

CHESAPEAKE BAY
**PASSENGER FERRY
FEASIBILITY STUDY**
FINAL REPORT

AUGUST 2024

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1.0 INTRODUCTION AND PURPOSE OF STUDY

1.1 CHESAPEAKE CHARACTER

Chesapeake Bay is the largest estuary in the United States, and the waterway divides the state of Maryland into two halves. The Bay is a valuable ecological feature with immense economic potential for the Mid-Atlantic region. Chesapeake Bay is steeped in maritime history, including a time when water ferry transportation drove the development and success of our coastal communities.

For centuries, the Bay served as a steadily growing transportation and trade highway and a migration hub. By the 19th and 20th century, the Bay was bustling with passenger and freight ferries connecting various towns and cities. Subsequently, the advent of vehicular transportation and construction of the Bay Bridge fueled a decline in Chesapeake Bay resort destinations in favor of ocean destinations. Thus, many small towns that relied on ferry travelers and resort tourism were heavily impacted and declined in economic and population growth.

The purpose of the Chesapeake Bay Passenger Ferry Feasibility Study is to evaluate the potential for a new passenger ferry service that could stimulate economic growth within twenty-one (21) host communities along the Bay in Maryland. The Chesapeake Bay Passenger Ferry Feasibility Study is being conducted through the joint effort of a consortium of counties including Anne Arundel, Calvert, Queen Anne's, Somerset, and St. Mary's Counties. The goal of this passenger ferry system will be to provide improved access to the Bay, provide new water transportation connectivity options, and promote enhanced tourism opportunities throughout the region.

This Passenger Ferry Feasibility Study follows a series of efforts to maximize the tourism opportunities of the Bay. In 2023, The Maryland Department of Commerce Office of Tourism Development released a study on the Chesapeake Bay's impact on visitor travel, conducted with the National Park Service and finalized by Rockport Analytics.¹ The study underscored the Bay's significance as a tourist attraction, highlighting various draws like heritage tours, beaches, waterfront towns, scenic drives, wildlife programs, and culinary experiences.

1.2 BRINGING FOLKS TO THE WATER

In recent years, many communities on both the western and eastern shores of the Chesapeake Bay have lost their water transportation connectivity, and, in many cases, lost quality access to the Bay other than by private boat or limited charters. The introduction of a passenger ferry system can transform this landscape, providing regular and affordable water transportation options that are crucial for both residents and visitors.

By reestablishing these connections, the Bay's passenger ferry service can serve as a key recreational driver for water activities and as a transportation gateway for both residents and visitors to bayside destinations throughout the region. Passenger ferries would enable visitors to explore waterfront towns, enjoying activities such as: kayaking, boating, eco-tourism, historic tours, and dining. Visitors could also use the ferry as transit service to

¹ <https://visitmaryland.org/sites/default/files/2023-04/MOTD-Chesapeake-Bay-Visitor-Research-%20FULL-REPORT-FINAL-4-24-23.pdf>

participate in local events like festivals and sporting events with greater ease. Residents would also benefit from improved mobility, fostering stronger inter-community ties and facilitating leisure trips across the Bay.

Moreover, the ferry service is intended to align with modern sustainable tourism practices, appealing to eco-conscious travelers seeking low-environmental impact options to authentically explore the region. Ultimately, the Chesapeake Bay Passenger Ferry Feasibility Study envisions a future where the Bay is more accessible, vibrant, and economically dynamic. The ferry service aims to restore the historical significance of the Bay as a transportation hub, enriching the lives of those who live and visit there. By bringing folks back to the water, this passenger ferry service seeks to reinvigorate the Chesapeake Bay's coastal communities and celebrate their uniqueness.

1.3 ECONOMIC DEVELOPMENT OPPORTUNITIES

This Chesapeake Bay Passenger Ferry Feasibility Study is funded by a \$125,000 Local Technical Assistance matching grant from the United States Economic Development Administration's (EDA) American Rescue Plan: Travel, Tourism & Outdoor Recreation Program. The key motivation for the proposed passenger ferry service centers on tourism, economic growth and revitalizing rural communities along the Chesapeake Bay by enhancing connectivity. The bay region and surrounding communities can benefit from several key opportunities in this ferry system, including:

- **Boosting Tourism, Recreation and Hospitality:** The ferry service will serve as an attraction to draw more visitors to smaller communities lining the Bay, due to the unique appeal of waterfront towns, heritage sites, and natural landscapes. Increased foot traffic in host communities can stimulate the growth of local businesses such as bed-and-breakfasts, hotels, rental businesses, restaurants, and shops. Schools, colleges, and community organizations can develop partnerships for environmental education, historical tours, and outdoor adventures. Local festivals could also see a significant uptick in attendance, translating to greater economic benefits for the hospitality sector.
- **Supporting Local Businesses:** Enhanced accessibility can help local producers and artisans tap into a broader market. Farmers, fishermen, craft-makers, and other artisans can benefit from increased customer bases and more opportunities to showcase their products at local markets, festivals, and fairs.
- **Encouraging Investment and Economic Development:** The introduction of a passenger ferry service will position rural communities, that may have been previously overlooked, as more attractive markets to investors and developers. Improved transportation linkages can lead to the development of new commercial ventures, including marinas, recreational facilities, and retail spaces. This can generate significant economic activity and increase property values as well as tax revenue. Additionally, the potential for additional overnight accommodations can grow as a result, offering new income streams for local property owners.
- **Expanding Employment Opportunities:** The ferry service can generate access to numerous job opportunities within rural communities. Ferry operators, maintenance staff, hospitality workers, and tour guides are a few examples of potential job opportunities that will be created as a result of this service. This project will support jobs in the hospitality and maritime industries, which are key economic drivers in each of the communities.
- **Support regionalism by pairing communities that do not normally work together in economic development efforts:** Governor Wes Moore has encouraged regionalism in Maryland's economic development efforts. The Chesapeake Bay Passenger Ferry service will be positioned to stimulate regional tourism, support local businesses, attract investment, and improve the quality of life in rural communities. The proposed passenger ferry service promises to bring renewed prosperity and vitality to the Chesapeake Bay region while ensuring that the region's rich heritage and natural beauty continues to be enjoyed for generations to come.

2.0 DEFINITION OF SYSTEM AND OPPORTUNITY





2.1 OVERVIEW OF COMMUNITIES


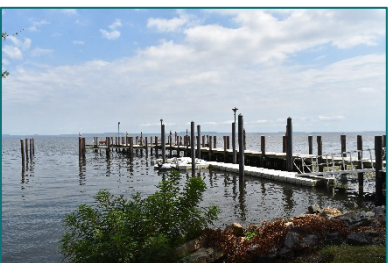

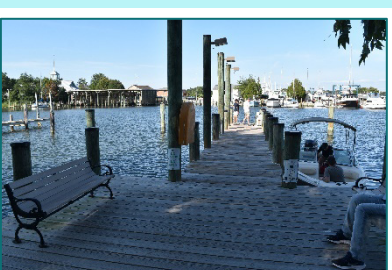
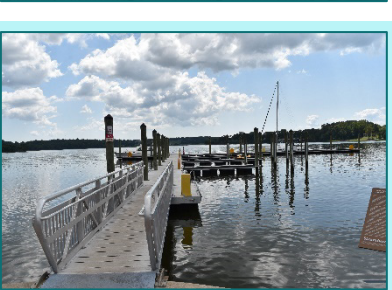
Twenty-one (21) communities lining the eastern and western shores of the Chesapeake Bay within the state of Maryland were identified and analyzed as part of the Passenger Ferry Feasibility Study. Each of these communities is home to a unique culture steeped in maritime history. The study reviewed key site characteristics to evaluate the ease with which passenger ferry services could be returned to the community. Figure 1 shows the location of the 21 communities considered as part of this study and Table 1 provides a high-level description of each. The following sections then introduce and apply criteria used to score each community.

Figure 1. Chesapeake Bay Passenger Ferry System—Possible Station Locations



Table 1. Potential Host Communities for Passenger Ferry Stations
Ordered by Site Evaluation Score

Community	Description	Potential Site
Annapolis	<ul style="list-style-type: none"> ➤ Historic, urban setting with significant number of visitors, close proximity to international airports and trains. ➤ Maryland’s capital and home to U.S. Naval Academy ➤ Established waterfront with existing water taxi, boat tours, and excursions ➤ Waterfront redevelopment planned, including the introduction of electric water taxi service 	
Baltimore	<ul style="list-style-type: none"> ➤ Urban setting with significant number of visitors with close proximity to international airports and trains. ➤ Established waterfront with existing water taxi, passenger ferries, and excursions ➤ Major event venues nearby (e.g., Baltimore Orioles, Baltimore Ravens, National Aquarium, Convention Center) 	
St. Michaels	<ul style="list-style-type: none"> ➤ Home to Chesapeake Bay Maritime Museum with passenger ferry service today ➤ Active waterfront with marinas, water taxi and tour boats, and a summer weekend water excursion from Annapolis ➤ Hotels, restaurants and shopping 	
Kent Narrows	<ul style="list-style-type: none"> ➤ Home to Chesapeake Heritage & Visitors Center ➤ Multiple marinas with fishing fleets, charters, boat rentals ➤ Numerous waterfront restaurants and hotels ➤ Bike rentals ➤ Cross Island Trail Connections ➤ Free public parking 	

Community	Description	Potential Site
Rock Hall	<ul style="list-style-type: none"> ➤ Multiple marinas with fishing charters, boat rentals ➤ Numerous waterfront restaurants with several hotels 	
Havre de Grace	<ul style="list-style-type: none"> ➤ Established waterfront with marinas in downtown setting ➤ Numerous restaurants, hotels, shopping, museums, performing arts ➤ Seasonal events (e.g., Summer Concerts in the Park, Farmers Market) 	
Chesapeake Beach	<ul style="list-style-type: none"> ➤ Multiple marinas with fishing charters, boat rentals, and beach access ➤ Chesapeake Beach Railway Trail and Boardwalk ➤ Rod 'N' Reel Resort with gaming and bingo ➤ Numerous restaurants in town as well as within walking distance of North Beach 	
Solomons Island	<ul style="list-style-type: none"> ➤ Multiple marinas, fishing charters, boat rentals ➤ Numerous restaurants and hotels along waterfront and beyond ➤ Calvert Marine Museum ➤ Chesapeake Biological Laboratory and University of Maryland Center for Environmental Science 	
Leonardtown	<ul style="list-style-type: none"> ➤ Leonardtown Wharf with free public dock in close proximity to downtown, shops, a hotel and restaurants ➤ Sunset cruises, kayaking, seaplane rides, winery, art workshops, theater/music hall ➤ Seasonal events (e.g., live concerts, car show, art contests, outdoor movie nights, Fourth on the Wharf) 	

Community	Description	Potential Site
Galesville	<ul style="list-style-type: none"> ➤ Multiple marinas with restaurants and bars ➤ Multiple sailing clubs ➤ Galesville Heritage Museum 	
Crisfield	<ul style="list-style-type: none"> ➤ Multiple marinas, fishing fleets, fishing and boat charters, as well as passenger ferry connections to Smith and Tangier Islands ➤ Multiple restaurants and hotels ➤ “Crab Capital of the World” with special events (e.g., Crisfield National Hard Crab Derby, J. Millard Tawes Grab and Clam Bake), art studios, museums, state parks, and Somerset County Original Trail mix 	
Cambridge	<ul style="list-style-type: none"> ➤ Multiple marinas, fishing fleets and charters, river cruises ➤ Multiple restaurants and hotels ➤ Numerous museums (e.g., Harriet Tubman Museum and Educational Center, Richardson Maritime Museum and Ruark Boatworks) and self-guided historic walks in the downtown 	
Oxford	<ul style="list-style-type: none"> ➤ Surrounded by water, with multiple marinas, a shipyard/ship builder, and a car/passenger ferry. ➤ Multiple restaurants and hotels, boutique shops and galleries, and ice cream shop ➤ Home to the Robert Morris Inn 1710—the oldest Inn in America, and the Oxford-Bellevue Ferry—America’s oldest privately owned ferry, and the Oxford/St. Michaels Bike Trail 	
Salisbury	<ul style="list-style-type: none"> ➤ Multiple marinas in an urban setting with walkable access to numerous restaurants and hotels ➤ Wicomico River has an active industrial operation with Chesapeake Shipbuilding, Chaney (concrete) and Vulcan Materials (aggregate), and Cato (energy) ➤ Home to Salisbury Zoo, Newtown Historic District, Camden Avenue Farmers Market, Maryland Folk Festival, and Unity Thru Music 	

Community	Description	Potential Site
Chesapeake City	<ul style="list-style-type: none"> ➤ Marina located off the Chesapeake and Delaware Canal with existing cross-canal water taxi service ➤ Multiple restaurants and hotels on the south side of the canal with additional restaurants on the north side ➤ Home to C&D Canal Museum, Ben Cardin Recreational Trail, Chesapeake Wine Trail, and Shakespeare in the Park in the Dark 	
St. Mary's City	<ul style="list-style-type: none"> ➤ Home to Historic St. Mary's City, founded in 1634; considered the "birthplace of religious tolerance" and the site of Maryland's first capital ➤ Pier options through prospective partnership with HSMC ➤ A premier historic site in America and museum of living history and archaeology ➤ Proximity to St. Mary's College of Maryland 	
Easton	<ul style="list-style-type: none"> ➤ Easton Point Marina with a boat launch is just down river from Easton Point Park, which is envisioned to have a pier structure developed to handle a passenger ferry ➤ Home to multiple restaurants, hotels, shopping, art galleries, theatre, and seasonal festivals (e.g., Waterfowl Festival, Plein Air Easton Art Festival) ➤ Location of Frederick Douglass' "Self-Made Men" speech, given in 1878 	
Matapeake	<ul style="list-style-type: none"> ➤ Public dock located adjacent to Maryland National Resources Police; formerly served as ferry terminal ➤ Matapeake Clubhouse (Old Ferry Terminal in 1936) and Beach within walking distance, known for its sandy beach and summertime events ➤ Direct access to bike trails 	

Community	Description	Potential Site
Tilghman Island	<ul style="list-style-type: none"> ▶ Multiple marinas with fishing fleets and charters, and boat rentals ▶ Multiple restaurants and hotels ▶ Tilghman Watermen’s Museum 	
Betterton	<ul style="list-style-type: none"> ▶ Marina with public dock ▶ Betterton Beach is the primary attraction, serving historically as a resort area ▶ Betterton Heritage Museum helps protect and promote the area’s history ▶ No hotels or restaurants; however, concessions are often available during season at the beach 	
North East	<ul style="list-style-type: none"> ▶ Marina with public dock located within a community park ▶ Waterfront restaurant with additional restaurants, hotels, and shops inland ▶ Area known for scenic walks, Turkey Point Lighthouse, Milburn Stone Theatre, and Fairwinds Farm & Stables 	

2.2 SUMMARY OF SITE EVALUATION AND SCORING MATRIX RESULTS

In August 2023, potential landing sites within each community were visited. The current condition of existing berths and piers were visually inspected. In addition, connections of the landing sites to local tourism amenities such as restaurants, shopping, points of interest, and recreational and cultural activities were noted. Where possible, representatives of local businesses, tourism authorities, Government agencies, or cultural institutions were interviewed to discuss features of each community and the potential for the ferry system to benefit local economic development.

Each potential destination was evaluated based on 15 criteria broken down into three categories: Pier and Landing Characteristics, Travel Time and Navigation, and Attractions and Tourism Amenities.

Scoring recommendations for each of the categories and criteria were prepared based on perceptions of the relative importance of each criterion. The maximum total score was set at 100 points, and the maximum scores for each category and criterion are summarized in Table 2 followed by a detailed discussion:

Table 2. Site Evaluation Criteria Based on 100 Total Points

Pier and Landing Characteristics (25 points)	Travel Time and Navigation (35 points)	Attractions and Tourism Amenities (40 points)
<ul style="list-style-type: none"> ➤ Condition of Pier/Landing Site (10) ➤ Pier Availability for Ferry Use (5) ➤ Capacity for Backup Vessels, Fuel, Power (5) ➤ Other Features: Ticketing, Restrooms, Parking, etc. (5) 	<ul style="list-style-type: none"> ➤ Minimum Water Depth (10) ➤ Other Navigational Issues (5) ➤ Distances/Day Trip Feasibility (7) ➤ Proximity to Other Destinations (5) ➤ Travel Time as Compared to Driving (8) 	<ul style="list-style-type: none"> ➤ Dining and Shopping in Walking Distance (10) ➤ Museums and Outdoor Activities (10) ➤ Historical Visitation to Destinations (5) ➤ Overnight Accommodations (5) ➤ Public Transportation Connections/Other Transportation (5) ➤ Potential to Benefit Economic Development (5)

PIER AND LANDING CHARACTERISTICS (25 POINTS)

Within each community, potential ferry landing sites initially identified by the Consortium were visited. In some communities, two or three potential sites were identified.

Condition of Pier/Landing Site (10 points)

Each potential pier or land site was visually reviewed and, where possible, walked on to get a general sense of the condition of the pier and its readiness to accommodate ferry vessels. Scoring for this criterion was based on a perception of current readiness and/or the amount of remediation or repairs that might be necessary before a ferry vessel could dock at the location. In most cases, piers were in very good condition. In some cases, only minor repairs to decking or railings would be needed. The average score for this criterion across the preferred landing sites for the 21 communities visited was 8.9 out of 10, reflecting the overall very good condition of the potential landing sites.

Pier Availability for Ferry Use (5 points)

In almost all cases, the potential piers/landing sites identified by the Consortium are controlled by public entities (counties, cities/towns, or the state). In many cases, state funding from the Department of Natural Resources has been utilized to construct and/or maintain piers. Questions were posed as to whether the controlling entity would likely permit ferry landing and in almost all cases the answer was yes. At some sites, a private entity controls the landing site and there was less certainty about the possibility of ferry landing without negotiations. The average score for this criterion was 4.8 out of 5, indicating the high likelihood that most sites could easily be utilized by the ferry system.

Capacity for Backup Vessels, Fueling Resources, and Power (5 points)

For each community, the availability of slips to accommodate backup vessels were reviewed, as well as the proximity and availability of fueling resources. Electrical infrastructure for charging electric vessels was also

considered, but in almost all cases that infrastructure would need to be built out. Many communities have extra docking space or marinas in relatively close proximity to landing sites, and several have marine fuel nearby. The average score for this criterion was 4.6 out of 5.

Other Features: Accessibility, Ticketing, Restrooms, Parking, etc. (5 points)

Attributes and amenities at each landing site were reviewed including accessibility features, existing restroom facilities and parking, and potential space for signage, queuing, and a ticketing booth or physical location for a ferry staff member to provide assistance to passengers. In general, parking was limited, and some sites did not have restroom facilities. Required terminal infrastructure could be minimal for the start up of the ferry system, which is why most sites received relatively high scores for this criterion. However, it would be preferable to build out this infrastructure as the system grows. The average score for this criterion was 4.7 out of 5.

TRAVEL TIME AND NAVIGATION (35 POINTS)

Minimum Water Depth (10 points)

Minimum water depths on approach to each of the potential landing sites were researched and summarized. Higher scores were awarded to sites with deeper water, allowing more clearance for a wider range of potential ferry vessels. Sites with minimum water depth greater than 10 feet were awarded 10 points, sites with minimum water depths between 6 and 10 feet were awarded 6 points, and sites with minimum water depths of 5 feet or less were awarded only 2 points, as there are concerns about the ability of ferry vessels to land at these sites without remediation/dredging. The average score for this criterion was 7.5 out of 10.

Other Navigational Issues (5 points)

Other navigational issues were considered that might impact potential destinations such as speed restrictions in certain areas, vessel traffic, tight or narrow turns in rivers, bridges, and currents. In general, there were few issues that were concerning. The average score for this criterion was 4.6 out of 5.

Distances/Day Trip Feasibility (7 points)

Sites were scored based on their distances from potential hub locations or population centers where the majority of passengers are anticipated to originate. There was a one-point reduction for each 10 miles from the hub. 10 miles corresponds to roughly 30 minutes on water on average (taking into account cruising speeds as well as slower speeds during departure and on arrival at ports), so a 40-mile distance translates to 2 hours on water one way. The feasibility of day trips to destinations declines with distance and associated time on water. However, this criterion was balanced out by the "Travel Time as compared to Driving" criterion described below. The average score for this criterion was 3.2 out of 7.

Proximity to other Destinations (5 points)

For this criterion, the potential for combining certain destinations on day trips, or for including several destinations on a single route in order to improve the efficiency of transporting passengers around the system was considered. The average score for this criterion was 3.8 out of 5.

Travel Time as Compared to Driving (8 points)

Relative time savings for origin/destination pairs by ferry route as compared to driving was considered. Communities located further from the Bay Bridge generally scored higher on this criterion, as they would benefit from direct cross-bay ferry routes that would save on north-south driving time as well as bridge crossings. The average score for this criterion was 6.1 out of 8.

ATTRACTIONS AND TOURISM AMENITIES (40 POINTS)

Dining and Shopping in Walking Distance (10 points)

The areas around potential landing sites in each community were toured, in many cases from the pier to surrounding streets. Many communities featured several restaurants and/or shops within reasonable walking distance. Communities with existing shuttle services to shopping and dining areas were given credit for those local transportation options. The average score for this criterion was 7.6 out of 10.

Museums and Outdoor Activities (10 points)

Most destinations feature a selection of cultural and recreational activities, while some have only one or two primary attractions. As with the previous criterion, additional credit was given for activities within walking distance from the potential landing site, or with a connecting shuttle or transportation service. The average score for this criterion was 8.8 out of 10.

Historical Visitation to Destinations (5 points)

Historical visitation statistics were considered, taken in part from the 2021 MOTD/NPS report (which listed estimated annual visitation for key attractions), in order to gauge the current relative level of interest in visiting each community.² The average score for this criterion was 4.2 out of 5.

Public Transportation Connections/Other Transportation (5 points)

Short-distance shuttle or trolley connections to local attractions were considered as well as wider public transportation networks accessible from potential landing sites. Few sites had extensive transportation options, but some had connections to other local towns. The average score for this criterion was 3.4 out of 5.

Overnight Accommodations (5 points)

Communities varied widely in the number of overnight accommodations in close proximity to potential landing sites. However, some communities would be primarily day trip destinations, and a small number of hotels, motels, or vacation rentals would not necessarily be a detriment. Scoring took this into account. The average score for this criterion was 4.0 out of 5.

² <https://visitmaryland.org/sites/default/files/2023-04/MOTD-Chesapeake-Bay-Visitor-Research-%20FULL-REPORT-FINAL-4-24-23.pdf>

Potential to Benefit Economic Development (5 points)

This criterion took into account the potential for the ferry system to increase the visibility of certain destinations and to bring additional visitors that would spur economic development and grow tourism amenities and infrastructure. In general, smaller, less-visited communities scored higher on this criterion than others. The average score for this criterion was 3.9 out of 5.

CHESAPEAKE BAY FERRY SITE EVALUATION SCORING SUMMARY

Each site was scored using the above criteria. The results are summarized below in Table 3. Detailed site evaluations are provided in Appendix A. These scores informed the identification of sites to be included in the Baseline Ferry System introduced in Section 2.3.

Table 3. Site Evaluation Scoring Summary

City/Town	Pier/Landing Score	Navigation/ Travel Time Score	Attractions/ Amenities Score	Total Score
Annapolis	25	31	38	94
Baltimore	25	27	37	89
St. Michaels	24	27	36	87
Kent Narrows	25	25	35	85
Rock Hall	23	29	33	85
Havre de Grace	23	25	36	84
Chesapeake Beach	23	27	33	83
Solomons	22	24	36	82
Leonardtown	24	18	40	82
Galesville	24	26	31	81
Crisfield	23	26	31	80
Cambridge	25	27	27	79
Oxford	20	30	29	79
Salisbury	24	20	34	78
Chesapeake City	25	19	33	77
St. Mary's City	22	25	30	77
Easton	24	22	30	76
Matapeake	20	34	20	74
Tilghman Island	19	27	26	72
Betterton	19	25	27	71
North East	24	16	29	69

2.3 BASELINE FERRY SYSTEM—WHERE TO START AND WHY?

Preliminary ferry route concepts were developed after 1) reviewing how potential destinations scored based on the criteria presented in Section 2.2, and 2) considering several desired ferry system features and objectives. These features and objectives are discussed in this section.

FERRY SYSTEM FEATURES AND OBJECTIVES

Excursion Ferry

The ferry system is envisioned as an excursion ferry focusing on tourism and promoting economic development in smaller Chesapeake Bay communities, rather than as a commuter or transportation ferry. A commuter or transportation ferry would require significantly more terminal infrastructure development, especially if it involved transporting vehicles across the bay. Car ferry vessels would also be much larger and more costly than the vessels recommended later in this report.

Day Trips and Connections with a Reasonable Amount of Time on Water

Initial ferry routes are intended to provide connections between communities that allow for day trips of reasonable length. The definition of “reasonable” is not exact, but there are very few comparable excursion ferries that involve more than five hours of on-water time for a day trip. For example, an excursion departing at 8 a.m. could arrive at a destination at 10:30 a.m., allow for four hours at the destination (until 2:30 p.m.) and return to the origin site at 5 p.m. Current tour boat and ferry operators interviewed noted that long-duration trips are challenging for families with small children.

While day trips are envisioned as a popular option, some passengers would likely utilize the system for overnight trips or trips of longer duration, possibly connecting several destinations on a journey around the bay. The Baseline System presented in this report includes numerous connections, with segments between destinations rarely exceeding 2.5 hours of on-water time.

Overnight Trips

Overnight accommodations in proximity to ferry landings were considered, understanding that some passengers would utilize the system to take longer overnight or weekend trips. The relative lack of transportation options at ferry landings means that accommodations near landing sites would be important. There are overnight accommodation options at several of the more distant destinations in the Baseline System, including Solomons, Leonardtown, and Crisfield.

Special Events

While a proposed schedule for the Baseline System is presented in this report, the expectation is that operators will have the flexibility to adjust schedules and deviate from them in order to accommodate expected demand for special events. These events may include summer festivals, concerts, sporting events, holiday fireworks, etc. Special ferry service for these events would be planned and marketed in advance, and ferry service to these events is expected to raise the overall awareness of the entire ferry system.

Interpretive Messaging

A key concept for the ferry system is that being on the water would be as important to the overall experience as the various destinations. In addition to passenger comfort and recommended vessel amenities (discussed in a subsequent section of this report), interpretive messaging and learning experiences onboard the ferry should be a key part of the passenger experience.

Routes could include messaging about points of interest and/or various aspects or uses of the bay, including:

- ▶ Lighthouses and islands
- ▶ History and culture
- ▶ Nature and wildlife
- ▶ Fishing and other industries
- ▶ Military installations

Baseline Schedules and Operating Season

During interviews with existing boat tour operators, demand was found to vary significantly (and unsurprisingly) by day of week and by month of year. Saturdays typically represent peak demand, followed by Fridays and then Sundays, with other weekdays experiencing significantly less traffic.

The routes described below should run Thursdays through Mondays initially, and possibly expand to Tuesdays and Wednesdays after demand is tested. A Thursday through Monday schedule would allow boat crews to work at or near full-time.

A six-month operating season from around mid-April through mid-October is assumed. Existing operators report that (outside of special events) demand peaks in June, July, and August, with notable drop-offs during the shoulder seasons from mid-April through Memorial Day and from Labor Day through mid-October.

CONSIDERATIONS FOR HUB LOCATIONS

The desired characteristics for ferry system hub locations were also considered.

Load Centers

Ferry system hubs would ideally be located near relatively large population centers. These “load centers” would be the primary source of passengers desiring to visit smaller communities around the bay.

Availability of Docking Facilities and Related Infrastructure

As multiple vessels would potentially overnight at hub locations, there should be sufficient available space for vessels to dock. Ideally, fueling infrastructure (including marine fuel as well as charging infrastructure for electric or hybrid vessels) would be available in close proximity to hub docking sites.

Nearby parking lots and public transportation connections are also important considerations, as hub locations would be expected to handle a much larger number of passengers than most destination landing sites.

Availability of Labor and Housing for Crew Members

Proximity to larger population centers is also beneficial for the availability of labor and housing within a reasonable commute to the departure site. The boat tour operators interviewed noted that most of their crew members were within a 20- to 30-minute commute to their duty stations.

Proximity to Highly-Rated Destinations

Building upon the “Reasonable Amount of Time on Water” consideration, hub locations should be relatively close to highly-rated destinations that are expected to be in high demand by passengers.

Ability to Return to Same Location at Night

Routes emanating from hub locations should be developed so that ferry vessels can start and end the day in the same location. This eliminates the need to find temporary (overnight) housing for crew members, which would quickly become a significant expense. It also creates consistency in terms of docking locations, fueling routines, and security considerations.

PREFERRED HUBS

Given the considerations described above, Annapolis was identified as a primary ferry system hub, Baltimore as a secondary hub, and Solomons Island as a potential hub for Baseline System destinations in the southern Maryland portion of Chesapeake Bay.

Annapolis

Load centers: Annapolis is in close proximity to major population centers, as it is located about 30 miles from both Washington, DC (5.5 million metro area population) and Baltimore (2.8 million metro area population).

Availability of Docking Facilities and Related Infrastructure: There are several marina facilities in the Annapolis area. The preferred location for ferry embarkation would be at or near City Dock. The ongoing City Dock Revitalization Project will include upgraded docks at Burtis Pier as well as a new Visitor Center.

Proximity to Highly-Rated Destinations: Annapolis is closer than Baltimore to several highly-rated destinations in the central part of Chesapeake Bay, including Kent Narrows, St. Michaels, Chesapeake Beach, Oxford, Cambridge, and Easton. This proximity allows for a larger number of feasible day trips.

Baltimore

Load center: Baltimore’s metropolitan area population is around 2.8 million. Many residents in the metro area (especially those in northern suburbs and towns) would likely prefer an embarkation location in Baltimore’s Inner Harbor to one in Annapolis, as traffic between Baltimore and Annapolis is often heavy.

Availability of Docking Facilities and Related Infrastructure: Baltimore’s Inner Harbor has ample docking space and relatively good supporting infrastructure, including space for ticketing, an existing visitor center nearby, and proximity to public transportation. There are many types of housing within commuting distance for ferry crew

members. Fuel is available within the harbor, and existing boat tour companies including Watermark, Baltimore Water Taxi, and City Cruises have operations there.

Proximity to Highly-Rated Destinations: Baltimore is further than Annapolis to most destinations within the central part of Chesapeake Bay, but closer to some potential northern destinations including Havre de Grace and Chesapeake City.

Solomons Island

Although not in especially close proximity to a major load center, Solomons Island has a favorable location as a potential hub for the southern portion of the system as it has relatively close connections to Chesapeake Beach, St. Mary's County destinations, Crisfield, and Cambridge. Its strategic position between these destinations makes it a logical stopping point. There are a number of marinas and all necessary services in the area.

PRELIMINARY ROUTE CONCEPTS

The Baseline System route recommendations are described below and illustrated in Figure 2. An example route map and schedule is presented based on the considerations in this section as well as feedback from potential system users. However, it is anticipated that operators will test demand on various routes and that the system may grow organically from a small number of popular routes to a wider system. A more detailed description of the Baseline System routes is included in Appendix B.

Route 1: Baltimore, Annapolis, Matapeake, St. Michaels, Kent Narrows, Rock Hall (return)

All of these central bay destinations are highly rated and relatively close to each other and to potential hubs in Annapolis and Baltimore. Route 1 is envisioned as a counter-clockwise partial loop originating in Baltimore in the morning and stopping at all of the listed destinations until arriving at Rock Hall before lunch. The return route from Rock Hall would begin in the early afternoon, allowing day trippers several hours at the destination of their choice.

Route 2: Annapolis, Baltimore, Rock Hall, Kent Narrows, St. Michaels (return)

This route would originate in Annapolis in the morning and head to Baltimore and then Rock Hall, Kent Narrows, and St. Michaels in a clockwise direction. It provides additional connectivity to central bay destinations, and passengers could choose segments of Route 1 or Route 2 depending on which route provides them with the desired amount of time at a certain destination. The overlapping nature of routes 1 and 2 provide several options for day trips or for experiences at different destinations on the loop over a number of days.

Routes 1 and 2 include morning and evening connections between Baltimore and Annapolis. A route between Baltimore and Annapolis would have several potential benefits. It would connect the Baltimore metropolitan area load center south to Annapolis, where connections could be made to destinations further south and east. For example, an 8 a.m. ferry from Baltimore to Annapolis would connect to day trips from Annapolis departing at around 10 a.m.

A Baltimore-Annapolis connector would also be an interesting route for tourists staying in either downtown Baltimore or Annapolis (each of these two cities is a destination in itself and could make for an interesting day trip from the other).

While the system is not intended to be a commuter ferry, the route could potentially attract a few commuters in both Baltimore and Annapolis who live and work near city centers or landing sites. This is especially true if routes are running in each direction at around 8 a.m. and 5 p.m. (which is recommended in the Baseline example schedule). For passengers, this would not necessarily be a daily commute, but perhaps an intermittent trip for some workers who go into the office only infrequently or want to change their daily routines.

Route 3: Annapolis south to Chesapeake Beach, Solomons Island and Crisfield (return)

This route would work as either a day trip to Chesapeake Beach or as a connector to destinations further to the south and east (including Solomons Island, Crisfield, and Oxford/Cambridge/Easton). Chesapeake Beach features several attractions including the beach itself, as well as shopping, a resort, gaming, and special events. Passengers could get the interpretive experience of the Thomas Point Shoal lighthouse on this route.

The Baseline example schedule assumes that a ferry boat from Annapolis to Chesapeake Beach continues south to Solomons Island, connecting visitors to shopping, dining, and museums in that destination.

From Solomons Island, the boat could continue across the Bay to Crisfield, a segment which opens up the ferry system to many more potential passengers originating from the south and east, including coastal Virginia locations.

Visitors to Crisfield could overnight there and return north via Solomons Island on Route 3 on a subsequent day.

Route 4: Cross-Bay Connection between Chesapeake Beach, Oxford, Easton, and Cambridge

The Baseline route map includes connections to Eastern Shore destinations including Oxford, Cambridge, and Easton from Chesapeake Beach and Solomons. Since Chesapeake Beach is directly across the Bay from Oxford and Cambridge, distances are relatively short and round trips could be run twice per day. If the vessel were based in one of the Eastern Shore towns, this route could bring passengers from the east in the morning to experience day trips or connect with other ferries running north and south.

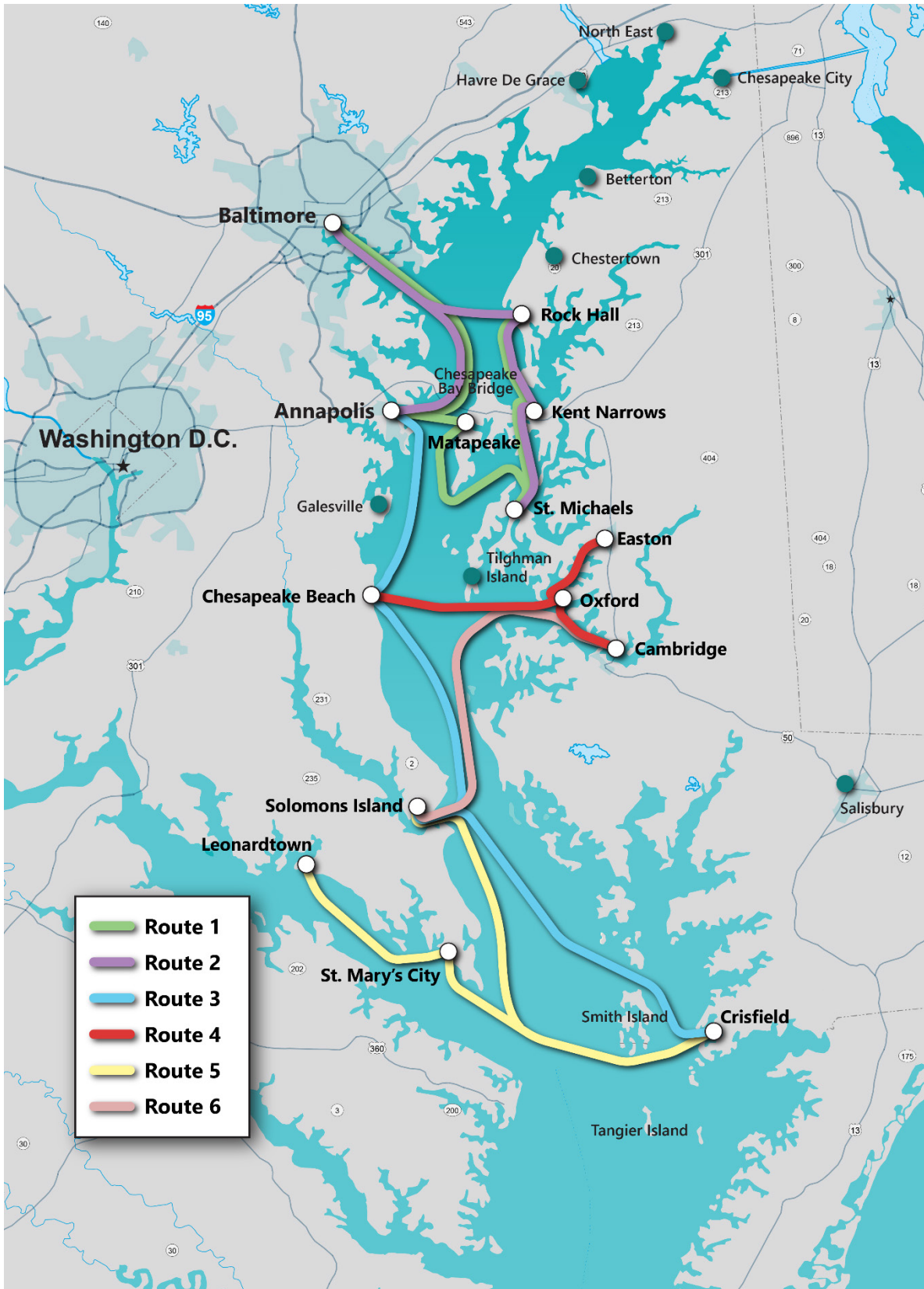
Route 5: Solomons Island to Leonardtown, St. Mary's City, and Crisfield

In the Baseline System example, one vessel operates from Solomons Island to Leonardtown and/or St. Mary's City (the Leonardtown route could be run on certain days and the St. Mary's City route could be run on others). Passengers could utilize these routes as day trips or overnight trips. For example, if the Leonardtown route were run on consecutive days, passengers could stay overnight in Leonardtown and return to Solomons on the afternoon of the second day. The vessel would continue from the St. Mary's stop across the bay to Crisfield for a southern Bay connection that would save significant travel time as compared to driving.

Route 6: Solomons Island to Cambridge Connector

This route would provide additional connections in the southern part of the Bay, facilitating travel from the Eastern Shore to Solomons Island and destinations in St. Mary's County. This route could potentially run two roundtrips per day.

Figure 2. Chesapeake Bay Passenger Ferry System—Baseline



2.4 CONNECTING THE BAY—EXPANSION OPPORTUNITIES

Operators of the Chesapeake Bay ferry system are expected to test demand for potential Baseline routes and adjust schedules and routes over time depending on ridership and passenger preferences. It may take several operating seasons to develop a system that is truly financially self-sustaining and profitable enough to allow exploration of additional routes beyond the baseline. As described in the previous section, all potential destinations scored well in at least one of the three categories of selection criteria. Even the destinations with the lowest total scores were not significantly below some of the destinations included in the recommended Baseline System. Ultimately, a goal for the system would be to truly connect communities throughout the entire Chesapeake Bay, not only in Maryland but also all the way to the southern Delmarva peninsula in Virginia, up the Potomac River toward Washington, DC, and even to Newport News and Virginia Beach.

An expanded system that connects to each of the 21 destinations included in the site visits would require development of routes to the northern bay, and additional stops to along existing central bay Baseline System routes. Expansion beyond the initial 21 destinations would require connections further north and south, as well as up the Potomac River. A high level overview of potential expansion opportunities is provided below and Section 7 provides a detailed discussion on a phasing strategy for a full system.

Northern Bay Destinations: Havre de Grace, Chesapeake City, North East, and Betterton

Routes to the northern destinations are similar in length to some of the recommended baseline routes. Havre de Grace and Chesapeake City already draw many visitors to their waterfront attractions, including dining, shopping, recreational activities, and cultural institutions. Betterton might be a natural stopping point from Baltimore or Annapolis to these destinations, and such a stop would possibly restore a historic ferry connection between Baltimore and Betterton. Visitors from Baltimore used to travel by ferry to Betterton to enjoy the beach, which due to currents was free of stinging nettles that were an irritant at other Chesapeake Bay beaches to the south.

Central Connections: Galesville, Tilghman Island, and Salisbury

Galesville and Tilghman Island are located along recommended baseline routes and could be easily tested for visitor demand. While they currently feature a limited set of visitor services, a ferry connection could contribute significantly to growth in dining and shopping options. Salisbury's location at the end of the navigable portion of the Wicomico River adds significant travel time from recommended baseline ferry routes, but a ferry stop there could open up the system to more potential users in Delaware and the southern portions of the Delmarva peninsula.

Additional Destinations in Maryland and Beyond: Potomac River, Southern Chesapeake Bay, and Chesapeake & Delaware Canal

The system could extend to additional destinations in Maryland and beyond. Service could extend from the St. Mary's County destinations in the Baseline System to destinations further up the Potomac River on both the Maryland and Virginia sides. Closer connections to Washington, DC, could encourage even more visitors from that metropolitan area to explore the ferry system and Chesapeake Bay. Crisfield already has day tours and connections to Smith Island and Tangier Island, and it would also be a logical connection to points further south in Virginia on both sides of Chesapeake Bay. Ultimately, connecting the system to the population centers in Virginia Beach, Norfolk, and Newport News would benefit ridership at the southern end of the system and overall. Service also could extend east from Chesapeake City along the Chesapeake & Delaware Canal to points along the Delaware River, including Wilmington.

3.0 MARKET ASSESSMENT

3.1 OVERVIEW OF APPROACH

Ridership estimates are critical to understand the demand for this passenger ferry service, and the economic and financial impacts associated with that demand. The ridership estimates developed for this study provide ridership numbers for the 14-station Baseline System. The approach for a recreational service of this type differs from a more traditional commuter system. A commuter system is based on understanding existing origin/destination patterns and then estimating how many of those trips would likely divert to the new service. For a new recreational system, ridership variables are much different. They are based on gaging the level of interest of a defined population, in this case local Maryland residents and the tourists that visit each year, in riding a passenger ferry system for recreation—that is, discretionary trips taken for enjoyment. To do this, a variety of factors and data points must be used.

The approach for this market assessment began with the screening of 21 potential stations to define the 14-station Baseline System described in Section 2. Three key sets of inputs were then used to estimate annual ridership for the 6-route/14-station system, as described below:

- ▶ Existing tourism and resident data—this established the base of potential riders.
- ▶ Defined routes and characteristics (i.e., travel time, vessel size) of the proposed Baseline System—this established the geography of choices, and defined capacity and level service.
- ▶ Inputs from a stakeholder survey (i.e., vessel preference, pricing)—this established expectations related to ticket price, desired amenities, types of activities, and more.³

Each of these sets of inputs were informed by the site evaluation screening, which was based on site visits, interviews with key community stakeholders, and a review of available demographic and business data.

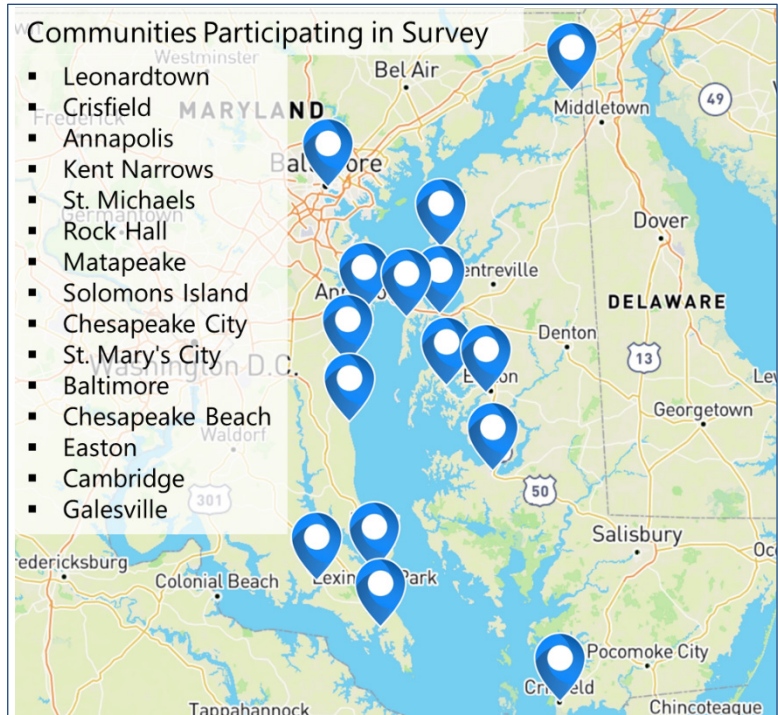
The following section describes how these data sources were used to determine the maximum capacity of the system as well as the estimated actual ridership.

³ An online survey was conducted with key representatives from each of the 21 communities included in the site evaluation effort. Participants were identified by consortium members are largely represented economic development and tourism organizations, as well as key businesses likely to support or benefit from a passenger ferry service.

3.2 SUMMARY OF SURVEY RESULTS

The *Chesapeake Passenger Ferry Ridership Survey* was conducted in Winter 2023/2024 to support the ridership forecasts developed for the Baseline System. Surveys were completed by representatives from fifteen (15) communities and results provided insights into key factors impacting ridership, amenities, revenue generation, and cost. Highlights from the survey results include:

- 67 percent of respondents had a high level of interest in a Chesapeake Passenger Ferry.
- Over 62 percent of community partners (hotels, restaurants, recreation) are very interested in supporting engaging activities for visitors.
- 81 percent of respondents said adult fares should be \$10 or less per hour of travel.
- 71 percent of respondents felt the service should be partially subsidized.
- Two-thirds or more of respondents felt ferry riders would be interested in dining (88 percent), local events (84 percent), bike/kayak/ boat rentals (72 percent), bike trails, (68 percent), and guided tours (67 percent).
- Almost half of respondents felt an alternatively fueled vessel would be more likely to be ridden.
- “Must have” vessel amenities include: restrooms (91 percent), climate controlled enclosed seating (62 percent), open deck access/seating (58 percent), and Internet access (53 percent).
- Preferred station set up consisted of a “covered area with seating next to pier with support from nearby businesses.”
- Respondents prefer service that operates at least 2-3 times per day (61 percent) and 2-3 times per week (38 percent).
- Respondents estimated that visitors would spend \$182 per day trip and \$476 per overnight trip.



3.3 RIDERSHIP ESTIMATES FOR BASELINE SYSTEM

Success of the proposed system stems from the ability to attract and retain riders on the ferry system. Ridership not only drives the financial success of the system to pay for vessels and crew, but also the corresponding economic benefits for local businesses such as restaurants, shops, and hotels.

Ridership estimates were developed in a twofold manner as described below:

- Step 1: Determine overall capacity of proposed system—this estimates the maximum possible ridership based on the assumed vessel routing and vessel availability.
- Step 2: Determine potential ridership—this incorporates other factors, such as those from the survey results, to determine the likelihood people are willing to take the ferry.

Estimated Capacity of Proposed System

The maximum capacity of the proposed system, at the simplest level, is a determination of the total number of passengers which could use the ferry service if every vessel of every route were filled to a maximum capacity. This capacity is based on the following factors:

- Days of Operation—Ferry service is assumed to operate from mid-April to mid-October for a total of five days each week. This is approximately 130 days of operation.
- Vessel Size—Ferry service is assumed to be provided by a 149-passenger catamaran on Routes 1 and 2, and a 49-passenger catamaran on the remaining routes.
- Service Frequency—Ferry service is assumed to be provided once daily on Routes 1, 2, 3, and 5 and twice daily on Routes 4 and 6.

Multiplying these three factors together yields the maximum capacity of the system, as shown in Table 4. **Note that these are developed at the segment level for each route so a passenger traveling on two segments of a route would be counted twice.** Route 1 is anticipated to have the highest capacity which is primarily a factor of the number of segments (10) on this route as well as the use of a larger vessel. Routes 2 has the second highest capacity, again driven by the number of segments (8) and a larger vessel size.

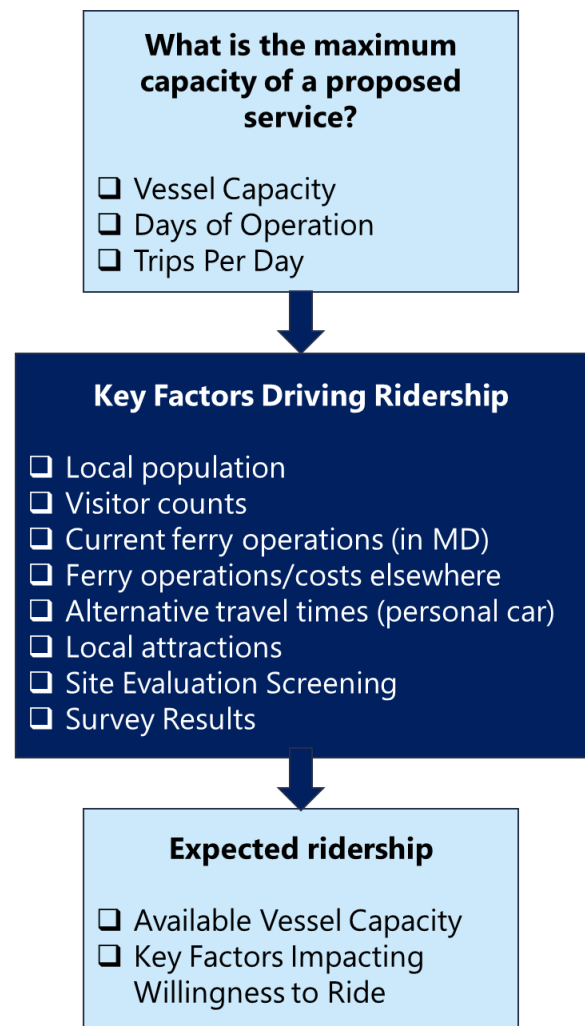


Table 4. Estimated Maximum Capacity of the Baseline System

Route	Daily Capacity	Weekly Capacity	Annual Capacity
1	1,490	7,450	194,764
2	1,192	5,960	155,811
3	294	1,470	38,430
4	392	1,960	51,240
5	196	980	25,620
6	196	980	25,620
Total	3,760	18,800	491,486

Estimated Ridership of Proposed System

The aforementioned calculation determines the upper bound of ridership for the proposed baseline system. In reality, the system is not likely to operate at full capacity on a daily basis. Multiple factors impact the decision-making process for someone to ride the ferry versus an alternative mode of transportation (assumed to be a car in this case). The first determining factor is the actual volume of persons who would be interested in the ferry service, as defined below:

- ▶ Potential persons who would be interested in the ferry service:
 - Visitors to the Service Area—Constrained to visitors arriving during the defined service period (mid-April to mid-October) and assumes 10 percent of such visitors would initially be interested in the service.
 - Residents of the Originating County—Assumes 5 percent of residents would initially be interested in the ferry service.

The next component is maintaining such interest through the following factors:

- ▶ Travel Time Impacts—While the ferry service is not designed to be a commuter route, but rather offer an opportunity to experience the Chesapeake Bay from the water, riders would still value their time and would be more interested in the ferry service if it provided a travel time savings over vehicle travel. In many cases, the ferry can offer a faster option, particularly for cross-bay connections.
- ▶ Weekly Frequency—Survey respondents indicated that they would be more interested in the service if it offered a higher weekly frequency as it provides greater travel flexibility.
- ▶ Daily Frequency—Survey respondents indicated that they would be more interested in the service if it offered a higher daily frequency as it provides greater travel flexibility.
- ▶ Cost of Service—Survey respondents indicated that they would be more likely to ride the ferry service with lower fares.
- ▶ Site Evaluation Rank—Potential riders would be more interested in locations with a higher site evaluation score, as discussed in Section 2.2.

- Use of Electric Ferry—Almost half of respondents indicated they would be more interested in the service if it was provided by an electric ferry.

Weighting the population and visitor volumes by these factors yields the estimated ridership shown in Table 5.⁴ Ridership is still estimated to be highest on Routes 1 and 2 due to the number of segments on each route and the larger vessels in use. However, these routes are anticipated to have the lowest capacity usage as several locations have fewer residents and visitors which may not fully support the 149-passenger load. Routes 4 and 6 are anticipated to run effectively at capacity in most instances. This is supported by a smaller vessel size (49 passenger catamaran) as well as twice daily service which provides greater flexibility to potential passengers. These routes also have some of the highest travel time savings with several saving more than one hour of travel time by ferry versus car.

Table 5. Estimated Annual Ridership of the Baseline System

Route	Ridership Forecast	Maximum Capacity	Percent of Max Capacity
1	87,311	194,764	45%
2	82,139	155,811	53%
3	28,930	38,430	75%
4	51,240	51,240	100%
5	16,249	25,620	63%
6	25,620	25,620	100%
Total	291,488	491,486	59%

The overall system is estimated to operate at a 59 percent capacity which is just under the “best” case scenario that is described in the financial model included in Section 5. **Since there are, on average, approximately six segments operated per route per day, the total ridership forecast presented above (almost 300,000) is six times higher than the total “typical round-trip” ridership forecast (50,000) presented in Section 5.**

⁴ Note that the factors included here are developed as dynamic inputs into the ridership estimating tool to allow for the ability to easily see how changes in particular inputs will impact the final ridership estimates.

4.0 SYSTEM INFRASTRUCTURE AND VESSEL REQUIREMENTS

The system vessel and infrastructure improvement requirements are based on market assessment and ridership estimates. Additionally, the market assessment survey included questions about desired amenities tourists would like on the vessels and at the stations. These form the basis for vessel and station requirements and costs.

4.1 ASSESSMENT OF VESSEL OPTIONS

This section describes the recommended minimum vessel technical and operating standards for a proposed fleet of passenger ferry vessels to serve the routes described above. The standards address the following subject areas:

- ▶ Required operational performance.
- ▶ Passenger experience.
- ▶ Passenger safety and access.

The proposed minimum standards were developed based on discussion with stakeholders.

REQUIRED OPERATIONAL PERFORMANCE

The above ridership estimates suggest this service can be provided by a mix of 149- and 49-passenger vessels. These are standard capacities that comply with the simplest U.S. Coast Guard requirements for passenger vessels. Exceeding 149 passengers increases the regulatory requirements the vessels must meet. It is anticipated the ferries will cruise at approximately 25 knots. This speed allows for reasonable travel times given the distance between ports.

The list below details the major requirements for a passenger vessel capable of making the above transits.

- ▶ Vessel Legal Requirements
 - Passenger Vessel Services Act Compliance per 46 U.S.C. § 55103
 - » U.S. Built
 - » U.S. Owned
 - ADA accessibility per U.S. Access Board, Passenger Vessel Access Advisory Committee
 - U.S. Coast Guard Subchapter T compliance per 46 CFR 175-187
- ▶ Crewing Requirements
 - One captain with one additional deckhand per deck.

- Crew cannot operate away from their home port for more than 12 hours. Routes requiring over 12 hours away from the vessel's home port will require two sets of crew. Time spent at the dock in a location other than the home port will count towards the 12 hours.

■ Suggested Operational Features

- Climate-controlled passenger space.
- 25 knot cruising speed.
- Maximum speed not to exceed 30 knots to avoid additional crewing requirements associated with high-speed vessels.

Routes and Travel Times

While routes and schedules have not been finalized, there is general agreement on the major ports of call desired for the ferry service. Table 6 through Table 11 show distances and transit times at 25 kts, with an additional 10 minutes added for maneuvering, docking, and undocking. The total time given at the bottom of each table represents time underway and does not include any time spent at each port of call.

Table 6. Baltimore–Annapolis–Matapeake–St. Michaels–Kent Narrows–Rock Hall

Route 1			Distance	Travel Time
Baltimore	to/from	Annapolis	31.2 nm	1 hr 25 min
Annapolis	to/from	Matapeake	9.2 nm	33 min
Matapeake	to/from	St. Michaels	20.3 nm	59 min
St. Michaels	to/from	Kent Narrows	11.7 nm	39 min
Kent Narrows	to/from	Rock Hall	10.0 nm	34 min
Total One-Way			82.4 nm	4 hr 10 min
Total Round-Trip			165 nm	8 hr 20 min

Table 7. Annapolis–Baltimore–Rock Hall–Kent Narrows–St. Michaels

Route 2			Distance	Travel Time
Annapolis	to/from	Baltimore	31.2 nm	1 hr 25 min
Baltimore	to/from	Rock Hall	18.8 nm	56 min
Rock Hall	to/from	Kent Narrows	10.0 nm	34 min
Kent Narrows	to/from	St. Michaels	11.7 nm	39 min
Total One-Way			71.7 nm	3 hr 34 min
Total Round-Trip			143 nm	7 hr 8 min

Table 8. Annapolis–Chesapeake Beach–Solomons Island–Crisfield

Route 3			Distance	Travel Time
Annapolis	to/from	Chesapeake Beach	18.9 nm	56 min
Chesapeake Beach	to/from	Solomons Island	27.8 nm	1 hr 17 min
Solomons Island	to/from	Crisfield	37.6 nm	1 hr 41 min
Total One-Way			84.3 nm	3 hr 54 min
Total Round-Trip			169 nm	7 hr 48 min

Table 9. Easton/Cambridge–Oxford–Chesapeake Beach

Route 4			Distance	Travel Time
Easton / Cambridge	to/from	Oxford	9.6 nm	34 min
Oxford	to/from	Chesapeake Beach	18.0 nm	54 min
Total One-Way			27.6 nm	1 hr 28 min
Total Round-Trip			55.2 nm	2 hr 56 min

Table 10. Solomons Island–St. Mary’s/Leonardtown-Crisfield

Route 5			Distance	Travel Time
Solomons Island	to or from	St. Mary’s City	34.8 nm	1 hr 34 min
St. Mary’s City*	to or from	Crisfield	37.1 nm	1 hr 40 min
Total One-Way			71.9 nm	3 hr 14 min
Total Round-Trip			144 nm	6 hr 28 min

* On days the vessel travels to Leonardtown, total round trip travel time would increase by 2 hours.

Table 11. Solomons Island–Cambridge

Route 6			Distance	Travel Time
Solomons Island	to/from	Cambridge	35.9 nm	1 hr 37 min
Total One-Way			35.9 nm	1 hr 37 min
Total Round-Trip			71.8 nm	3 hr 14 min

Environmental Conditions

Wave height data was collected from NOAA’s Chesapeake Bay Interpretive Buoy System for the following locations: Annapolis, Goose Reef, Potomac, and Stingray Point. Below, Table 12 shows the 95th and 99th percentile wave height seen at each buoy from April 15, 2023 through October 15, 2023. Below Table 12, Figure 3 shows the approximate locations of each buoy.

Table 12. Chesapeake Bay Wave Height History

Bouy	95% Wave Height (ft)	99% Wave Height (ft)
Annapolis	1.25	1.80
Goose Reef	2.46	3.84
Potomac	1.90	2.69
Stingray Point	2.95	3.94

Figure 3. NOAA Buoy Locations



Vessels that can operate comfortably at 25 knots in a sea state with 3-foot significant wave height would provide operational capabilities between 95 percent and 99 percent of the time. Vessel capability should exceed a 3-foot sea state to ensure safe, if uncomfortable, travel in unexpected inclement conditions.

Alternatively, sailings could be 'subject to weather conditions' and cancel or reschedule trips if weather conditions are unfavorable, with the definition of *unfavorable* left to future discretion. However, as a tourism-centered service likely relying on advanced reservations, the inability to guarantee sailings may be detrimental to ridership numbers.

PASSENGER EXPERIENCE

With almost all transit times exceeding 30 minutes, and some approaching two hours, it is important to prioritize a comfortable and enjoyable experience for customers. Ensuring that customers arrive at their destination alert and happy is vital to creating repeat customers and maximizing that tourist's economic impact.

Interior Cabin Space

With the possibility of low temperatures during the evenings and high temperatures often over 90 degrees Fahrenheit, the vessel must provide a suitable heated and air-conditioned space with shelter from the elements. Because of the length of many transits, the vessel must also provide comfortable seating for all passengers, including ADA-accessible seating, that is rated for high-speed vessels. The duration of the trips necessitates a functioning head on board. Based on a 49-passenger capacity, the vessel should have approximately 50 gallons of fresh water capacity and 100 gallons of black water capacity.

If interpretive services are desired, a quality audio system should be installed. Several video screens could be placed throughout the vessel to provide supplemental information or to provide automatic transcription services for deaf and hard-of-hearing passengers. Prioritizing a vessel that minimizes running noise and vibration is essential to facilitating quality interpretive services, as visitors must be able to comfortably hear the narration over the sound of the vessel.

Food and beverage (such as prepackaged snacks and beverages) could be provided onboard ferries utilizing a minimal amount of space and as an ancillary duty of a crew member.

Exterior Space

Exterior passenger space allows passengers to comfortably enjoy the transit and could enhance onboard interpretive services. Exterior passenger space on the roof of the main seating area will maximize the length of the vessel, but a second deck will require a second deckhand. An alternative is seating in front of or behind the main passenger cabin. Exterior seating forward of the main cabin will be exposed to wind but will have unobstructed views of the Bay. Seating behind the main cabin will offer the opposite tradeoff—significantly less wind exposure but poorer views.

PASSENGER SAFETY AND ACCESS

U.S. Code of Regulations Title 46, Chapter I, Subchapter T regulates small passenger vessels under 100 gross tons with fewer than 149 seats. It is recommended that any vessel chosen for the ferry service be subject to Subchapter T and be sufficiently inspected, certified, and licensed by the U.S. Coast Guard for safe operation at the intended capacity.

Operation during inclement weather is unavoidable due to the distances and durations of transits. Care should be taken to ensure the vessel chosen is safe in weather conditions exceeding the cut-off point for service. Customers should be aware that services may be delayed or canceled at any time due to unexpected inclement weather.

The United States Access Board has released an advisory report for passenger vessels, detailing ADA requirements for various types of passenger vessels for hire, including Subchapter T vessels. Any vessels chosen should comply with the requirements in this report.

4.2 VESSEL DESIGN

HULL TYPES

With the longest planned routes taking approximately one and a half hours and transiting relatively exposed waters, vessel motions are a critical part of the passenger experience. Given the required cruising speed of approximately 25 knots, a catamaran design will offer better passenger comfort than a high-speed monohull. Catamarans are generally more stable than monohulls as well as more fuel efficient in the desired speed range than a monohull vessel of similar size operating at the same speed. Catamarans may be fitted with a foil between the two hulls that supports 40–50 percent of the total vessel weight. These foil-assisted catamarans offer further improvement in ride quality and efficiency. Foil-assisted catamarans are a mature technology in use on many vessels ranging from 40 feet to over 200 feet in length. Figure 4 presents examples of 49- and 149-passenger catamarans.

Fully foiling vessels entirely isolate passengers from wave-induced motions, and may be a draw for tourists by itself as a novel technology. Hull shape is of less importance since the vessel will operate with the hull out of the water during the majority of the transit. While the technology itself is mature, the complexity, risk associated with damage to the foils, and higher purchase cost mean that it is not a widely available option. However, the technology should be considered based on the significant benefits if an option is available that meets the needs outlined above. Fully foiling electric vessels are still nascent and do not yet meet the needs of the system.

Figure 4. Illustration of 49- and 149-Passenger Ferry Vessels



49-Passenger Vessel



149-Passenger Vessel

PROPULSION SYSTEM

The choice of propulsion system will have an important impact on both the running characteristics and the ridership experience. At the 49-passenger size, there are several conventional solutions. Several high-horsepower gas-powered outboard engines could power the vessel. Inboard diesel engine(s) could directly drive either a jet pump or a standard propellor, or they could power generators in a series-hybrid configuration.

Outboard technology has improved significantly in the past two decades. Modern large commercial-grade outboards can be packaged to easily power a 49-passenger vessel at the speeds required for this use. They are generally lower cost than inboard diesel engines, offer improved noise and vibration compared to inboard diesel engines, and can be more easily maintained by removing them from the vessel for service. These benefits come with a fuel-efficiency penalty, and the recommended vessel is at the upper limit of what is feasible.

Modern inboard diesel engines are a reliable, efficient, and mature technology. They offer superior fuel economy when compared to gasoline-powered outboards. Diesel is not explosive, simplifying the fuel system. Marine diesel is readily available and standard vessel designs can easily offer the range required for this use case. Jet pumps can offer improved efficiency at high speed with decreased draft compared to externally mounted propellers.

Inboard diesels can also be paired with onboard batteries to offer a hybrid powerplant that runs on battery power when docked or cruising at low speed. A series hybrid allows diesel engines to run at peak efficiency a higher percentage of the time, and can easily scale 'how' hybrid the vessel is, offering increased range and use of all-electric power proportional to the capacity of batteries on board. This is a comparatively new technology that will offer fuel savings at an increased purchase cost. Use of this technology may offer a 'novelty' boost to tourism similar to an all-electric vessel.

There are solutions beyond diesel or gasoline power. Battery electric vessels in this size class exist but struggle to meet the range requirements outlined above. A vessel with a 40-nautical mile range could operate on Route 1 or possibly Route 5 if there was an opportunity to charge in both locations serviced by those routes. Charge times may be prohibitive depending on the schedule, and charging infrastructure would need to be constructed. Another significant hurdle to electric vessels is the Passenger Vessel Services Act's requirement that any vessel transporting passengers between U.S. ports must be built in the United States. At this time, no electric ferry capable of the speed and range requirements for this project has been built in the U.S., although that may change in the future depending on demand. Commercial interest in other alternative fuels like ammonia, methanol, or hydrogen at this scale is nascent or non-existent, requiring a ground-up design and a significant price premium.

4.3 DEFINITION OF STATION REQUIREMENTS

Each of the 14 Baseline System cities will require similar features to support the ferries and passengers. These requirements and amenities are based on an initial start-up system and are intended to be expandable as the system ridership grows. Station amenities must include ADA considerations to provide an enjoyable experience for all passengers. The station requirements include the following areas:

- ▶ Pier infrastructure
- ▶ Terminal building
- ▶ Restrooms
- ▶ Local Transit

PIER INFRASTRUCTURE

Each of the destination locations have a pier likely suitable for the ferry operations. Minimal improvements will be needed at all locations to support loading and unloading passengers. Items may include ramps, storage, and signage. Any improvements will require the pier owners' approval and should be written into a lease or other use agreement. Ramps should be small, lightweight, and enable safe loading for ADA passengers. As visitation to each site grows the pier improvements are likely to increase and could include the addition of floats, permanent mooring, shore power, and ticketing kiosk or booth.

TERMINAL AREA

A covered terminal area is necessary to provide shade and seating for passengers waiting for the next ferry. Ideally, the terminal area is located within 100 ft of the pier loading area and has visual sight line between the two. During the start up the terminal area need not exceed 1,000 square feet for ports with 49 passenger boat services and 3,000 square feet for ports with 149 passenger boat service. As visitation to each site grows the covered terminal areas could be improved to provide better shelter and better amenities such as A/C and restrooms.

RESTROOMS

Restrooms are a key feature tourists want readily available to them while waiting for their ferry. They are expensive to construct requiring power, potable water, and sanitation lines, which may not currently be available at each port. Additionally, the operational, maintenance, and cleaning costs are not insignificant. With that said, local shops, cafes, and other businesses can support tourists by providing restroom facilities as they visit their communities. Agreements with local business should be put in place to allow ferry passengers to use their restroom facilities. As stated above, as visitation to each site grows a dedicated restroom for ferry passengers could be constructed.

LOCAL TRANSIT

While many attractions are located right near the likely terminal sites, it is imperative to provide local transit options for both those originating and visiting each location. Local transit will vary by each location, but should consider multiple modes of transportation including walking, biking, mass transit, and personal vehicles. Below are a few items to consider when developing transit:

- ▶ Walkable, ADA accessible, access to terminal from local destinations and transit stops
- ▶ Parking directly adjacent to terminal
- ▶ Park and ride facilities with shuttle service at departure and arrival times
- ▶ Traffic features to support adjust traffic patterns to support terminal access

Though each site is unique, all will require transit improvements which will depend heavily on terminal location and existing roadways, sidewalks, transit options, and other infrastructure. Access to parking facilities and transit will require periodic review as ridership increases at each location.

4.4 ESTIMATE OF CAPITAL INVESTMENTS

The capital investment will vary drastically based on the ridership, terminal locations, and existing infrastructure. The intent of this section is to outline the costs of the Baseline System including the recommended features and any assumptions.

VESSEL

There are several vessel options to meet the needs of the Baseline System. The costs of the ferries will depend on whether the operator has existing vessels which meet the needs or if new or used ferries are purchased. The range of costs below are generic but represent a vessel capable of conducting the service with the suggested features listed above. As a rule of thumb, a lower cost used vessel will require more refurbishment. Refurbishment work can range anywhere from simply repainting the vessel to a full repower, rebuild of the interior space, and

replacement of most or all major systems. Table 13 provides estimates of new and used vessel costs for 49- and 149-passenger vessels.

Table 13. Estimated Ferry Vessel Cost by Size, New and Used

Vessel	Initial Purchase Price	Refurbishment Cost	Total Purchase Price
New 49-passenger	Low: \$2 million High: \$3.5 million	\$0, built to order	Low: \$2 million High: \$3.5 million
Used 49-passenger	Low: \$250 thousand High: \$1.5 million	High: \$500 thousand Low: \$30 thousand	Low: \$750 thousand High: \$1.5 million
New 149-passenger	Low: \$6 million High: \$11 million	\$0, built to order	Low: \$6 million High: \$11 million
Used 149-passenger	Low: \$500 thousand High: \$8 million	High: \$2 million Low: \$50 thousand	Low: \$2.5 million High: \$8 million

STATION

Each station location will require different upgrades to serve similar purposes. The scope of this study is focused on the feasibility of the system and not the nuances of existing infrastructure at each station location. As such, the rough order of magnitude costs presented are based on a menu of options and the following assumptions.

Each station has an existing pier but will require a simple ramp system to support the loading and unloading of passengers. The ramp designs will vary based on the vessel and each pier construction. The cost of the ramp systems is estimated at approximately \$10,000 for each location.

A covered terminal area will be provided at each site. It is estimated to cost approximately \$150 per square foot to construct. The size of the structure will vary based on the vessel serving the site. Sites with 149 passenger vessel services functioning as a main hub will require a 3,000 square foot covered structure and cost \$450,000 and sites with 49 passenger vessel services or sites with 149 passenger vessel services not functioning as a main hub will require 1,000 square foot structure and cost \$150,000. It is assumed local business will provide passengers access to restrooms facilities, and therefore no capital costs are included.

Local transit capital improvements are estimated assuming a parking lot is required adjunct to the terminal or relatively nearby with a shuttle service. Some sites have existing parking lots near likely terminal locations. In this case the costs are for improvements and potential purchase or lease options. The cost of parking was developed based on the number of spots estimated by passenger capacity of the vessels serving the location. Parking requirements for each site are to be based on requirements at each location which are determined by local preferences and transit capabilities. For the purpose of developing a rough estimate, sites with 149 passenger vessel services functioning as a main hub are estimated to require 100 spots for a cost of \$210,000 and sites with 49 passenger vessel services or sites with 149 passenger vessel services not functioning as a main hub are estimated to require 50 spots and cost \$120,000.

The capital costs to improve the surrounding infrastructure are purposefully minimal to allow the system to grow as ridership increases. Additionally, the limited infrastructure reduces the overall operations and maintenance of the system. Each terminal site must utilize its own local development and planning processes to determine the detail, character, and extent of the shore infrastructure needed to support a successful system. Table 14 provides a summary of the estimated capital costs for each location.

Table 14. Station Development Capital Costs

Terminal	Vessel (PAX)	Ramp System First Cost	Building Reno or New First Cost	Transit Support First Cost	Total First Cost
Baltimore	149	\$10,000	\$450,000	\$210,000	\$670,000
Annapolis	149	\$10,000	\$450,000	\$210,000	\$670,000
Chesapeake Beach	49	\$10,000	\$150,000	\$210,000	\$370,000
Solomons	49	\$10,000	\$150,000	\$120,000	\$280,000
St. Mary's City	49	\$10,000	\$150,000	\$120,000	\$280,000
Leonardtown	49	\$10,000	\$150,000	\$120,000	\$280,000
Crisfield	49	\$10,000	\$150,000	\$120,000	\$280,000
Cambridge	49	\$10,000	\$150,000	\$120,000	\$280,000
Oxford	49	\$10,000	\$150,000	\$120,000	\$280,000
Easton	49	\$10,000	\$150,000	\$120,000	\$280,000
St. Michaels	49	\$10,000	\$150,000	\$120,000	\$280,000
Matapeake	49	\$10,000	\$150,000	\$120,000	\$280,000
Kent Narrows	49	\$10,000	\$150,000	\$120,000	\$280,000
Rock Hall	49	\$10,000	\$150,000	\$120,000	\$280,000
Totals		\$140,000	\$2,700,000	\$1,950,000	\$4,790,000

It is recommended to revisit the capital costs required as this project moves forward and adjust according to the project objectives and city plans. For example, Annapolis is considered the system hub and could quickly outgrow the infrastructure improvements outlined above. As the hub, it could support a full-scale terminal building estimated to cost in excess of \$1,500,000 and require full-time staffing. This facility along with the necessary parking could be part of the ongoing renovations. Similarly, Solomons Island, Crisfield, and Leonardtown could serve as southern hubs requiring additional infrastructure investments.

4.5 SUMMARY OF REQUIREMENTS

The system vessel and infrastructure improvement requirements are based on market assessment and ridership estimates. Below is a summary of the vessel and station features.

VESSEL FEATURES

Table of Requirements

Regulatory Compliance	Passenger Vessel Services Act USCG Subchapter T ADA Passenger Vessel Guidance
Crewing	One Captain One Deckhand per deck
Speed	25 knot cruise, below 30 knot top speed
Range	230 nm range minimum

Suggested Vessel Features

Passenger Capacity	49	149
Length	50-55'	60-65'
Beam	15-18'	17-20'
Draft	3-4'	4-6'
Hull	Catamaran, possibly foil-assisted	
Powerplant	Diesel or Diesel electric Hybrid	
Layout	Single Deck Outside Covered Seating Aft of Cabin Single Restroom in Cabin	
Additional Options	Interpretive services Concessions	

STATION FEATURES

Each site will require similar features to support the ferries and passengers. Station amenities must include ADA considerations to provide an enjoyable experience for all passengers. The station requirements include the following areas:

- Pier infrastructure: including ramps, storage, and signage.
- Terminal building: covered area providing shade and shelter to passengers.
- Restrooms: local businesses to support.
- Local Transit: including walking paths, parking lots, and traffic features (crosswalks, lights, etc.).

5.0 ECONOMIC IMPACTS AND FINANCIAL ANALYSIS OF BASELINE SYSTEM

5.1 FINANCIAL ANALYSIS OF BASELINE SYSTEM

The baseline financial model developed for the ferry system is built upon the framework of the baseline route map and example schedule presented earlier in this report. It consists of six defined routes based on the selection criteria scoring matrix and consultation with the consortium.

These routes include the following, as initially described in Section 2:

- ▶ **Route 1: Baltimore-Annapolis-Matapeake-St. Michaels-Kent Narrows-Rock Hall (return)**
- ▶ **Route 2: Annapolis-Baltimore-Rock Hall-Kent Narrows-St. Michaels (return)**
- ▶ **Route 3: Annapolis-Chesapeake Beach-Solomons-Crisfield (return)**
- ▶ **Route 4: Easton/Cambridge-Oxford-Chesapeake Beach (return) (2x/day)**
- ▶ **Route 5: Solomons-St. Mary's City/Leonardtown-Crisfield (return)**
- ▶ **Route 6: Solomons-Cambridge (return) (2x/day)**

Ridership estimates and average fares in the model are based upon anticipated utilization patterns (typical day trips that passengers might take), as compared to adding up the potential ridership on each segment of each route.

Note that the results in the model and the preliminary results presented here assume the full Baseline System operates in the first year. However, the system may grow organically (a few routes at a time).

PROJECTIONS

The model presents projected ridership estimates, projected revenues and direct expenses on a route-by-route and a systemwide basis.

Since revenue and direct expenses are projected separately for each route, the profitability of different routes can be compared to understand which may be relatively attractive to potential operators (and therefore which routes may begin operating first).

ASSUMPTIONS

The base financial projections assume that the ferry system is operated by a private company that does not operate other services, and the model includes all expenses the operator would incur.

Results are first presented given this assumption, and then possible adjustments to expenses are discussed if the routes are run by existing operators and/or if the operator partners with governments or local agencies to reduce certain expenses. The implications for governance options are discussed in Section 6.

OPERATING SEASON

The baseline model assumes that each route operates five days per week. As reported by existing boat tour operators, Thursday through Monday are the busiest days of the week. This five-day schedule would allow boat crews on each route (each ferry vessel) to work full-time.

The baseline operating season in the model is 26 weeks, assumed to be mid-April through mid-October. Multiplying 26 weeks by five operating days per week, there would be 130 operating days for each route.

RIDERSHIP FORECASTS

Segment-by-segment ridership forecasts showed that potential ridership could significantly exceed vessel capacity on certain segments, but demand could remain well below capacity on others. This finding indicated the need to balance potential demand with reasonable initial investments in appropriate-sized vessels. Table 15 provides an example of the demand to capacity ratio for the segments included in Route 1.

Table 15. Route #1 Demand to Capacity Ratio by Segment

Segment	Ratio of Potential Demand to Capacity
Baltimore-Annapolis	1.6
Annapolis-Matapeake	0.4
Matapeake-St. Michaels	0.3
St. Michaels-Kent Narrows	0.1
Kent Narrows-Rock Hall	0.1

REVISED VESSEL ASSUMPTIONS

Vessel assumptions were revised based on a review of potential route frequencies and capacity ratios from the initial ridership forecast workbook.

The analysis indicated that relatively larger, 149-passenger vessels would better match potential demand on Routes 1 and 2, while relatively smaller, 49-passenger vessels would better match potential demand on the other four routes. In addition, at least one 49-passenger backup vessel would likely be necessary.

PROJECTED ANNUAL ROUND TRIP CAPACITY BY ROUTE

For Routes 1 and 2, a 149-passenger vessel was assumed with one round trip per day. Multiplying this by 130 operating days per year, projected annual round-trip capacity for each of these routes is 19,370.

For routes 3 and 5, a 49-passenger vessel was assumed with one round trip per day. Multiplying this by 130 operating days per year, projected annual round-trip capacity for each of these routes is 6,370.

For routes 4 and 6, a 49-passenger vessel was assumed with two round trips per day. Multiplying this by 130 operating days per year, projected annual round-trip capacity for each of these routes is 12,740. Summing the totals for each route, total annual round-trip capacity is 76,960 as shown in Table 16.⁵

Table 16. Round Trip Route Capacity

Route	Round Trip Capacity
1	19,370
2	19,370
3	6,370
4	12,740
5	6,370
6	12,740
Total	76,960

CAPACITY (LOAD) FACTORS

There are significant variations in passenger demand by day of week and by month, as reported by existing ferry and boat tour operators. Peak demand occurs on Saturdays, tapers off somewhat on Fridays and Sundays, and may be significantly lower on Thursdays and Mondays. Similarly, June, July and August represent the busiest months for boat tour operators, with shoulder season demand in May and September, and relatively low demand in late April and early October.

Given these daily, weekly, and monthly variations in demand, achieving 100 percent load factors (full capacity) is not realistically attainable throughout the season. While many boats will sell out during periods of peak demand (for example, Saturdays in July), there will also be boats that go out at very low load factors (likely in the 10 percent to 30 percent range).

⁵ Note that these values differ from the capacities presented in Section 3 as they only reflect the capacity of the entire route, rather than a build up by segment.

Given these considerations, the model includes a wide range of potential load factors for each route. The “Best” assumption is that load factors will be in the 67 percent range.⁶ The “High” end of the range is a 100 percent load factor, and the “Low” assumption is 33 percent.

PROJECTED RIDERSHIP BY CAPACITY FACTOR

Table 17 presents a projected range of potential ridership for each route and for the system as a whole, assuming the High, Best, and Low assumptions about utilization.

Table 17. Ridership by Route, by Scenario

Route	High (100%) (Capacity)	“Best” (67%) Projection	“Low” (33%) Projection
1	19,370	12,978	6,392
2	19,370	12,978	6,392
3	6,370	4,268	2,102
4	12,740	8,536	4,204
5	6,370	4,268	2,102
6	12,740	8,536	4,204
Total	76,960	51,563	25,397

COMPARATIVE RIDERSHIP DATA

To determine whether projected ridership ranges are realistic, data provided by several of the local operators was reviewed. These included Baltimore Water Taxi, Patriot Cruises (now owned by Chesapeake Bay Maritime Museum), City Cruises, Chesapeake City Tours, and Watermark. While operator-specific data is confidential, the range of ridership numbers projected for the Baseline System was in line with the number of passengers some of these operators carry over the course of a year for their boat tours and special event cruises.

FARE ASSUMPTIONS

A fare survey of other ferries and boat tours throughout the country indicated an average adult fare of around \$20 per hour on water (equivalent to \$1 per mile at an average speed of 20 knots). Appendix C provides a detailed overview of this survey. The stakeholder survey conducted as part of this study indicated a greater willingness to ride the ferry at a lower average fare (around \$10 per hour on water, or \$0.50 per mile traveled).

Based on these survey results, and for the purposes of utilizing round numbers, adult fares up to \$1 per mile traveled (equivalent to \$20 per hour on water at an average speed of 20 knots) were modeled. The model’s baseline assumption is an adult fare of \$10 per hour on water.

⁶ The 67 percent load factor is within range of the aforementioned forecast analysis presented in Section 3 which determined a 59 percent load factor at the segment level. Actual ridership of a working system would be anticipated to have a similar range based on final scheduling, and other considerations.

Also based on the fare survey, the consultant team recommends child discounts in the 50 percent range (in order to encourage family ridership), and senior and military discounts in the 20 percent range.

PROJECTED AVERAGE ROUND TRIP FARES BY ROUTE

Table 18 provides the average roundtrip fare for each route based on the \$10 per hour rate. The fares are general averages across all of the potential destination pairs on each of the routes. For example, an Annapolis to Kent Narrows fare would be higher than an Annapolis to Matapeake fare (both components of Route 2), given the longer distance and time involved, but the average round trip fare across all Route 2 destination pairs would be in the \$50 range.

These averages take into account the distance (and time) between various destinations on each route, as well as expected relative demand for different destinations.

Table 18. Average Round Trip Fare by Route

Route	Average Roundtrip Fare
1	\$50.00
2	\$50.00
3	\$60.00
4	\$35.00
5	\$40.00
6	\$40.00

PROJECTED YEAR 1 REVENUE BY ROUTE (BEST ESTIMATE)

Based on the "best" (67 percent load factor) ridership estimates, and assuming an average adult fare of \$10 per hour on water, the Year 1 revenue projections by route are shown in Table 19.

Table 19. Projected Year 1 Revenue by Route

Route	Year 1 Revenue (Best Ridership Estimate)
1	\$649,000
2	\$649,000
3	\$256,000
4	\$299,000
5	\$171,000
6	\$341,000
TOTAL	\$2,365,000

Projected Year 1 revenue assuming the "Low" ridership projection is \$1.2 million, and assuming the "High" ridership projection is \$3.5 million.

POTENTIAL FOOD & BEVERAGE REVENUE

Average onboard food & beverage revenue per passenger is estimated at \$2.00. This assumes that approximately 20 percent of passengers purchase food items on board at an average transaction amount of \$10. Food and beverage revenue is estimated at approximately \$103,000 annually assuming the midpoint ridership estimate.

With an estimated cost of sales for packaged food items of 50 percent and no assumed additional labor expense (food sales are assumed to be an ancillary duty of a deckhand), the food and beverage revenue assumption has a very marginal impact to the projected bottom line.

KEY EXPENSES

Onboard Labor Expense

Given the example baseline schedule, each vessel would operate a schedule ranging from seven hours to nine hours per day. With a five day per week operating schedule, all onboard crew could potentially work full-time (approximately 40 hours per week).

For 149-passenger vessels, one captain and two deckhands per vessel are assumed. For 49-passenger vessels, one captain and one deckhand per vessel are assumed.

Fully loaded wage rates of \$60 per hour for captains and \$30 per hour for deckhands were assumed, which is at the upper end of ranges of wages paid for these positions, adjusted for inflation.

Terminal Labor Expense

For terminal labor expense, one staff member available at each terminal at least one hour prior to vessel departures was assumed. An average of four labor hours per day at each terminal (some terminals would have more labor hours, some less depending on the daily schedule) was assumed. At an estimated \$25 per hour wage rate and the 14 terminals in the baseline, estimated Year 1 expense for terminal labor is in the \$200,000 range.

Fuel Expense

For 149-passenger ferries, relatively efficient vessels were assumed with average fuel consumption of 80 gallons per hour at an average speed of 20 knots. For 49-passenger vessels, average fuel consumption was assumed to be 30 gallons per hour. Average fuel price in the model is \$5 per gallon.

Repair and Maintenance Expense (Annual Averages)

Projected annual average repair and maintenance expenses broken down by category and by vessel size are presented in Table 20.

Table 20. Repair and Maintenance Expense by Vessel Size

Category	49 Pax Vessel	149 Pax Vessel
Hull, Deck Paint	\$5,000	\$15,000
Structural	\$10,000	\$20,000
Passenger Area	\$1,200	\$2,400
Propulsion	\$20,800	\$52,000
Haul-Out/Drydock	\$8,000	\$18,000
Comm/Nav System	\$2,400	\$4,800
Coast Guard Inspection	\$5,000	\$12,000
Unplanned	\$12,000	\$24,000
Safety Equipment	\$2,400	\$6,000
TOTAL	\$66,800	\$154,200

General & Administrative Expenses

Table 21 presents an estimate of General and Administrative expenses attributable to the Chesapeake Bay ferry system if a stand-alone, private ferry company (with no other operations) were to operate the system.

Table 21. Estimated General and Administrative Expenses for a Private, Stand-Alone Operator

Line Item	Estimate
Administrative Salaries	\$425,000
Credit Card Charges	\$62,000 (2.5%)
Office Expense/Utilities	\$50,000
Internet & Telecom.	\$50,000
Legal Fees	\$25,000
Security	\$25,000
Accounting & Audit	\$20,000
Advertising & Promotion	\$200,000
TOTAL	\$857,000

VESSEL COST RANGES

Estimates were developed for vessel acquisition costs for both new and used vessels as described in Section 4 of this report. Costs to refurbish and upgrade used vessels to prepare them for ferry use were also developed. These costs are summarized again in Table 22.

Table 22. Vessel Capital Cost by Size, New and Used

Type	Purchase Price	Refurbishment Cost	Total Cost
New 49	\$2M-\$3.5M	\$0	\$2M-\$3.5M
Used 49	\$250K-\$1.5M	\$30K-\$500K	\$750K-\$1.5M
New 149	\$5M-\$10M	\$0	\$5M-\$10M
Used 149	\$500K-\$8M	\$50K-\$2M	\$2M-\$9M

The estimated total cost range for each used 49-passenger vessel is \$750,000 to \$1.5 million, while the estimated total cost range for each new 49-passenger vessel is \$2 million to \$3.5 million. The estimated total cost range for each used 149-passenger vessel is \$2 million to \$9 million, while the estimated total cost range for each new 149-passenger vessel is \$5 million to \$10 million. Note, for the used vessel costs, the low purchase cost assumes the higher refurbishment cost and the higher purchase cost assumes the lower refurbishment cost based on assumed condition of vessels. New vessels are assumed to be delivered with no modifications needed.

Assuming two 149-passenger vessels and five 49-passenger vessels in the initial fleet, the total cost of the seven-vessel fleet could range from approximately \$8 million (for all used vessels) to \$37 million (for all new, high-end vessels). An analysis was conducted to determine an equivalent annual amortized vessel cost for a used, seven vessel fleet (given assumptions about acquisition cost, depreciation, and taxes). The equivalent annual vessel cost for an \$8 million fleet was determined to be in the \$1 million range. In other words, the acquisition of an \$8 million fleet could alternatively be modeled as an annual lease cost of around \$1 million in order to analyze the annual profit and loss statement.

FIXED EXPENSES

Key fixed expenses included in the model include costs for docking and moorage as well as winter storage (assumed to be around \$120,000 annually) and insurance expense (around \$250,000 annually including hull insurance and liability insurance). The estimated amortized vessel cost was also included within the projection of fixed expenses.

SUMMARY INCOME STATEMENT

Table 23 summarizes the prospective first-year profit and loss statement for the ferry operations, given the revenue and expense assumptions described above.

Table 23. Summary Income Statement

Item	Estimate
Revenue (incl. F&B)	\$2,468,000
Cost of Sales (F&B)	\$52,000
Direct Expenses	\$2,785,000
G&A Expenses	\$857,000
Fixed Expenses	\$1,275,000
Pre-Tax Income (Loss)	(\$2,500,000)

As the table shows, given the base assumptions, there is a projected Year 1 loss of approximately \$2.5 million.

REVENUE ADJUSTMENTS

Projected system profitability would improve assuming certain revenue adjustments.

Ridership: The “High” ridership projection (100 percent utilization) would increase system revenue by over \$1 million without increasing expenses. However, full utilization is unrealistic given the variations in demand described previously. The system operator is expected to make ongoing adjustments to routes to increase overall system utilization.

Fares: If adult passenger fares per hour on water were closer to the national average of \$20/hour based on the fare review, and ridership were not impacted, potential revenue would double (increase by around \$2.4 million) and the system would be near break-even. However, many routes in the Baseline System are longer than the routes considered in the fare review. Since average fare per hour tends to decline as trip length increases, it is more appropriate to assume the lower (\$10/hour) average fare per hour figure for the Baseline System. Nevertheless, ferry operators are assumed to have the ability to develop pricing structures that make sense for each route and different segments within routes.

EXPENSE ADJUSTMENTS

Since most ticketing is assumed to be done online and fares can be collected/verified onboard vessels, terminal labor may not be necessary in many cases (**potential annual savings: up to \$200,000**).

If operation of ferry routes are folded into existing boat tour/ferry operators’ systems, most projected administrative expenses could be significantly reduced (**potential annual savings: up to \$600,000**).

Projected advertising expense could be reduced significantly if partner organizations commit to assist with marketing (**potential annual savings: up to \$200,000**).

The assumed amortized vessel expense could be reduced or eliminated if partner organizations assist with vessel acquisition costs through grants or other means (**potential annual savings: up to \$1 million**).

SUMMARY OF RESULTS AND POTENTIAL ADJUSTMENTS

The pre-tax operating loss for the baseline system is estimated at \$2.5 million assuming a stand-alone operator responsible for all expenses (including amortized vessel cost, all G&A, and terminal labor expense).

However, there would be significant annual expense savings as compared to the baseline assumptions if ferry routes were operated by existing operators, and if partner organizations contributed marketing assistance and grant assistance. These savings could total around \$1.8 million annually according to the estimates.

Potential revenue improvements would be possible through increased ridership and/or fares, realistically totaling in the \$1.0 to \$1.5 million range.

These results indicate that assistance from partner organizations will be key to developing an attractive business model for the ferry system.

5.2 BENEFIT COST ANALYSIS OF BASELINE SYSTEM

The benefit cost analysis (BCA) of the baseline system is developed in line with guidance from the U.S. Department of Transportation (U.S. DOT). Annually, the U.S. DOT publishes new guidance on developing a BCA, with the most recent version updated in December 2023.⁷ Guidance on how to calculate the benefits of the following categories is included in this document:

- ▶ Safety
- ▶ Travel Time
- ▶ Operating Cost
- ▶ Emissions Reduction
- ▶ Facility and Vehicle Amenity
- ▶ Health

Note that these benefits differ from the economic impact benefits, detailed in Section 5.3, in that they are primarily focused on transportation-related benefits rather than community benefits such as an increase in taxes collected, an increase in restaurant and commercial spending, or an increase in hotel spending. However, this is in line with expectations for BCA submissions for Federal grants and this methodology should be used for future potential grant submissions.

Note that this analysis caps benefits for a 20 year period with the assumption that after this time period newer vessels would need to be purchased. In addition, this assumes no increase in service or ridership in this time period. A higher occupancy on an existing system would further increase the benefits of this system.

SAFETY BENEFITS

Safety benefits are determined based on a reduction in the likelihood of fatalities, injuries, and property damage that result from vehicular crashes. Diverting ridership to the ferry system instead of the roadway system will reduce vehicle miles traveled (VMT) on the roadway. While ferries are not without their hazards, they offer a safer mode of transportation than by personal vehicle. The most recent and/or significant ferry accidents include the following:

⁷ *Benefit-Cost Analysis Guidance for Discretionary Grant Programs*. U.S. DOT. December 2023.
<https://www.transportation.gov/mission/office-secretary/office-policy/transportation-policy/benefit-cost-analysis-guidance>

- ▶ Fisher Island Ferry (Miami, 2023)—One fatality and one injury after a boat collided with the ferry
- ▶ Washington State Ferry (Seattle, 2022)—One minor injury, \$10 million damage to the ferry, and \$300,000 damage to a pylon.
- ▶ NYC Ferry (New York City, 2021)—No injuries and only minor damage.
- ▶ Port Imperial Ferry (New York City, 2013)—85 injuries.
- ▶ Staten Island Ferry (New York, 2010)—50 injuries.⁸

Due to the relatively infrequent nature of such accidents, comparable crash data is not available. As such, this analysis only determines the safety benefits associated with removing vehicles from the roadway in favor of ferry travel. Based on data from ZeroDeathsMaryland, the Maryland Department of Transportation, and FHWA, it is expected that there would be 2 fewer fatal crashes, 123 fewer injury crashes, and 328 fewer property damage only crashes on Maryland’s roadways. This amounts to a monetized nominal value of \$71.5 million over the 20 year life span.

TRAVEL TIME

Travel time savings are derived by the change in travel time associated with the ferry system. While some routes may take slightly longer by ferry than by car, the proposed ferry system can save more than an hour on some routes, particularly those across the Bay. In many cases, passengers may prefer the ferry in spite of longer travel times, which is accounted for in the initial ridership forecast calculation. As such, not all routes will provide travel time savings for their passengers. However, as a whole, the entire network would save the estimated passengers approximately 90,000 hours per year in travel time. Using the FHWA value of \$17.90 per hour for personal travel, this amounts to savings of \$1.6 million per year, or \$40.5 million over the 20 year project life.

OPERATING COST

Operating costs include the net change in operating vehicles for the proposed connections versus the operation of the ferry vessel. The operation of the ferry vessel is already included in the ferry system costs and revenue (described in a lower section) so the calculation here is only for the reduction in passenger vehicle miles traveled. The recommended value per mile from FHWA is \$0.52. Applying this to the reduction of 9.4 million vehicle miles avoided by taking the ferry instead, this amounts to a benefit of nearly \$4.9 million per year. Over the life of the project this amounts to \$122 million.

EMISSIONS REDUCTION

Emissions reduction benefits are determined based on lowering emissions of air pollutants that result from the combustion of transportation fuels. Emission rates are not readily available for ferry operations and emissions calculations for personal vehicle travel are less direct than the other benefits. For example, emissions vary based on travel speed, which similarly varies between each segment. To simplify future updates to the benefits calculation, these are not included here. Generally speaking, emissions reductions are typically the smallest benefit category and would therefore have minimal impact on the final benefit calculation. However, if electric ferry vessels

⁸ *America’s History of Ferry Accidents & What You Need to Know.* Arnold & Itkin.
<https://www.arnolditkin.com/blog/maritime/america-s-history-of-ferry-accidents-what-you-ne/>

are deemed viable in the future, this should be further explored to support the purchase and operation of those vessels.

OTHER BENEFITS

U.S. DOT provides guidance on other types of benefits, however, many of these cannot be calculated for the proposed ferry system as there is not data to support them. Should the system begin operations and seek additional Federal funding, the following types of data should be collected to strengthen the BCA calculation.

- ▶ Pedestrian Facilities
- ▶ Cycling Facilities
- ▶ Transit System, Facility, and Vehicle Amenities
- ▶ Reduced Facility and Vehicle Crowding
- ▶ Reduced Passenger Transfers
- ▶ Health Benefits
- ▶ Agglomeration Economies and Land Use
- ▶ Noise Pollution
- ▶ Temporary Loss of Emergency Services
- ▶ Stormwater Runoff
- ▶ Wildlife Impacts
- ▶ Repurposed Right-of-Way

FERRY SYSTEM COSTS & REVENUE

In regard to upfront costs (i.e., terminal development and vessel procurement), ongoing maintenance and operations costs, and expected revenue, only the upfront costs are considered “costs” in this ratio while the remainder are included as benefits (or disbenefits in the case of negative revenue compared to ongoing maintenance).

For vessel procurement, the “average” value of a used vessel as described in Section 4.4 was utilized to assume the purchase of two 149-passenger vessels and five 49-passenger vessels (one as a back-up). Additional upfront costs include the development of terminals, also detailed in Section 4.4. In total, these costs equate to a start-up cost of \$20.9 million.

The summary of expected revenue (from ticket fares and food and beverage sales) and the expected operations and maintenance costs (including vessel maintenance, crewing, etc.) is as previously described in Section 5.1. Losses are expected to amount to \$2.5 million per year, which is reflected as a disbenefit.

FINAL BENEFIT COST RATIO

A summary of the benefits and costs is presented in Table 24. As recommended by FHWA, values are discounted at a 3.1 percent rate. Total discounted benefits amount to \$111 million while final costs are discounted to \$19 million, resulting in a benefit cost ratio of 5.8. This is a strong ratio which suggests that the system would provide significant benefits to the state of Maryland, its residents, and its visitors. It also suggests some flexibility to reduce benefits assumptions and/or increase costs but still maintain a positive project benefit.

Table 24. Summary of Benefit Cost Ratio

Category	Discounted Value (\$2022)	Nominal Value (\$2022)
Safety Benefits	\$46,323,356	\$71,483,616
Travel Time Benefits	\$26,263,256	\$40,527,990
Vehicle Operating Costs Benefits	\$79,199,785	\$122,216,684
Revenue and Operations Benefits	(\$40,517,926)	(\$62,525,000)
Total Benefits	\$111,268,472	\$171,703,289
Total Costs	\$19,084,548	\$20,915,000
Benefit Cost Ratio	5.8	8.2

5.3 POTENTIAL ECONOMIC IMPACTS OF BASELINE SYSTEM

IMPLAN economic modeling software was used to estimate the impact of potential ferry passenger spending in local communities and the regional economy.

The aggregate economic model includes all counties with destinations in the Baseline System: Anne Arundel, Baltimore City, Calvert, Dorchester, Kent, Queen Anne’s, St. Mary’s, Somerset, and Talbot. Results are first presented with an aggregate regional impact, and then also estimated for individual counties by making adjustments for the number of passengers estimated to visit each county.

The primary input to the model was estimated total passenger spending. This includes estimated spending on ferry tickets, food and beverage, retail, recreational services, lodging, and other transportation services.

The outputs of the model include the number of jobs created/supported in the regional economy, estimated labor income, value added to the local economy, and increases in total economic output.

Model outputs are divided into **Direct, Indirect, and Induced** Impacts.

- **Direct Impacts** are the initial impacts of passenger spending on businesses in the local economy.
- **Indirect Impacts** result from business-to-business purchases in the supply chain taking place in the region that are a result of the initial passenger spending purchases.
- **Induced Impacts** are a result of the expenditure of labor income that is generated by passenger spending. These impacts include the effects of ferry captain, deckhand, and other staff and management wages being spent, as well as the wages of employees in other sectors whose jobs are supported by ferry passenger expenditures.

Passenger spending estimates are based on study survey results about how much money passengers/groups are likely to spend. The survey indicated that the expected median expenditure per person for a day trip is \$182 in 2024 dollars. This estimate seems reasonable, as it includes (as stated above) not only the cost of the ferry ticket itself, but also presumably the cost of at least one meal (more likely two, and possibly three for many passengers) in local communities, transportation-related expenditures to get to and from the ferry and local destinations, purchases made while shopping in local communities, and expenditures on museums, cultural events, and recreational activities.

The \$182 expenditure per passenger was rounded to \$200, assuming inflationary growth until the system would be operational. Table 25 presents a rough, conceptual breakdown of estimated average expenditures by category.

Table 25. Estimated Average Expenditures by Category

Category	% of Total Spending	Average Amount per Passenger
Ferry Transportation	25%	\$50
Food and Beverage	25%	\$50
Retail	12.5%	\$25
Recreational Activities	12.5%	\$25
Lodging	12.5%	\$25
Other Transportation	12.5%	\$25
TOTALS	100%	\$200

Note that lodging expenditure per passenger may seem lower than expected, but this is due to the fact that the majority of trips within the ferry system are anticipated to be day trips at first. This means that a relatively small fraction of ferry passengers are expected to need overnight accommodations.

To determine total estimated ferry passenger spending throughout the year (operating season), these estimated average expenditures were multiplied by the range of potential ridership estimates. For the first year of operations, a wide range of between 25,000 and 75,000 total passengers were estimated, with a midpoint/best estimate of 50,000 passengers.

Note that the model estimated ferry revenue in the \$2.5 million range in the first year of operations, which corresponds to 50,000 passengers paying an average of roughly \$50 per round-trip ticket (corresponding to the ferry transportation figure in the table above).

At an average total expenditure of \$200 per passenger and a best estimate of 50,000 passengers, total ferry passenger-related spending in the region is expected to be approximately \$10 million annually.

The IMPLAN model inputs for the midpoint case (50,000 passengers) are as presented in Table 26:

Table 26. Annual Expenditure by Industry

Category/Industry	Annual Expenditure
Ferry Transportation	\$2.5 million
Food and Beverage	\$2.5 million
Retail	\$1.25 million
Recreational Activities	\$1.25 million
Lodging	\$1.25 million
Other Transportation	\$1.25 million
TOTAL	\$10 million

The aggregate IMPLAN model for the regional economy produced the outputs shown in Table 27 based on these projected expenditures:

Table 27. Regional Economic Outputs

Impact	Employment (number of jobs)	Labor Income	Output
Direct	116.12	\$4,957,000	\$9,465,000
Indirect	14.50	\$976,000	\$2,674,000
Induced	12.70	\$783,000	\$2,366,000
TOTAL	143.32	\$6,716,000	\$14,505,441

The results indicate that ferry passenger expenditures are expected to support approximately 143 jobs in the regional economy, generate \$6.7 million in annual labor income, and \$14.5 million in total output including indirect and induced effects.

A breakdown of projected employment impacts by sector is shown in Table 28.

Table 28. Employment Impacts by Sector

Industry	Increase in Employment (number of jobs)
Ferry Transportation	29.52
Food and Beverage	26.42
Retail	12.45
Recreational Activities	15.67
Lodging	7.79
Other Transportation	28.59
All Other Regional Industries	22.88
TOTAL	143.32

Increased visitor spending will also generate additional tax revenue for Federal, state, county and local governments. Table 29 summarizes IMPLAN projections of tax revenue increases due to ferry passenger spending in the region.

Table 29. Additional Tax Revenue

Jurisdiction	Increased Tax Revenue
Federal	\$1,347,000
State	\$689,000
County	\$321,000
Subcounty General	\$269,000
TOTAL	\$2,626,000

Table 30 presents projected impacts by county, assuming the rounded numbers of visitors estimated in the second column based on the sample route map and schedule. Note that the number of visitors shown is 100,000 (twice the number of passengers), as passengers will spend time in more than one community during their voyage (projected expenditures are divided accordingly).

Note the impacts shown include estimated food and beverage, retail, lodging, recreational services, and transportation spending by passengers (which are community—and therefore county-specific), but they exclude expenditures on ferry tickets themselves (estimated to total \$2.5 million).

The IMPLAN model utilizes specific economic multipliers, average wages by industry, and tax rates for each county, which is why results differ slightly for counties with the same number of projected visitors.

Table 30. Projected County Impacts

County	Projected Visitors	Employment (number of jobs)	Labor Income	Economic Output	County Taxes
Anne Arundel	25,000	26.17	\$992,000	\$2,503,000	\$104,000
Baltimore City	20,000	19.24	\$881,000	\$2,018,000	\$93,000
Calvert	10,000	14.04	\$322,000	\$1,029,000	\$64,000
Dorchester	5,000	5.47	\$165,000	\$464,000	\$20,000
Kent	5,000	4.91	\$202,000	\$490,000	\$23,000
Queen Anne’s	15,000	15.27	\$563,000	\$1,426,000	\$76,000
St. Mary’s	5,000	5.77	\$157,000	\$467,000	\$26,000
Somerset	5,000	5.02	\$157,000	\$419,000	\$23,000
Talbot	10,000	12.20	\$397,000	\$1,045,000	\$35,000
TOTALS	100,000	108.09	\$3,836,000	\$9,861,000	\$464,000

6.0 GOVERNANCE AND FUNDING OPTIONS

6.1 DESCRIPTION OF POTENTIAL GOVERNANCE OPTIONS

Several potential governance options were considered for the ferry system. Each is described in the section, noting that based on the analysis completed, a Public-Private Partnership model is recommended.

Six potential governance possibilities are summarized below, in order from the least amount of Government involvement to the greatest amount. The benefits and drawbacks of each alternative are briefly discussed as they specifically relate to the Chesapeake Bay ferry system.

In general, governance models with more significant levels of public involvement are more appropriate for transportation/commuter focused ferry systems than they are for tourism-oriented ferry systems. However, the economic development benefits of the contemplated tourism-oriented Chesapeake Bay ferry system are a compelling reason to have a moderate level of public involvement and oversight.

PRIVATE CORPORATION(S)

Under this option, a private company (or companies) would begin operations with no assistance from Government agencies at any level (city, county, state, or Federal). The corporation(s) would own its ferry vessels, determine the destinations to serve, and establish schedules and rates that create a profitable business opportunity within the business and regulatory environment.

There are several private ferry companies operating in Europe, transporting passengers to and from the mainland and islands in the Mediterranean (especially in Spain, Italy, and Greece) as well as in Scandinavia and the United Kingdom. Some of these companies are publicly traded and some are privately held. One of the largest of these operators is Balearia, which operates in both the Mediterranean and the Caribbean.

Private companies will generally pursue a ferry opportunity when there is a sufficient business case for it, meaning strong and consistent demand, a large enough population base to generate revenue, and manageable operating costs.

The initial financial analysis for the Baseline System demonstrated that there is a projected net loss for a purely private Chesapeake Bay ferry operator under "best" conditions. When assumptions were altered to assume some level of Government assistance, there were indications that an existing private company could potentially develop a profitable business opportunity.

Benefits of Private Corporation Model: A private corporation operating with limited to no Government assistance would have a more agile operation due to fewer constraints/requirements for labor and staffing. It would also be able to alter routes, destinations, and schedules without processes including public input or Government oversight.

Drawbacks of Private Corporation Model: A private corporation operating outside Government influence may not serve communities that might benefit most from the Chesapeake Bay ferry system. As the private company

would emphasize its own profitability, it would not prioritize the positive economic impacts that would flow to these communities. Projected revenues for the system, in the absence of support from governments or other local entities, may not be sufficient to cover projected operating and capital costs.

PUBLIC/PRIVATE PARTNERSHIPS

Under this option, a private company (or companies) would work with public agencies to develop ferry routes and utilize terminals at preferred destinations. The company may pay for the use of the public assets (vessels and/or terminals) it utilizes, but it would have leeway to work with partners to establish routes, schedules and rates. An example of this is private ferry companies who have contracts with the New York City Government, including New York Waterways and the Hornblower group.

In the ferry industry, the partnership model can be beneficial when a public entity owns assets and leases them for a private company to utilize in their business. Public entities could own ferry vessels and terminals, which would allow those entities access to certain Government funds for capital purchases and improvements. The Government entity owning the assets could contract with private companies to operate the system, and the private companies would provide labor, management, and funds for operating costs. Contract terms would need to allow operators a sufficient return on funds invested.

Benefits of Public/Private Model: Government ownership of vessels and terminals would provide access to Federal funds and potentially lower borrowing costs. The public sector would retain a role in the selection of routes and destinations, which could benefit smaller, underserved communities. A private operator of the system would have stronger incentives to improve efficiency of the system and profitability than a Government operator.

Drawbacks of Public/Private Model: Incentives for the public entities (providing a service to increase tourism and support local economic development) may not be entirely aligned with objectives of the private company (to operate profitably). If financial incentives are not sufficient, there would be difficulty attracting qualified private operators.

PUBLIC CORPORATION

The public corporation model is not common for ferry systems, but an example is BC Ferries (in British Columbia, Canada). A public corporation has a board of directors (so that it is run like a private business), but shares are held on behalf of the public. The board would be comprised of a combination of shareholders (public entities) and individuals with experience managing ferry operations. The corporation would contract with the state to provide a defined service, and it would engage in contracts like any private business. It could incur debt within defined constraints, as the debt would be backed by the state.

Benefits of Public Corporation Model: A public corporation would have management that is more insulated from political considerations than a ferry system that is operated as an agency of the state Government, public authority, or a transportation district (see below). The corporation would function in many ways as a private entity, but may be exempt from Federal and state income taxes.

Drawbacks of Public Corporation Model: The public corporation model requires compensation for a board of directors and management that may require ongoing financial support from Government entities.

PUBLIC AUTHORITY

A public authority (such as a port authority) is an independent Government agency created to focus on a specific set of objectives, with enabling legislation that defines its scope and powers. Management is overseen by a governing board that may include significant Government influence, but also have members elected at large and representing specific interests such as labor. The authority may have dedicated revenue sources such as tourism-based taxes, property taxes, or fuel taxes, and it would be responsible for working within budgets, managing assets, and complying with regulations and policies.

Benefits of Public Authority Model: A public authority takes a long-term view in terms of planning for the population it serves. It potentially provides more management and service stability relative to private operations.

Drawbacks of Public Authority Model: The model relies on dedicated revenue sources including taxes, which may not be palatable to the general population. The governing board may not be representative of all stakeholders and system users.

TRANSPORTATION DISTRICT

A transportation district is essentially a public authority that operates multiple modes of transportation in the same geographic area for the benefit of the region as a whole. A ferry operation would be one portion of the larger transportation district. As part of a transportation district, the ferry system may be subsidized by other modes of transportation within the district or by taxation (property taxes, bridge tolls, etc.). This option is more suitable for commuting purposes than for promoting tourism. Transportation districts are typically overseen by a board with members appointed by communities in the geographic area served. As public entities, they may have access to Federal funds for capital projects.

Benefits of Transportation District Model: A transportation district promotes coordination of different modes of transportation across regional boundaries including counties and unincorporated areas. It can manage projects that integrate modes of transportation for the benefit of local populations.

Drawbacks of Transportation District Model: The size and complexity of transportation districts can lead to slow responses to changing conditions. Because transportation districts are regional, there may be competition against other regions for state and Federal funding.

LINE AGENCY (DIVISION WITHIN STATE DEPARTMENT OF TRANSPORTATION)

A state-run ferry system within the department of transportation would own and operate vessels as part of a mandate to provide transportation infrastructure within the state. The division would be funded by fare revenue, tax revenues, and possibly supplemented by tolls, Federal funding sources, or other revenue sources. Examples of this include Washington State Ferries, North Carolina Ferries, and the Alaska Marine Highway System.

Benefits of Line Agency Model: The system would have access to low cost of capital and Federal funding for capital projects including ferries and terminals. As part of a department of transportation, system planning would be coordinated across other transportation modes.

Drawbacks of Line Agency Model: The system would be funded primarily through tax revenues, and non-users may bear a disproportionate burden for a system they do not utilize.

6.2 IDENTIFICATION OF FUNDING OPTIONS

In order to design, build, operate, market and maintain the Baseline System, a significant influx of capital will be required. As detailed in Section 4, the Baseline System start up requires at least \$8 million in vessel acquisition costs, up to \$5 million in station improvements, and approximately \$5 million in annual operating costs. Certain station and vessel investments will be required before any revenue generation begins. In addition, the financial analysis presented in Section 5 estimates a net operating loss in the first year of operations without a subsidy of any kind.

This study was led by a consortium economic development and tourism organizations, funded by a grant focused on economic development in rural communities. The Baseline System alone has been estimated to have a significant regional economic impact. As such, a subsidized or partially subsidized system would still result in a positive economic result. Financial contributions can come in many forms, including:

- **Ticket revenue.** Once the system is operational, ticket revenue should cover a significant percent of the operating costs. While unlikely to help with the capital investment needs, ticket revenue on a well marketed system should provide a consistent and substantial contribution.
- **Advertisement revenue.** The System will have the opportunity to sell advertisement space on its website, brochures, marketing materials, and at stations and on vessels. This space would likely be sold to partners in the hospitality and tourism industries that would benefit from an influx of visitors.
- **Budget line item within public agency budget.** In some instances, county or city governments representing the station locations could provide a dedicated financial contribution within their budgeting process. These funds could reflect a simple contribution to the operator contract to guarantee service to the community, or they could reflect funds set aside to help upgrade and maintain public docks, rest areas, and other required station amenities.
- **Access to dock and station without fee.** Docks exist today in all locations assessed. In order to use these docks as part of a regular passenger ferry service, agreements must be reached with the dock owners. Agreements that make the docks available without a landing fee will be a key part of a successful financial plan.
- **Access to shelter and restrooms without fee.** Similar to the dock usage, there may also be opportunities to provide ferry passengers with access to existing shelter and restrooms without a charge. This could be provided by public or private partners.
- **Marketing and promotional materials without fee.** The consortium represents the regional tourism and economic development community. Each member has contacts throughout the region and the industry that could provide in-kind services to develop branding and marketing material without direct cost to the System's financial bottom line.
- **Discretionary grant awards.** From a capital investment perspective, discretionary grants represent one of the most significant opportunities to access large sums of money to pay for system start-up costs, which in this case would include vessel acquisition, station improvements, environmental reviews, and more.

Each of the options should be explored to increase the likelihood of success of the System. This will require ongoing coordination and advocacy by the consortium and champions within each community to promote the

value of the System, get folks excited to commit resources, and prepare the most competitive grant applications possible.

Discretionary grants provide multiple opportunities to advance the development of this Baseline System. This can consist of individual or joint applications, spanning across multiple programs. Project eligibility and project competitiveness will be the two key considerations. Regarding project eligibility, there may be minor tweaks to how the system is described to meet certain requirements. For example, many Federal grants are looking for projects that help move commuters (transit) and freight more efficiently. Regarding ability to compete, there are some programs focused on maritime/port operations for which the Baseline System may technically be eligible, but for which it will not be competitive. Coordination and collaboration with Federal partners can help identify and position for the best opportunities.

The pool of discretionary grant programs continues to evolve and change based on changes in administration as well as changes in investment priorities. Key tools to help ensure all opportunities are identified and considered include the Federal Funding Handbook for the Maritime Transportation System and the DOT Navigator, which is a new resource provided by U.S. DOT to help communities understand and navigate the extensive library of potential Federal grants.^{9,10} Table 31 provides an overview of programs currently available that should be considered. A more detailed overview of each program is provided in Appendix D.

Table 31. Summary of Potential Discretionary Grants

Program	Eligibility
<p>Passenger Ferry Program.¹¹ Provides funding to improve the condition and quality of existing passenger ferry services, support the establishment of new passenger ferry services, and repair and modernize ferry boats, terminals, and related facilities and equipment.</p>	<ul style="list-style-type: none"> ▶ Capital projects for the purchase, construction, replacement, or rehabilitation of ferries, terminals, related infrastructure and related equipment (including electric or low-emitting ferry vessels and related infrastructure) ▶ Must be Section 5307 funding eligible
<p>Low-No Ferry Program.¹² Provides funding for projects that support the purchase of electric or low-emitting ferries and the electrification of or other reduction of emissions from existing ferries.</p>	<ul style="list-style-type: none"> ▶ Capital projects for the purchase of electric or low-emitting ferry vessels and related infrastructure ▶ Must be Section 5307 or 5311 funding eligible
<p>Rural Ferry Program.¹³ Provides funding for capital, operating, and planning expenses for ferry service to rural areas.</p>	<ul style="list-style-type: none"> ▶ Capital, operating or planning projects for rural ferry service ▶ Must be state or U.S. territory

⁹ [Federal Funding Handbook for the Marine Transportation System, Sixth Edition, March 2024 \(bts.gov\)](https://bts.gov)

¹⁰ [Grants | U.S. Department of Transportation](https://www.transportation.gov)

¹¹ [Passenger Ferry Grant Program—Section 5307\(h\) | FTA \(dot.gov\)](https://www.fta.dot.gov)

¹² [Fiscal Year 2024 Passenger Ferry Grant Program, Electric or Low-Emitting Ferry Pilot Program, and Ferry Service for Rural Communities Program Notice of Funding | FTA \(dot.gov\)](https://www.fta.dot.gov)

¹³ [Fiscal Year 2024 Passenger Ferry Grant Program, Electric or Low-Emitting Ferry Pilot Program, and Ferry Service for Rural Communities Program Notice of Funding | FTA \(dot.gov\)](https://www.fta.dot.gov)

Program	Eligibility
<p>Pilot Program for Transit-Oriented Development Planning.¹⁴ Provides funding to local communities to integrate land use and transportation planning with new fixed guideway or core capacity transit capital investment.</p>	<ul style="list-style-type: none"> ➤ TOD planning effort must be associated with a new fixed guideway or core capacity improvement project ➤ Must be sponsor for eligible transit project with land use authority or be partnered with entity with land use authority
<p>Marine Highway Grant.¹⁵ Assists in funding eligible Projects to relieve landside congestion, reduce air emissions, and generate other public benefits by increasing the efficiency of the surface transportation system.</p>	<ul style="list-style-type: none"> ➤ Projects that: 1) provide a coordinated and capable alternative to landside transportation; and 2) develop, expand, or promote Marine Highway Transportation or shipper use of Marine Highway Transportation. ➤ Must be a political subdivision of a State or a local Government
<p>RAISE Discretionary Grant.¹⁶ Funds planning or construction of surface transportation infrastructure projects that will improve safety; environmental sustainability; quality of life; mobility and community connectivity; economic competitiveness and opportunity including tourism; state of good repair; partnership and collaboration; and innovation.</p>	<ul style="list-style-type: none"> ➤ Port infrastructure investments, public transportation projects eligible under chapter 53 of title 49, United States Code ➤ Must be unit of local Government
<p>INFRA/MEGA/Rural.¹⁷ Three programs under a single Multimodal Project Discretionary Grant Opportunity. Funding opportunities are awarded on a competitive basis for surface transportation infrastructure projects—including highway and bridge, intercity passenger rail, railway-highway grade crossing or separation, wildlife crossing, public transportation, marine highway, and freight projects, or groups of such projects—with significant national or regional impact, or to improve and expand the surface transportation infrastructure in rural areas.</p>	<ul style="list-style-type: none"> ➤ Freight intermodal that provides public benefit; public transportation projects eligible under chapter 53 of title 49, United States Code; A project for a marine highway corridor that is functionally connected to the NHFN and is likely to reduce road mobile source emissions ➤ Must be unit of local Government

¹⁴ [Pilot Program for Transit-Oriented Development Planning—Section 20005\(b\) | FTA \(dot.gov\)](#)

¹⁵ [United States Marine Highway Program | MARAD \(dot.gov\)](#)

¹⁶ [FY 2024 RAISE Grants Notice of Funding Opportunity | U.S. Department of Transportation](#)

¹⁷ [Multimodal Project Discretionary Grant—Notice of Funding Opportunity | U.S. Department of Transportation](#)

Program	Eligibility
<p>Port Infrastructure Development Program (PIDP).¹⁸ Assist in funding eligible projects for the purpose of improving the safety, efficiency, or reliability of the movement of goods through ports and intermodal connections to ports.</p>	<ul style="list-style-type: none"> ➤ Projects relating to ports, their operation, and intermodal functionality that factors into port operation, particularly projects that improve the safety, efficiency, and reliability of goods movements, port operations, and improved environmental measures. ➤ Must be a political subdivision of a State, or a local Government; multijurisdictional groups of local governments
<p>Food and Drug Administration (FDA) Opportunities.¹⁹ The FDA has various funding opportunities for projects that help move food products. Among these are the Farmers Market Promotion Program, Local Food Promotion Program, Local Agriculture Market Program, Organic Market Development Grant, and the Regional/Resilient Food System Partnerships.</p>	<ul style="list-style-type: none"> ➤ Various projects that support the agricultural sector ➤ Must be unit of local Government
<p>Maryland Bikeways Grant.²⁰ Provides grant support for a wide range of bicycle network development activities. The Program supports projects that maximize bicycle access and fill missing links in the state’s bicycle system, focusing on connecting bicycle-friendly trails and roads and enhancing last-mile connections to work, school, shopping and transit.</p>	<ul style="list-style-type: none"> ➤ Projects located nearby transit stations or that provide access to points of interest ➤ Must be Maryland local governments
<p>Maryland Statewide Transit Innovation Grant.²¹ Mode-agnostic grant program with the goal of supporting local efforts to improve transit reliability, improving access and connections to activity centers, and improving transit mobility options. The program seeks to fund cost-effective public transportation projects that reduce delays for people and improve connectivity between regional and economic population centers.</p>	<ul style="list-style-type: none"> ➤ Planning, design, engineering, or construction phases for various transit innovations ➤ Must be Maryland local governments

¹⁸ [Port Infrastructure Development Program | MARAD \(dot.gov\)](#)

¹⁹ [Grants & Opportunities | Agricultural Marketing Service \(usda.gov\)](#)

²⁰ [Bikeways Initial Application | Maryland OneStop \(md.gov\)](#)

²¹ [Maryland Transit Administration](#)

Program	Eligibility
<p>Maryland Local Government Infrastructure Financing.²² The Maryland Department of Housing and Community Development's Community Development Administration issues bonds, on behalf of counties, municipalities and/or their instrumentalities, to finance projects that serve the community at large</p>	<ul style="list-style-type: none"> ▶ Various, including transportation ▶ Must be Maryland municipalities and counties

These funding opportunities have different application dates, eligibility requirements, and funding levels. In addition, future year availability is unknown for most programs, with each having to be renewed or reauthorized at specified points in time. With that said, each of these programs should be considered and reviewed as part of building a financial plan for the Baseline System. As discussed above, to be eligible and competitive, some changes in how the Baseline System is described will be required. Opportunities that should be prioritized include the FTA Passenger Ferry Program and Low-No Ferry Program; RAISE discretionary grants and MEGA/INFRA/Rural; and the Maryland Statewide Transit Innovation Grant.

²² [How Local Government Infrastructure Financing Works \(maryland.gov\)](http://maryland.gov)



7.0 PHASING STRATEGY FOR FULL SYSTEM

As presented in earlier sections, this feasibility study assessed 21 communities as possible ferry stations to create a Maryland-wide Chesapeake Bay Passenger Ferry System. All of these communities were found to have merit. In order to improve the chances of success, the communities were further screened to identify a smaller, 14-community system defined as the Baseline Passenger Ferry System. These communities incorporate two hubs (Annapolis and Baltimore), focus on cross-bay movements, and limit the geographic coverage to the central and south bay region. While this eliminates some communities from Phase 1, the intent is to use Phase 1 as the building blocks for the full 21-community system.

7.1 OVERVIEW OF PHASING

The concept of phasing is focused around the idea of bringing manageable portions of the system on line, proving success, and then bringing on the next group of routes, until the full Chesapeake Bay passenger ferry system is in place. This may take five or more years, based on available funding, community support, and successful market penetration. Suggested phasing of the Chesapeake Bay passenger ferry system includes the following components:

- ▶ **Initial Phase 1 Testing.** The Baseline System may or may not be able to be brought on line simultaneously as an integrated system. This initial testing phase should be put in place as soon as technically and financially possible. All 14 communities may not be able to provide basic station capacity and amenities within the same timeframe. This initial testing phase gives each community the flexibility to explore market potential, prepare infrastructure capability, and line up funding and a financial plan.
- ▶ **Phase 1: Initial Baseline Passenger Ferry System.** Following initial testing, this official first phase should work to bring the full 14-station system on line. This likely will not include all ideal station improvements identified for each site, but it will include a review and necessary improvements to existing infrastructure to provide for a functional station. Marketing descriptions and itineraries should clearly acknowledge the state of the infrastructure.
- ▶ **Ongoing Testing of New Markets with Expansion Each Year.** As the original 14 stations are developed, their success should be used to market the passenger ferry system to the remaining seven communities. Communities ready to take the next step should begin to look for opportunities to introduce passenger ferry service to their residents and visitors. This could be accomplished by scheduling a special service for a key festival or event (e.g., Havre de Grace's Summer Concerts in the Park), or establishing a rotating weekend service to each of the seven communities from a hub to help introduce the larger regional tourism market to the breadth of waterfront communities available via water. These test markets should be developed and marketed in advance of each season. The governing entity of the full system (ongoing consortium-type board responsible for vision and contracting with operator) should actively work with each community champion to ensure new markets are successfully integrated into the passenger ferry system when ready.
- ▶ **Baseline Ferry System with Full Infrastructure Improvements.** Critical "must have" amenities have been identified by surveys conducted during this study, as well as a review of other successful passenger ferry services around the country. While an initial service can be initiated without permanent structures in place for some

elements, riders need to see ongoing improvements underway each year to demonstrate a commitment to a reliable, enjoyable service. For example, service may begin with a temporary shelter, a local business providing access to restrooms, a shuttle service for landside connections, and a shared dock or pier. Over time, this may evolve to a dedicated dock location with branding, a standalone station building with ticketing and restrooms, and modified transit routes and schedules to align with the ferry schedule. Note, not every site will need to have same level of infrastructure in place—some communities may have a private partner happy to provide long term support—but each location will need to provide the core agreed-upon amenities. The lessons learned throughout this process should provide guidance to each new station brought on line in future years.

The above description of phasing is intended to provide guidance to the region on an organized, thoughtful process for developing and expanding a successful system over time. The keys to success for each station, route, and the system include:

- ▶ **Infrastructure**—Water, dock, and terminal must meet defined standards to ensure efficient operations.
- ▶ **Service**—Minimum amenities must be met to ensure a common rider experience.
- ▶ **Support**—Public and private support from the community will be critical to fund, operate and promote the service.
- ▶ **Consistency**—The service must be reliable and in line with expectations set by the Baseline System.
- ▶ **Experience**—The rider experience will define success; there is one chance to make the first impression on what is to be expected.
- ▶ **Marketing and Branding**—For the system to be a success, each individual segment must be branded as part of the larger system, and it should be marketed that way so that all locations can be sold as multi-stop itineraries and/or a system with multiple itineraries to be undertaken separately.

Based on these success factors, the individual stations and routes may come on line at different scheduled than defined in this report based on the success of local community efforts to build support and secure funding. It will be critical that these activities are coordinated with the larger system.

7.2 FULL BUILD OUT—WHAT DOES THAT LOOK LIKE?

The 21-station passenger ferry system covers all areas of the Chesapeake Bay in Maryland. With a shoreline dotted with marinas and coastal communities, a successful Baseline System may generate interest beyond the 21 identified to date. With that said, this study, based on consortium input, site visits, and survey responses, describes the full build-out as the 21 locations described earlier in this report.

It should be acknowledged that this full system incorporates the Baseline System, with some changes to ensure all stations are captured. Final scheduling and routing will need to be determined based on the current Baseline System operation at the time of expansion. And as noted, the phasing will bring new stations on when ready. Given these qualifiers, the full build-out system described below should be seen as an illustration of what the system could look like based on today's assessment.

This full build-out consists of six core routes with variations. Each is described below and shown in Figure 5.

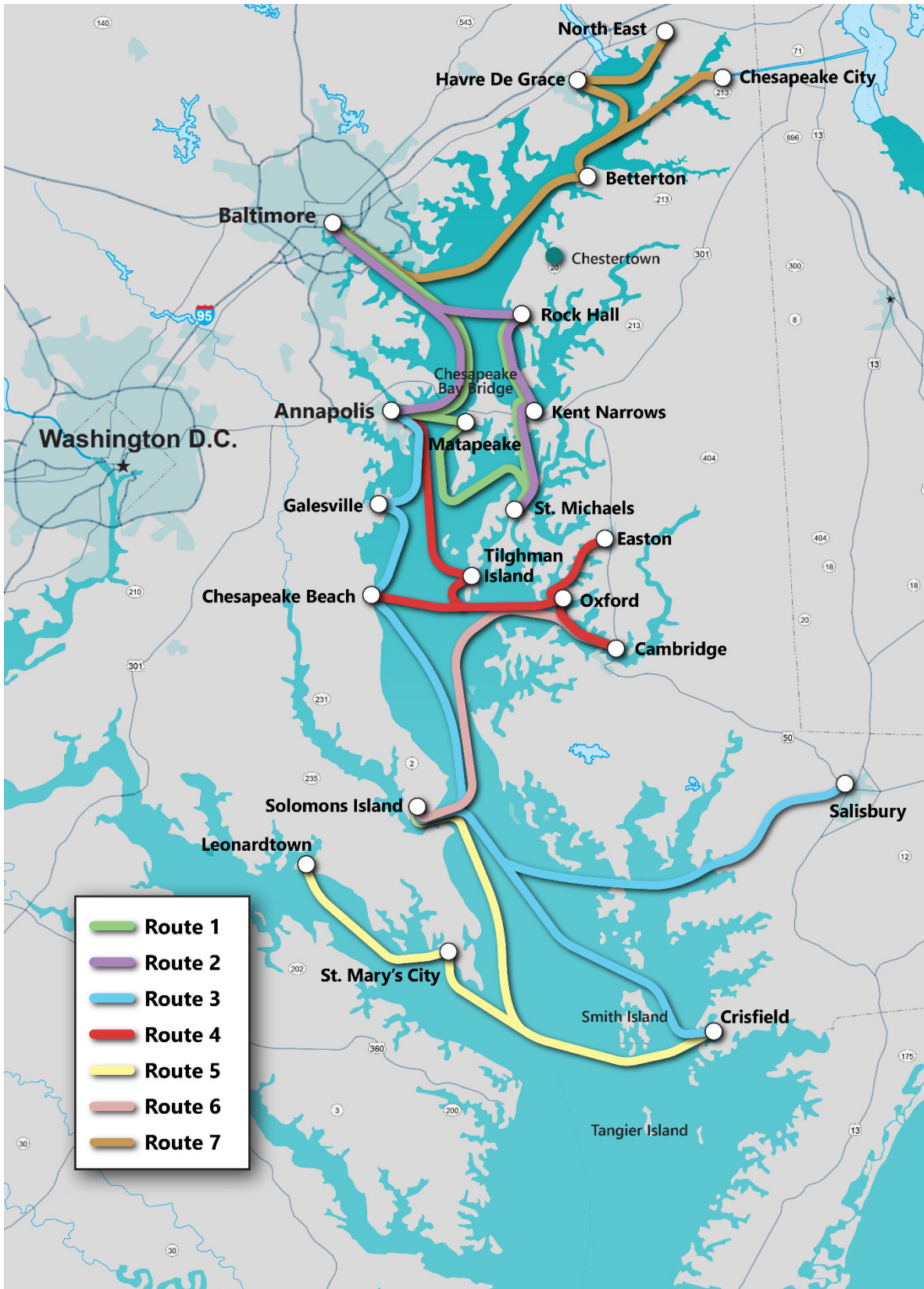
- ▶ **Route 1: Baltimore to Annapolis to Matapeake to St. Michaels to Kent Narrows to Rock Hall**—Route would reverse to provide a minimum of one trip in each direction per day.
- ▶ **Route 2: Annapolis to Baltimore to Rock Hall to Kent Narrows to St. Michaels**—Route would reverse to provide a minimum of one trip in each direction per day.
- ▶ **Route 3: Annapolis to Galesville to Chesapeake Beach to Solomons Island to Salisbury and/or Crisfield**—Route would consist of two options, with the final destination varying between Salisbury and Crisfield; each version would reverse to provide a minimum of one trip in each direction per day.
- ▶ **Route 4: Annapolis to Tilghman Island to Chesapeake Beach and/or to Easton or Oxford or Cambridge**—Route would consist of multiple options, with some trips destined for Chesapeake Beach, and others destined for one or more of Easton, Oxford and Cambridge; final schedule to be based on markets at each location; each version would reverse to provide a minimum of one trip in each direction per day.
- ▶ **Route 5: Solomons Island to St. Mary's City or Leonardtown to Crisfield**—Route would consist of two options, with the second destination varying between St. Mary's City and Leonardtown; each version would reverse to provide a minimum of one trip in each direction per day.
- ▶ **Route 6: Solomons Island to Cambridge**—Route would add a key cross-bay connection; route would reverse to provide a minimum of one trip in each direction per day.
- ▶ **Route 7: Baltimore to Betterton to Chesapeake City and/or to Havre de Grace to Northeast**—Route would consist of two options, with the final destination varying between Northeast and Chesapeake City; each version would reverse to provide a minimum of one trip in each direction per day.

EXPANSION IN MARYLAND AND BEYOND

The routes presented and discussed as the full build out have been limited to communities in Maryland. A key expansion opportunity in the future could include locations along the shores of the Chesapeake beyond Maryland.

- ▶ **Northern/Eastern Expansion Opportunities.** To the north and east, future expansion from Chesapeake City along the Chesapeake and Delaware Canal could offer connections to locations along the Delaware River. Chesapeake City could serve as the northern gateway to the system.
- ▶ **Western Expansion Opportunities.** To the west, future expansion along the Potomac River could offer connections to locations in Virginia and north to Washington, DC. Leonardtown could serve as the gateway to services along the Potomac River.
- ▶ **Southern Expansion Opportunities.** To the south, future expansion along the Chesapeake Bay could offer additional connections to Virginia. Crisfield serves as the southern-most point in a Maryland-based system, but could serve as a central bay hub for a system covering the entire Chesapeake. Crisfield already has services to Smith and Tangier Islands and an established and significant maritime waterfront.

Figure 5. Chesapeake Bay Passenger Ferry System—Full Build Out



8.0 FINDINGS, RECOMMENDATIONS, AND STRATEGIES

8.1 KEY FINDINGS

- ▶ **Chesapeake Bay is home to a diverse and historic maritime culture.** The maritime themes present throughout the region create an opportunity to brand the system around multiple-stop itineraries designed to guide visitors through the entire bay. For visitors interested in experiencing the diversity of the Chesapeake Bay and its coastal communities, a passenger ferry service will provide a unique perspective.
- ▶ **Local communities have unique offerings to attract visitors.** Each of the 21 communities have identified attractions that could be included in marketing materials, ranging from the vast tourism and event opportunities in Annapolis and Baltimore, to fishing charters in Kent Narrows, to the active archeological sites at Historic St. Mary's City, to Crisfield—the Crab Capital of the World.
- ▶ **Special events represent key opportunities to test service offerings.** The system will need to be phased over time. This study has identified the Baseline System as the first phase. Once this system is operational, expansion opportunities will present themselves, as other communities express an interest. The festivals, fairs, farmers markets, and other events prevalent throughout the region will provide ongoing opportunities to test new routes.
- ▶ **Limited excursion and water taxi services exist today.** Many of the communities have active water services of some kind. In Annapolis and Baltimore, regular water taxi services exist, as do a variety of other recreational services. Other communities provide a variety of charters, water taxis, and passenger ferry services. For example, Crisfield has island ferry services to Smith Island and Tangier Island, while Chesapeake City has water taxi service that provides cross canal connections.
- ▶ **Water depth, wave action, and geography create navigational challenges.** Chesapeake Bay is not a deep body of water, with frequent and shifting silting. In addition, many of the communities are located up rivers or in the upper ends of bays, creating additional route distance and navigational obstacles. These conditions impact vessel selection, speed of operation, and time on the water.
- ▶ **Local residents see the ferry as an opportunity to experience the Bay.** The Bay, once the primary transportation conduit in the region, has in recent years become a more limited access facility, largely used by private boat owners, commercial fishing fleets, and a finite number of charters and excursions. A potential passenger ferry system is seen by many locals as a way to make the waterway accessible again.
- ▶ **Green technology options provide an opportunity to differentiate the region and protect the health of the Bay.** The Chesapeake Bay is the largest estuary in the U.S. with an expansive watershed area covering six states. This exposes it to a variety of contaminants. Many efforts are underway to “save the bay” like the Chesapeake Bay Foundation. Electric and/or hybrid electric vessels provide an additional opportunity to protect the bay and to demonstrate a continued commitment.
- ▶ **Core service amenities will drive immediate success.** When bringing a new passenger ferry service online, it is critical that the initial rider experience is positive. To do this, riders must be protected from the elements,

have access to restrooms, a smooth ticketing process, and an on-time and reliable trip. Marketing materials should accurately set expectations, particularly as the service is starting out. First impressions can make or break a new service.

- **Most communities have existing infrastructure in place today to support basic start-up activities.** Each of the 21 communities visited and assessed as part of this feasibility study has waterside infrastructure in place today that is ready or could be ready with some minor improvements to handle a passenger ferry vessel. Immediate considerations as part of an initial start-up will include: usage agreements; dock improvements; ADA requirements, sheltered station area; ticketing process (e.g., local vendor or online/virtual); and a plan for landside transportation connections (e.g., parking, transit, bike).
- **Expanded service amenities will be critical for longer term growth.** The excitement around a new service will allow a start up with limited or partial amenities and basic station/dock operations. In fact, it can and should be marketed that way—“come be the first to ride on the new Chesapeake passenger ferry.” However, for a longer term, more permanent service, the station experience and amenities available onboard will become more important. A standardized service and experience across the system will help drive expansion, setting consistent and reliable expectations for riders.
- **Marketing, branding, and promotional material will be critical to building and expanding the system.** The Chesapeake Bay is an expansive and diverse area. Many familiar with one part of the bay may not have exposure to other areas. The purpose of this proposed passenger ferry service is to open access to the bay and all of its individual, sometimes isolated, communities. To do this, the system must be branded. This will be critical as routes may be advanced individually based on grant awards and local funding sources. The branding and marketing can help stitch it into a system, and also service to keep all economic development partners focused the same message.
- **Existing waterway services represent possible operators.** As mentioned above, there are vessel operators in the bay today. As the governance structure is finalized and the search begins for a private partner to operate the service, the companies already operating in the bay will represent a group of maritime professionals with knowledge of the bay and in many cases, with national experience in operating passenger ferry services.
- **Passenger ferry service is seen as an economic development tool.** The driving goal for this study was to evaluate the feasibility to develop a passenger ferry system in the Chesapeake Bay that could serve as an economic development tool for the communities along both eastern and western shores. While seen as a new regional transportation service by some, this study has specifically focused on a system that serves as an incubator for expanded and new recreational and tourism related activities designed specifically to help revitalize host communities.
- **Potential host communities are willing to facilitate and promote development of service.** In all instances, the 21 potential host communities expressed an interest in supporting the development of a new passenger ferry service. This included usage of publicly and privately owned waterside docks and marinas; use of local businesses for ticketing, shelter, and restrooms; participation in itinerary development by tourism and visitor organizations, and reciprocal advertising (e.g., restaurant/hotel/museum flyers on vessels; passenger ferry flyers at local businesses).
- **Ferry system likely to be phased over time.** Twenty-one communities were assessed and fourteen were included in the Baseline System. Anne Arundel County recently submitted a grant application to advance an Annapolis/Baltimore/Kent Narrows service. How this system develops will be driven by community support, a team of champions throughout the region, and the ability to access funding to support capital investments,

operations, and maintenance expenses. It will be critical for the consortium or a consortium-like entity to constantly bring the conversation back to a single branded passenger ferry system. This will provide support and intention to each route that comes on line, and help drive an organized and coordinated expansion plan. This will be critical in securing competitive grants.

- **Baseline system is estimated to handle approximately 50,000 riders per season.** Ridership forecasts were developed for the Baseline System based on a variety of factors, including population, number of visitors, number of vessels, vessel capacity, and frequency of service. A spreadsheet model was developed that allowed for low, most likely, and high forecasts. Total Baseline System ridership is estimated to range from 25,397 to 76,960 passengers per season. The “Best” or most likely estimate of 51,563 riders is based on 67 percent of available capacity, while the High and Low estimates are based on 100 percent and 33 percent respectively.
- **Baseline system is estimated to generate \$2.5 million in revenue.** Revenue was based on the “Best” ridership forecasts and an assumed ticket price by route. The ticket price was based on input collected via survey with the key stakeholders throughout the region, which indicated a willingness to pay \$10 per hour on the water.
- **Baseline system is estimated to require \$5 million in expenses in the first year of operation.** This includes estimated amortized vessel costs, operating and maintenance costs, and G&A costs. The Baseline System is assumed to consist of a seven-vessel fleet (two 149-passenger vessels and five 49-passenger vessels).
- **Baseline system is estimated to require \$4.8 million in station improvement costs to support the initial operation.** This includes improvements to the docks, terminal infrastructure, and transit connections. These costs are in addition to the \$5 million in expenses estimated for Year 1.
- **Baseline system is anticipated to have a negative \$2.5 million in pre-tax income the first year of operation.** This shortfall does not include the \$4.8 million in station improvements. The financial performance of the Baseline System would be significantly improved if several conditions/assumptions were changed:

 - **Revenue would increase significantly** if the ridership increased and/or the ticket price was increased. The industry average is \$20 per hour on the water; increasing from \$10 to \$20 per hour would double the revenue, assuming ridership did not dip.
 - **Vessel capital costs would be significantly** reduced with a successful grant award, most of which have vessel capital costs as eligible components.
 - **Station improvement costs could be significantly reduced** based on local public/private contributions and ongoing maintenance.
- **Establishment of a successful business model for the Baseline System will require support from each local community.** The financial analysis suggests that without support from each host community, the Baseline System will operate at a loss. Without pursuit of funding sources for capital improvements and vessel acquisition, marketing and branding support from local economic development and tourism organizations, and ongoing support for maintenance and operations of publicly owned piers, docks, and other station amenities, a private operator will not be able to operate a break-even service.
- **Baseline system will generate significant regional economic impacts.** The first year of operation, assuming “Best” ridership estimates, ferry passenger expenditures will generate 143 jobs, \$6.7 million in labor income,

\$14.5 million total output, and \$2.6 million in tax revenue. These numbers increase if ridership estimates are exceeded, or if ticket prices are increased.

- **Baseline System anticipated to generate a positive benefit cost ratio.** The benefit cost analysis for the Baseline System, based on U.S. DOT guidance, resulted in a BCR of 5.8. Total discounted benefits amount to \$111 million while final costs are discounted to \$19 million. This is a strong ratio which suggests that the system would provide significant benefits to the state of Maryland, its residents, and its visitors. It also suggests some flexibility to reduce benefits assumptions and/or increase costs but still maintain a positive project benefit.
- **Governance structure should be a public/private partnership.** The study consortium and its member agencies do not intend to become passenger ferry operators. However, as representatives of the region's economic development and tourism community, the consortium's continued leadership, specifically related to branding, development of itineraries, and marketing material, will be critical to the success passenger ferry system. This will need to be aligned with an experienced passenger ferry operator. Given the system most likely require a public funding commitment, a public/private partnership is anticipated to be the best model.
- **Transit-compatible service offerings, as well as cargo opportunities, would expand funding options.** From the beginning, the purpose of this feasibility study has been to evaluate the potential for a recreation/tourism focused passenger ferry service. While some stakeholders have inquired about a possible transit function, the analysis held true to the study's original purpose, and the ridership, revenue, costs, and economic impacts reflect a ferry operation focused on economic development. With that being said, as the region looks for opportunities to build and expand the system, minor changes to schedules on key routes could make the service an option for commuters. Handling commuter traffic, even on limited routes, would make the service eligible for some of the larger grant programs focused on regional passenger mobility. In addition, any opportunity to handle cargo, even if limited, could expand eligibility and competitiveness within certain grant programs. Agricultural cargo supporting seasonal farmers markets could represent a compatible opportunity.

8.2 RECOMMENDATIONS/ACTION PLAN

This feasibility study has documented a market and an interest to develop a Chesapeake Bay passenger ferry system. In addition, multiple communities are prepared to support the development of a ferry service through a variety of activities, such as making existing piers and docks available. The findings summarized above, highlight the key factors to be considered as the consortium prepares to take the next step to make this service a reality. Recommended actions presented below, along with suggested timeframes, provide a roadmap to bring the Baseline Ferry System online, and to expand the system over time using a phased approach.

- **Clearly define the role of the consortium moving forward [1 to 3 months].** As discussed, the consortium has expressed no interest in becoming a passenger ferry operator; however, its ability to drive branding, marketing, visioning and collaboration will be critical as pieces of the system advance. This could include helping identify and pursue grants, engaging with potential ferry operators, and supporting a comprehensive messaging campaign to reach both residents and visitors. The consortium also should expand to include all counties actively working to develop passenger ferry service.
- **Create a governance strategy [3 to 6 months].** The governance structure will establish the framework necessary to develop and operate a new passenger ferry system. This will include definition of key roles and responsibilities for system operation. A public/private partnership structure is recommended, but the details must be worked out prior to key activities like signing MOUs, selecting an operator, and more.

- **Build consensus on messaging and next steps [1 to 3 months].** As the consortium prepares to roll out the study findings, it is important that all members deliver a consistent message. This can include use of common slide decks, and potentially standardized answers to a set of anticipated questions. This will help provide clarity and set accurate expectations as subsequent implementation actions advance.
- **Develop customized briefing material to support study rollout [1 to 3 months].** The study deliverables will provide a standard slide deck for use by consortium members; however, members will likely need to customize the available material, and possibly develop new more detailed material based on the audience. For example, when briefing local officials within a host community, the material should provide an overview and then a drill down into that community. In addition, when pursuing grants or other funding opportunities, more detailed financial information may be needed. Over time this is likely to result in a library of material that can be shared among consortium members.
- **Brief community leaders and key business partner stakeholders [3 to 6 months].** Buy in from community leaders and private business partners will be key to establishing a successful system. Community leaders will help smooth the way for access to public docks and piers, public restrooms, and more. Business partners should be engaged in discussions related to advertising, development of itineraries, and possibly serving as initial station/ticket/shelter/restrooms for ferry riders.
- **Identify champions for each Baseline community [4 to 7 months].** The consortium members have largely served as champions for their respective counties, but to fund and implement a new passenger ferry service, a local champion will be needed, one that is aligned with public facilities, as well as has key relationships with business partners. This person will need to be an advocate and be committed to a schedule. These champions would work with the consortium to ensure all communities remain aligned and can benefit from each other's efforts.
- **Meet with each host community to discuss and confirm operational "readiness" [6 to 9 months].** The study team visited and assessed the potential of each host community to be able to handle a passenger ferry boat. As discussed, all communities had basic infrastructure in place. To confirm true "readiness" additional screening must be conducted to 1) confirm a willingness by the community make the facilities available (e.g., sign MOUs) and 2) to confirm the structural integrity of the infrastructure—that is, what improvements must be made before the design vessel can call on the station. This should include an infrastructure assessment and asset management plan for each location. Many of these smaller communities may need financial assistance to conduct the infrastructure assessments, and to develop and implement future maintenance plans and activities. Documenting these needs can help position the passenger ferry system for future grant applications.
- **Establish memoranda of understandings with host communities to define key roles and responsibilities [9 to 12 months].** Based on the earlier actions, MOUs should be developed that clearly define accessibility, operational and maintenance responsibilities, funding and financial commitments, and more. These MOUs will be key to establishing the legal and regulatory framework for the passenger ferry service.
- **Hold regional branding and marketing roundtables [9 to 18 months].** A good way to build awareness of and support for the passenger ferry service is to engage each community in the branding of the system, identification of types of itineraries and more. Students could be engaged in a contest to develop a branding logo or tag line. Local hospitality businesses could contribute ideas on travel packages. These roundtables would make sure the system aligns with what the community will support.
- **Develop a Baseline System development plan [6 to 18 months].** As each of the above actions is completed, they will provide material and information that will feed into a development plan for the Baseline System. Key

factors will include “readiness” reports for each of the 14 stations, the ability to designate site specific champions, the roles and responsibilities defined within the MOUs, and timeline for any “must have” improvements.

- **Identify detailed list of planning, design, and engineering documents needed to build the Baseline Ferry System [6 to 9 months].** A series of specific documents will be needed to advance the project. Some of these will be eligible for planning grants. This will include: planning and capital investment needs, vessel routing plans, stakeholder engagement/public meetings, environmental impacts including climate impacts and mitigation, asset management plans, and more.
- **Explore possible opportunities to incorporate transit and freight service components [Ongoing].** The ability to broaden the scope of service to be able to capture transit and/or freight elements would create additional funding opportunities for system development. While not the original intent of this recreation, tourism, and economic development focused passenger ferry feasibility study, this exploration should be conducted as a due diligence as part of funding opportunities. This should include a discussion of possible modal diversion opportunities.
- **Identify funding sources and develop a financial plan [12 to 24 months / Ongoing].** One of the biggest challenges will be the development of a funding plan. This will be challenged by the fact that the Baseline System likely will be built using a variety of funding sources and grants—many of which will be local in nature. Under these conditions, significant work will be necessary to stitch each component together into a system that can be developed along a similar timeline. This financial plan should address planning and capital investment needs over the next 10 to 20 years to help guide the alignment of potential funding sources. This will be critical as the time required to prepare applications, be selected for an award, negotiate the grant agreement, and complete any outstanding NEPA requirements [which must be complete before the grant agreement can be signed] can take several years.
- **Establish schedule and key milestones for system development [9 to 18 months].** As the Baseline System development plan and financial plan take shape, a schedule with key milestones should be developed that shows the status for all 14 stations. This will need to be a living schedule that adjusts to progress being made, including any delays or advances made possible by grant awards or lack there of. This schedule will be guiding document for use by the consortium, the team of champions, and key implementation partners.
- **Develop branding and marketing material [18 to 36 months / Ongoing].** While development of the branding and marketing material will begin early—primarily to build consensus around the service being developed—once the development plan is underway, it will be time to finalize the branding, and begin developing actual advertisements and itineraries that can be used by the travel and tourism industry to sell ferry and local attraction tickets.
- **Prepare request for qualifications from interested operators [12 to 24 months].** Understanding the options available from private passenger ferry operators is a critical step. The system may end up being operated by multiple operators and some host communities may issue RFPs for individual routes as opposed to the full Baseline System. Where possible, based on the schedule, these RFPs should be coordinated, specifically as it relates to key service expectations (e.g., branding material, service frequency, station and on-vessel amenities, any restrictions on use of vessels for other purposes). This activity will need to be done simultaneously with several of the above actions to inform the process.

8.3 IMMEDIATE NEXT STEPS

The above recommended actions include many of the immediate next steps that should be undertaken. These next steps focus on rolling out the study findings, determining the role of the consortium, engaging with potential host communities, identifying financial resources, all to figure out what is possible or feasible to undertake over the next 12 months.

- ▶ **Roll out study at MACo and follow up with official electronic release.** This will provide the first opportunity for folks to hear the results and the plan of action to advance the service.
- ▶ **Schedule briefings in each Baseline community.** Leadership in each community should be briefed. Building support for the service with this group will be critical to taking the next step in system development.
- ▶ **Identify champions for each community.** As discussed above, the consortium will need local, on the ground support to take the next steps.
- ▶ **Define expectations for consortium and the champions.** It is critical that consortium members and the newly appointed champions clearly understand their roles and how they will complement each other as implementation activities advance.
- ▶ **Begin “readiness” assessment.** In order to begin laying out the system development plan, the readiness assessment must be completed. Again, this will include infrastructure conditions as well as access to infrastructure (e.g., successful signing of MOUs).
- ▶ **Continue outreach to private ferry operators.** Existing ferry operators were interviewed as part of the study. A key follow up would be to reach out to gauge interest in operating initial routes and discuss the benefits of branding across a potential Chesapeake Bay Ferry System.
- ▶ **Lay out next steps for system development plan and financial plan.** And finally, the immediate actions must include initial work on the development and financial plans, as these will drive the schedule and phasing of next steps.

APPENDIX A. CHESAPEAKE BAY FERRY SITE EVALUATION SUMMARIES

ANNAPOLIS—CITY DOCK—BURTIS PIER

Pier and Landing Characteristics

Condition of Pier/Landing Site: Burtis Pier is expected to be rebuilt by 2025 as part of the City Dock revitalization project. New docks are expected to be in excellent condition after construction.

Pier Availability for Ferry Use: The landing site is owned by the city of Annapolis, and the docks are being rebuilt with DNR funding. Annapolis has indicated a willingness to provide docking space for the ferry.

Capacity for Backup Vessels, Fuel, Power: There would likely be sufficient space at Burtis Pier for additional vessels to dock. There are several marinas in the Annapolis area where space could be rented for backups if needed. Additional space is available at the Maritime Museum docks (which are also city-owned and built with DNR funding). Marine fuel is available in Annapolis. Electrical infrastructure could be integrated into the Burtis Pier rebuild, which would be beneficial if any ferries are electric or hybrids.

Other Terminal Features: A new National Park Service/Annapolis Visitor Center is to be built adjacent to the Burtis House and could house space for ferry ticketing and restrooms.

Travel Time and Navigation

Minimum Water Depth: Estimated to be 14 feet on approach to Burtis Pier (no concerns).

Other Navigational Issues: There is moderate vessel traffic in the Annapolis harbor area (no concerns).

Distances/Day Trip Feasibility: Annapolis is centrally located and could serve as a hub for day

trips to several destinations in the central Chesapeake Bay.

Proximity to Other Destinations: Close connections to Matapeake, Kent Narrows, St. Michaels, Baltimore, Galesville, Chesapeake City, and Rock Hall.

Travel Time as Compared to Driving: Potential to avoid Bay Bridge congestion to Eastern Shore.

Attractions and Tourism Amenities

Dining and Shopping in Walking Distance: Burtis Pier is within close proximity and easy walking distance to numerous restaurants and shops.

Museums and Outdoor Activities: The U.S. Naval Academy Stadium and Visitor Center, Historic Annapolis sites, and Annapolis Maritime Museum are a few of several attractions nearby.

Historical Visitation: Data from the 2021 MOTD/NPS report indicates over 1.9 million visitors to Annapolis in 2021. Key sites included City Dock (227K), Quiet Waters Park (40K), Armel-Leftwich Visitor Center (14K), Paca House (10K), Visitor Information Center (8K).

Other Transportation Connections: Annapolis has a free downtown shuttle as well as other bus routes that could connect visitors to destinations throughout the city.

Overnight Accommodations: There are several hotels in Annapolis, and many within close proximity to City Dock.

Potential to Benefit Economic Development: Annapolis has a well-developed tourism sector, but the ferry would serve as an additional draw for visitors.

Scoring Summary

Pier and Landing	Time and Navigation	Attractions & Amenities	Total
25/25	31/35	38/40	94/100



BALTIMORE—INNER HARBOR—PIER 1

Pier and Landing Characteristics

Condition of Pier/Landing Site: Pier 1 is in good condition, and few improvements would be needed prior to implementing ferry service.

Pier Availability for Ferry Use: Pier 1 is owned by the city, and there is ample space available in the Inner Harbor for landing and land-side operations.

Capacity for Backup Vessels, Fuel, Power: There is abundant space for multiple vessel docking in the Inner Harbor. Marine fuel is available in the harbor near the Rusty Scupper. Some boat operators get fuel delivered by truck to the harbor.

Other Terminal Features: The Constellation Dock and Visitor Center on the pier could be used as a ticketing center with restrooms. Location is ADA accessible.

Travel Time and Navigation

Minimum Water Depth: Estimated to be 26 feet on approach to Pier 1 (no concerns).

Other Navigational Issues: The vessel speed restriction in the harbor (especially all the way to the Inner Harbor) increases travel time. There can be significant vessel traffic in the harbor, but we do not anticipate this affecting ferry operations or schedules.

Distances/Day Trip Feasibility: The Inner Harbor is over 31 miles from Annapolis by water and travel time could be over 2 hours given speed restrictions.

Proximity to Other Destinations: Baltimore is closer than Annapolis to northern sites including

Havre de Grace, Chesapeake City, and Rock Hall, but further from destinations in the central and southern bay.

Travel Time as Compared to Driving: Traffic can be heavy between Baltimore, Annapolis and on the Bay Bridge, and there could be some time savings to destinations such as Rock Hall and more distant sites.

Attractions and Tourism Amenities

Dining and Shopping in Walking Distance: Pier 1 is near many dining and shopping options in Harbor Place and downtown Baltimore.

Museums and Outdoor Activities: Fort McHenry, Federal Hill Park, the USS Constellation, and Lightship Chesapeake are a few of several attractions nearby. Sports venues including Orioles Park at Camden Yards and M&T Bank Stadium.

Historical Visitation: Data from the 2021 MOTD/NPS report indicates over 2.2 million visitors to Baltimore in 2021. Key sites included Fort McHenry (47K), USS Constellation (15K), and the Baltimore Visitor Center.

Other Transportation Connections: There are several buses and light rail lines within easy walking distance of the Inner Harbor.

Overnight Accommodations: There are several hotels near the Inner Harbor and in downtown Baltimore.

Potential to Benefit Economic Development: Ferry riders would represent just a small share of visitation to Baltimore, but the ferry could be a complementary element for the revitalization of the area.

Scoring Summary

Pier and Landing	Time and Navigation	Attractions & Amenities	Total
25/25	27/35	37/40	89/100

MATAPEAKE—MATAPEAKE PIER

Pier and Landing Characteristics

Condition of Pier/Landing Site: Matapeake Pier would need upgrades to the walking surface, railings, and fendering in order to accommodate a ferry landing.

Pier Availability for Ferry Use: The pier is owned by the state and leased to Queen Anne’s County. The County has expressed interest in utilizing the site for ferry use.

Capacity for Backup Vessels, Fuel, Power: The pier is located adjacent to the DNR maintenance facility, and it is possible agreements could be reached to utilize DNR facilities if necessary.

Other Terminal Features: There are existing public restrooms at the parking lot near the pier, as well as several parking spaces.

Travel Time and Navigation

Minimum Water Depth: Estimated to be 14 feet on approach to Matapeake Pier (no concerns).

Other Navigational Issues: No concerns; dredging is periodically required in the basin.

Distances/Day Trip Feasibility: Matapeake Pier is approximately 9 miles from Annapolis by water, so relatively quick transit times and day trips would be possible.

Proximity to Other Destinations: Close connections to Annapolis, Kent Narrows, Rock Hall, and St. Michaels.

Travel Time as Compared to Driving: Given the straight shot via water from Annapolis, travel times would be shorter if there is heavy traffic on the Bay Bridge.

Attractions and Tourism Amenities

Dining and Shopping in Walking Distance: There is none within walking distance. Visitors would need to get transportation to restaurants, wineries, and shops located a few miles away.

Museums and Outdoor Activities: Matapeake beach is located near the landing. The beach currently has few services and visitors would have to walk around the DNR facility. Kayaking and biking are possible in the area. Historic Stevensville is nearby but not within walking distance.

Historical Visitation: Data from the 2021 MOTD/NPS report indicates approximately 16,000 visitors to Matapeake in 2021, including the fishing pier and beach.

Other Transportation Connections: Limited.

Overnight Accommodations: None in walking distance; however, Matapeake would be more of a day trip destination than an overnight destination.

Potential to Benefit Economic Development: Ferry service could encourage development of some commercial services nearby.

Scoring Summary

Pier and Landing	Time and Navigation	Attractions & Amenities	Total
20/100	34/100	20/100	74/100



KENT NARROWS—WELLS COVE

Pier and Landing Characteristics

Condition of Pier/Landing Site: Wells Cove is in good condition and is currently utilized as a landing location by head boats.

Pier Availability for Ferry Use: The Wells Cove landing site is owned by Queen Anne’s County, which would be willing to lease docking space. Head boats pay monthly fees for landing rights.

Capacity for Backup Vessels, Fuel, Power: Fuel is available nearby at Piney Narrows Marina. There is additional docking space at nearby marinas.

Other Terminal Features: There is existing public parking and portable toilets at the landing site. The site features a wide concrete and brick walkway that would have ample space for a ticket booth and queuing.

Travel Time and Navigation

Minimum Water Depth: Estimated to be approximately 10 feet on approach to Wells Cove.

Other Navigational Issues: There is a relatively strong current in the Kent Narrows area, and there is a drawbridge to the north.

Distances/Day Trip Feasibility: Wells Cove is approximately 22 miles from Annapolis by water. Day trips and overnight trips would be possible.

Proximity to Other Destinations: Close connections to St. Michaels, Rock Hall, and Matapeake.

Travel Time as Compared to Driving: Kent Narrows is located right along U.S. 50/Bay Bridge. There would be travel time savings to the western shore only when traffic is very heavy.

Attractions and Tourism Amenities

Dining and Shopping in Walking Distance: There are six restaurants in the immediate area featuring different cuisines. Several have bars and there is a laid-back, “island vibe” in the area.

Museums and Outdoor Activities: The Chesapeake Heritage and Visitor Center, multiple trails, fishing boat trips, Chesapeake Bay Environmental Education Center, and sandy beaches at the northern point of the narrows are all nearby.

Historical Visitation: Data from the 2021 MOTD/NPS report indicates approximately 225,000 visitors to Kent Narrows in 2021. Key attractions included the Narrows boat ramp, Heritage and Visitor Center, and Chesapeake Bay Environmental Education Center.

Other Transportation Connections: Limited.

Overnight Accommodations: There are several hotels near Wells Cove, and Kent Narrows could be either a day trip or overnight destination.

Potential to Benefit Economic Development: Ferry service would benefit the nearby restaurants and hotels, contributing to the water-based, island feel of the area.

Scoring Summary

Pier and Landing	Time and Navigation	Attractions & Amenities	Total
25/25	25/35	35/40	85/100



GALESVILLE—GALESVILLE WHARF

Pier and Landing Characteristics

Condition of Pier/Landing Site: Galesville Wharf is newly renovated and in excellent condition.

Pier Availability for Ferry Use: The pier is owned by the county and could be utilized as a ferry landing site.

Capacity for Backup Vessels, Fuel, Power: The wharf is long and could accommodate more than one ferry vessel. There is marine fuel available at a nearby marina.

Other Terminal Features: There is a small public parking area and a portable toilet at the wharf.

Travel Time and Navigation

Minimum Water Depth: Estimated to be 6 feet on approach to Galesville Wharf.

Other Navigational Issues: No other issues beyond the potential water depth concern.

Distances/Day Trip Feasibility: Galesville Wharf is approximately 14 miles from Annapolis by water, making for a relatively easy day trip.

Proximity to Other Destinations: Relatively close to Chesapeake Beach and could be a stop along the way from Annapolis (although entering the inlet would add time to the Chesapeake Beach route).

Travel Time as Compared to Driving: Unlikely to save time from Annapolis; Galesville is not likely a high-demand destination from the Eastern Shore.

Attractions and Tourism Amenities

Dining and Shopping in Walking Distance: There are two waterfront restaurants/bars within walking distance, as well as a small antique shop and art gallery.

Museums and Outdoor Activities: The Galesville Heritage Museum and historical interpretive panels are within walking distance of the pier. There is easy bike riding in the area, a picturesque harbor, the historic Hot Sox stadium, Smithsonian Environmental Research Center, and kayak trails.

Historical Visitation: Data from the 2021 MOTD/NPS report indicates approximately 400,000 visitors to Galesville in 2021. Key attractions included the Smithsonian Environmental Research Center and the Galesville Heritage Museum.

Other Transportation Connections: There is a county microtransit system (small buses and vans) that can accommodate visitors with two hours advance notice.

Overnight Accommodations: There are few options in the area, but Galesville would likely be more of a day trip destination.

Potential to Benefit Economic Development: There is high potential to develop tourist services and amenities very close to the landing pier (retail, food & beverage, rentals, etc.).

Scoring Summary

Pier and Landing	Time and Navigation	Attractions & Amenities	Total
24/25	26/35	31/40	81/100

CHESAPEAKE BEACH—ROD ‘N’ REEL RESORT

Pier and Landing Characteristics

Condition of Pier/Landing Site: Rod ‘N’ Reel Resort is completing marina renovations by 2025; there are a few potential ferry landing sites which would be in good to excellent condition.

Pier Availability for Ferry Use: Potential landing sites are privately owned by the resort. Resort ownership has stated that it would welcome the ferry.

Capacity for Backup Vessels, Fuel, Power: There are several slips available in the resort marina. Fuel is available nearby.

Other Terminal Features: Ramps and/or gangways may be needed depending on the height of the landing above water. The resort features a 700-space parking garage and restrooms.

Travel Time and Navigation

Minimum Water Depth: Estimated to be 9 feet on approach to Rod ‘N’ Reel Resort.

Other Navigational Issues: No issues noted.

Distances/Day Trip Feasibility: Chesapeake Beach is approximately 22 miles from Annapolis by water, making for a relatively easy day trip.

Proximity to Other Destinations: Relatively close to Galesville and directly across the bay from Oxford. Could be a potential secondary hub for visitors coming from the nearby Washington, DC metro area.

Travel Time as Compared to Driving: Could save time from southern Eastern Shore sites; a water connection from the Eastern Shore could be attractive for special events such as concerts, etc.

Attractions and Tourism Amenities

Dining and Shopping in Walking Distance: There are five restaurants within the Rod ‘N’ Reel Resort, and more dining and shopping in town and at North Beach (further away, but within walking distance).

Museums and Outdoor Activities: There is a Railway Museum on the resort property, as well as watercraft rentals, a kayak trail, fishing trips, the North Beach boardwalk, and bingo and other entertainment at the resort.

Historical Visitation: Data from the 2021 MOTD/NPS report indicates approximately 300,000 visitors to Chesapeake Beach and North Beach in 2021. Key attractions included the Railway Museum and the Bayside History Museum.

Other Transportation Connections: Limited.

Overnight Accommodations: In addition to the resort, there are many condos and short-term rentals in the area.

Potential to Benefit Economic Development: A landing spot at the resort would give visitors many options for dining, shopping, entertainment, etc., but might limit benefits elsewhere in town in the absence of transportation options.

Scoring Summary

Pier and Landing	Time and Navigation	Attractions & Amenities	Total
23/25	27/35	33/40	83/100



SOLOMONS—COMFORT STATION PIER

Pier and Landing Characteristics

Condition of Pier/Landing Site: Comfort Station Pier was recently renovated and is in good condition. It could possibly need some modifications depending on the width of the ferry vessels.

Pier Availability for Ferry Use: Comfort Station Pier is owned by the county and would be available for ferry use.

Capacity for Backup Vessels, Fuel, Power: There is space for a second vessel to dock at the pier (depending on width). There are several other marinas and marine fuel nearby.

Other Terminal Features: There are restrooms onsite and a park-like area where visitors could wait for the ferry. Parking is available across the street (but it fills up during busy times). The location is not as visible from the main street as Ice Cream Pier, but conditions are more favorable (less windy, less current) at Comfort Station Pier. An ADA study is in process.

Travel Time and Navigation

Minimum Water Depth: Estimated to be 9 feet on approach to Comfort Station Pier.

Other Navigational Issues: The channel could be busy with vessel traffic at certain times.

Distances/Day Trip Feasibility: Solomons is approximately 53 miles from Annapolis by water, making for a long day trip.

Proximity to Other Destinations: Solomons could serve as a potential hub for St. Mary’s City, Leonardtown, Crisfield and other southern bay connections.

Travel Time as Compared to Driving: There could be significant time savings with crossings to Crisfield and other Eastern Shore destinations that are far south of the Bay Bridge.

Attractions and Tourism Amenities

Dining and Shopping in Walking Distance: There are several restaurants and shops within walking distance. Comfort Station Pier is right in the middle of the main tourist strip.

Museums and Outdoor Activities: The Calvert Marine Museum is nearby but a relatively long walk for most visitors, Annmarie Sculpture Garden & Arts Center is slightly further away, and there are waterfront paths, fishing, water tours and cruises, and festivals.

Historical Visitation: Data from the 2021 MOTD/NPS report indicates over 350,000 visitors to Solomons in 2021. Key attractions included the Visitor Information Center, Calvert Marine Museum, and the Bio Lab Visitor Center.

Other Transportation Connections: Limited.

Overnight Accommodations: There are several hotels and B&Bs in the area.

Potential to Benefit Economic Development: The ferry landing location in the center of town would benefit many small businesses.

Scoring Summary

Pier and Landing	Time and Navigation	Attractions & Amenities	Total
22/25	24/35	36/40	82/100



ST. MARY’S CITY—HISTORIC ST. MARY’S CITY DOCK

Pier and Landing Characteristics

Condition of Pier/Landing Site: Historic St. Mary’s City Dock was recently renovated and is in excellent condition.

Pier Availability for Ferry Use: The dock was built by Historic St. Mary’s City. HSMC is open to a prospective partnership.

Capacity for Backup Vessels, Fuel, Power: There is not much other marine infrastructure in the immediate area. Fuel, a travel lift, and other services are available at Dennis Point Marina.

Other Terminal Features: There are restrooms in the area and ample space for waiting and queuing. The dock is connected to a path that connects visitors up to Historic St. Mary’s City in a shuttle.

Travel Time and Navigation

Minimum Water Depth: Estimated to be approximately 19 feet on approach to the dock.

Other Navigational Issues: None noted.

Distances/Day Trip Feasibility: Historic St. Mary’s City is approximately 87 miles from Annapolis by water. Day trips would be possible from Solomons or other departure points in the southern bay.

Proximity to Other Destinations: Solomons and Leonardtown are relatively close. However, the road connection from Solomons is much faster than a trip around Point Lookout.

Travel Time as Compared to Driving: There could be significant time savings with crossings to Crisfield and other Eastern Shore destinations that are far south of the Bay Bridge.

Attractions and Tourism Amenities

Dining and Shopping in Walking Distance: Historic St. Mary’s City is currently expanding its dining options. St. Mary’s College has a coffee shop open to the public.

Museums and Outdoor Activities: Historic St. Mary’s City is the premier archeological site in Maryland. A new Visitor Center, the “Maryland Heritage Interpretive Center,” is under construction. Other sites of interest include The Commemorative to the Enslaved Peoples of Southern Maryland at St. Mary’s College of Maryland and Native American historical sites.

Historical Visitation: Data from the 2021 MOTD/NPS report indicates over 350,000 visitors to the area in 2021. Historic St. Mary’s City hosts approximately 40K visitors per year.

Other Transportation Connections: There is a shuttle from the dock up to the historic city.

Overnight Accommodations: There are few options in the area.

Potential to Benefit Economic Development: The ferry would encourage additional commercial development and tourist services in the area.

Scoring Summary

Pier and Landing	Time and Navigation	Attractions & Amenities	Total
22/25	25/35	30/40	77/100



LEONARDTOWN—LEONARDTOWN WHARF PARK

Pier and Landing Characteristics

Condition of Pier/Landing Site: The docks at Leonardtown Wharf Park were replaced in 2022 and are in great condition. They consist of floating docks including a new end “T” that could accommodate a ferry.

Pier Availability for Ferry Use: The docks are owned by the town, and the town is interested in welcoming ferry passengers.

Capacity for Backup Vessels, Fuel, Power: There is space for additional docking at the wharf, as well as a pump station, water and electric service.

Other Terminal Features: There are restrooms in the park in a building that currently houses an ice cream shop. There is space for a ticketing booth, as well as several parking spaces. The town runs a shuttle from the park up the hill to the center of town on summer weekends.

Travel Time and Navigation

Minimum Water Depth: Estimated to be approximately 6 feet on approach to the dock.

Other Navigational Issues: There are a few narrow and tight turns on the approach into Leonardtown.

Distances/Day Trip Feasibility: Leonardtown is approximately 115 miles from Annapolis by water. Day trips would be possible from Solomons or other departure points in the southern bay.

Proximity to Other Destinations: Leonardtown is fairly remote from most other departure points/destinations currently under consideration.

Future cross-Potomac connections to Virginia and north to the District of Columbia would be logical.

Travel Time as Compared to Driving: There could be time savings with crossings to Crisfield and other Eastern Shore destinations that are far south of the Bay Bridge.

Attractions and Tourism Amenities

Dining and Shopping in Walking Distance: There are several dining and shopping options in Leonardtown. The center of town is walkable and features many shops galleries, entertainment options, and restaurants.

Museums and Outdoor Activities: Attractions include the Old Jail Museum and Visitor Center, Network to Freedom and American Byways site, Town Square and WWII Monument, Craft Beverage Trail, kayaking trails, and bird sanctuary.

Historical Visitation: Data from the 2021 MOTD/NPS report indicates almost 500,000 visitors to the area in 2021.

Other Transportation Connections: There is a trolley up the hill from Leonardtown Wharf Park to the town during summer weekends.

Overnight Accommodations: There are several hotels and motels in the area (most require a local transportation connection).

Potential to Benefit Economic Development: The ferry would increase awareness of this rapidly growing town and its dining, shopping, and tourist attractions.

Scoring Summary

Pier and Landing	Time and Navigation	Attractions & Amenities	Total
24/25	18/35	40/40	82/100

CRISFIELD—CRISFIELD CITY DOCK

Pier and Landing Characteristics

Condition of Pier/Landing Site: The main pier is currently undergoing renovation, and the landing site is in good condition and could easily accommodate ferry service.

Pier Availability for Ferry Use: The pier is owned by the city, which would welcome ferry service.

Capacity for Backup Vessels, Fuel, Power: There is ample space for docking additional vessels both at the pier and in nearby marinas. Water and electric are available at the pier, and fuel is available nearby.

Other Terminal Features: The boardwalk is undergoing renovation. Restrooms are available, and there is plenty of space for a ticket booth and queuing.

Travel Time and Navigation

Minimum Water Depth: Estimated to be approximately 11 feet on approach to the dock.

Other Navigational Issues: None noted.

Distances/Day Trip Feasibility: Leonardtown is approximately 87 miles from Annapolis by water. Day trips would be possible from Solomons or other departure points in the southern bay.

Proximity to Other Destinations: Cross-bay connections to St. Mary’s City or Leonardtown would be possible. Future connections to Salisbury or other Eastern Shore destinations such as Oxford or Cambridge would complement a more extensive system. Crisfield is well positioned for connections to the south in Virginia.

Travel Time as Compared to Driving: There could be time savings with crossings to Solomons and other western shore destinations that are far south of the Bay Bridge.

Attractions and Tourism Amenities

Dining and Shopping in Walking Distance: There are some restaurants and shops within walking distance of the City Dock, as well as the seafood market area and the arts districts near the town center.

Museums and Outdoor Activities: Crisfield is distinguished by its heavy working waterfront. There is also a charming Victorian section of town, golf course, access to Janes Island State Park, Smith Island, Tangier Island, festivals, and galleries. Transportation connections are needed to many of these.

Historical Visitation: Data from the 2021 MOTD/NPS report indicates around 100,000 visitors to the area in 2021. Janes Island State Park recorded 22K visitors and the Tawes Museum approximately 2K visitors.

Other Transportation Connections: Limited. It is legal in Crisfield to drive golf carts on streets.

Overnight Accommodations: There are a few hotel, motel and Airbnb options in Crisfield.

Potential to Benefit Economic Development: The ferry would connect visitors to and increase awareness of a relatively remote destination.

Scoring Summary

Pier and Landing	Time and Navigation	Attractions & Amenities	Total
23/25	26/35	31/40	80/100

SALISBURY—SALISBURY MARINA

Pier and Landing Characteristics

Condition of Pier/Landing Site: The marina is in good condition.

Pier Availability for Ferry Use: A developer is leasing the marina from the city; it would be necessary to secure permission to land from the marina manager.

Capacity for Backup Vessels, Fuel, Power: There is space available at the marina for additional vessels. Fuel is available at the marina.

Other Terminal Features: Restrooms and parking are available at the marina, and there appears to be sufficient space for a ticket booth and queuing.

Travel Time and Navigation

Minimum Water Depth: Estimated to be approximately 14 feet on the Wicomico River.

Other Navigational Issues: Narrow and tight turns and vessel traffic on the Wicomico River.

Distances/Day Trip Feasibility: Salisbury is approximately 97 miles from Annapolis by water. Day trips would be challenging given long distances to most destinations.

Proximity to Other Destinations: Salisbury is remote and not well connected to other destinations,

but connections from Crisfield and Solomons could complement a more extensive ferry system.

Travel Time as Compared to Driving: The relatively long transit time up the river counteracts most driving time savings.

Attractions and Tourism Amenities

Dining and Shopping in Walking Distance: There are several shops and restaurants in central Salisbury, only a few blocks from the potential landing site. Main Street is attractive and walkable.

Museums and Outdoor Activities: There are several museums in Salisbury, as well as the Salisbury Art Space, Poplar Home Mansion, Newtown, Parsons Cemetery, architecture tours, and visitor center.

Historical Visitation: Data from the 2021 MOTD/NPS report indicates around 500,000 visitors to the area in 2021. Pemberton Historical Park had approximately 19K visitors and the Ward Museum of Art had around 5K.

Other Transportation Connections: Salisbury has a central bus depot with several connections.

Overnight Accommodations: There are several hotel and motel options in Salisbury.

Potential to Benefit Economic Development: The ferry would likely provide marginal benefits to an established downtown area.

Scoring Summary

Pier and Landing	Time and Navigation	Attractions & Amenities	Total
24/25	30/35	24/40	78/100

CAMBRIDGE—MARINA AT LONG WHARF

Pier and Landing Characteristics

Condition of Pier/Landing Site: The marina is in good condition.

Pier Availability for Ferry Use: Marina at Long Wharf is owned by the city and operated by a management company.

Capacity for Backup Vessels, Fuel, Power: There is space available at the marina for additional vessels. Fuel is available at the marina. A dock on the other side of the basin adjacent to the marina can accommodate significantly larger ships.

Other Terminal Features: Restrooms and parking are available at the marina, and there appears to be sufficient space for a ticket booth and queuing.

Travel Time and Navigation

Minimum Water Depth: Estimated to be approximately 18 feet on approach to the marina.

Other Navigational Issues: None noted.

Distances/Day Trip Feasibility: Cambridge is approximately 45 miles from Annapolis by water. Day trips would be feasible but long.

Proximity to Other Destinations: Cambridge is very close to Oxford with potential connections to Easton and Tilghman Island, as well as cross-bay connections to Chesapeake City and Solomons.

Travel Time as Compared to Driving: There could be some time savings, especially from southern locations on the western shore. However, most attractions, shopping and dining in Cambridge are not easily accessible from the ferry landing location.

Attractions and Tourism Amenities

Dining and Shopping in Walking Distance: There are several shops and restaurants in central Cambridge, but not within walking distance of the ferry landing.

Museums and Outdoor Activities: Attractions include Harriet Tubman and Frederick Douglass sites, tours on the Skipjack Nathan, an exhibit at the marina lighthouse, several murals, visitor center, and water activities/rentals (at the Hyatt).

Historical Visitation: Data from the 2021 MOTD/NPS report indicates around 200,000 visitors to the area in 2021. The Skipjack Nathan of Dorchester, Sailwinds Park, Long Wharf Park, Richardson Museum, and Harriet Tubman Underground Railroad NPS site were key attractions.

Other Transportation Connections: Limited.

Overnight Accommodations: There are a few options in the area, including the large Hyatt hotel and conference facility.

Potential to Benefit Economic Development: The ferry would raise visibility of interesting but sometimes overlooked destinations in and around town.

Scoring Summary

Pier and Landing	Time and Navigation	Attractions & Amenities	Total
25/25	27/35	27/40	79/100

OXFORD—OXFORD FERRY LANDING

Pier and Landing Characteristics

Condition of Pier/Landing Site: The Oxford Ferry Landing is in fair condition and could use some upgrades to the boardwalk and pilings.

Pier Availability for Ferry Use: The ferry landing is owned by the state and funded by DNR and Federal monies.

Capacity for Backup Vessels, Fuel, Power: The pier is long and there is space for more than one ferry vessel (American Cruise Lines previously docked there). Fuel is available at a nearby marina.

Other Terminal Features: Restrooms are available nearby. There is very limited parking, and potential space for a ticket booth.

Travel Time and Navigation

Minimum Water Depth: Estimated to be approximately 13 feet on approach to the landing.

Other Navigational Issues: None noted.

Distances/Day Trip Feasibility: Oxford is approximately 40 from Annapolis by water. Day trips would be feasible.

Proximity to Other Destinations: There are close connections to Easton, Tilghman Island, and

Cambridge. Oxford would be a logical stop to or from Easton and/or Cambridge.

Travel Time as Compared to Driving: There could be some time savings as compared to driving from sites on the western shore.

Attractions and Tourism Amenities

Dining and Shopping in Walking Distance: There are a few shops and restaurants in Oxford, including the Robert Morris Inn adjacent to the potential ferry landing site, as well as a popular ice cream shop and a restaurant at a nearby marina.

Museums and Outdoor Activities: Attractions include the Oxford-Bellevue Ferry (1684), Customs House, walking tours offered by the museum, a popular bike route, and charming Victorian homes.

Historical Visitation: Oxford attracts thousands of visitors each year. Bellevue Ferry data is not available.

Other Transportation Connections: Limited, although there are bus connections to nearby towns.

Overnight Accommodations: There is a robust short-term rental industry, as well as a few small inns and B&Bs.

Potential to Benefit Economic Development: The scale of the town would likely limit significant development and growth of services.

Scoring Summary

Pier and Landing	Time and Navigation	Attractions & Amenities	Total
20/25	30/35	29/40	79/100

ST. MICHAELS—CHESAPEAKE BAY MARITIME MUSEUM

Pier and Landing Characteristics

Condition of Pier/Landing Site: The potential landing site is in good condition. CBMM recently purchased the Crab Claw restaurant property and intends to re-envision the site as a complement to the museum.

Pier Availability for Ferry Use: The museum would welcome the ferry service.

Capacity for Backup Vessels, Fuel, Power: There is potential space for more than one ferry to dock at the former Crab Claw property. Other marinas in the area have additional space and available fuel.

Other Terminal Features: Restrooms are nearby and at the museum, and there would be space for a ticket booth. There is some public parking in the area.

Travel Time and Navigation

Minimum Water Depth: Estimated to be approximately 8 feet on approach to the landing site.

Other Navigational Issues: None noted.

Distances/Day Trip Feasibility: St. Michaels is approximately 32 miles by water from Annapolis. Day trips are possible (and already offered weekly during the summer by Watermark from Annapolis).

Proximity to Other Destinations: There are close connections from St. Michaels to Kent Narrows and Matapeake.

Travel Time as Compared to Driving: St. Michaels is a relatively short trip from the potential Annapolis hub; there would be travel time savings during periods of heavy bridge traffic.

Attractions and Tourism Amenities

Dining and Shopping in Walking Distance: There are many restaurants, bars, and shops in St. Michaels in walking distance of the potential landing site.

Museums and Outdoor Activities: Attractions include the Chesapeake Bay Maritime Museum, Patriot Cruises day trips, other charter/tour boats, Waterfowl Festival, weddings/private events, car museum, and St. Michaels Museum.

Historical Visitation: Data from the 2021 MOTD/NPS report indicates over 400,000 visitors to the area in 2021. The Chesapeake Bay Maritime Museum has averaged 40K visitors in recent years.

Other Transportation Connections: Limited, but there are bus connections to nearby towns.

Overnight Accommodations: There are several hotel, motel, B&B, and Airbnb options in St. Michaels.

Potential to Benefit Economic Development: The town already has a well-developed tourism infrastructure.

Scoring Summary

Pier and Landing	Time and Navigation	Attractions & Amenities	Total
24/25	27/35	36/40	87/100

TILGHMAN ISLAND—KNAPP’S NARROWS MARINA

Pier and Landing Characteristics

Condition of Pier/Landing Site: The potential landing site is in fair condition.

Pier Availability for Ferry Use: Knapp’s Narrows is a private marina, and an agreement would be necessary with the owner/operator.

Capacity for Backup Vessels, Fuel, Power: There is space for additional vessels at the marina and other marinas in the area. Fuel is available.

Other Terminal Features: There are restrooms at the marina restaurant. There is limited parking.

Travel Time and Navigation

Minimum Water Depth: Estimated to be approximately 7 feet on approach to the landing site.

Other Navigational Issues: Dredging is required in the narrows.

Distances/Day Trip Feasibility: Tilghman Island is approximately 30 miles by water from Annapolis. Day trips would be feasible.

Proximity to Other Destinations: There are close connections to St. Michaels, Oxford, and Cambridge, as well as Chesapeake Beach to the west.

Travel Time as Compared to Driving: Tilghman Island is a straight shot across the bay from Chesapeake Beach; there would be travel time savings during periods of heavy bridge traffic.

Attractions and Tourism Amenities

Dining and Shopping in Walking Distance: There is a restaurant at the marina and relatively few other dining and shopping options within walking distance of the potential landing site.

Museums and Outdoor Activities: Attractions in the area include Poplar Island, a small Waterman’s Museum, as well as excellent kayaking opportunities. Access to all of these from the landing site could be an issue.

Historical Visitation: Data from the 2021 MOTD/NPS report indicates 8K visitors to Dogwood Harbor.

Other Transportation Connections: Limited.

Overnight Accommodations: There are a few lodging options on Tilghman Island.

Potential to Benefit Economic Development: There is potential to benefit the few restaurants and services located near potential landing points.

Scoring Summary

Pier and Landing	Time and Navigation	Attractions & Amenities	Total
19/25	27/35	26/40	72/100

EASTON—EASTON POINT PARK

Pier and Landing Characteristics

Condition of Pier/Landing Site: The potential landing site would be located in a newly developed park. There are plans for a dock at the park, so a new dock would likely be in excellent condition.

Pier Availability for Ferry Use: The park is owned by the town, and the town has expressed interest in this type of development.

Capacity for Backup Vessels, Fuel, Power: There is some additional space for docking. Marine fuel is available in the area.

Other Terminal Features: There will be public restrooms in the park. There is sufficient space for a ticketing booth. Parking is available.

Travel Time and Navigation

Minimum Water Depth: Estimated to be approximately 9 feet on approach to the landing site.

Other Navigational Issues: There are narrow and tight turns on the Tred Avon River on the approach to Easton.

Distances/Day Trip Feasibility: Easton is approximately 47 miles by water from Annapolis. As vessel speeds would be reduced in the river, travel time would be long and day trips from Annapolis would not likely be feasible.

Proximity to Other Destinations: There are close connections from Easton to Oxford, Cambridge and Tilghman Island.

Travel Time as Compared to Driving: Not significant time savings, as transit time up the river would add to ferry trip length.

Attractions and Tourism Amenities

Dining and Shopping in Walking Distance: There are numerous restaurants and shops in Easton’s pleasant downtown area; however, potential landing sites are about a mile from the downtown area.

Museums and Outdoor Activities: Easton features a trail system for pedestrians and bicycles, theater, art museum, kayaking on the river, and the Philips Wharf Environmental Center adjacent to the park.

Historical Visitation: Data from the 2021 MOTD/NPS report indicates around 400,000 visitors to the area in 2021.

Other Transportation Connections: Limited. A connection from the landing to downtown would likely be necessary for many ferry passengers given the distance.

Overnight Accommodations: There are several hotel, motel, and B&B options in Easton.

Potential to Benefit Economic Development: The town already has a thriving downtown area, but the ferry could bring further interest and development.

Scoring Summary

Pier and Landing	Time and Navigation	Attractions & Amenities	Total
24/25	22/35	30/40	76/100

ROCK HALL—SHARP STREET PIER

Pier and Landing Characteristics

Condition of Pier/Landing Site: Sharp Street Pier is in fair to good condition.

Pier Availability for Ferry Use: The pier is owned by Kent County. Ferry service to Baltimore previously operated from Sharp Street Pier in the 1990s.

Capacity for Backup Vessels, Fuel, Power: Additional docking space is available at multiple marinas in the area. Marine fuel is available.

Other Terminal Features: Restrooms are available at Waterman’s Restaurant. Parking is available nearby.

Travel Time and Navigation

Minimum Water Depth: Estimated to be approximately 7 feet on approach to the landing site.

Other Navigational Issues: Dredging is required in Rock Hall Harbor; winds can sometimes be challenging.

Distances/Day Trip Feasibility: Rock Hall is approximately 18 miles by water from Annapolis. Day trips would be possible to both Annapolis and Baltimore.

Proximity to Other Destinations: There are close connections from Rock Hall to Kent Narrows and Baltimore.

Travel Time as Compared to Driving: Rock Hall is a straight shot across the water from Baltimore (and slightly longer from Annapolis). Driving is more than twice the distance due to the need to double back after existing U.S. 50.

Attractions and Tourism Amenities

Dining and Shopping in Walking Distance: There are several restaurants and shops along Main Street, which is about a half mile from Sharp Street Pier. There are a few waterfront restaurants on the harbor.

Museums and Outdoor Activities: There are watercraft rentals, boating, waterfront activities and festivals, live music, and a small museum in town.

Historical Visitation: Data from the 2021 MOTD/NPS report indicates over 100,000 visitors to the area in 2021. Eastern Neck National Wildlife Refuge reported 8K visitors.

Other Transportation Connections: The Delmarva Craft shuttle bus runs to towns in Kent County.

Overnight Accommodations: There are several inns and B&Bs in town.

Potential to Benefit Economic Development: There is high potential to benefit the small businesses on the harbor and on Main Street.

Scoring Summary

Pier and Landing	Time and Navigation	Attractions & Amenities	Total
23/25	29/35	33/40	85/100

BETTERTON—BETTERTON BEACH PIER

Pier and Landing Characteristics

Condition of Pier/Landing Site: A recent fire damaged the pier and it is currently undergoing a redesign.

Pier Availability for Ferry Use: The pier is owned by Kent County. The town of Betterton has expressed interest in ferry service, as historically the town benefitted from ferry visitors from Baltimore.

Capacity for Backup Vessels, Fuel, Power: The pier is long with potential space for docking more than one ferry vessel.

Other Terminal Features: There is a parking area and potential space for a ticket booth. There are restrooms available at the beach.

Travel Time and Navigation

Minimum Water Depth: Estimated to be approximately 9 feet on approach to the landing site.

Other Navigational Issues: None noted.

Distances/Day Trip Feasibility: Betterton is approximately 41 miles by water from Annapolis. Day trips would be possible to/from both Annapolis and Baltimore.

Proximity to Other Destinations: Betterton is on the way to northern destinations including Chesapeake City, Havre de Grace and North East, and

stopping there would not add significant travel time on those routes.

Travel Time as Compared to Driving: There would be some time savings traveling by ferry when the bridge has heavy traffic. Betterton is accessible via country roads. Arriving via ferry would be a different experience.

Attractions and Tourism Amenities

Dining and Shopping in Walking Distance: There is one restaurant near the beach with a new operator in 2023. There are few other options near the landing site.

Museums and Outdoor Activities: Betterton has a wide beach that is free of nettles. There is a small history museum in the town hall. A winery is nearby but not within walking distance.

Historical Visitation: There were approximately 11,000 visitors to Betterton Beach and 5,000 visitors to the Sassafras Natural Resources Management Area in 2021.

Other Transportation Connections: The Delmarva Craft shuttle bus runs to towns in Kent County.

Overnight Accommodations: There are few options in and around Betterton.

Potential to Benefit Economic Development: The return of a ferry could raise the visibility of the town significantly.

Scoring Summary

Pier and Landing	Time and Navigation	Attractions & Amenities	Total
19/25	25/35	27/40	71/100

CHESAPEAKE CITY—TOWN DOCKS

Pier and Landing Characteristics

Condition of Pier/Landing Site: The floating docks are in very good condition.

Pier Availability for Ferry Use: The docks are owned by the town of Chesapeake City, which is eager to welcome ferry service.

Capacity for Backup Vessels, Fuel, Power: The docks have potential space for more than one ferry vessel.

Other Terminal Features: There is a parking area and space for a ticket booth. Restrooms are available.

Travel Time and Navigation

Minimum Water Depth: Estimated to be approximately 8 feet on approach to the landing site.

Other Navigational Issues: There can be heavy vessel traffic on Back Creek and the C&D Canal.

Distances/Day Trip Feasibility: Chesapeake City is approximately 60 miles by water from Annapolis. Long day trips would be possible from Baltimore.

Proximity to Other Destinations: Could be combined on a route with Betterton, although most destinations are fairly distant.

Travel Time as Compared to Driving: Chesapeake City is a relatively long ferry ride from hubs, but a trip on the water would avoid sometimes congested roadways.

Attractions and Tourism Amenities

Dining and Shopping in Walking Distance: There are several shops and restaurants in Chesapeake City, including several on the waterfront, almost all within walking distance of the landing site.

Museums and Outdoor Activities: There is a town museum, a ferry across the canal that connects visitors to a bike trail that goes to Delaware, as well as sightseeing cruises.

Historical Visitation: Data from the 2021 MOTD/NPS report suggests over 400,000 visitors in the area in 2021.

Other Transportation Connections: There is a water taxi connection from the south side to the north side of the canal.

Overnight Accommodations: There are several short-term rentals but currently no hotel.

Potential to Benefit Economic Development: A ferry would potentially benefit many small businesses in town and encourage the development of lodging options.

Scoring Summary

Pier and Landing	Time and Navigation	Attractions & Amenities	Total
25/25	19/35	33/40	77/100

NORTH EAST—NORTH EAST COMMUNITY PARK

Pier and Landing Characteristics

Condition of Pier/Landing Site: The docks at the Community Park are in good condition.

Pier Availability for Ferry Use: The docks are owned by the town of North East.

Capacity for Backup Vessels, Fuel, Power: The docks have potential space for more than one ferry vessel.

Other Terminal Features: Restrooms are available in the park. There is some parking available nearby, as well as potential space for a ticket booth.

Travel Time and Navigation

Minimum Water Depth: Estimated to be approximately 5 feet on approach to the landing site (concerns about shallows/mud flats).

Other Navigational Issues: Relatively shallow waters in area.

Distances/Day Trip Feasibility: North East is approximately 60 miles by water from Annapolis. Long day trips would be possible from Baltimore.

Proximity to Other Destinations: Could be combined on a route with Havre de Grace and/or Betterton, although most destinations are fairly distant.

Travel Time as Compared to Driving: North East is a relatively long ferry ride from potential hubs, but a trip on the water would avoid sometimes congested roadways.

Attractions and Tourism Amenities

Dining and Shopping in Walking Distance: There is one waterfront restaurant near the community park. It is about a half mile walk to the central part of Main Street with several shops and dining options.

Museums and Outdoor Activities: Near the community park, there are marinas, boat tours, and an attractive waterfront.

Historical Visitation: Data from the 2021 MOTD/NPS report suggests over 400,000 visitors in the area in 2021.

Other Transportation Connections: The town is in the process of buying a trolley to connect the park to Main Street.

Overnight Accommodations: There are few options in town.

Potential to Benefit Economic Development: A ferry would potentially benefit many small businesses on Main Street and encourage the development of lodging options.

Scoring Summary

Pier and Landing	Time and Navigation	Attractions & Amenities	Total
24/25	16/35	29/40	69/100

HAVRE DE GRACE—CONCORD POINT PARK

Pier and Landing Characteristics

Condition of Pier/Landing Site: The wooden docks are in fair condition and could use some improvements to the walking surface and railings.

Pier Availability for Ferry Use: The fishing pier is town operated with DNR funding; the town has indicated it would welcome ferry service.

Capacity for Backup Vessels, Fuel, Power: There are marinas in the area and other docks with additional space. There is marine fuel available nearby.

Other Terminal Features: Restrooms are available in the park, and there is some parking available nearby. There is space for a ticket booth.

Travel Time and Navigation

Minimum Water Depth: Estimated to be approximately 18 feet on approach to the landing site.

Other Navigational Issues: None noted.

Distances/Day Trip Feasibility: Havre de Grace is approximately 55 miles by water from Annapolis. Long day trips would be possible from Baltimore.

Proximity to Other Destinations: Could be combined on a route with Betterton and North East, although most destinations are fairly distant.

Travel Time as Compared to Driving: Havre de Grace is a relatively long ferry ride from hubs, but a trip on the water would avoid sometimes congested roadways.

Attractions and Tourism Amenities

Dining and Shopping in Walking Distance: There are several shops and restaurants in Havre de Grace, but the central part of town is a bit of a walk from the pier. There is shuttle service near the pier that travels through town.

Museums and Outdoor Activities: The pier is located adjacent to the Decoy Museum, Maritime Museum, Lighthouse and Keeper’s house. Havre de Grace features a bayside promenade, theaters, and festivals.

Historical Visitation: Data from the 2021 MOTD/NPS report suggests over 700,000 visitors in the area in 2021.

Other Transportation Connections: There is a free town shuttle during the high season (“Ride the Tide” trolley).

Overnight Accommodations: There are a few lodging options, but more hotels available in Aberdeen.

Potential to Benefit Economic Development: A ferry would raise the visibility of an already popular destination.

Scoring Summary

Pier and Landing	Time and Navigation	Attractions & Amenities	Total
23/25	25/35	36/40	84/100

APPENDIX B. DETAILED DESCRIPTION OF BASELINE SYSTEM ROUTES

Chesapeake Bay Ferry System

Example Schedule (approx. May-October Operating Season)

Baltimore-Annapolis Connector Route
Central Route
Southern Route
Cross-Bay Route
St. Mary's County Connections
Solomons-Cambridge Connection

Each Route would likely run 4-5 days per week (Thursday-Monday?)

D. = Depart
A. = Arrive
6 boats
13 destinations
10 counties

Vessel 1	D. Baltimore	A. Annapolis	D. Annapolis	A. Matapeake	D. Matapeake	A. St. Michaels	D. St. Michaels	A. Kent Narrows	D. Kent Narrows	A. Rock Hall	Vessel 1 would be based in Baltimore
Outbound	7:45 AM	9:00 AM	9:15 AM	9:40 AM	9:45 AM	10:35 AM	10:40 AM	11:05 AM	11:10 AM	11:35 AM	Allows 5.5 hours in St. Michaels OR 4.5 hours in Kent Narrows OR 3.5 hours in Rock Hall
Return Trip	2:30 PM	2:55 PM	3:00 PM	3:25 PM	3:30 PM	4:20 PM	4:25 PM	4:50 PM	5:15 PM	6:30 PM	Passengers could also choose to overnight at any location Baltimore-Annapolis day trippers or commuters get 8 hours in Annapolis
Vessel 2	D. Annapolis	A. Baltimore	D. Baltimore	A. Rock Hall	D. Rock Hall	A. Kent Narrows	D. Kent Narrows	A. St. Michaels	Vessel 2 would be based in Annapolis		
Outbound	7:45 AM	9:00 AM	9:15 AM	10:00 AM	10:05 AM	10:30 AM	10:35 AM	11:00 AM	This would allow direct connections from Baltimore to Rock Hall (rather than doing counter-clockwise loop in Vessel 1) Baltimore to Kent Narrows would be 1 hour 15 min instead of 3 hours 20 min		
Return Trip	3:15 PM	3:40 PM	3:45 PM	4:10 PM	4:15 PM	5:00 PM	5:15 PM	6:30 PM	Passengers could also choose to overnight at any location Annapolis-Baltimore day trippers or commuters get 8 hours in Baltimore For both Vessel 1 and Vessel 2, additional mid-day routes are possible to Matapeake, Annapolis, Baltimore, etc. (there is waiting time built in mid-day)		
Vessel 3			D. Annapolis	A. Ches. Beach	D. Ches. Beach	A. Solomons	D. Solomons	A. Crisfield	Vessel 3 would be based in Annapolis		
Outbound			9:15 AM	10:15 AM	10:20 AM	11:40 AM	11:45 AM	1:10 PM	This departure time allows Vessel 1 connection for passengers coming from Baltimore Allows 3 hours in Solomons or 5.5 hours in Chesapeake Beach		
Return Trip			1:15 PM	2:40 PM	2:45 PM	4:05 PM	4:10 PM	5:10 PM	Crisfield passengers would stay overnight there; take return ferry on subsequent date This allows Vessel 1 connection back from Annapolis to Baltimore Also, option for passengers from southern locations to spend evening in Annapolis and depart on a subsequent day		
Vessel 4	D. Easton/Camb.	A. Oxford	D. Oxford	A. Ches. Beach	D. Ches. Beach	A. Oxford	D. Oxford	A. Easton/Camb.	Vessel 4 would be based on the Eastern Shore (Oxford, Easton, or Cambridge)		
Outbound	9:00 AM	9:30 AM	9:35 AM	10:15 AM	10:20 AM	11:00 AM	11:05 AM	11:35 AM	Given relatively short distances, it could complete at least 2 round trips per day (3 round trips would be possible) First departure would connect passengers to Southern route (for connections to Solomons, Crisfield, St. Mary's County) Would also allow passengers heading south from Baltimore/Annapolis to connect to Oxford/Easton/Cambridge for day trips		
Return Trip	2:50 PM	3:20 PM	3:25 PM	4:05 PM	4:10 PM	4:50 PM	4:55 PM	5:25 PM			
Vessel 5	D. Solomons	A. St. Mary's C	D. St. Mary's C	A. Crisfield	D. Crisfield	A. St. Mary's C	D. St. Mary's C	A. Solomons	Vessel 5 would be based in Solomons		
Round Trip	8:00 AM	9:40 AM	9:45 AM	11:15 AM	11:20 AM	12:50 PM	12:55 PM	2:35 PM	This would connect from Solomons to Annapolis on Vessel 3 at 2:45pm		
		Or Leonardtown	Or Leonardtown			Or Leonardtown	Or Leonardtown				
		10:25 AM	10:30 AM	12:30 PM	12:40 PM	2:40 PM	2:45 PM	5:15 PM			
Alternative A	8:00 AM	9:40 AM	9:45 AM	11:15 AM	11:20 AM	12:50 PM	12:55 PM	2:35 PM	This would connect from Solomons to Annapolis on Vessel 2 at 2:45pm This alternative would allow day trips to Leonardtown (3 hours there)		
				or	2:30 PM	4:00 PM	4:05 PM	5:45 PM			
Alternative B	9:00 AM	10:30 AM	10:35 AM	12:15 PM	12:45 PM	2:25 PM	2:30 PM	4:00 PM	This Alternative for Vessel 5 would be based in Leonardtown This would connect to Vessel 2 from Solomons northbound to Annapolis at 2:45pm This would also allow a southbound connection with Vessel 2 from Annapolis to Leonardtown in one day		
Round Trip	8:00 AM	9:30 AM	9:40 AM	11:10 AM	1:50 PM	3:20 PM	3:30 PM	5:00 PM	Vessel 6 would be based in Solomons		

Chesapeake Bay Ferry System

Example Schedule (approx. May-October Operating Season)

Baltimore-Annapolis Connector Route
Central Route
Southern Route
Cross-Bay Route
St. Mary's County Connections

D. = Depart
A. = Arrive

Vessel	1
D. Baltimore	7:45 AM
A. Annapolis	9:00 AM
D. Annapolis	9:15 AM
A. Matapeake	9:40 AM
D. Matapeake	9:45 AM
A. St. Michaels	10:35 AM
D. St. Michaels	10:40 AM
A. Kent Narrows	11:05 AM
D. Kent Narrows	11:10 AM
A. Rock Hall	11:35 AM
D. Rock Hall	2:30 PM
A. Kent Narrows	2:55 PM
D. Kent Narrows	3:00 PM
A. St. Michaels	3:25 PM
D. St. Michaels	3:30 PM
A. Matapeake	4:20 PM
D. Matapeake	4:25 PM
A. Annapolis	4:50 PM
D. Annapolis	5:15 PM
A. Baltimore	6:30 PM

Vessel/Crew Based in Baltimore
Lunch Break/Rest in Rock Hall
4-5 days/week? (Thursday-Monday)

Vessel	2
D. Annapolis	7:45 AM
A. Baltimore	9:00 AM
D. Baltimore	9:15 AM
A. Rock Hall	10:00 AM
D. Rock Hall	10:05 AM
A. Kent Narrows	10:30 AM
D. Kent Narrows	10:35 AM
A. St. Michaels	11:00 AM
D. St. Michaels	3:15 PM
A. Kent Narrows	3:40 PM
D. Kent Narrows	3:45 PM
A. Rock Hall	4:10 PM
D. Rock Hall	4:15 PM
A. Baltimore	5:00 PM
D. Baltimore	5:15 PM
A. Annapolis	6:30 PM

Vessel/Crew Based in Annapolis
Lunch Break/Rest in St. Michaels

Vessel	3
D. Annapolis	9:15 AM
A. Ches. Beach	10:15 AM
D. Ches. Beach	10:20 AM
A. Solomons	11:40 AM
D. Solomons	11:45 AM
A. Crisfield	1:10 PM
D. Crisfield	1:15 PM
A. Solomons	2:40 PM
D. Solomons	2:45 PM
A. Ches. Beach	4:05 PM
D. Ches. Beach	4:10 PM
A. Annapolis	5:10 PM

Vessel/Crew Based in Annapolis
4-5 days/week

Vessel	4
D. Easton/Camb.	9:00 AM
A. Oxford	9:30 AM
D. Oxford	9:35 AM
A. Ches. Beach	10:15 AM
D. Ches. Beach	10:20 AM
A. Oxford	11:00 AM
D. Oxford	11:05 AM
A. Easton/Camb.	11:35 AM
D. Easton/Camb.	2:50 PM
A. Oxford	3:20 PM
D. Oxford	3:25 PM
A. Ches. Beach	4:05 PM
D. Ches. Beach	4:10 PM
A. Oxford	4:50 PM
D. Oxford	4:55 PM
A. Easton/Camb.	5:25 PM

Vessel/Crew Based in E. Shore
2-3 days/week to Easton
2-3 days/week to Cambridge

Vessel	5
D. Solomons	8:00 AM
A. St. Mary's C.	9:40 AM
D. St. Mary's C.	9:45 AM
A. Crisfield	11:15 AM
D. Crisfield	11:20 AM
A. St. Mary's C.	12:50 PM
D. St. Mary's C.	12:55 PM
A. Solomons	2:35 PM

Vessel/Crew Based in Solomons

Vessel 6	Round Trip
D. Solomons	8:00 AM
A. Cambridge	9:30 AM
D. Cambridge	9:40 AM
A. Solomons	11:10 AM
D. Solomons	1:50 PM
A. Cambridge	3:20 PM
D. Cambridge	3:30 PM
A. Solomons	5:00 PM

Vessel/Crew Based in Solomons

APPENDIX C. SURVEY OF FARES FOR OTHER FERRY SERVICES

The consultant team conducted a survey of fares charged by a large sample of ferries and boat excursions operating in the mid-Atlantic region and throughout the United States. The results of this survey provided inputs for a range of fare recommendations and assumptions for the Chesapeake Bay Ferry System financial model.

The fare survey served several purposes, including: 1) to identify patterns or trends in fares based on the duration and/or length of the ferry trip or excursion (fare per hour or fare per mile traveled); 2) to determine average fares for adults as well as typical percentage discounts for children, seniors, and members of the military; and 3) to utilize as baseline inputs (starting assumptions that can be modified) in the financial model.

CHARACTERISTICS OF THE FARE SURVEY SAMPLE

The consultant team researched fares for 50 boat tours and excursion ferries nationwide, including 15 in the mid-Atlantic region including Maryland and Chesapeake Bay. These ferry and boat tour operations were almost all unsubsidized operations, although we did review fares for a couple of routes in systems that are subsidized by local or state governments.

The fares reviewed generally excluded food, beverages, entertainment, and other items such as admission to activities at destination sites. They also excluded transportation of automobiles (car ferries) or other cargo.

The fare survey took place in Fall 2023 and reflects fares in effect at that time. Many operations had already updated their fares for the upcoming summer 2024 season. Ferry systems included in the survey are listed in the below table.

Table C.1. Ferry Systems Included in Fare Survey Sample

Location	Operator	Tour Name
Annapolis	Watermark Cruises	Day on the Bay to St. Michaels
Annapolis	Watermark Cruises	Annapolis Harbor Cruise
Annapolis	Watermark Cruises	Annapolis Sunset Cruise
Annapolis	Watermark Cruises	Lighthouse Cruise or Bay Bridge Cruise
Baltimore	Watermark Cruises	Legends & Sights of Baltimore
Baltimore	CityExperiences	Baltimore Harbor Tour
Baltimore	Watermark Cruises	Baltimore Harbor Cruise
Baltimore	Watermark Cruises	Baltimore Sunset Cruise
Cambridge, MD	Skipjack Nathan of Dorchester	Saturday Public Sail
Chesapeake City	Chesapeake City Water Tours	Sightseeing Canal Cruise
Chesapeake City	Chesapeake City Water Tours	Sunset Cruise
St. Michaels	Patriot Cruises	Narrated Historical Cruise
Chesapeake Bay	Smith Island Cruises	Smith Island Day Trip from Crisfield
Chesapeake Bay	Smith Island Cruises	Smith Island Day Trip from Point Lookout
Virginia	Tangier Onancock Ferry	Daily Round Trip
Virginia	Tangier Island Cruises	Tangier Island Cruise from Reedville, VA
Portland, ME	Portland Discovery	Harbor Lights and Sights

Location	Operator	Tour Name
Portland, ME	Portland Discovery	Lighthouse Lovers Cruise
Boston	City Experiences/Bay State (2)	Boston-Provincetown Ferry
Boston	City Experiences	NE Aquarium Whale Watch Cruise
Rhode Island	Block Island Ferry	Point Judith Traditional
Rhode Island	Block Island Ferry	Point Judith High Speed
New York City	Circle Line	Best of NYC Tour
New York City	Circle Line	Landmarks Tour
New Jersey-Del.	Cape May-Lewes Ferry	Cape May-Lewes Ferry
Outer Banks (NC)	North Carolina Ferry (NCDOT)	Ocracoke Express (Hatteras-Ocracoke)
S. Carolina/GA	Vagabond Cruise	Savannah Day Cruise
St. Augustine, FL	St. Augustine Boat Tours	Dolphin and Wildlife Historical Boat Tour
Miami	Miami on the Water	Miami Boat Tour
Florida	Key West Express	Ft. Myers Beach-Key West
Florida	Yankee Freedom	Dry Tortugas Ferry
Pensacola	Pensacola Bay CityFerry	Downtown-Fort Pickens-Pensacola Beach
Galveston, TX	Baywatch Dolphin Tours	Dolphin Boat Tour
Chicago	Wendela Sightseeing	Lake & River Architecture tour
Chicago	Shoreline Sightseeing	Architecture River Tour
Michigan	Isle Royale Line (Queen IV)	Isle Royale Ferry
Michigan	Pictured Rocks Cruises	Classic Cruise
Seattle	Argosy Cruises	Seattle Harbor Cruise
Seattle	Argosy Cruises	Seattle Locks Cruise Lake Union Elliot Bay
Washington	FRS Clipper (Victoria Clipper)	Seattle to Victoria Ferry
Washington	Washington State Ferries (DOT)	Seattle-Bainbridge Island
Portland, OR	Portland Spirit	Sightseeing Cruise
San Francisco	Blue & Gold Fleet	San Francisco Bay Cruise
San Francisco	Blue & Gold Fleet	Sunset Cruise—San Francisco Bay
San Francisco	Red & White Fleet	Bridge 2 Bridge Cruise—SF Bay
Long Beach/LA	Harbor Breeze Cruises	Long Beach Whale Watching Cruise
Long Beach/LA	Catalina Express	Catalina Island Ferry
San Diego	Flagship Cruises	San Diego Harbor Tour—North or South
San Diego	Flagship Cruises	San Diego Harbor Tour—Full Bay Tour
Hawaii	Expeditions	Maui-Lanai Passenger Ferry

SURVEY RESULTS: ADULT FARES PER HOUR ON WATER

Across all ferry and boat tours surveyed, the average adult fare per hour on water was \$25.72. There was a wide range of approximately \$6 to \$50 per hour, but excluding a small number of outliers, almost all operations fell between \$15 and \$40 per hour for adults.

For ferries and tours consisting of one hour or less of on-water time, the average adult fare was \$31.66 per hour.

For ferries and tours consisting of 1.1 to 2.9 hours of on-water time, the average adult fare was \$22.71 per hour.

For ferries and tours consisting of over 3 hours of on-water time, the average adult fare was \$22.55 per hour.

These figures are summarized in the table below.

Table C.2. Average Adult Fare per Hour on Water

Category	Value
Average across all operations	\$25.72 per hour
Average for tours and ferries including less than 1 hour on water	\$31.66 per hour
Average for tours and ferries including 1.1 to 2.9 hours on water	\$22.71 per hour
Average for tours and ferries including over 3 hours on water	\$22.55
Range across all operations	\$6 per hour to \$50 per hour
Range excluding outliers	\$15 per hour to \$40 per hour

While the average fare per hour on water declined significantly (by around 30 percent) between one and three hours of on-water time, there was not a significant decline beyond three hours.

SURVEY RESULTS: ADULT FARES PER MILE (DISTANCE TRAVELED)

Across all ferry and boat tours for which information on distance was available, the average adult fare per mile traveled was \$1.24. There was a range of \$0.42 to \$3.00 per mile, but almost all operations fell between \$0.80 and \$1.70 per mile for adults.

For ferries and tours with roundtrips of under 35 miles, the average fare was \$1.45 per mile.

For ferries and tours with roundtrips of over 35 miles, the average fare was \$1.04 per mile.

These figures are summarized in the following table.

Table C.3. Average Adult Fare per Mile (Distance Traveled)

Category	Value
Average across all operations	\$1.24 per mile
Average for tours and ferries traveling over 35 miles on water	\$1.04 per mile
Average for tours and ferries traveling less than 35 miles on water	\$1.45 per mile
Range across all operations	\$0.42 to \$3.00 per mile
Range excluding outliers	\$0.80 to \$1.70 per mile

SURVEY RESULTS: DISCOUNTED FARES

Across all ferry and boat tour operations surveyed, child discounts averaged 42 percent. For example, an adult fare of \$20 would translate to a child fare of \$11.60.

Child discounts varied from 0 percent to 100 percent (free). Some operations have an objective of encouraging family ridership and offer free child fares.

Senior discounts and military discounts were generally similar to each other, and typically ranged from 10 percent to 20 percent.

EXAMPLES OF SUBSIDIZED FERRIES

Fares for the Alaska Marine Highway average roughly \$10 per hour on water. Distances are much longer than the average on many of these routes.

For the Washington State ferry system, fares cover approximately 60 percent to 70 percent of operating expenses, with state taxes covering the remainder.

The North Carolina Department of Transportation (DOT) and Virginia DOT offer some free ferries with relatively short routes between destinations in the Outer Banks and Tidewater regions.

APPENDIX D. DESCRIPTION OF POTENTIAL DISCRETIONARY GRANT PROGRAMS

Federal Transit Authority Ferry Grant Programs			
	Passenger Ferry Program ²³	Low-No Ferry Program ²⁴	Rural Ferry Program ²⁵
Overview	Provides funding to improve the condition and quality of existing passenger ferry services, support the establishment of new passenger ferry services, and repair and modernize ferry boats, terminals, and related facilities and equipment	Provides funding for projects that support the purchase of electric or low-emitting ferries and the electrification of or other reduction of emissions from existing ferries	Provides funding for capital, operating, and planning expenses for ferry service to rural areas
Eligible Applicants	Designated and direct recipients of section 5307 funding and public entities engaged in providing public transportation passenger ferry service in urban areas that are eligible to be direct recipients	Any eligible recipient of section 5307 or section 5311 funding	States and U.S. territories in which eligible service is operated
Eligible Project Types	Capital projects for the purchase, construction, replacement, or rehabilitation of ferries, terminals, related infrastructure and related equipment (including electric or low-emitting ferry vessels and related infrastructure)	Capital projects for the purchase of electric or low-emitting ferry vessels and related infrastructure	Capital, operating or planning projects for rural ferry service
Funding	\$51 million	\$49 million	\$216 million
Deadline	11:59 p.m. eastern time June 17, 2024		
Cost share	The maximum Federal share for capital projects selected under each program generally is 80 percent of the net project cost		The maximum Federal share for planning projects selected under the Rural Ferry Program is 80 percent. There is no maximum Federal share for operating projects selected under the Rural Ferry Program; however, a maintenance of effort requirement is described in the NOFO

²³ [Passenger Ferry Grant Program—Section 5307\(h\) | FTA \(dot.gov\)](#)

²⁴ [Fiscal Year 2024 Passenger Ferry Grant Program, Electric or Low-Emitting Ferry Pilot Program, and Ferry Service for Rural Communities Program Notice of Funding | FTA \(dot.gov\)](#)

²⁵ [Fiscal Year 2024 Passenger Ferry Grant Program, Electric or Low-Emitting Ferry Pilot Program, and Ferry Service for Rural Communities Program Notice of Funding | FTA \(dot.gov\)](#)

There is one other FTA grant program of interest: the FTA Pilot Program for Transit-Oriented Development Planning.²⁶ This small program, with about \$10.5 million of available funding in FY 2024, may or may not be renewed in future years. It supports comprehensive planning of capacity improvement projects.

Other U.S. DOT Grant Programs				
	Marine Highway Grant ²⁷	RAISE Discretionary Grant ²⁸	INFRA/MEGA/Rural ²⁹	Port Infrastructure Development Program (PIDP) ³⁰
Overview	Assists in funding eligible Projects to relieve landside congestion, reduce air emissions, and generate other public benefits by increasing the efficiency of the surface transportation system.	Funds planning or construction of surface transportation infrastructure projects that will improve safety; environmental sustainability; quality of life; mobility and community connectivity; economic competitiveness and opportunity including tourism; state of good repair; partnership and collaboration; and innovation.	Three programs under a single Multimodal Project Discretionary Grant Opportunity. Funding opportunities are awarded on a competitive basis for surface transportation infrastructure projects—including highway and bridge, intercity passenger rail, railway-highway grade crossing or separation, wildlife crossing, public transportation, marine highway, and freight projects, or groups of such projects—with significant national or regional impact, or to improve and expand the surface transportation infrastructure in rural areas.	Assist in funding eligible projects for the purpose of improving the safety, efficiency, or reliability of the movement of goods through ports and intermodal connections to ports.

²⁶ [Pilot Program for Transit-Oriented Development Planning—Section 20005\(b\) | FTA \(dot.gov\)](#)

²⁷ [United States Marine Highway Program | MARAD \(dot.gov\)](#)

²⁸ [FY 2024 RAISE Grants Notice of Funding Opportunity | U.S. Department of Transportation](#)

²⁹ [Multimodal Project Discretionary Grant—Notice of Funding Opportunity | U.S. Department of Transportation](#)

³⁰ [Port Infrastructure Development Program | MARAD \(dot.gov\)](#)



Other U.S. DOT Grant Programs				
	Marine Highway Grant ²⁷	RAISE Discretionary Grant ²⁸	INFRA/MEGA/Rural ²⁹	Port Infrastructure Development Program (PIDP) ³⁰
Priority Projects	Promote Marine Highway Transportation or shipper use of Marine Highway Transportation	Surface transportation that will have a significant local/regional impact; improve safety, economic strength and global competitiveness, equity, climate and sustainability	Invest in surface transportation infrastructure projects of regional significance; expand infrastructure in rural areas; improve safety, economic strength and global competitiveness, equity, climate and sustainability	
Eligible Applicants	Political subdivision of a State or a local Government	Units of local Government	Units of local Government	A political subdivision of a State, or a local Government; multijurisdictional groups of local governments
Eligible Project Types	Projects that: 1) provide a coordinated and capable alternative to landside transportation; and 2) develop, expand, or promote Marine Highway Transportation or shipper use of Marine Highway Transportation.	Port infrastructure investments, public transportation projects eligible under chapter 53 of title 49, United States Code	Freight intermodal that provides public benefit; public transportation projects eligible under chapter 53 of title 49, United States Code; A project for a marine highway corridor that is functionally connected to the NHFN and is likely to reduce road mobile source emissions	Projects relating to ports, their operation, and intermodal functionality that factors into port operation, particularly projects that improve the safety, efficiency, and reliability of goods movements, port operations, and improved environmental measures.
Funding	\$4,850,000 in 2024	\$1.5 billion annually, FY 2022-2026	Totals for FY 2025, 2026: INFRA \$2.7B, Mega \$1.7B, Rural \$780M	About \$500M, 2024
Deadline	7/12/2024	1/13/2025	5/6/2024	5/10/2024
Cost Share	May not exceed 80% of total project costs	May not exceed 80% of total project costs	Generally may not exceed 80% of total project costs, but allowable share depends on award size	May not exceed 80% of total project costs unless the project is located in a rural area

Other Funding Opportunities of Interest				
	Food and Drug Administration (FDA) Opportunities ³¹	Maryland Bikeways Grant ³²	Maryland Statewide Transit Innovation Grant ³³	Maryland Local Government Infrastructure Financing ³⁴
Overview	The FDA has various funding opportunities for projects that help move food products. Among these are the Farmers Market Promotion Program, Local Food Promotion Program, Local Agriculture Market Program, Organic Market Development Grant, and the Regional/Resilient Food System Partnerships.	Provides grant support for a wide range of bicycle network development activities. The Program supports projects that maximize bicycle access and fill missing links in the state’s bicycle system, focusing on connecting bicycle-friendly trails and roads and enhancing last-mile connections to work, school, shopping and transit.	Mode-agnostic grant program with the goal of supporting local efforts to improve transit reliability, improving access and connections to activity centers, and improving transit mobility options. The program seeks to fund cost-effective public transportation projects that reduce delays for people and improve connectivity between regional and economic population centers.	The Maryland Department of Housing and Community Development's Community Development Administration issues bonds, on behalf of counties, municipalities and/or their instrumentalities, to finance projects that serve the community at large
Details	For most of these programs, the goal is to promote the movement of food products and strengthen food markets; in most cases, if the ferry project moved food like fruits or vegetables or had them for sale on project sites, the project would be eligible for FDA funding sources.	Oriented towards bicycle planning and bicycle route construction.	Applications should demonstrate how the project will be innovative for the local area.	Loan funding, not grant. Interest rates subject to market conditions.

³¹ [Grants & Opportunities | Agricultural Marketing Service \(usda.gov\)](https://www.usda.gov/grants-and-opportunities/agricultural-marketing-service)

³² [Bikeways Initial Application | Maryland OneStop \(md.gov\)](https://www.mdot.gov/bikeways)

³³ [Maryland Transit Administration](https://www.mta.md.gov/)

³⁴ [How Local Government Infrastructure Financing Works \(maryland.gov\)](https://www.maryland.gov/how-local-government-infrastructure-financing-works)

Other Funding Opportunities of Interest				
	Food and Drug Administration (FDA) Opportunities ³¹	Maryland Bikeways Grant ³²	Maryland Statewide Transit Innovation Grant ³³	Maryland Local Government Infrastructure Financing ³⁴
Eligible applicants	Units of local Government	Maryland local governments	Maryland local governments	Maryland municipalities and counties
Eligible project types	Various projects that support the agricultural sector	Projects located nearby transit stations or that provide access to points of interest	Planning, design, engineering, or construction phases for various transit innovations	Various, including transportation
Funding	Varies but generally < \$500,000	Varies but generally < \$100,000	Not specified	
Deadline	Various	FY 2024: 6/1/2024	FY 2023: 6/1/2023	
Cost share	50-75% of total project costs, depending on program	May not exceed 80% of project costs	Local match of at least 20% of project costs	NA