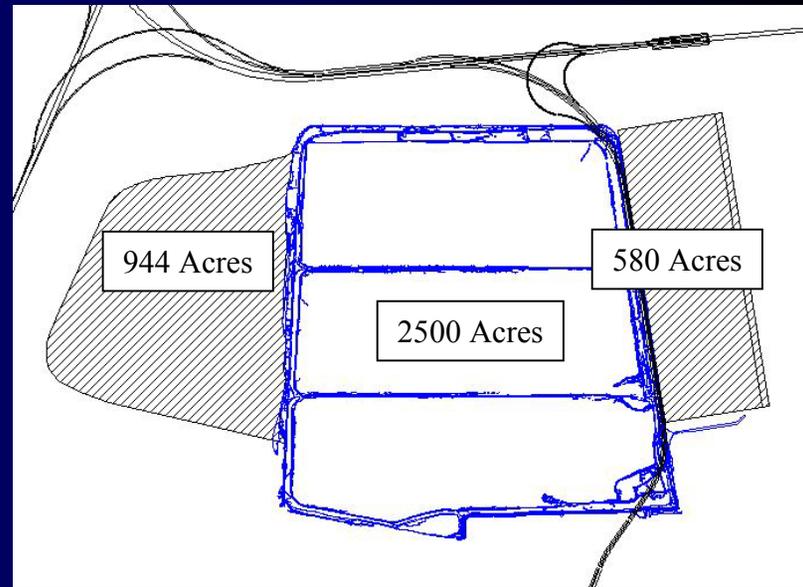


VIMS Single Variable Modeling

VIMS

Historical Modeling

(Selected by Stakeholders)



West Placement Area
& East Port Facility

East Port Facility

