

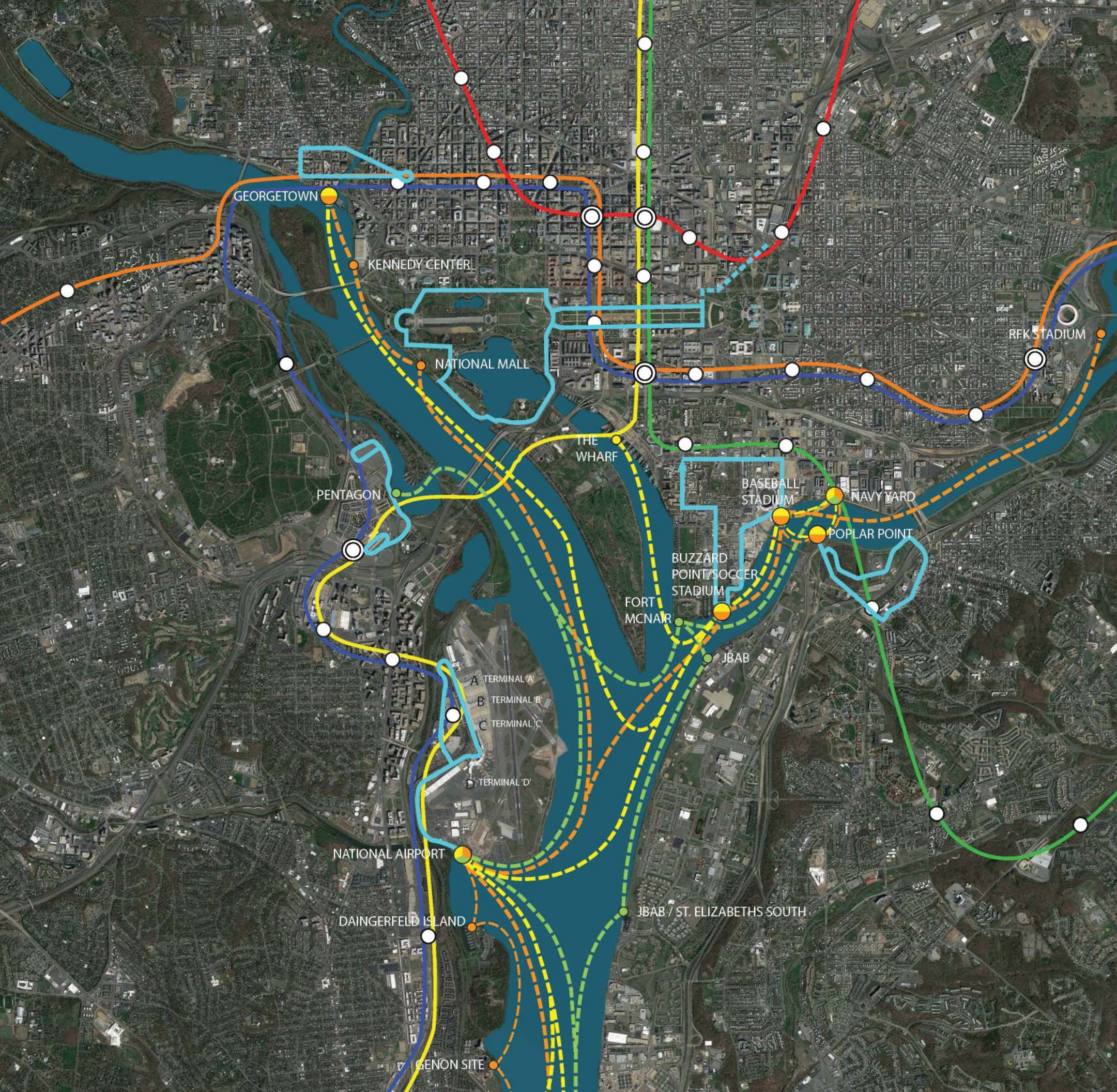
Potomac River Transportation Framework Plan

Washington DC, Virginia, Maryland

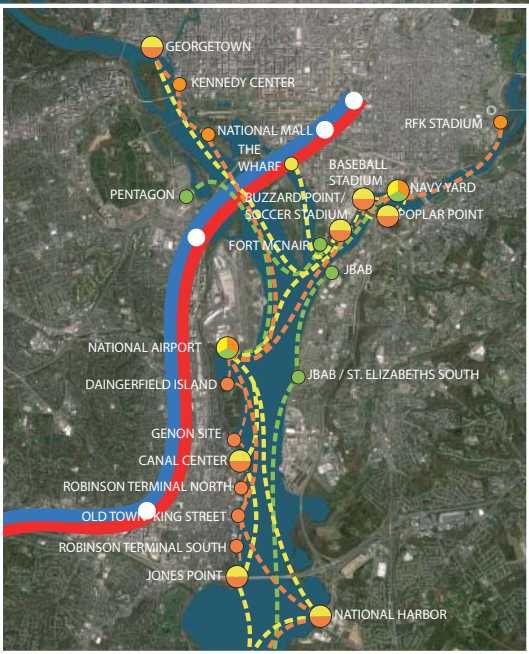
Water transportation is the most economical, energy efficient and environmentally friendly transportation that exists for major cities today. The vast river network that was the original lifeblood of the Washington, DC region remains underutilized.

The Potomac River Transportation Framework Plan is a comprehensive master plan outlining a water based transportation network on the Potomac and Anacostia Rivers in Washington, DC, Maryland and Virginia, for commuters, tourists and the federal government (defense and civilian evacuations).

This plan outlines an enormous opportunity to expand the transportation network at a fraction of the cost (both in dollars and environmental impact) of other transportation modes. The plan includes intermodal connections to the existing land based public transportation system.



See Detail Plan



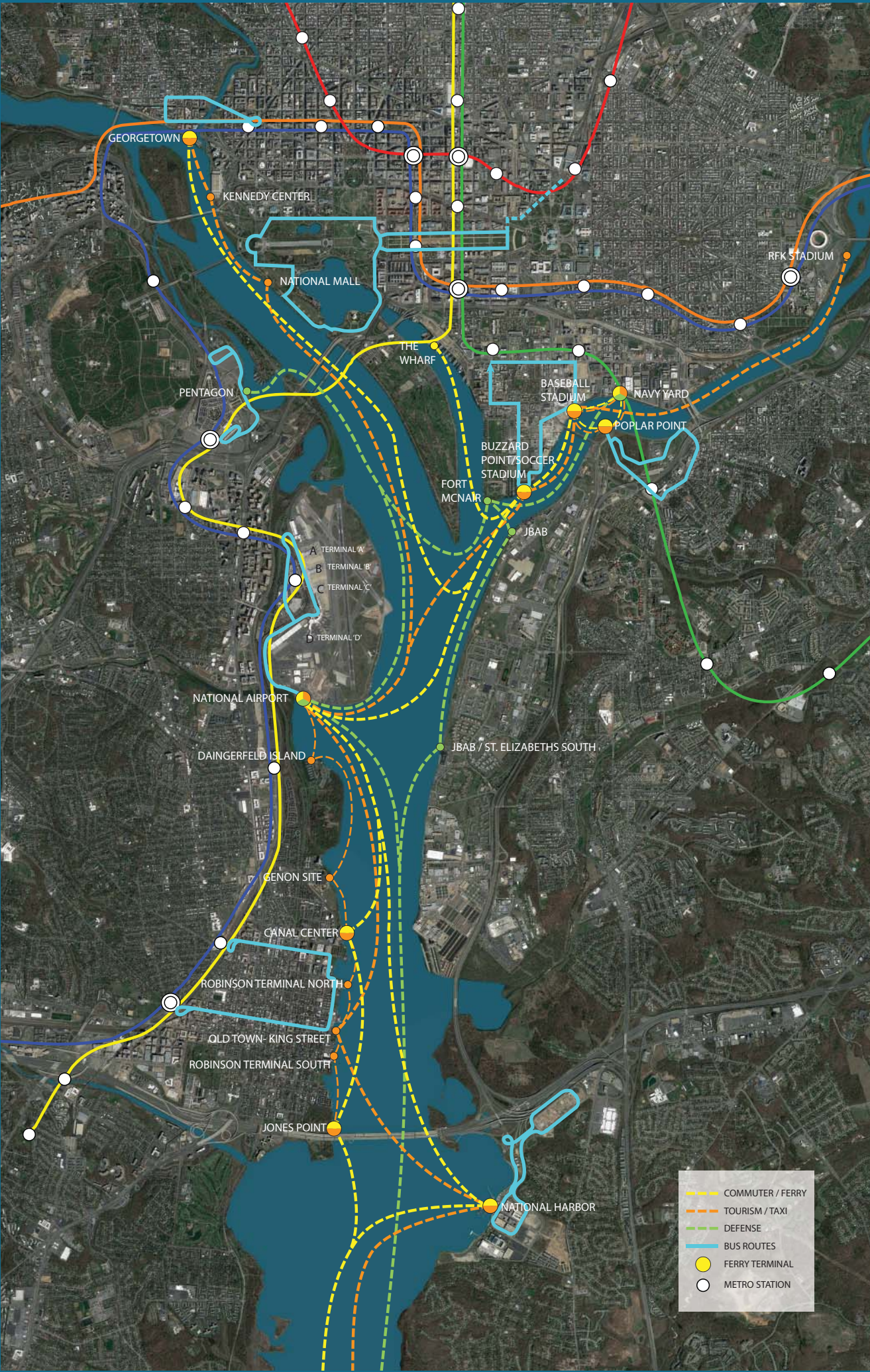
REGIONAL PLAN

The plan to the left illustrates the reach of the transportation plan that includes Virginia, Maryland, and the District of Columbia, fully integrated with existing land based transporation.

Both Plans illustrate potential routes and landings for Commuters, Tourists and the Federal Government.

LOCAL PLAN

The plan to the right illustrates the overall layout of the metropolitan Washington network of routes, landings and connections back to existing Metro routes and stops.





THREE DISTINCT RIDER GROUPS

The three populations most likely to utilize the river transportation network are commuters, tourists, and the federal government. These three groups have distinct travel destination routes and travel times that form the basis of three distinctive networks as illustrated by the previous diagrams. Based on the specific criteria of each population, ferries and water taxis would be designated to move each population at specific times. Water landings would be designed to accommodate the specific need of that network. Stops for commuters would need parking structures, whereas stops for tourists might not.

31 LANDINGS

Along with the network routes, we have also projected approximately 31 landing locations that we believe would be the starting point for a robust waterway network with many of the networks sharing landings. As an example, the National Airport landing would be used by all three networks.

The following pages describe in detail the three population network routes and stops.

INTERMODAL TRANSIT

One of the most important components to a successful water-based transportation system is the integration with existing public transportation networks. Land-based public transit already exists near potential ferry stops. Our water transportation network outlines the connections from the water landings to the existing metro and VRE stations. As part of the transfer from water to land, we have developed intermodal transit stations to transfer riders from water craft to rubber wheeled trolleys or buses.

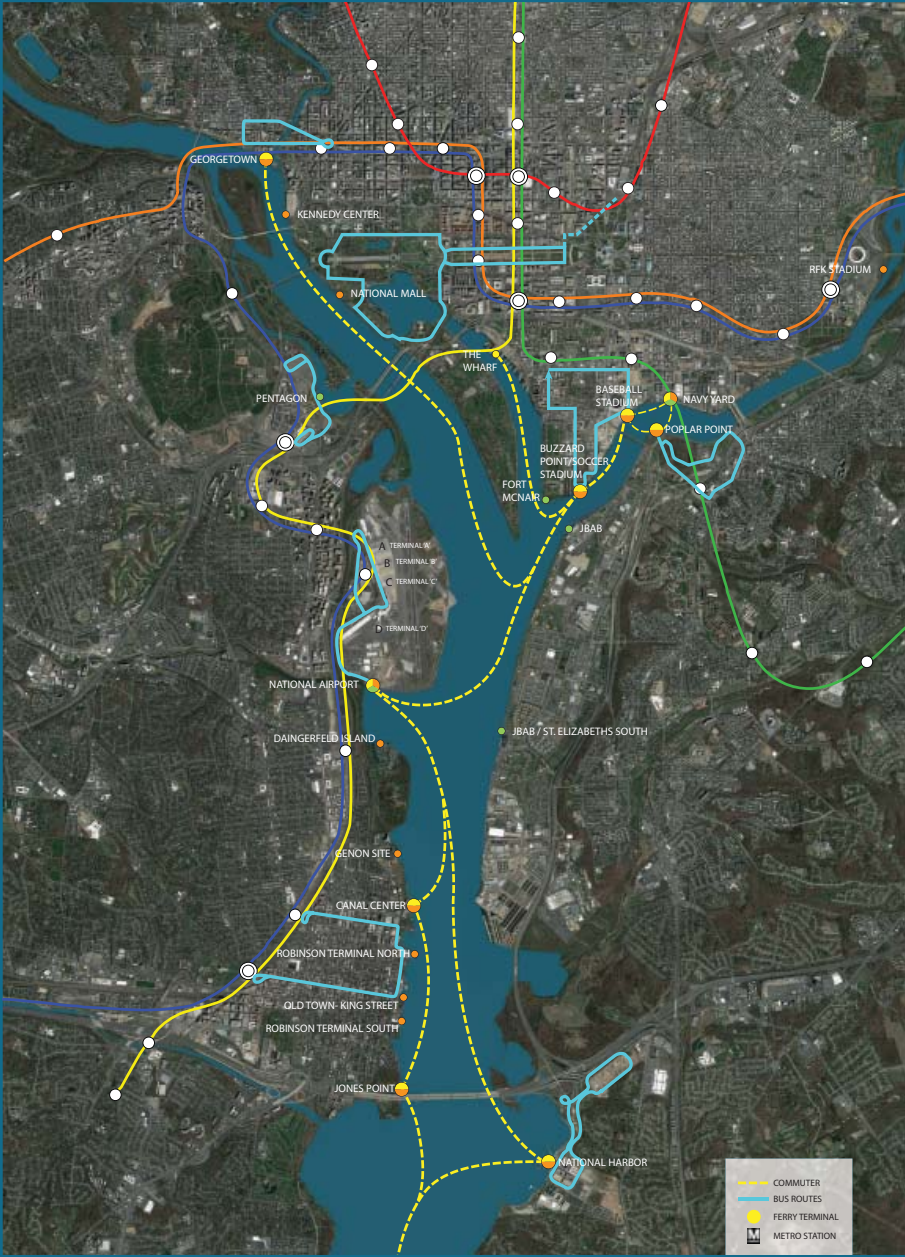
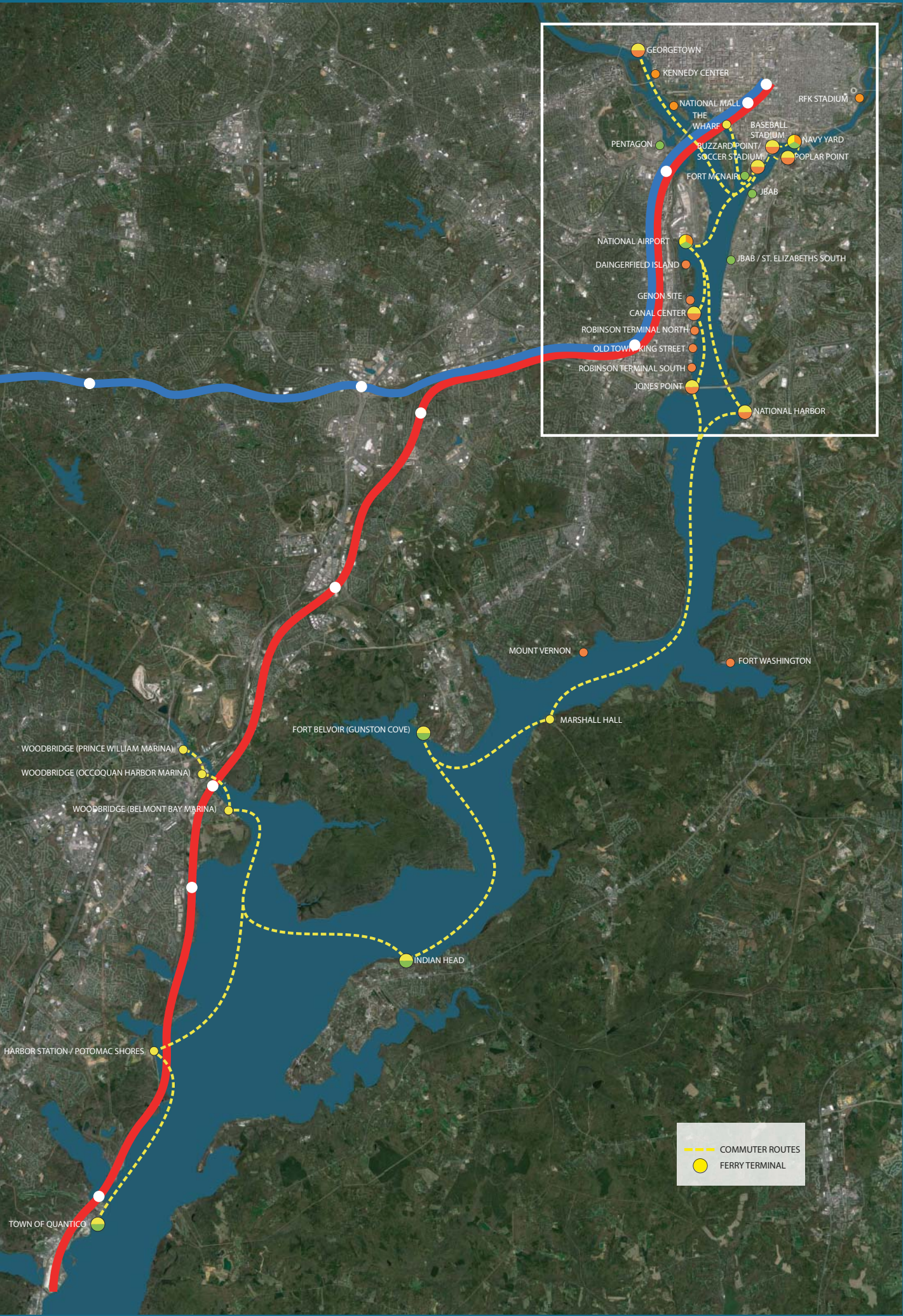
Commuter Routes and Landings

The region's highways and public transit sytem are both at maximum capacity and at times, failing. Water transportation offers a low cost, environmentally friendly option for alleviating commuter demands.

With the growing congestion on the highways, the necessity of traveling from places south in Virginia into the District is an onerous task for daily commuters. Additionally, those who need to travel from parts of Maryland to places in Virginia (and conversely) have the long ride to bridge crossings at I 495 or Rt. 301 in the south, which can take well over an hour.

The commuter routes outlined in the network are predominantly from locations south of the Woodrow Wilson Bridge for general business commuters with some opportunities for commuters in Alexandria and National Harbor. The east-west routes are targeted for military personnel commuters that have to get to the bases located along the river. At these landings, accommodations for parking would certainly be required. Due to the volume of travelers during these set times, larger craft would be required on a fixed schedule. There are 23 commuter stations, including Georgetown, Indian Head, Old Town, and Woodbridge. These would require parking lots or structures at the suburban stations and would operate during rush hour.

The Ferry from Old Town Alexandria to the Southwest Waterfront would take 9 minutes. In comparison, driving from Old Town to Washington takes approximately 30-45 minutes during rush hour. Further down the Potomac, stations such as Woodbridge would be a 45 minute ferry ride during rush hour to Washington versus a rush hour commute between Woodbridge and Washington of 1.5 hours. Not only would ferries be the most comfortable option, they would also offer onboard amenities like Wi-Fi and newspapers, making it possible for commuters to relax or get work done during the trip



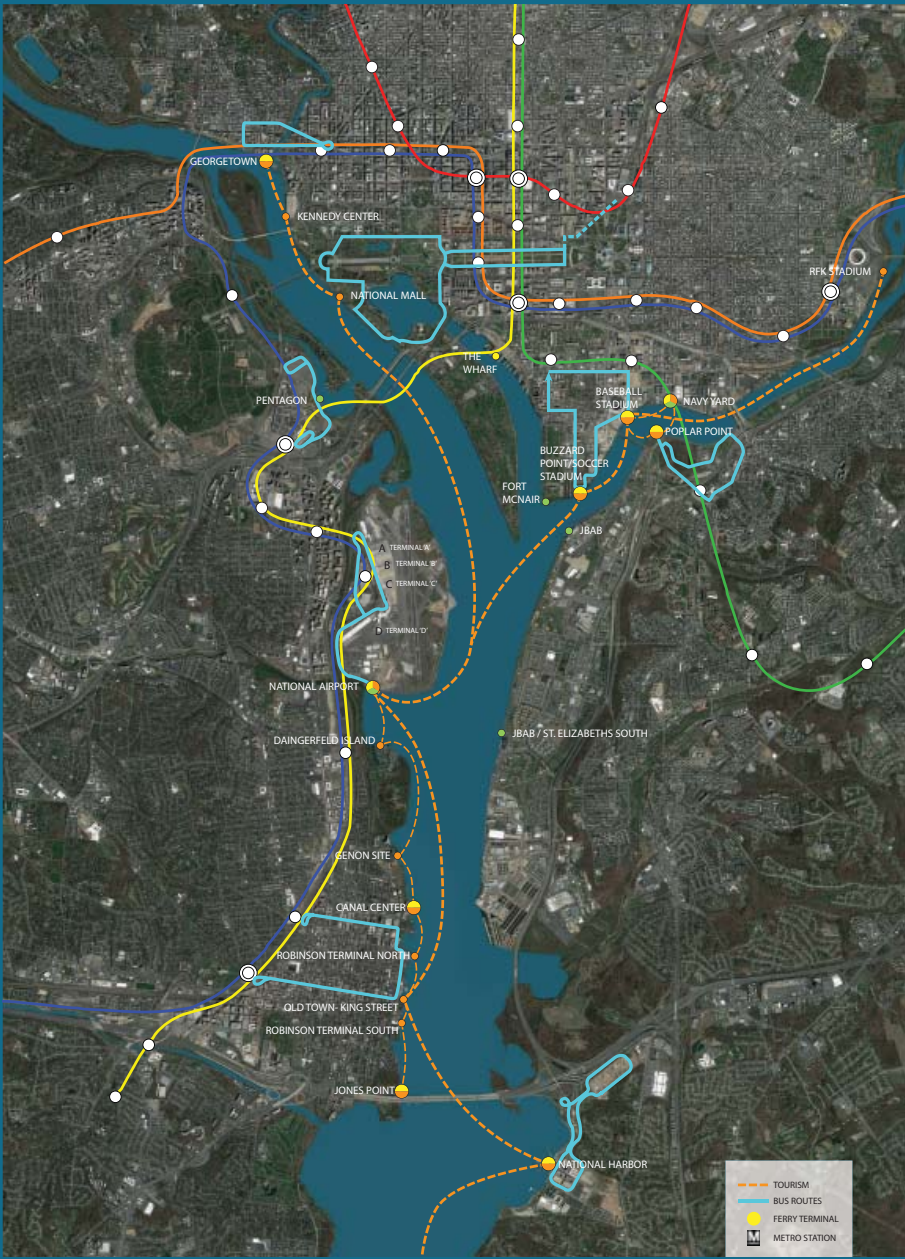
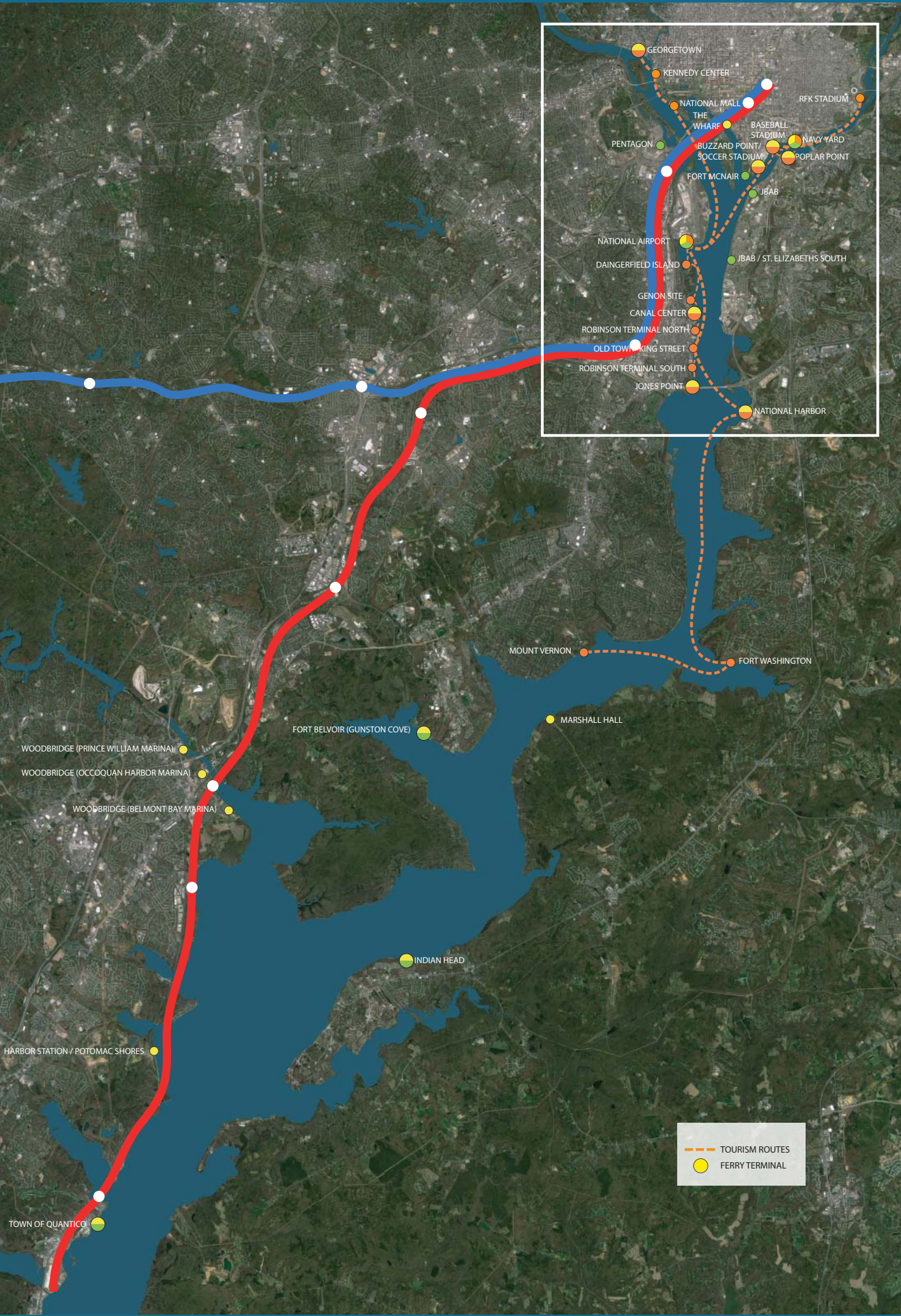
Tourism Routes and Landings

Last year, 20.3 million tourists came to this region spending \$7.1 billion. Moving tourists by water would not only reduce traffic congestion, the very experience would increase tourism.

As one of the most important economic generators of the metro Washington, DC area, tourism is a very important component to this region. The tourism routes occur on the off-peak hours and would be popular throughout the day. The landings for tourists are located in more dense urban areas or at destination locations along the Potomac River. There is less need for parking at these locations and these routes would be serviced by smaller craft running on a continuous daily schedule.

There are 14 tourist stops, including the National Mall, Nationals Stadium, Georgetown, and Mount Vernon. It is approximately a 20-minute ride from National Harbor to Mount Vernon and a 15-minute ride from Old Town to the National Mall. This market would be the easiest to incorporate into a larger ferry network, as many of these routes exist today and are already in use by thousands of tourists.

National Harbor would be one of the most important stops on the tourist network because of the Gaylord National Resort and Convention Center. With 470,000 square feet of convention and meeting space and 2,000 hotel rooms, it is the largest convention center on the East Coast. National Harbor is an 11-minute ferry ride from Reagan National Airport and a 20-minute ferry ride from the Southwest Waterfront in Washington.



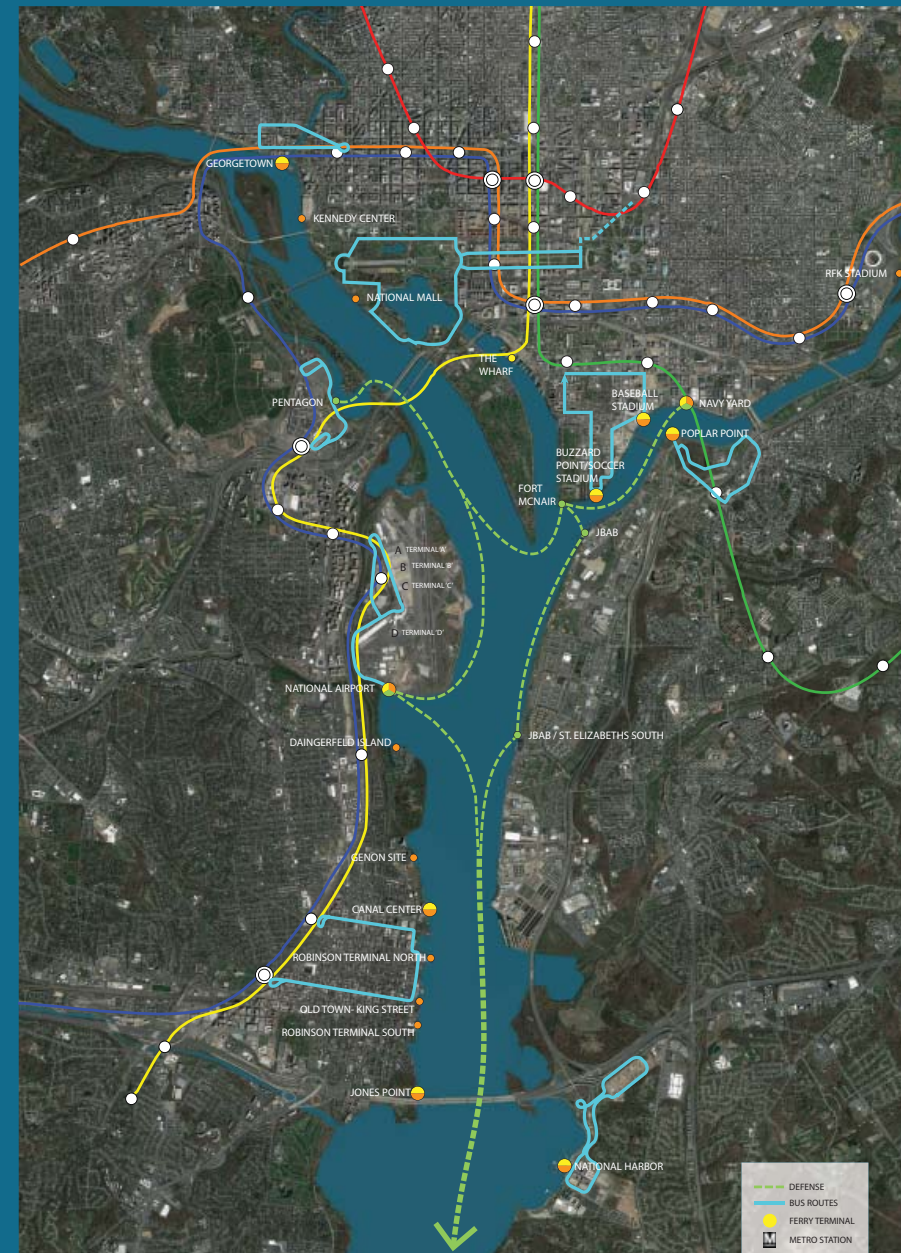
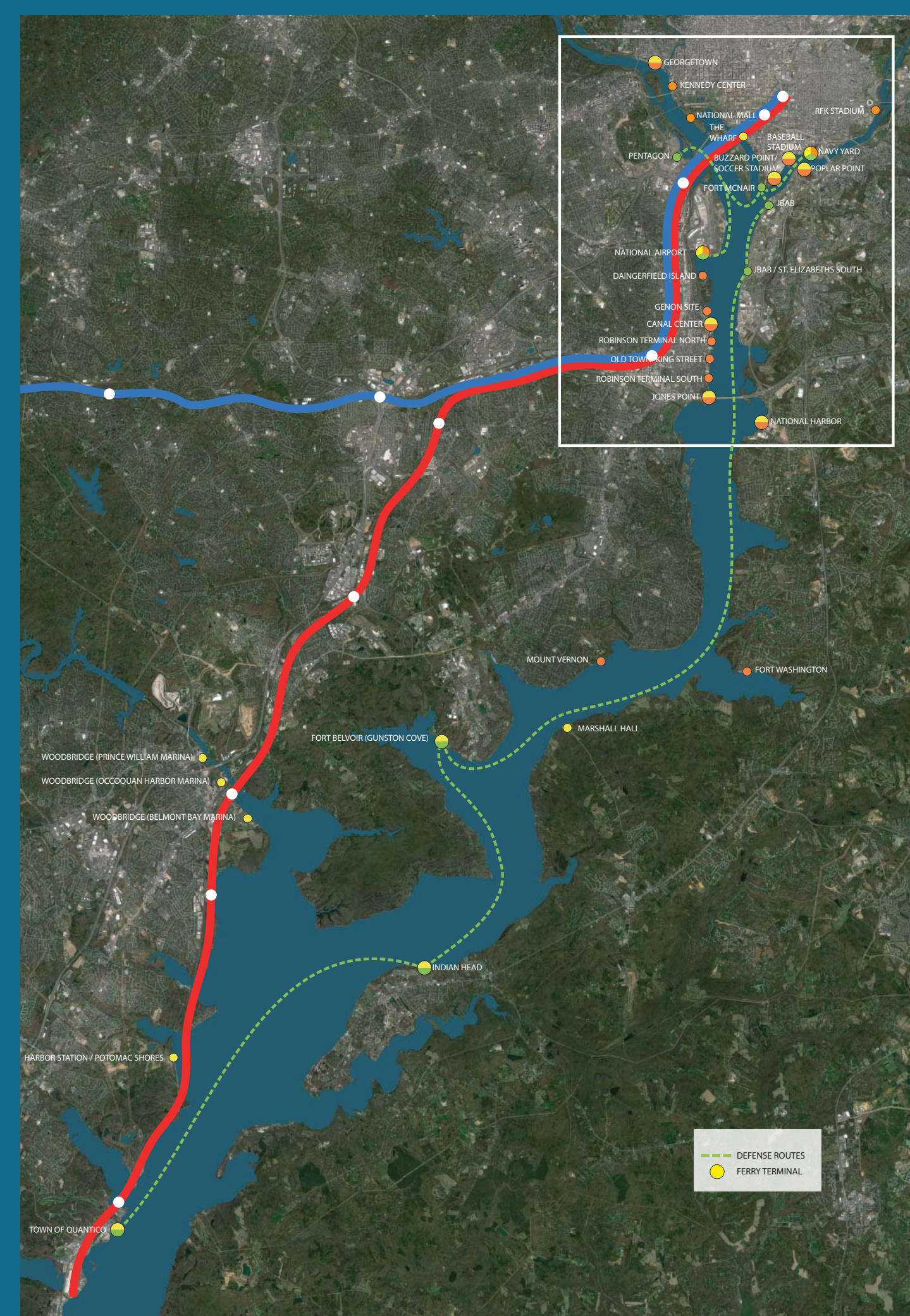
Defense Routes and Landings

Providing a network of routes and landings connecting our military bases along the Potomac and Anacostia Rivers would dramatically improve our readiness to address both man-made and natural events that would require evacuations.

The federal government (military personnel) may be the largest users of the defense routes connecting the numerous military facilities located along the Potomac and Anacostia Rivers. There are 7 defense stops, including Quantico, Joint Base Anacostia-Bolling, and the Pentagon.

Aside from the general commuter transportation to bases, the network can serve a vital role in other needs. Water based transportation can be used for evacuations during an emergency, moving troops, and equipment between bases. These would be especially beneficial for military bases further south along the Potomac River, such as Fort Belvoir and Indian Head where there are no connecting bridges. From Quantico to Joint Base Anacostia-Bolling ferry travel time would be approximately 55 minutes, while from Fort Belvoir to Indian Head would be approximately 15 minutes.

Military markets are especially viable for multiple reasons. Since regulations require no more than one parking space for every four employees at military buildings, parking is at a premium and many workers seek alternative modes of transportation. And both military and civilian employees at Department of Defense offices have access to federal employee transit subsidy, which is \$130 per month, but could increase to \$250 per month.



| Terminal Name | Type of Terminal | Description |
|---------------------------------|---------------------------|---|
| Georgetown | Commuter/Tourism | Georgetown is Washington's oldest neighborhood, known for its upscale shopping, historic waterfront, and distinctive 18th century architecture. It is also home to Georgetown University, the oldest Jesuit university in the United States. |
| Kennedy Center | Tourism | The John F. Kennedy Center for the Performing Arts is the nation's busiest performing arts center, performing for over 2 million audience members every year. Dedicated as a living memorial to John F. Kennedy in 1964, this cultural hub brings world class music, dance, and theatre to Washington. |
| National Mall | Commuter/Tourism | The National Mall is a green expanse that is home to presidential monuments, the Smithsonian museums, and iconic government buildings. Spanning 2 miles between the Lincoln Memorial and the Capitol Building, it draws over 25 million visitors every year, making it the most visited national park in the United States. |
| The Wharf | Commuter/Tourism | The Wharf is a waterfront neighborhood with retail, residential, and cultural spaces located along the Potomac River. It is located just blocks from the National Mall in Southwest DC and has undergone extensive urban renewal in recent years. |
| Pentagon | Defense | The Pentagon is the headquarters of the US Department of Defense. Approximately 23,000 civilian and military employees work in the Pentagon, making it one of the worlds largest office buildings. It is located in Arlington, Virginia, across the Potomac River from Downtown DC. |
| RFK Stadium | Tourism | The Robert F. Kenendy Memorial Stadium is a multi-purpose stadium located along the Anacostia River in Southeast DC. It is the current home of DC United, Washington's professional mens soccer team. |
| Baseball | Commuter/Tourism | Nationals Park is a baseball park in the Navy Yard neighborhood in Southeast DC. It is the current home of the Washington Nationals, the city's MLB team, and is also a venue for concerts. |
| Navy Yard | Commuter/Defense | Navy Yard is a military base located along the Anacostia river in Southeast DC. It is the oldest Navy Installation in the United States and is home to the Naval Sea Systems Command, Naval Facilities Engineering Command, and the Naval Historical Center. It is also home to an upcoming urban development called the Yards, which will include residential, retail, and office space, along with four public parks and marinas. |
| Poplar | Commuter | Poplar Point is a geographic point on the Anacostia River in Southeast DC. While the land was once controlled by the National Parks Service, 40 acres of it are now being developed for residential and commercial purposes. |
| Buzzard Point | Commuter/Tourism | DC United and new Residential neighborhood. |
| Fort McNair | Commuter/Defense | Fort McNair is an Army post located at the peninsula where the Washington Channel meets the Anacostia River in Southwest DC. In addition to being a military base, it houses National Defense University and the United States Army Center of Military History. |
| JBAB | Defense | Joint Base Anacostia-Bolling, or JBAB, is a military installation consolidated of Naval Support Facility Anacostia and Bolling Air Force Base. It is located on the eastern side of the Anacostia river in Southeast DC. |
| National Airport | Commuter/Tourism /Defense | Ronald Reagan National Airport, also called Reagan National or DCA, is an international airport located just 3 miles south of Washington, DC, along the Potomac River. Serving over 20 million passengers every year, Reagan National is a "short-haul" airport. |
| JBAB/St. Elizabeth's South | Defense | Formerly St. Elizabeth's Hospital, this site is host to the new headquarters for the Department of Homeland Security, located at Joint Base Anacostia-Bolling in Southeast DC. |
| Dangerfield Island/Potomac Yard | Commuter | Dangerfield Island is a wooded park just off the George Washington Parkway, north of Alexandria, VA. It is home to the Washington Sailing Marina and the Mount Vernon hiking trail. It is in close proximity to Potomac Genon Site is the location of a power plant along the Potomac River in Alexandria, VA. It is also the site of a future residential and commercial development. |
| Genon Site | Commuter | |
| Canal Center | Commuter | Canal Center is an urban waterfront neighborhood in Alexandria, north of Old Town. It is situated in close proximity to the Braddock Road Metro Station. |
| Robinson Terminal (North) | Local Commuter/ Tourism | Potomac Yards is a newly redeveloped neighborhood with a mixture of retail and residential areas in Alexandria, VA. It is currently a stop along the Metroway bus and will be home to a Metrorail stop on the Blue and Yellow Lines by 2019. |
| Alexandria (Old Town) | Tourism | Old Town is a historic waterfront district in Alexandria known for its 18th century architecture and historic landmarks, including the George Washington Masonic Memorial. King Street, Old Town's main drag, features restaurants, shops, and galleries. |
| Robinson Terminal (South) | Local Commuter/ Tourism | Potomac Yards is a newly redeveloped neighborhood with a mixture of retail and residential areas. By the year 2019, Potomac Yards will be home to a Metro stop on the Blue and Yellow lines. |
| Jones Point | Commuter | Jones Point is a waterfront park located in Alexandria, Virginia, adjacent to the Woodrow Wilson Memorial Bridge. It is located in the southernmost point of Old town, Alexandria |
| National Harbor | Commuter/Tourism | National Harbor is a waterfront development along the Potomac River in Oxon Hill, Maryalnd. In addition to shops and restaurants, National Harbor houses a ferris wheel that offers panoramic views of Washington, interactive art exhibits, and boat rentals. It is also home to the Gaylord National Resort, which boasts 450,000 |
| | | Fort Washington is a national park located in Prince William County, MD. Fort Washington was the only fort protecting Washington, DC for many decades. Today it is a park with historical fortifications, hiking trails, and |

The Landings

31 landings have been identified and categorized, but that doesn't imply a limit on the number of stops. Landings can be built by both private development and the public sector.

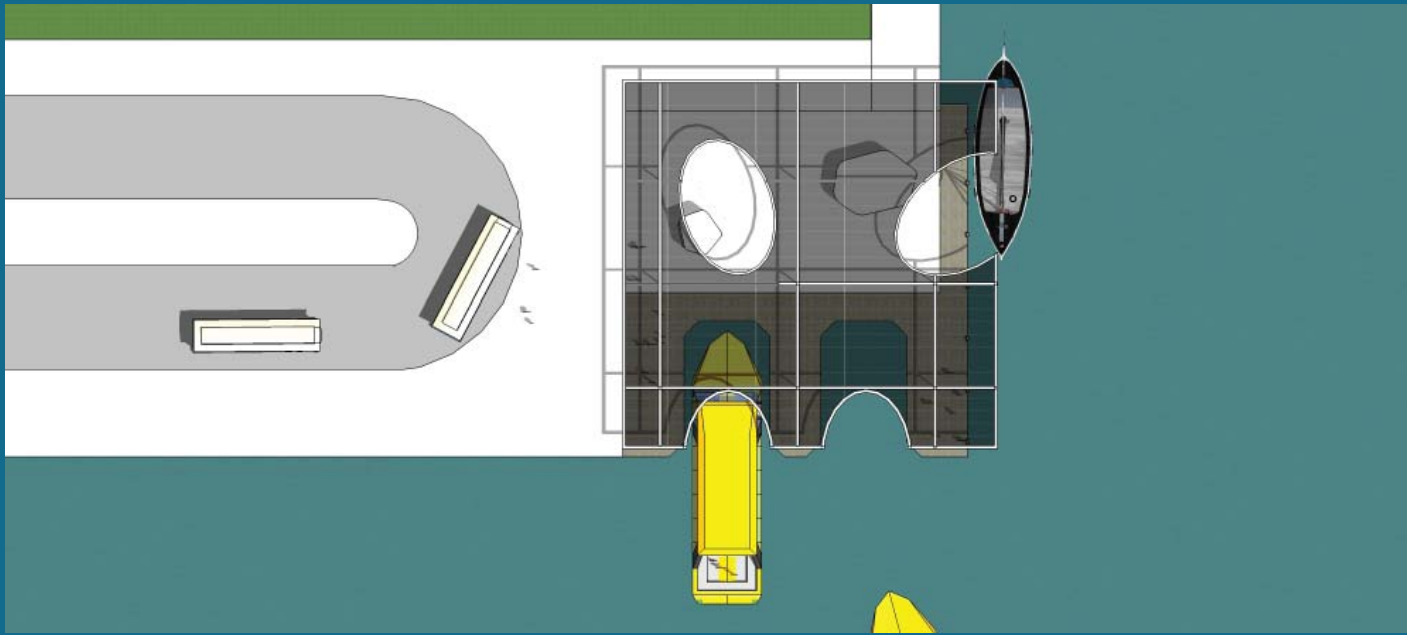
The Master Plan identifies 31 landings to date. Each of the landings have different criteria for implementation. Commuter landings will require large parking areas or parking structures while tourist landings do not have the same requirement.

We have established the landings based on the typical routes of travel of populations as well as established waterfront developments that already exist. One of the major issues, however, is getting access to some of the landings. In some cases, the waterfront is privately owned, but in many cases, the waterfront is controlled by the federal government.

One of our key findings in the Master Plan is that it will be critical to establish an agency or quasi-authority consisting of the three jurisdictions of DC, Virginia, and Maryland and the Federal Government to make available the landing sites required to fulfill this robust plan.

Left: Partial listing of the 31 landings identified and categorized in the master plan.





Intermodal Transit Terminals

Connecting to existing land based transportation networks such as Metro stations and National Airport is essential to creating a robust and integrated regional system.

One of the most important components of a successful water-based transportation system is the integration with existing public transportation networks. Land-based public transit already exists near potential landings.

Our water transportation network outlines the connections from the water landings to the existing metro and VRE stations. As part of the transfer from water to land, we have developed intermodal stations to transfer riders from water craft to rubber wheeled trolleys or buses. A fundamental element to this transfer is to provide as much cover for riders from sun and rain and to bring the ships and trolleys as close together as possible, minimizing the time and inconvenience of transfers.

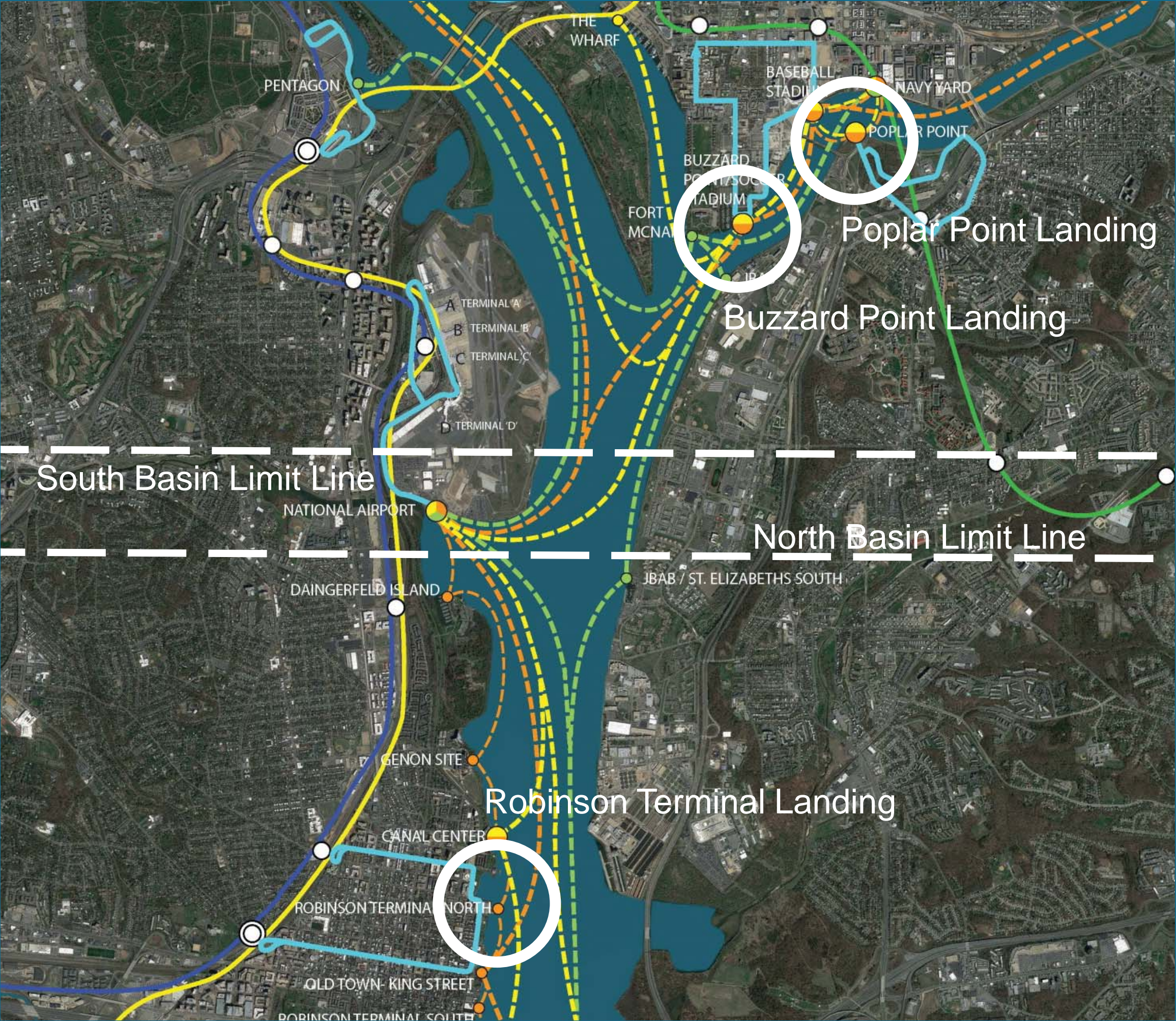
The basic outline of the intermodal station is an open air structure with a flat canopy with translucent photovoltaics to provide shade and protection from weather. The PV panels produce power for the ticket, restroom and concession pavilions located under the canopy. Other pavilions can be added to each station depending on the need of that particular station, such as waiting rooms and other retail concessions.



Exploring Three Intermodal Landings

As part of the Master Plan, we explored three landings that could be developed through private funding by developers. The three landings are Poplar Point, Buzzard Point and Robinson Terminal North.

Additionally, we have separated the metropolitan DC region into a north and south basin for clarity. Each basin includes National Airport as a focal point and an important multi-modal connection to the entire network

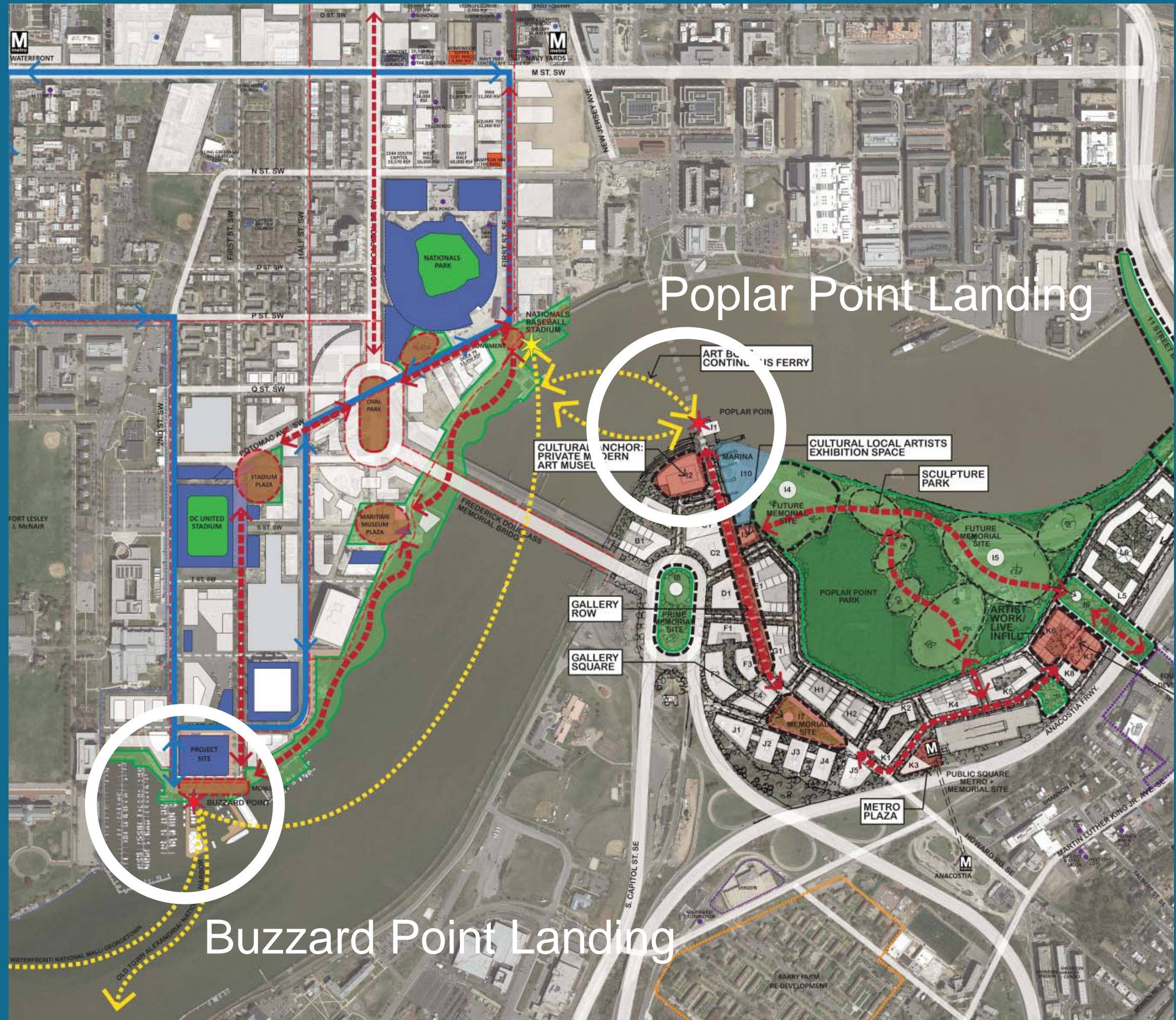


Buzzard Point and Poplar Point Landings

Buzzard Point and Poplar Point are two undeveloped but growing neighborhoods in Washington, DC. Their proximity along the river provides for obvious connections to each other.

In the master plan we have outlined the water connections as well as framework plans for land use, transportation, and arts and entertainment routes.

Since both neighborhoods are remote and undeveloped, the introduction of a water based transportation system would dramatically increase the accessibility to each location.



Poplar Point Landing

Poplar Point is currently one of the largest undeveloped land parcels in the District of Columbia. Access to the 110 acres includes the Anacostia metro station.

The plan imagines an extension of New Jersey Avenue across the river to establish the connection to the L'Enfant plan. At the end of New Jersey Avenue would be located a water stop and day marina.

Connecting the water stop and intermodal facility would be a rubber wheeled trolley circulating through the new neighborhood and connecting to the Anacostia metro station.

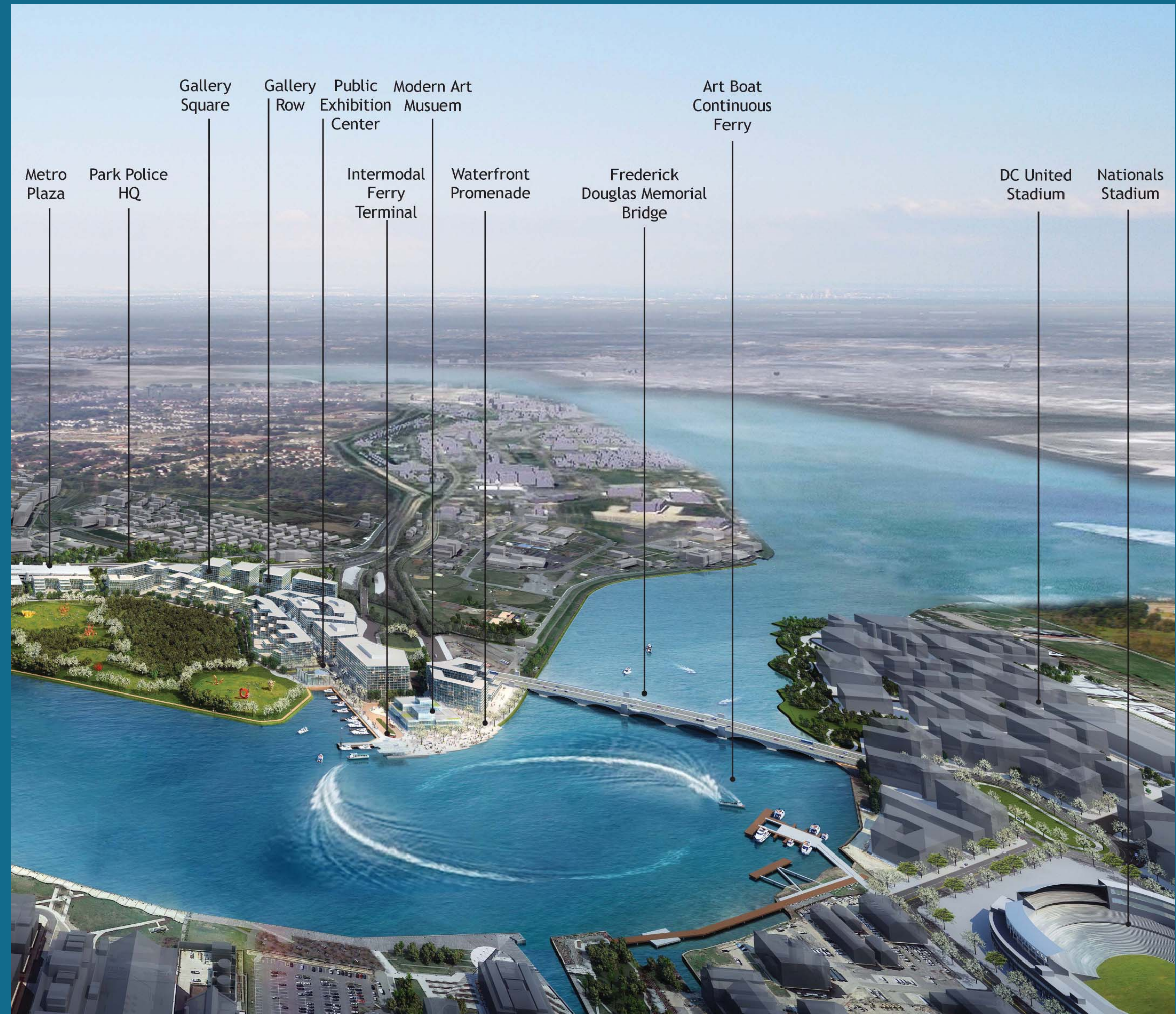
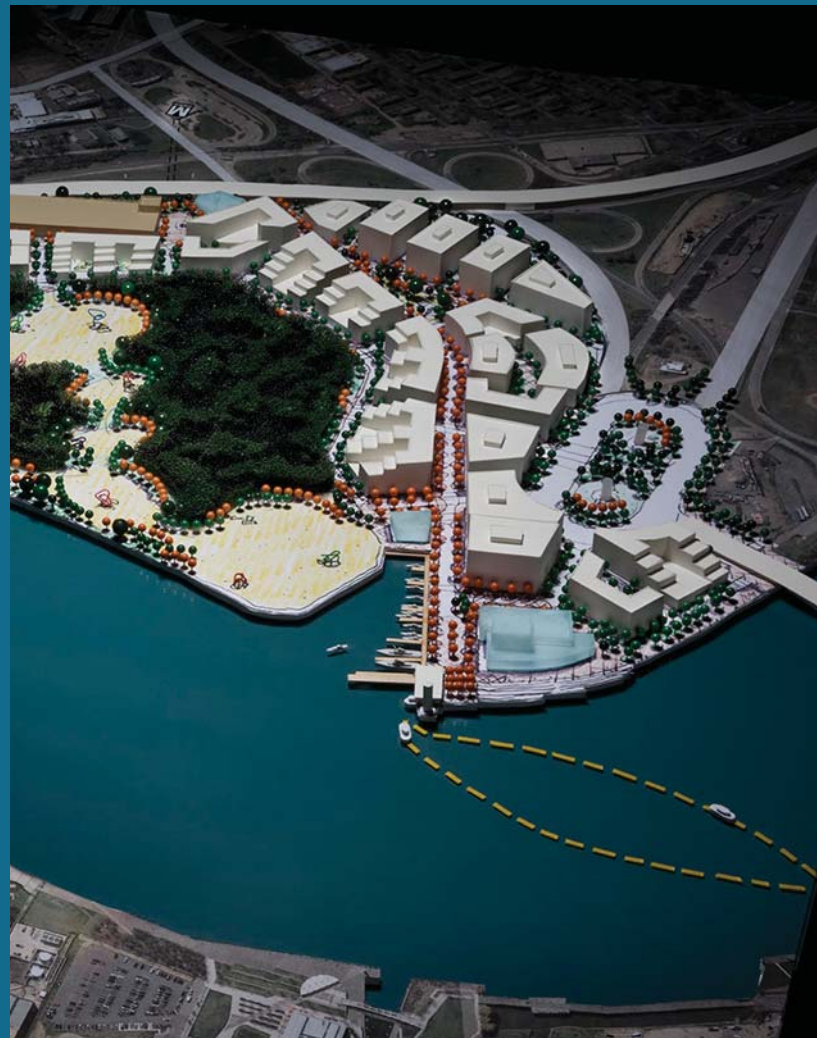


Poplar Point Landing

This plan imagines Poplar Point as a new arts district with galleries, a private modern art museum, and a sculpture park.

Like many cities, making urban fabric connections across rivers can sometimes be challenging. In this case, we believe that the two water stops of Poplar Point and the National's Baseball Stadium can help bridge that gap with water taxis running back and forth between stations continuously.

Branded as the Art Boat to reinforce the arts district, this ferry service can make the distance across the water feel far shorter.



Poplar Point Landing

Poplar Point can develop a waterfront that is active and engaging with the assistance of an intermodal water ferry and taxi station, making the waterfront the main portal to the new neighborhood.

Rubber wheeled trolleys can pick up passengers at both the Anacostia Metro Station and the waterfront.

The continuously running Art Boat would connect this now somewhat remote site to mainland DC making it feel nearer and easily accessible.



Buzzard Point Landing

Buzzard Point is at the southernmost tip of the District of Columbia, and metro access is quite a distance away. This neighborhood is presumably the next major development area for the District and is quickly being developed following the location of the National's Baseball Stadium and now, the new DC United Soccer Stadium.

This plan imagines a new harbor at the tip of Buzzard point complete with a water stop and intermodal facility, music venue, floating restaurant, and deep water berth for visiting tall ships. Connecting to the water landing is a trolley service already promised by the District to connect the intermodal to the metro stations on M Street.



Buzzard Point Landing

River Point Harbor is the name of the new development at the tip of Buzzard Point. The project can be a catalyst to the redevelopment of all of Buzzard Point by providing access to the most southern tip.

The new harbor is designed to create a destination with numerous activities and access points to the water.

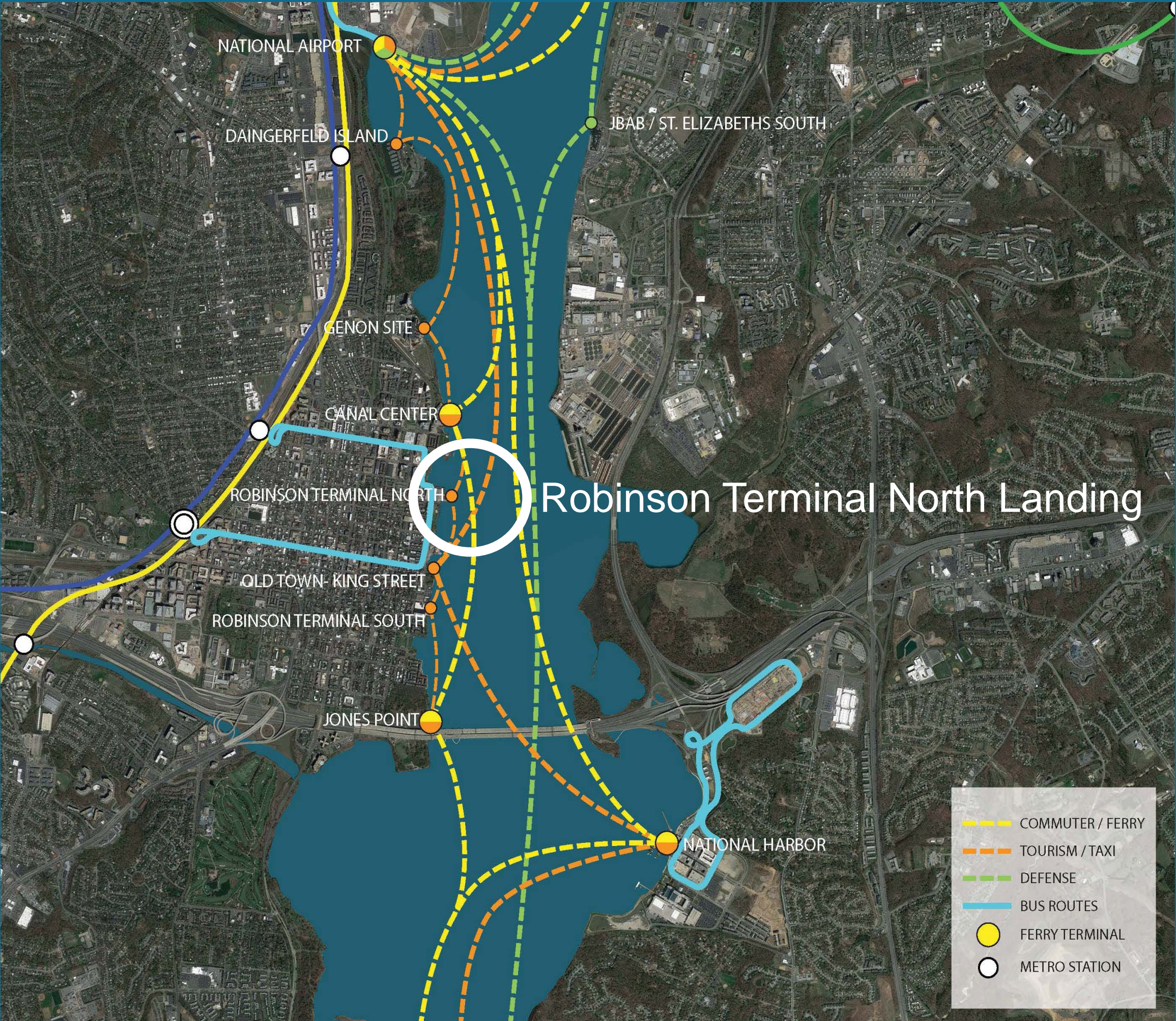


Robinson Terminal North Landing

Robinson Terminal North is one of the last remaining sites located along the Potomac River in Old Town, Alexandria. The City has zoned the site for a hotel with residential units across the street.

Our plan imagines the hotel facing a new 50 slip marina with and a water stop and intermodal facility at the end of Oronoco Street. The hotel with its restaurants and bars looking out to the water creates a new destination and expanding the economic development of historic Old Town.

Also located adjacent to the marina is a floating restaurant barge and a deep water dock for visiting tall ships.



Robinson Terminal North Landing

The models illustrate the potential to create a new destination along the Alexandria waterfront and the interconnectivity that is possible with multiple water taxi stops along this waterfront city.

