

Offline Lake Summary

Overview

Costs

Dewatering & Imported Fill Sites

Existing Conditions

Lake Accotink Information

Watershed Area	19,600 acres
Lake Area	55 acres
Average Sedimentation Rate	19,200 cubic yards per year
Previous Dredging Events	1960s, 1985, 2008

All values are approximate



Current Conditions

Lake Accotink Dredging Project

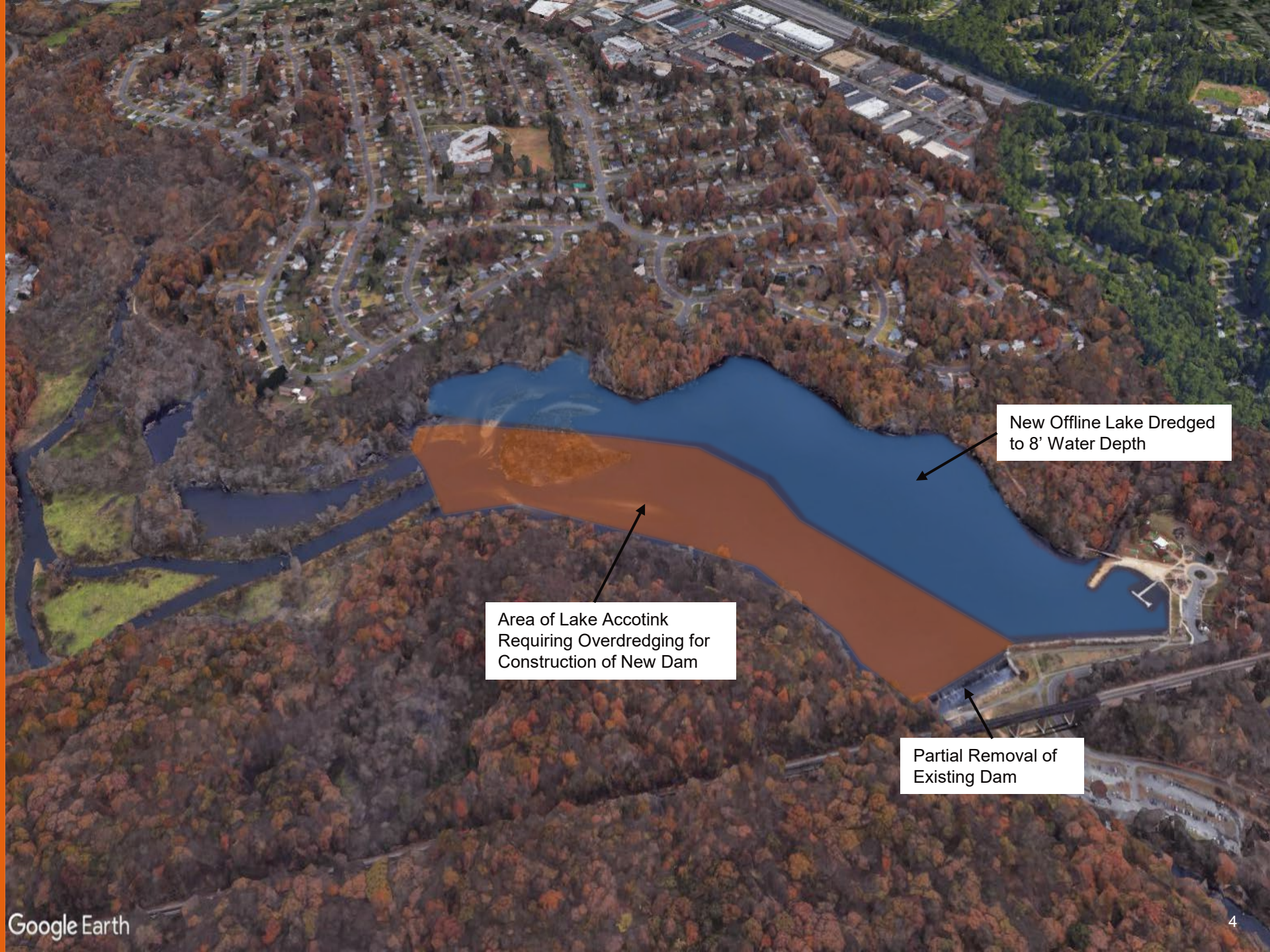
Offline Lake Objectives

- Create a ~28 acre offline lake with a depth of 8 feet
- Reshape and re-channel Accotink Creek



Offline Lake Components

- Dredge 825,000 cy of sediment from the existing lake (including overdredging in area of berm and Accotink Creek)
- Import 340,000 cy of fill and construct an earthen berm
- Remove a portion of the Lake Accotink Dam
- Reconstruct Accotink Creek for bank stability and energy dissipation



New Offline Lake Dredged to 8' Water Depth

Area of Lake Accotink Requiring Overdredging for Construction of New Dam

Partial Removal of Existing Dam

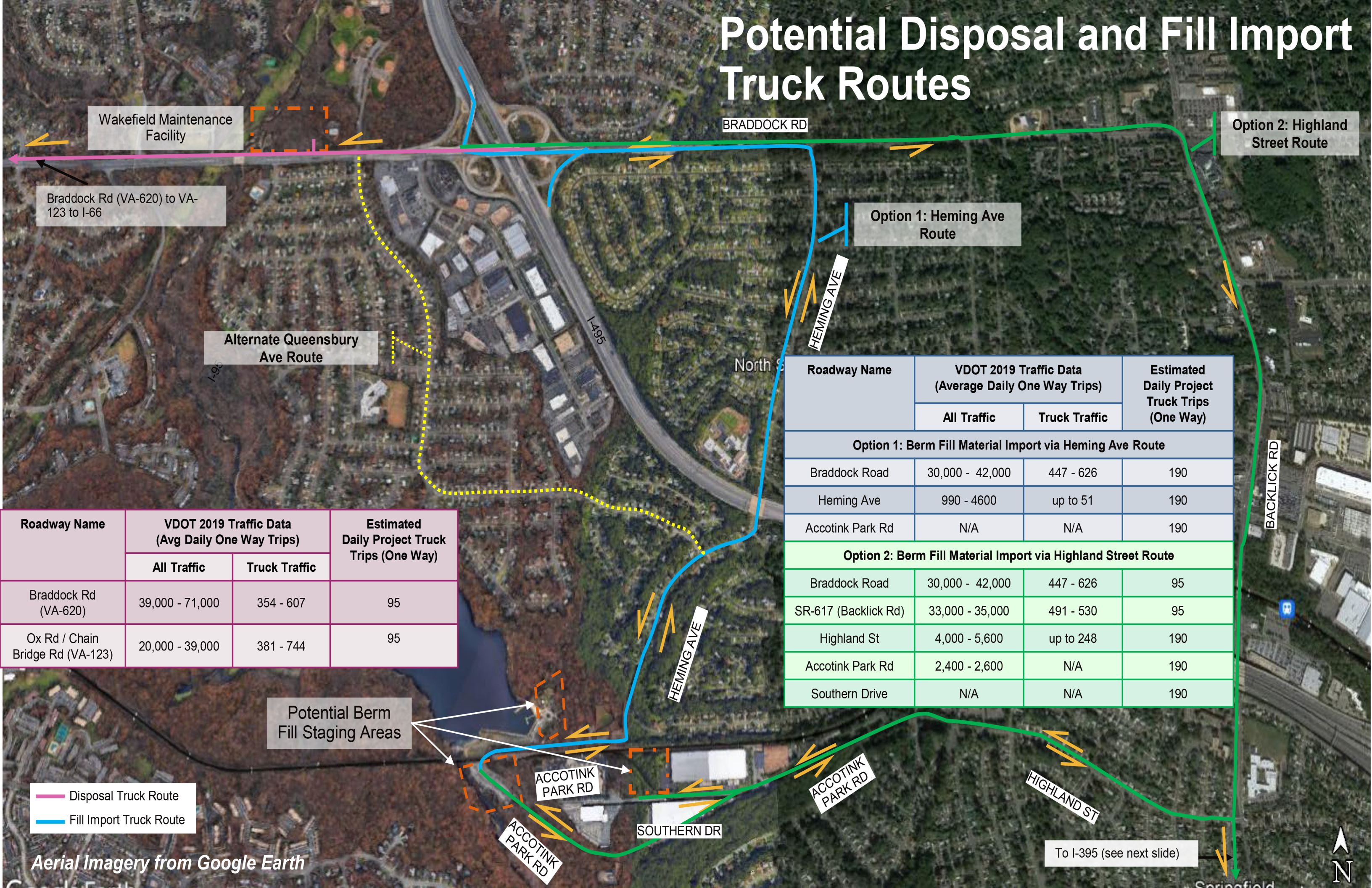
Offline Lake Construction Cost

Category	Opinion of Probable Cost ^(a)
Offline Lake Activity^(b)	
Dewatering Site & Temporary Pipeline Construction ^(c)	\$7.3M (\$5.1M to \$10.9M)
Dredging	\$43.2M (\$30.2M to \$64.7M)
Material Processing	\$39.4M (\$27.6M to \$59.1M)
New Dam and Stream Channel Construction	\$41.6M (\$29.1M to \$62.4M)
Existing Dam Modification	\$1.1M (\$0.8M to \$1.6M)
Transportation and Disposal ^(d)	\$59.8M (\$41.9M to \$89.9M)
Total Offline Lake	\$192.4M (\$134.7M to \$288.6M)

Notes:

- a) *The opinions of probable cost presented herein are based on Arcadis' experience, vendor estimates, and Fairfax County staff input. These opinions of probable cost have been prepared for the purpose of evaluating the feasibility of the Offline Lake alternative and are based on available information from site investigations and the anticipated project scope. Changes in cost elements are likely to occur as a result of new information and data collected during an engineering design phase. These opinions of probable cost are AACE Class 4 level and expected to be within -30% to +50% of the actual project cost. Utilization of this cost information beyond the stated purpose is not recommended.*
- b) *Offline lake construction is assumed to include removal of 825,000 cubic yards of sediment from Lake Accotink and be completed over a four-year period from 2024 to 2027. Costs shown were developed in 2022 dollars and escalated to the midpoint of construction (2026) using a 5% annual inflation factor. Costs are shown to the nearest \$0.1M.*
- c) *Cost assumes dewatering site constructed at the Wakefield Park Maintenance Facility location.*
- d) *Cost assumes transportation and disposal to Luck Ecosystems.*

Potential Disposal and Fill Import Truck Routes



Wakefield Maintenance Facility

Braddock Rd (VA-620) to VA-123 to I-66

Alternate Queensbury Ave Route

Option 1: Heming Ave Route

Option 2: Highland Street Route

Potential Berm Fill Staging Areas

Disposal Truck Route
Fill Import Truck Route

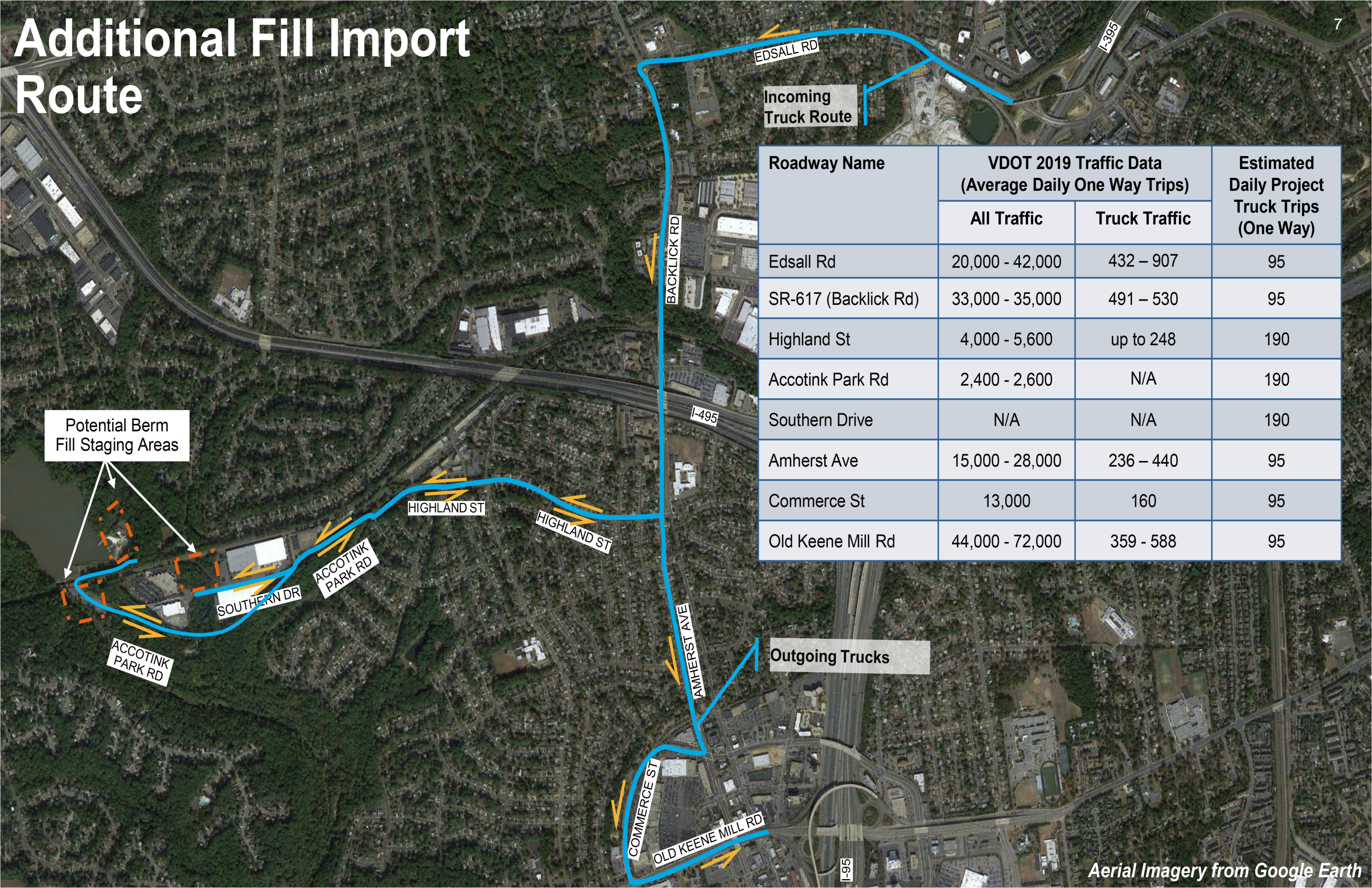
To I-395 (see next slide)

Roadway Name	VDOT 2019 Traffic Data (Average Daily One Way Trips)		Estimated Daily Project Truck Trips (One Way)
	All Traffic	Truck Traffic	
Option 1: Berm Fill Material Import via Heming Ave Route			
Braddock Road	30,000 - 42,000	447 - 626	190
Heming Ave	990 - 4600	up to 51	190
Accotink Park Rd	N/A	N/A	190
Option 2: Berm Fill Material Import via Highland Street Route			
Braddock Road	30,000 - 42,000	447 - 626	95
SR-617 (Backlick Rd)	33,000 - 35,000	491 - 530	95
Highland St	4,000 - 5,600	up to 248	190
Accotink Park Rd	2,400 - 2,600	N/A	190
Southern Drive	N/A	N/A	190

Roadway Name	VDOT 2019 Traffic Data (Avg Daily One Way Trips)		Estimated Daily Project Truck Trips (One Way)
	All Traffic	Truck Traffic	
Braddock Rd (VA-620)	39,000 - 71,000	354 - 607	95
Ox Rd / Chain Bridge Rd (VA-123)	20,000 - 39,000	381 - 744	95



Additional Fill Import Route



Roadway Name	VDOT 2019 Traffic Data (Average Daily One Way Trips)		Estimated Daily Project Truck Trips (One Way)
	All Traffic	Truck Traffic	
Edsall Rd	20,000 - 42,000	432 - 907	95
SR-617 (Backlick Rd)	33,000 - 35,000	491 - 530	95
Highland St	4,000 - 5,600	up to 248	190
Accotink Park Rd	2,400 - 2,600	N/A	190
Southern Drive	N/A	N/A	190
Amherst Ave	15,000 - 28,000	236 - 440	95
Commerce St	13,000	160	95
Old Keene Mill Rd	44,000 - 72,000	359 - 588	95

Potential Berm
Fill Staging Areas

Incoming
Truck Route

Outgoing Trucks

