

EXECUTIVE SUMMARY

ALTERNATIVE TRANSPORTATION STUDY BACK BAY NATIONAL WILDLIFE REFUGE

Purpose

Traveling to Back Bay National Wildlife Refuge can be difficult. All traffic to the Refuge funnels through Sandbridge Road and Sandpiper Road, each with only two lanes. Congestion can be a significant problem, especially around weekends and holidays. There are few viable alternatives to using personal motor vehicles to get to the Refuge.

The City of Virginia Beach received a Paul S. Sarbanes "Transit in Parks Program" grant from the Federal Transit Administration (100% federal funding) to study transportation alternatives for reaching the Refuge without having to use personal motor vehicles. The City partnered on the study with the Refuge and with False Cape State Park. The alternatives studied were the Back Bay Refuge Trail, Sigma Trail, a shuttle service, water access improvements, a water taxi, and No Construction.

The primary goal of the study was to improve access to the Refuge using alternative transportation modes in ways that enhance the environment and the visitor experience, for the benefit of all visitors.

Process

Phase 1 Define Alternatives -

The project included an early Citizen Information Meeting and several stakeholder meetings, plus a questionnaire on the City's Virtual Town Hall website. Members of the public suggested the Sigma Trail and water taxi alternatives, and also prioritized the evaluation criteria.

Phase 2 Evaluation of Alternatives -

The technical study had four elements:

- conceptual planning for physical improvements and for operations;
- forecasting impacts on traffic and congestion;
- estimating costs for infrastructure and operations; and
- evaluating the benefits and impacts.

The five initial evaluation criteria focused on benefits for visitors and the environment, and are shown in the Alternatives Assessment chart. Five additional criteria focused on technical and operational elements. The ten criteria together were the Measures of Effectiveness used to evaluate each alternative.

Phase 3 Prepare Final Report -

With the November 4, 2015 Citizen Information Meeting, members of the public had the opportunity to review the alternatives, provide feedback on the findings and help set the priorities moving forward. After a 30-day comment period, the study was finalized.

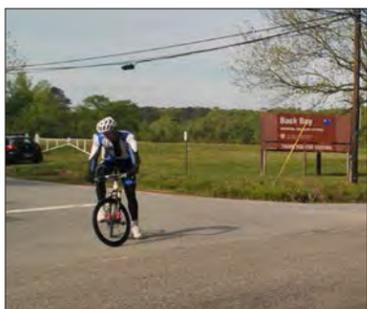
Findings

The Back Bay Refuge Trail has four segments:

- ◆ 1.7 miles of 10' asphalt path following the unbuilt Nimmo Parkway right-of-way (ROW) from Albuquerque Drive to where it crosses Sandbridge Road. This segment includes a 150-foot bridge over Ashville Bridge Creek and 800 feet of raised boardwalk over wetlands. This would be built only if Nimmo Parkway is not built.
- ◆ 0.8 miles of 10' asphalt path along the south side of Sandbridge Road to Sandpiper Road. The City is currently studying this segment of Sandbridge Road for reconstruction and includes bike lanes and a shared use path. This segment of the trail includes 500 feet of raised boardwalk over wetlands.
- ◆ Bike lanes originally built on Sandpiper Road in the late 1980s would be restored from Sandbridge Road to Little Island Park.
- ◆ 230 feet of 10' asphalt path and a 100-foot bike-ped boardwalk to connect the two sections of Atwoodtown Road in Lago Mar, to create an on-road connection to BBNWR's future Visitor Contact Station.

The Sigma Trail (Σ T) also would be a 10' asphalt path, in two segments:

- ◆ 0.5 miles along the north side of Sandbridge Road from BBNWR's current offices near the future Visitor Contact Station at Lotus Drive to a crossing at Colechester Road.
- ◆ 1.9 miles along the south side of Sandbridge Road to where the Back Bay Refuge Trail crosses Sandbridge Road.
- ◆ From there, the Σ T follows the Back Bay Refuge Trail to reach the Refuge.



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Shuttle service would use buses with trailers for canoes and bikes to bring visitors to the Refuge’s existing Visitor Contact Station from the site of the future Visitor Contact Station and from the Virginia Aquarium. This service probably would run daily from Memorial Day to Labor Day, operating privately under a concession agreement. Unless subsidized in some way, the costs per rider would be at least \$12 and perhaps much more.

Water access for canoes and kayaks would be improved at eight existing boat launch sites on both sides of Back Bay. Five of the sites would include a universal access slide. Site ownership varies between City, state and federal agencies, so no single entity can do all the work, but cooperation could create a larger system or water trail. A coherent wayfinding system would help people find the launches, both from land and from the water.

A water taxi service would run passenger pontoon boats from Mill Landing to Barbour Hill to the Refuge Visitor Contact Station. The schedule would vary: daily from Memorial Day to Labor Day; around weekends in the months immediately before and after; and idle from November to March. It would be privately operated, with round-trip tickets costing over \$25, and maybe over \$50. Operators may choose to run on a reservation-basis as well.

The grant program requires a No Construction alternative. Programs for education, enforcement and encouragement could have impacts and benefits at much lower costs.

This Alternatives Assessment chart summarizes the overall costs and benefits of each alternative.

Implementation

Each of the alternatives could be implemented independently of the others or as part of a system that could grow over time. No one entity is expected to implement all of these alternatives; however, the City, US Fish & Wildlife Service, Department of Conservation and Recreation, and in some cases the private sector could implement the alternatives as priorities and resources allow.

This study report serves as a guiding document for coordinating these alternatives in a broader system for better access to the Refuge and the State Park. Each of the alternatives enhance mobility and connectivity within and around Back Bay.

TABLE ES.1: ALTERNATIVES ASSESSMENT

ALTERNATIVE		COST		BENEFITS	REDUCTION IN TRAFFIC		
		CAPITAL	ANNUAL O&M ¹		# OF AUTOMOBILES	BBNWR ²	SANDBRIDGE AREA ³
Back Bay Refuge Trail	Lago Mar to Sandbridge Rd	\$3,594,000	\$16,000	A B C D ○	13	5.1%	0.15%
	Along Sandbridge Rd	\$1,695,000	\$8,000	○ B C D ○	38	14.9%	0.45%
	On-Road ⁴ (Sandpiper Rd)	\$65,500	\$40,000	○ B C D ○	38	14.9%	0.45%
	Atwoodtown Rd	\$335,000	\$7,500	○ B C D ○	--	--	--
Sigma Trail		\$5,560,000	\$22,000	○ B C D ○	25	9.8%	0.30%
Shuttle		\$90,000	\$743,000	A B C D E	25	9.8%	0.30%
Water Access		\$1,395,000	\$70,000	○ B C D ○	--	--	--
Water Taxi ^{5,6}		\$608,000	\$130,000	A B C ○ ○	13	5.1%	0.15%

-  COMPLETELY MEETS CRITERION
-  PARTLY MEETS CRITERION
-  DOES NOT MEET CRITERION

MEASURE OF EFFECTIVENESS

-  REDUCE TRAFFIC CONGESTION
-  ENHANCE VISITOR MOBILITY, ACCESSIBILITY, AND SAFETY
-  IMPROVE VISITOR EDUCATION, RECREATION, AND HEALTH BENEFITS
-  PROTECTION OF SENSITIVE NATURAL, CULTURAL, AND HISTORIC RESOURCES
-  REDUCE POLLUTION

¹Operations and Maintenance.
²Measured as a percent of peak season visitor count of 255 vehicles per day.
³Measured as a reduction of daily trips off Sandpiper Road from a 2015 summer count of 8,450.
⁴O&M of pavement as a part of street maintenance. This price is for increased street sweeping.
⁵Infrastructure to provide access for a taxi concessioner.
⁶Concessioner’s O&M cost shown. Facility O&M reflected in the Water Access line item.



PROJECT NUMBER: 33867.00

ES.1



Recommendations

The findings of this Alternative Transportation Study show significant costs for each of the alternatives, with minimal change in traffic and congestion; nonetheless, the alternatives broaden the choices and enhance the experience visitors would have as they access the Refuge and False Cape State Park.

The City, the Refuge, and the State Park could move forward with each of the alternatives along the following lines, as priorities and resources allow.

Back Bay Refuge Trail (BBRT)

- ◆ When the City repaves Sandpiper Road, restripe it to restore the bike lanes, perhaps as multi-use lanes or shoulders, with proper markings, signage, and removal of obstructions.

Work with landowners on alternative placement of trash and recycle bins.

- ◆ Improve Sandbridge Road/Nimmo Parkway Phase VII-A, CIP 2-078, as is currently in planning. The typical section includes both on-road bike lanes and off-road shared-use paths.
- ◆ Build the BBRT from Albuquerque Drive to a connection with Sandbridge Road. This study found that the path will show very limited impacts on traffic or congestion in Sandbridge or to the Refuge. The construction of the BBRT would primarily provide recreational and environmental benefits to users other than visitors to the Refuge. BBRT infills a gap in the City's system of bikeways and trails and satisfies the latent demand for a bike-ped connection between Sandbridge and the rest of the City. Relative to the goals of this study, the path will make it possible for people to experience, enjoy, and learn about an otherwise invisible portion of the Refuge.

One scenario for building BBRT from Albuquerque Drive to Sandbridge Road would require three (3) Transportation Alternatives Program (TAP) grant cycles to achieve about 65% federal funding (plus \$1,250,000 local funds), and would take five to seven years to complete.

- ◆ When resources are available, connect the two portions of Atwoodtown Road by building the short trail and bike-ped boardwalk.

Sigma Trail

- ◆ Defer the construction of the Sigma Trail until Sandbridge Road is improved.

When any sections of Sandbridge Road are improved, the work should include proper bike accommodations that coordinate with the final design for Sandbridge Road / Nimmo Parkway VII-A. Those road improvements probably would include pavement widening, adding shoulders, improving the roadside drainage systems, and raising the road to account for flooding and to cope with sea level rise. A shared-use path built alongside that new road might or might not resemble the Sigma Trail as envisioned in this Study.

Shuttle Service

- ◆ Incorporate the shuttle service into the program planning for the future Visitor Contact Station.
 - The operational scenario considered in this study does not seem attractive for the City to support. The costs and risks far outweigh the benefits and advantages for the City.
 - The service may become a stronger alternative as a part of the plan associated with the future Visitor Contact Station.

Water Access

- ◆ Improve the water access sites as resources become available.
 - As with the BBRT, the reduction in traffic and congestion will be minimal; however, implementation provides recreational benefits to the City.
 - The City could partner with BBNWR and DCR to develop these sites into a coherent system, such as a Back Bay Water Trail with coordinated signage.

Water Taxi

- ◆ Include the water taxi under a private entity.
 - The operational scenario considered in this study is not attractive for the public sector to support. The costs and risks far outweigh the benefits and advantages.
 - The private sector may be able to prepare a successful business model. The public sector agencies should cooperate with them and work on the water access improvements as priorities and resources allow.

No-Construction programs

- ◆ Encouragement: Continue printing the City's bikeways and trails maps and assure their easy availability in Sandbridge.
- ◆ Education: Provide the bikeways and trails maps to visitors who rent bikes.
 - The bikeways and trails maps include education about proper sharing of roads and trails. The City could provide them to businesses that rent houses or bikes, for distribution to renters.
 - Consider an additional brochure targeted to Sandbridge visitors.
- ◆ Enforcement: City Police Department should continue to monitor speeds along Sandpiper Road and take enforcement action when violations are observed.