3.3 14TH STREET BRIDGE SITE

3.3.1 Existing Conditions

3.3.1.1 – Physical Conditions

a. Existing Land Use

The site is located to the east of GWMP, just south of the CSX Bridge and to the north of Gravelly Point Park. Mount Vernon Trail runs adjacent to the river through the potential location of the boathouse. The site is an open area under the management of NPS.

b. Infrastructure

There are currently no utility services on the boathouse site. However, a 1,100 SF Comfort Station has been proposed by NPS to serve the Gravelly Point recreation area. Water, sanitary sewer, electric and telephone services could be extended to the boathouse site from this Comfort Station.

3.3.1.2 Environmental Conditions

- Floodplains: According to FEMA mapping, the site is designated an area of minimal flood potential (FEMA 1982) (see Figure 3.33).
- Wetlands: National Wetland Inventory data indicates that there are wetlands at the Potomac shoreline along the length of the site.
- Soils: Soils at the site are likely Udorthents, as described for the lower Rosslyn site (Hydel 2001). The soils are well vegetated, excluding the paved bike

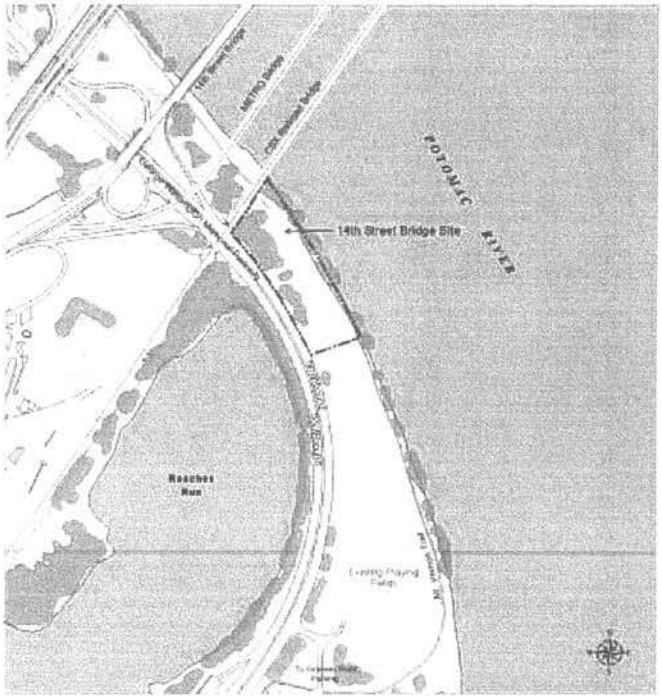


Figure 3.32: Existing Conditions, 14th Street Bridge Site

path that runs adjacent to the riverbank (see Figure 3.33). The riverbank exhibits some signs of erosion such as bank loss and root exposure. However, the bank has previously been stabilized with riprap.

- Geology: There are no noticeable significant geologic features on the 14th Street Bridge site. The underlying geology is alluvial material or fill (Fleming 1994).
- Vegetation: Vegetation on the 14th Street Bridge site consists of common suburban tree species and understory species in a strip along the riverbank and a grassy field extending to the GWMP. The trees at the riverbank exhibit edge characteristics such as prominent vine growth (see Figure 3.34). There are also a variety of mature and healthy specimen trees that have been planted, loosely spread through the grassy field on the western portion of the site. A letter from the Virginia Division of Natural Heritage, dated December 10, 2001 states that no natural heritage resources or State Natural Area Preserves have been documented at the site. An additional letter from Natural Heritage dated February 11, 2002 states that highly altered sites, such as the 14th Street Bridge and upper Rosslyn sites, would present habitat less suitable for supporting rarities than the other potential boathouse sites.

  Shoreline surveys of peak annual subaquatic vegetation growth, conducted in September and October of 2000, found that a dense swath of subaquatic

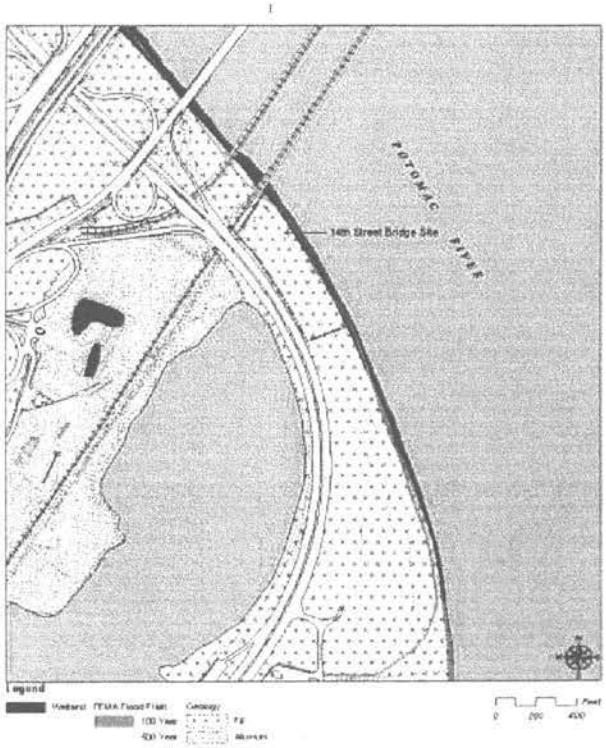


Figure 3.33: Existing Soils and Hydrology, 14th Street Site

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EXHIBIT NO.360A2

vegetation exists at the Virginia shoreline along the length of the site (see Figure 3.34). There is also a dense patch of subaquatic vegetation in the middle of the Potomac River adjacent to the site (Ryan 2001).

- Wildlife: Wildlife on the site likely includes common urban species such as small mammals and birds. There is not enough vegetation on the site to provide sufficient habitat or movement corridors for larger animals. A letter from the Virginia Division of Natural Heritage, dated December 10, 2001 states that no natural heritage resources or State Natural Area Preserves have been documented at the 14th Street Bridge Site. An additional letter from Natural Heritage dated February 11, 2002 states that highly altered sites, such as the 14th Street Bridge and upper Rosslyn sites, would present habitat less suitable for supporting rarities than the other potential boathouse sites.

- Topography: The topography of the riverside site is characterized by relatively level land that gently slopes toward the east to a steep bank at the edge of the Potomac River.

- Stormwater: In general, stormwater flows from west to east across the site from near the GWMP towards the Potomac River. There is no evidence of channelization or pooling of stormwater on the site.

- Noise: The site is located within the flight path of the Reagan National Airport.

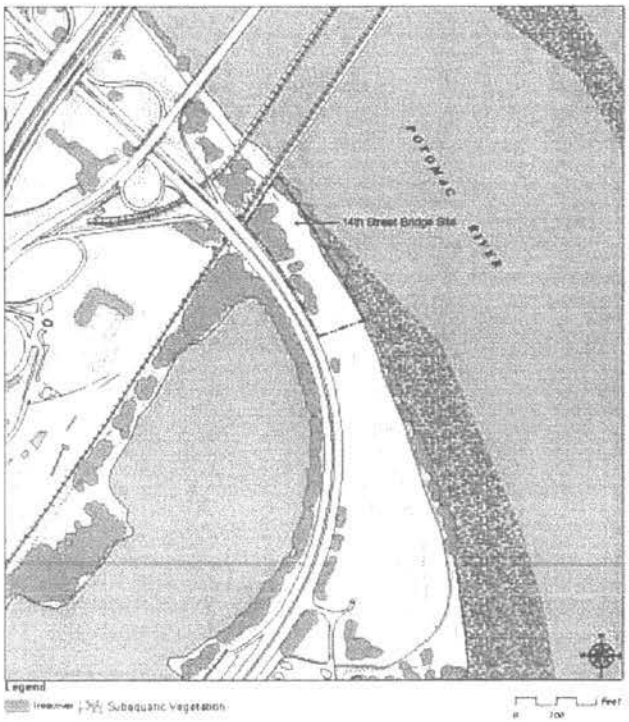


Figure 3.34 Existing Vegetation, 14th Street Site

Airplanes are very low in this area and tend to be extremely noisy.

3.3.1.2 – Operational Factors

a. Transportation (Access and Parking)

The subject site is located to the east of the GWMP. Probable access to this site would be provided via the entrance to Gravelly Point Park, which is located approximately 2,500 feet south of the proposed boathouse site. The only access to Gravelly Point is provided from the northbound lanes of the parkway by means of right-in / right-out movements. There is no access from the southbound lane.

This portion of the parkway is access controlled, with interchanges to the north and south of the site at the 14th Street Bridge and at Reagan National Airport, respectively. Further to the south, near Daingerfield Island, the parkway has limited access control, with occasional breaks in the median to allow left turns. The posted speed limit along the parkway is 40-mph, with observed free flow speeds between 45 and 50-mph throughout much of the day. At the entrance to Gravelly Point, the parkway has three travel lanes in each direction, with no shoulders on either side of the traveled way.

- Access: The existing entrance to the site from the northbound lanes of the parkway is located nearly equidistant between the adjacent interchanges (at the 14th Street Bridge and at Reagan National Airport); the entrance is located approximately 2,000 feet north of the acceleration ramp from the airport and approximately 2,000 feet south of the diverge ramp to the 14th Street Bridge. The resultant spacing between the interchanges and the park entrance results in very little turbulence within the flow of traffic due to weaving vehicles.

- The existing acceleration lane from Gravelly Point Park is 150 feet long, followed by a 250-foot taper. Since the parkway has no shoulder and is closed section (curb-and gutter), larger, heavier vehicles that might otherwise use a shoulder to "extend" their merge area must accelerate from a stopped condition to approximately 40-mph in only 150 feet, or use the mainline lanes of the parkway for their acceleration. This may be problematic for vehicles pulling loaded boat trailers, especially if traffic is heavy on the parkway. Similarly, the deceleration lane for Gravelly Point Park is just 65 feet long, with a 145-foot taper. Similar comments can be made about the effect of this relatively short distance on the ability of larger (and those pulling trailers) to decelerate without affecting the flow of traffic in the mainline lanes of the parkway. However, it should be noted that large vehicles, including those pulling boat trailers, currently use the existing driveway to access to the boat ramp at Gravelly Point Park.

  For vehicles exiting the site, sight distance looking to the south is quite good, with no obstructions to block a motorist's view of approaching vehicles in the northbound lanes of the parkway for at least 750 feet from the entrance.

  There is no direct access to the site from the southbound lanes of the parkway. To reach the site, southbound vehicles can use the interchange ramps to Reagan National Airport, to turn around, however, internal circulation within the airport roads can be complicated. Unless a motorist were familiar with the airport's internal circulation patterns, it may be advisable to direct southbound motorists all the way to the left turn at Marina Drive (at Daingerfield Island), which is located approximately two miles south. This would result in motorists traveling a total of four miles out of their way to reach the site.

  If southbound motorists used the Reagan National Airport ramp to turn around (assuming they would use the southern interchange) they would travel approximately 2 miles out of their way, via a somewhat more circuitous route.

  Vehicles exiting the site, that wish to head southbound on the parkway, have a more direct route to follow; proceeding about ½-mile north, exiting at the loop ramp to southbound I-395 and then immediately taking the loop ramp back to the southbound lanes of the parkway. This route would send motorists approximately one mile out of their way.

- Parking: The existing parking lot at Gravelly Point Park is quite large, containing 78 spaces for automobiles (19.5 feet long), 4 handicap automobile spaces (also 19.5 feet long), 17 double length spaces (39 feet long) for vehicles pulling trailers, and one double length

space (39 feet long) designated as a handicap space. These extended parking spaces appear to be adequately sized, with the typical truck/trailer measuring 38 to 40 feet in length, and are meant to be used by persons accessing the boat-launch ramp. All of the spaces are angled and allow vehicles to pull-through. There is ample room within this lot for large vehicles (bus, truck or car with trailer) to turn around. No trailer parking for the boathouse is anticipated in this lot.

There is a substantial amount of open space (grass fields) near the site that could be used for overflow/temporary parking, if needed, for regattas or other special events.

b. Rowing Conditions

- Depth of Water: There is sufficient depth around this site to allow rowing activities. The Tidal Map for the Potomac River indicates that the water is approximately four feet deep at the shore during low tide. The river becomes significantly deeper towards the middle.
- Available Course: The rowers at this site would have access to waters to the south, down to the Woodrow Wilson Bridge and beyond. The rowers would also have access to waters to the north of the 14th Street Bridges. However, to row there, rowers would have to cross to the other side of the river, in keeping with existing rowing patterns in the river.
- Safety: There are a number of potential conflicting situations in this area. These include powerboats exiting or entering the Columbia Marina and powerboats using the boat-ramp at Gravelly Point. This area does not have a wake-free zone so powerboats, cruise-boats or jet skies that frequent this area are allowed to travel at maximum speeds. Also, there is a cable buried under the river that connects to the shore at around the area of the proposed boathouse. This location will have to be closely examined while siting the boathouse. While there are no other rowing boathouses immediately around this area, the Columbia Island Marina and the boat-ramp off Gravelly Point could provide help on the water during emergencies. Other potential conflicts could include the abutments of the four bridges (CSX Railroad Bridge, the two 14th Street Bridges and the Metro Bridge) that can potentially act as obstacles between the northern portions of the Potomac River and the water to the south. These abutments could cause trouble for novice rowers.
- Days lost due to Weather: Since there are no rowing boathouses in this immediate area, it was difficult to gauge how many days could be lost due to inclement weather. However, since the conditions on the river at this location (relative to width and openness) are somewhat similar to the location of the Alexandria Boathouse, it is reasonable to assume that the days lost for practice at the site would be similar to the Alexandria Boathouse. Alexandria loses between two and three days in a six-day practice week during the Spring months.

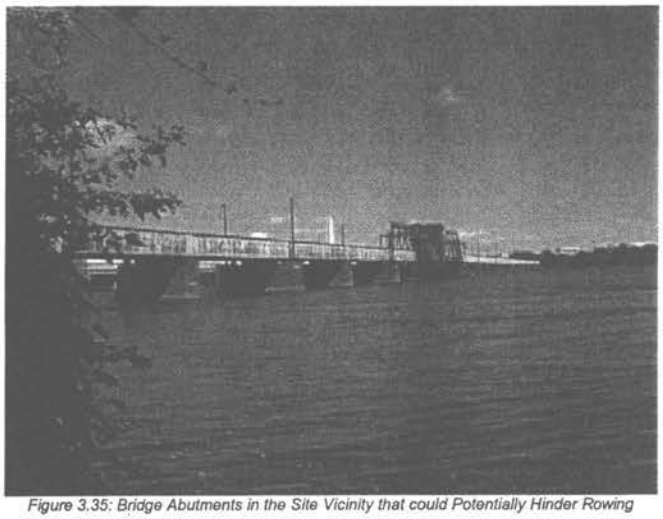


Figure 3.35: Bridge Abutments in the Site Vicinity that could Potentially Hinder Rowing

3.3.1.4 – Cultural/Visual Conditions

a. Cultural Resources

Potential archeological resources include possible locations, in undisturbed areas of the Potomac riverbank, for artifacts from prehistoric Native American settlements. Additionally, the site could hold 19th century artifacts from the Long Bridge Site and the Fort Jackson site from the Civil War. (Arlington County 1993).

The GWMP is a National Historic Register property that is near the project site.

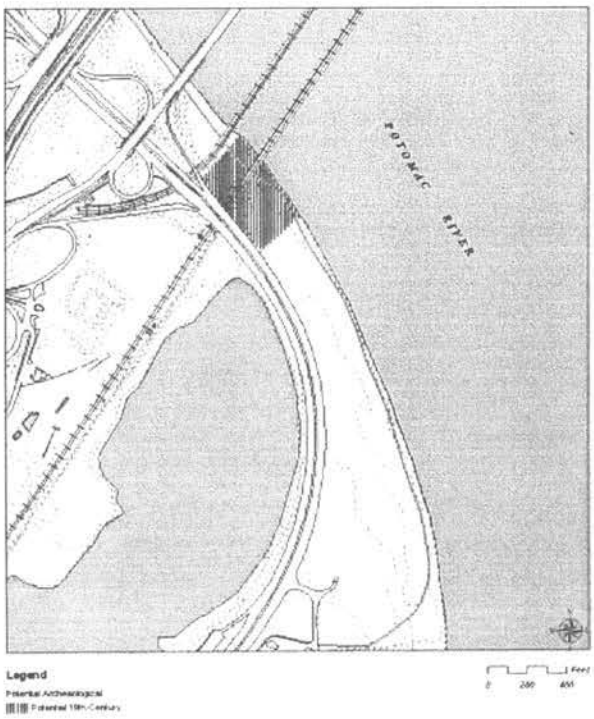


Figure 3.36: Potential Existing Historical/Cultural Resources, 14th Street Site

b. Visual Resources

The site is a grassy area that sits at the northern end of Gravelly Point Park, an active recreational area, between the river and GWMP (see Figures 3.41, 3.43, 3.45, 3.47 and 3.49). To its immediate north is the CSX Railroad Bridge. There is a row of vegetation that lines the riverbank and there are some trees along the parkway. The site is visible from Gravelly Point Park, GWMP, the river and the Mount Vernon Trail.

3.3.2 Conceptual Site Plan

Two conceptual plans were prepared to test the potential of locating a boathouse at this site. Figures 3.37 and 3.38 illustrate a smaller



Figure 3.37: Conceptual Site Plan

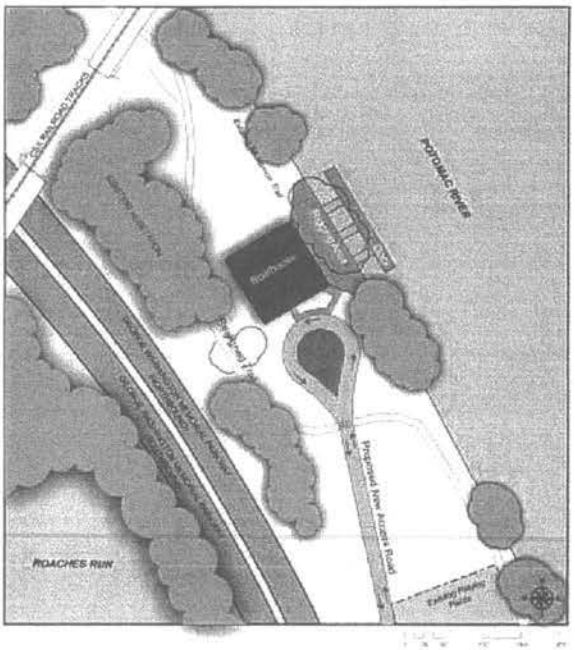


Figure 3.38: Enlarged Conceptual Site Plan, Minimum Program Boathouse

boathouse with a footprint of 10,000 SF. Figure 3.38 illustrates a larger boathouse with a footprint of 14,000 SF. In both plans, a new access road with a drop-area is proposed off Gravelly Point Park. Also, in either plan, the Mount Vernon Trail is realigned to avoid potential conflicts between the rowers and the trail-users. The smaller boathouse is located slightly to the north, in reference to the larger boathouse, to provide a comparison between potential multiple locations at this site. The coaches' boats would be tied to the dock during most of the rowing season and removed within the boathouse when needed.

3.3.3 Site Analysis

Summary: A boathouse, based on the proposed minimum and maximum program, with a footprint that ranges from 10,000 SF to 14,000 SF, could be accommodated at the 14th Street Bridge site. However, there are a number of measures and improvements that would be necessary for these plans to work, including the following:

- A new road and drop-off location would be required to provide boathouse access to trailers, school buses and emergency vehicles. This road could be located between GWMP and the existing playing fields to the east. The smaller boathouse would require approximately 1,950 running feet of new road (including the drop off area), and the larger boathouse would require approximately 1,800 running feet of new road.
- Portions of the existing Mount Vernon Trail would need to be relocated away from the river to create space for the

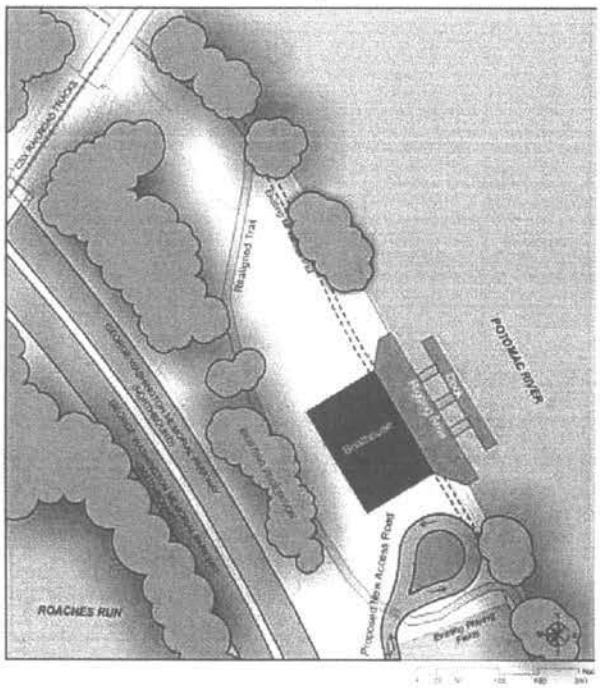


Figure 3.39: Conceptual Site Plan, Maximum Program Boathouse

boathouse. The smaller boathouse would result in removing approximately 590 feet of the trail, while the larger boathouse would result in removing approximately 650 feet of the trail.

3.3.3.1 – Physical Conditions

a. Existing Land Use

A proposed boathouse would add to the existing recreational uses in this area. Although, the boathouse would introduce a building in an area that predominantly consists of bridges and open space.

b. Infrastructure

Based on the description of the proposed Comfort Station in the National Park Service PMIS 59801 document it is assumed that the location of the Comfort Station is in the vicinity of the existing parking lot at Gravelly Point. Therefore new utility services would need to be extended from the Comfort Station area approximately 2,400-feet to the proposed boathouse. The boathouse roof drains may outfall to gutters and downspouts or could be collected in a storm drain system. The driveway and drop-off area may also be collected in a storm drain system.

A summary of the new utility services, that are likely to be required for the boathouse, is as follows:

- 2,400-feet of 4-inch ductile iron sanitary sewer force main
- one ejector pump/lift station
- 2,400-feet of 4-inch ductile iron water main
- 2,400-feet of two-way 4-inch PVC electric conduit with handbox
- 2,400-feet of two-way 4-inch PVC telephone conduit with handbox
- 100-feet of 15-inch RCP storm drain
- one fire hydrant
- two storm drain inlets
- one storm drain manhole
- two sanitary sewer manholes

3.3.3.2 – Environmental Conditions

- Floodplain: Observations of topography at the potential development site support assessment that the site would not likely be inundated under 100-year flood conditions. To decrease the likelihood of flood damage to the potential boathouse facilities, the habitable areas of the structure could be located on the second floor.

- Wetlands: As shown on the conceptual site plan, the potential boathouse at the 14th Street Bridge site would be adjacent to or within existing riparian wetland areas at the Potomac shoreline. Some construction would be required in these areas. In accordance with Section 404 of the Clean Water Act, this could require permitting by the Army Corps of Engineers. The delineation of the wetlands on and near the project site would be compulsory in order to predict and minimize impacts to these areas. Construction of the smaller boathouse could disturb approximately 7,600 square feet of wetland, while the larger boathouse could disturb about 7,700 square feet of wetland area. In contrast to construction for foundations, the placement of beams at the river edge to support decking would reduce impacts to wetlands.

- Soils: The soils on the site provide a good substrate for vegetative growth and exhibit low potential for erosion. To preserve soil for the growth of vegetation and to reduce the potential for soil erosion and sedimentation, the development of the potential boathouse facilities should retain the maximum practicable amount of undisturbed surface soil area. Development of the smaller boathouse would likely disturb approximately 2.08 acres of area while development of the larger boathouse would likely disturb about 2.07 acres of acres (the larger boathouse disturbs less area as it is located closer to Gravelly Point parking area and requires slightly less new roadway access).

- Geology: The site for the potential boathouse is underlain by alluvial or fill materials. As this substrate has been composed by repeated deposition of material over time, it could be inconsistent in composition and structure. Sample geologic borings would be required prior to detailed design and construction to provide understanding of the existing geologic material under the development site. If the existing substrate would not provide sufficient structural support for construction of the boathouse and roadways, additional fill material or structural measures could be necessary to support the boathouse facilities. However, previous development of similar land in the vicinity

of the site indicates that geologic structural conditions would not likely impede development of the boathouse facilities on the site.

- Vegetation: Some vegetation on the 14th Street Bridge site would be removed by development of the potential boathouse facilities. The smaller boathouse would clear approximately 11,500 square feet of treed area; the larger boathouse would clear about 9,600 square feet of treed area. Based on visual surveys and Virginia Natural Heritage Department records, the trees that would likely be removed are not rare, threatened or endangered species and are not part of critical habitat.

  The dense SAV growth, near the potential 14th Street Bridge boathouse site could significantly interfere with rowers utilizing the facilities. If operation of the potential boathouse at this site would necessitate rowing through SAV, means of coping with the complications while not negatively impacting the Potomac would be necessary.

- Wildlife: There is no documented critical habitat on the 14th Street Bridge site for the potential boathouse and there are no records of rare, threatened or endangered species within the vicinity of the site. Accordingly, development of the potential boathouse at the site would not likely disturb sensitive wildlife species. Common urban species inhabiting the site should be readily able to utilize other similar habitat along the Potomac River, in proximity to the site, if disturbed by development of the boathouse.

- Topography: The potential boathouse would be constructed adjacent to the riverbank on the eastern extent of the site. Since there is minimal change of grade at this location, the cut/fill that may be required at this site would be minimal.

- Stormwater: Construction of the potential boathouse facilities on the 14th Street Bridge site would increase the amount of impervious surface on the site. The smaller boathouse would add approximately 52,000 square feet of impervious surfaces while the larger boathouse would add approximately 53,000 square feet of impervious surfaces. This increase in impervious surfaces would increase the potential runoff volume on the site. The proximity of the facilities to the Potomac River would make critical the development of stormwater measures to effectively restrict any infiltration of uncontrolled runoff into the river.

- Noise: This area is likely to experience a considerable amount of aircraft noise as planes are at a fairly low altitude as they approach/depart from National Airport.

3.3.3.3 – Operational Factors

a. Transportation (Access and Parking)

- Access: While, the existing parking lot for Gravelly Point Park may provide parking, it is located at least 2,000 feet from the anticipated site of the Boathouse. Also, during spring and summer months, especially on weekends it is difficult to find parking in this lot. The proposed new road would allow bus, trailer and emergency vehicle access to the boathouse.

- Travel Times: During the week of January 18, 2002, travel times were obtained between the site and the three public high schools. Vehicles departed the schools at approximately 3:15 PM to simulate vehicles leaving the schools and traveling to after-school practice. Vehicles departed the site at approximately 6:00 PM to simulate vehicles leaving the boathouse after practice and returning to school. These times were based on information received from the coaches of the rowing teams at Washington-Lee and Wakefield High Schools.

Table 3.5

School	*Travel Times to Site Depart 3:15 PM*	*Travel Times from Site Depart 6:00 PM*
Washington Lee	16 minutes	16 minutes
Yorktown	20 minutes	16 minutes
Wakefield	16 minutes	12 minutes
Average Travel Time	17 min 20 sec	14 min 40 sec

- *Transit Access:* The closest Metro Station is at Pentagon, approximately 0.66 miles from the site. The Metro Station at National Airport is approximately 1.33 miles from the site. Neither of these stations are easily accessible by pedestrian routes. In addition, there is currently no bus service to the site.

b. Rowing Conditions

- The river at the shore is more than four feet deep and will not hinder rowing.
- There is a heavy growth of sub-aquatic vegetation along the shoreline at this location, which can pose a problem for rowers. As discussed earlier in this chapter, some of this vegetation would need to be removed to allow rowing.
- This area is heavily used by motorized vessels, as the Columbia Island Marina and the existing public ramp at Gravelly Point Park are a short distance away, and jet-skiers. In addition, motorized crafts are not restricted by a 'no-wake' zone in this area. As a result, there is potential for conflicts between the rowers and the motorized vehicles.
- The practicing teams would potentially lose between two and three rowing days per week due to inclement weather.

3.3.3.4 – Cultural/Visual Resources

a. Cultural Resources

As discussed pertaining geology and soils, the 14th Street Bridge site lies on alluvial and/or fill material. The site has most likely been disturbed several times during the construction of the historic Long Bridge, the existing railroad bridge, and the GWMP. Given these disturbed conditions, the development of the potential boathouse facilities at the site, would not likely affect undisturbed ground with high potential to contain Native American artifacts. There is, however, some potential for the presence of 19th century artifacts even in the disturbed ground of the site. Performance of careful historic and archeological studies of the project site and adjacent areas, prior to initiation of construction, would help to insure against the loss of potentially valuable cultural resources due to development of boathouse facilities.

The GWMP would not be directly affected by construction of the boathouse facilities at the 14th Street Bridge site. Potential impact on the visual character of this historic resource is discussed under following section.

b. Visual

To assess potential visual impacts of the proposed boathouse, simulations of the boathouse were prepared and overlapped with existing images. The locations of the images were determined based on their level of visibility from public places (see Figure 3.40).



Figure 3.40: Location of Visual Simulations

The existing boathouse at Alexandria was used as a model for the simulated architectural style of the proposed boathouse.



Figure 3.41: Existing View from Mt Vernon Trail Looking South

View 1: From the Mount Vernon Trail, looking south, the overhead bridges and portions of the Potomac River are visible (see Figure 3.41). From this location, the boathouse would be visible beneath the existing rail bridges (see Figure 3.42). The boathouse would terminate the view looking south along the trail.

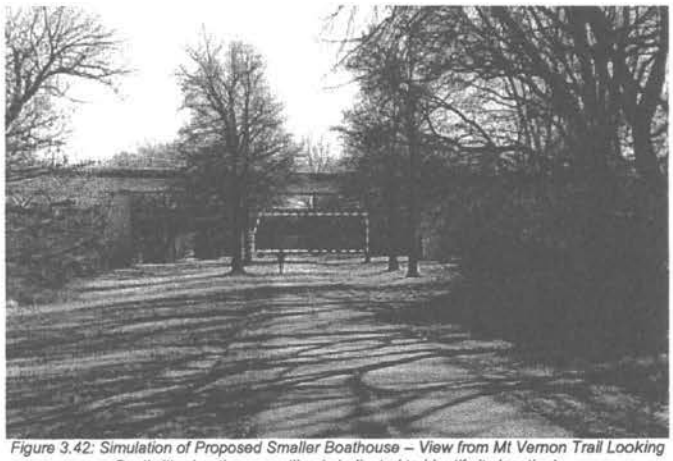


Figure 3.42: Simulation of Proposed Smaller Boathouse – View from Mt Vernon Trail Looking South (the boathouse outline is indicated to identify its location)



Figure 3.43: Existing View from Haines Point Across the River

View 2: From Haines Point, the Potomac River occupied most of the view with portion of the opposite visible in the distance (see Figure 3.43). From this location, the boathouse and dock area would be visible (see Figure 3.44)



Figure 3.44: Simulation of the Proposed Smaller Boathouse – View from Haines Point Across the River



Figure 3.45: Existing View from Down-River

View 3: From down-river, southeast of the proposed location of the boathouse, portions of the boathouse would be visible between existing vegetation. The proximity of the boathouse to the existing rail bridges along with the CSX Bridge would be seen from this location (see Figure 3.46).

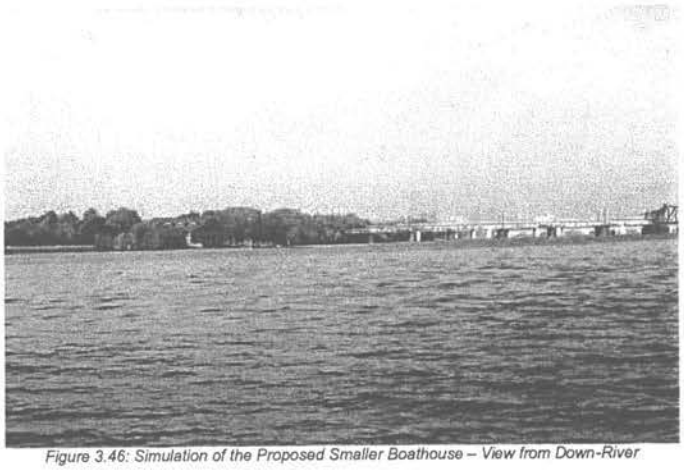


Figure 3.46: Simulation of the Proposed Smaller Boathouse – View from Down-River



Figure 3.47: Existing View from Down-River

View 4: While this is the same vantage point as Figure 3.45, the simulation illustrates the larger boathouse which has been located to the south of the smaller boathouse illustrated in Figure 3.46 (see Figures 3.47 and 3.48). From this location, the boathouse would be slightly south of the bridges and will be more visible. However, there is sufficient space to add new vegetation that may screen a greater portion of the boathouse.

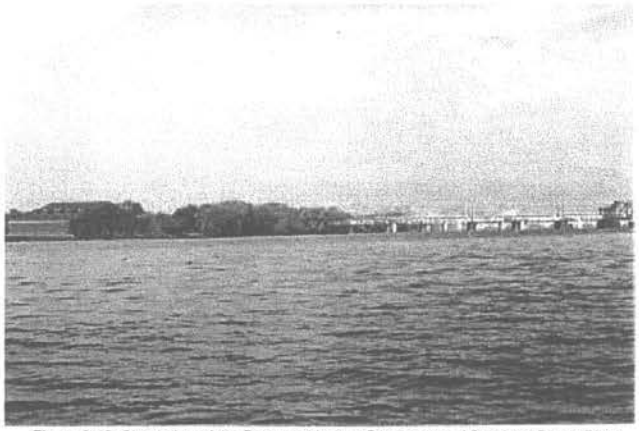


Figure 3.48: Simulation of the Proposed Larger Boathouse – View from Down-River



Figure 3.49: Existing View from GWMP Northbound

View 5: From the GWMP northbound lanes, a significant portion of the open space between the parkway and the river are visible. From this location, most of the boathouse would be visible, along with portions of the dock area. This view of the boathouse could potentially be screened with new plantings, similar to those that exist along the parkway.

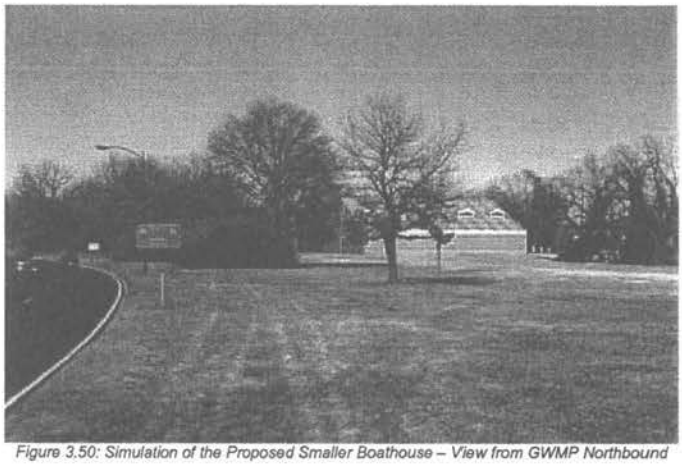


Figure 3.50: Simulation of the Proposed Smaller Boathouse – View from GWMP Northbound



Figure 3.51: Existing View from GWMP Northbound

View 6: While this is the same vantage point as Figure 3.49, the simulation illustrates the larger boathouse which has been located to the south of the smaller boathouse illustrated in Figure 3.50 (see Figures 3.51 and 3.52). From this location, the entire boathouse along with portions of the dock area would be visible. Similar to the smaller boathouse, this view of the boathouse could potentially be screened with new plantings, similar to those that exist along the parkway.

3.3.3.5 – Order of Magnitude Cost

A preliminary cost estimate of the conceptual plans, prepared for comparison purposes only, indicates that the redevelopment of this site with a potential boathouse could cost the following:

Table 3.4: Preliminary Cost Estimates

	Smaller	Larger
Boathouse @$200/SF	$3.0 million	$3.8 million
Site Improvements	$1.4 million	$1.4 million
30% Contingency	$1.3 million	$1.6 million
Total	$5.7 million	$6.8 million

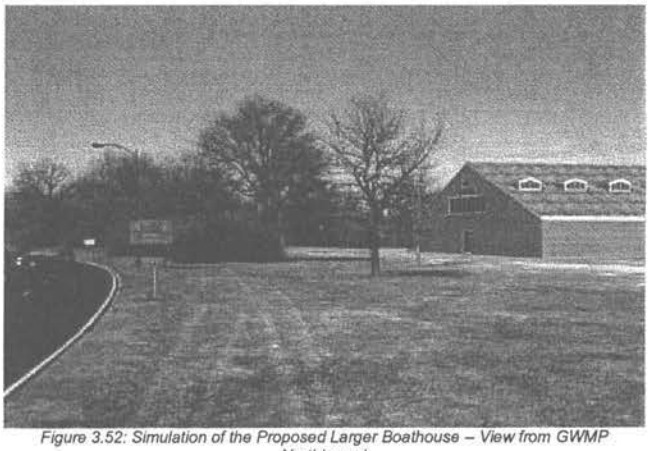


Figure 3.52: Simulation of the Proposed Larger Boathouse – View from GWMP Northbound

3.4 DAINGERFIELD ISLAND SITE

3.4.1 Existing Conditions

3.4.1.1 – Physical Conditions

a. Existing Land Use

The site is located at the eastern end of Daingerfield Island, to the south of the existing Washington Sailing Marina. See Figure 3.53. The site is a recreational/open space area under the ownership of the NPS.

b. Infrastructure

- Water: An existing water system enters the property from the GWMP and services the site. An 8-inch ductile iron water main was recently installed adjacent to Marina Drive. The 8-inch water connects to an existing 6-inch water line that serves the marina facilities. A new 4-inch water main also extends to the nursery and greenhouse areas from the new 8-inch main.
- Sanitary Sewer: Record drawings indicate that a 6-inch sanitary sewer force main exists on site to serve the marina facilities. Further analysis would be required to determine the capacity of the existing force main.
- Electric/Telephone: The marina is served by electric and telephone systems. Further investigation with the utility owners will be required to determine the capacities in these systems.

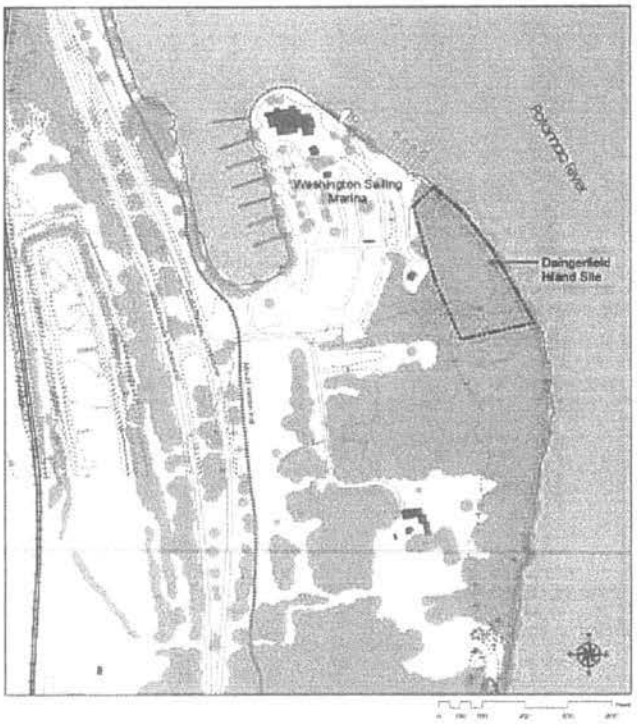


Figure 3.53: Existing Conditions, Daingerfield Island Site

3.4.1.2 – Environmental Conditions

- Floodplains: According to FEMA mapping, the entire Daingerfield Island site is within the 100-year floodplain of the Potomac River (FEMA. 1982).
- Wetlands: National Wetland Inventory data indicates that there are wetlands at the Potomac shoreline along the extent of the Daingerfield Island site (see Figure 3.54).
- Soils: Soils at the Daingerfield Island site are likely Udorthents, as described for the lower Rosslyn site (Hydel 2001). The soils on the Daingerfield Island site are well vegetated. The riverbank exhibits some signs of erosion such as bank loss and root exposure. However, the bank appears to have previously been stabilized with riprap (see Figure 3.54).
- Geology: There are no noticeable significant geologic features on the site. The geology underlying the site is alluvial material (Fleming 1994).
- Vegetation: Vegetation on the Daingerfield Island site consists of common suburban tree species and understory species in a large contiguous patch of forest on the eastern portion of the island. A letter from the Virginia Division of Natural Heritage, dated December 10, 2001 states that no natural heritage resources or State Natural Area Preserves have been documented at this site. An additional letter from Natural Heritage dated February 11, 2002 states that the site presents habitat more

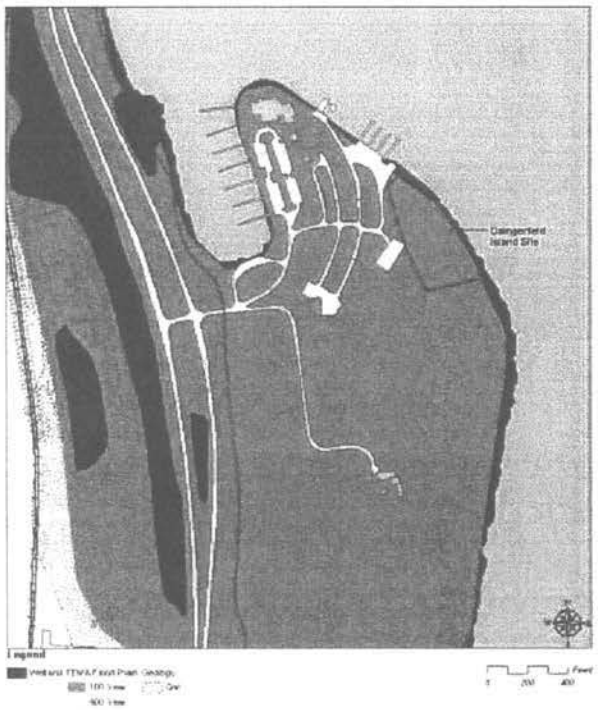


Figure 3.54: Existing Soils and Hydrology, Daingerfield Island Site

suitable for supporting rarities than do the more altered Upper Rosslyn and 14th Street Bridge sites for the boathouse, and recommends an inventory of suitable habitat on the Daingerfield Island site (see Figure 3.55).

Shoreline surveys of peak annual subaquatic vegetation growth, conducted in September and October of 2000, found that a dense and wide patch of subaquatic vegetation stretches from the Virginia Potomac shoreline at Reagan National Airport to the middle of the Potomac, extending past the southern tip of Daingerfield Island. Additionally, subaquatic vegetation currently grows along the northern and eastern edges of Daingerfield Island (Ryan 2001).

- Wildlife: Wildlife at the Daingerfield Island site likely includes common urban species such as small mammals and birds. Larger species could also utilize the large patch of forest on the peninsula for habitat. However, the forest patch is strongly confined from other forested areas by roadways, fields and water bodies so the movement of large animals into the peninsular forest may be limited. A letter from the Virginia Division of Natural Heritage, dated December 10, 2001 states that no natural heritage resources or State Natural Area Preserves have been documented in this proposed project area. An additional letter from Natural Heritage dated February 11, 2002 states that the site presents habitat more suitable for supporting rarities than do the more altered Upper Rosslyn and 14th Street

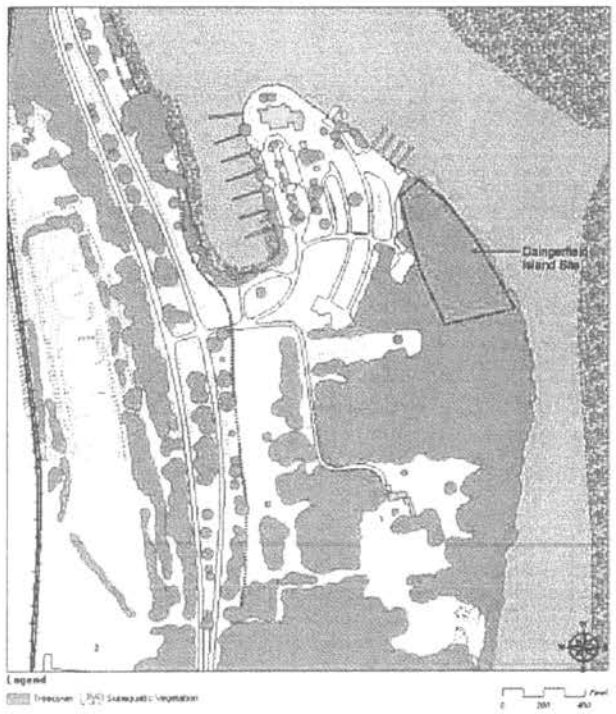


Figure 3.55: Existing Vegetation, Daingerfield Island Site

Bridge sites for the boathouse, and recommends an inventory of suitable habitat on the Daingerfield Island site.

- Topography: The topography of the site is characterized by low elevation level, flood plain morphology. Progressing toward the river, the shore descends gently to the water level.
- Stormwater: Stormwater flows gently from west to east across the Daingerfield Island site. There is no evidence of channelization or pooling of stormwater on the site.
- Noise: The site is located within the flight path of the Reagan National Airport. Airplanes are very low in this area and tend to be extremely noisy.

3.4.1.3 – Operational Factors

a. Transportation (Access and Parking)

The site is located to the east of the GWMP. Access to this area is provided at an unsignalized intersection with full access to/from both directions of the parkway.

This portion of the parkway has limited access control. Further to the north, the parkway is almost completely access controlled with interchange ramps at the Reagan National Airport, the 14th Street bridge and occasional right-in / right-out access points. The median of the parkway at Daingerfield Island is approximately 140 feet wide and the posted speed limit along the parkway is 40-mph, with observed free flow speeds between 45 and 50-mph throughout much of the day. There are no other driveways, median breaks or access points along the parkway for a considerable distance (1,000+ feet).

At the entrance to Daingerfield Island, the parkway has two travel lanes in each direction, with no shoulders on either side of the traveled way. The site contains several large parking lots, some paved and some unpaved. The Mount Vernon Trail travels past the site.

- Access: In the northbound direction, access to the Island is provided via a 115-foot taper followed by a 150-foot long full-width deceleration lane. Access from the southbound direction of the parkway is provided via a 175-foot taper followed by a 385-foot long full-width deceleration lane in the median. The 140-foot wide median that divides the parkway contains a short segment of pavement, perpendicular to the parkway lanes, that functions as a two-way street, 95 feet in length from stop bar to stop bar. The median between the northbound and southbound lanes of the parkway is wide enough to store vehicles, including those pulling boat trailers. This facilitates turning movements, because vehicles only have to cross one direction of traffic at a time.

  There is currently no acceleration lane from the Daingerfield Island site onto the northbound lanes of the parkway. Due to the fact that the parkway has no shoulder and is closed section (curb-and gutter), larger, heavier vehicles that might otherwise have used an acceleration lane or a shoulder for merging must wait for an acceptable gap in traffic and then accelerate from a stopped position using the mainline lanes of the parkway during their acceleration. This may be problematic for vehicles pulling loaded boat trailers, especially if traffic is heavy on the parkway. However, it should be noted that large vehicles, including those pulling boat trailers, currently use the existing driveway to access the Washington Sailing Club.

  For vehicles exiting the site, sight distance looking to the south is fair, with no nearby obstructions to block a motorist's view of approaching vehicles in the northbound lanes of the parkway. Sight distance is limited only by the horizontal curvature of the parkway. Sight distance is even greater for vehicles making left turns from the median onto the southbound lanes of the parkway. There is no full-width acceleration lane in the southbound direction, just a 250-foot taper. As in the northbound direction, due to the fact that the parkway has no shoulder and is closed section (curb-and gutter), larger, heavier vehicles that might otherwise have used a shoulder or acceleration lane for merging onto the southbound lanes of the parkway must wait for an acceptable gap in traffic and then accelerate from a stopped position using the mainline lanes of the parkway during their acceleration.

  Unlike the other sites, there is direct access to Daingerfield Island from the southbound lanes of the parkway. Similarly, there is also direct access from

the site to the southbound lanes of the parkway. The full access available to/from both directions of the parkway is one of this sites best assets.

Parking: The existing parking lots at the Washington Sailing Club are quite large. To the north is a paved lot containing 137 spaces, three (3) of which are handicap spaces. To the south of that lot is a large unpaved lot that was being used to dry-dock boat storage during the site visit in November. It appeared that a significant number of vehicles (50+) could be accommodated on this lot if the boats were removed. Further south is a second small paved lot containing 22 spaces and another unpaved lot that can accommodate approximately 120 vehicles. Vehicles pulling trailers should have little difficulty parking or turning around due to the large amount of parking areas and open land (grass).

b. Rowing Conditions

- Depth of Water: The Tidal Map for the Potomac River indicates that the area immediately adjacent to Daingerfield Island's shore is fairly shallow. However, recently a channel was dredged near the banks which connects to the deeper channel towards the middle of the river. The water to the immediate north and east of the island is fairly shallow and would require careful navigation before a crew could reach sufficient area to practice. There is some protected rowable water in a small harbor to the northwest of the island, however the area here is limited and would not allow the three schools to practice simultaneously.

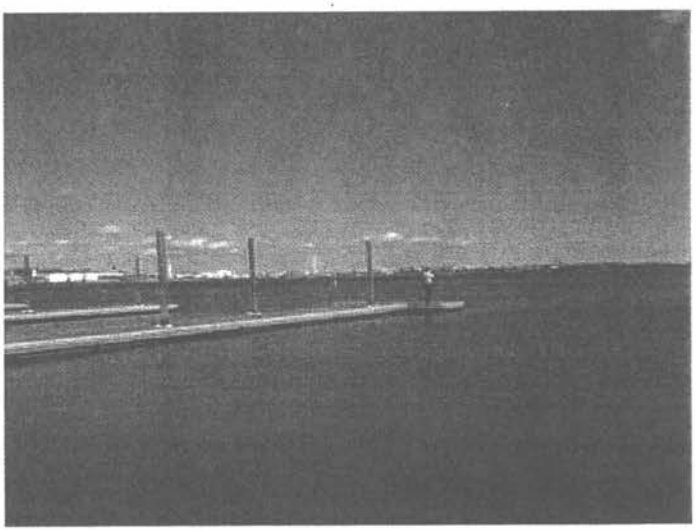


Figure 3.56: Potential Conflicting Uses Include Sail Boats that Launch off the Washington Sailing Marina Docks

- Available Course: The rowers at this location could row down to the Woodrow Wilson Bridge and beyond towards the south, and up north to Fletcher's Cove towards the north. South of the 14th Street Bridges, rowers row on the left side. Rowers from this location would have to go approximately half a mile south before they would be able to row towards the north.
- Safety: Conflicting uses in this area include sailboats from the Washington Sailing Marina that use a launch area just north of the proposed location of the rowing boathouse. In addition, Georgetown's sailing team uses the small

harbor to the northwest to practice. There is a no-wake zone established from Woodrow Wilson Bridge, parallel to the Virginia shoreline that comes up nearly to the proposed location of the boathouse. While this provides some protection to rowboats, there is considerable powerboat, cruise boat and larger boat traffic towards the middle of the river.

- Days lost due to Weather: Since the conditions on the river at this location (relative to width and openness) are similar to the location of the Alexandria Boathouse, it is reasonable to assume that the days lost for practice at the site would be similar to the Alexandria Boathouse. According to a crew coach at TC Williams High School, between two and three days in a six-day practice week are lost due to inclement weather conditions during the Spring months.

3.4.1.4 – Cultural/Visual Conditions

a. Cultural Resources

In undisturbed areas of Daingerfield Island, potential archeological resources include possible locations for artifacts from prehistoric Native American settlements. There are also potential colonial period artifacts from initial clearing and settlement on the island (Arlington County 1993). The GWMP is a National Historic Register property that is near the project site.

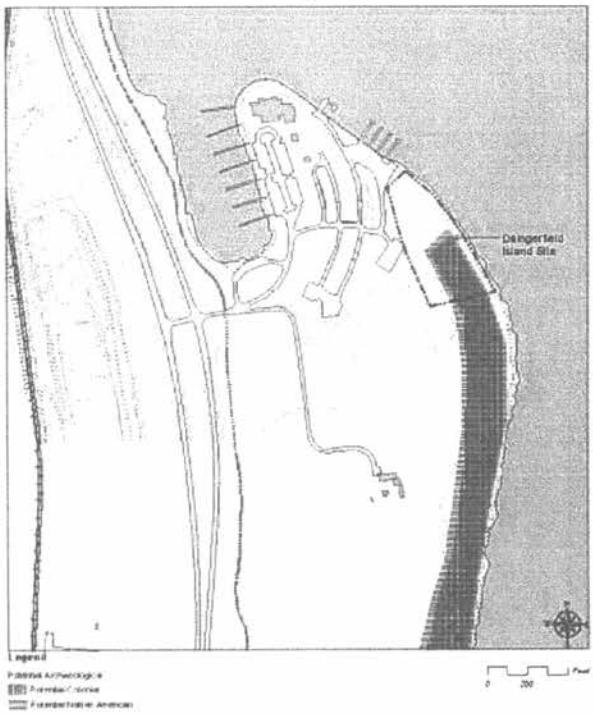


Figure 3.57: Potential Existing Historical/Cultural Resources, Daingerfield Island Site

b. Visual Conditions

The site is part of a wooded area located at the edge of the Potomac River (see Figures 3.62 and 3.64). To the immediate north is the Washington Sailing Marina, an area that includes outdoor boat storage and boat launching facilities. The site is only visible from the river.

3.4.2 Conceptual Site Plan

Two conceptual plans were prepared to test the potential of locating a boathouse at this site. Figures 3.58 and 3.59 illustrate a smaller boathouse with a footprint of 10,000 SF. Figure 3.60 illustrates a larger boathouse with a footprint of 14,000 SF. In both plans, a new access road with a drop-off area, off the existing road network, is proposed. The boathouse and docks are proposed slightly

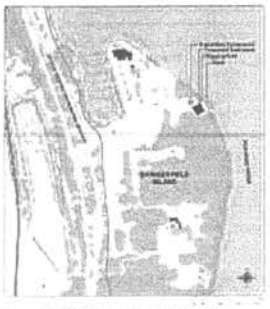


Figure 3.58: Conceptual Site Plan

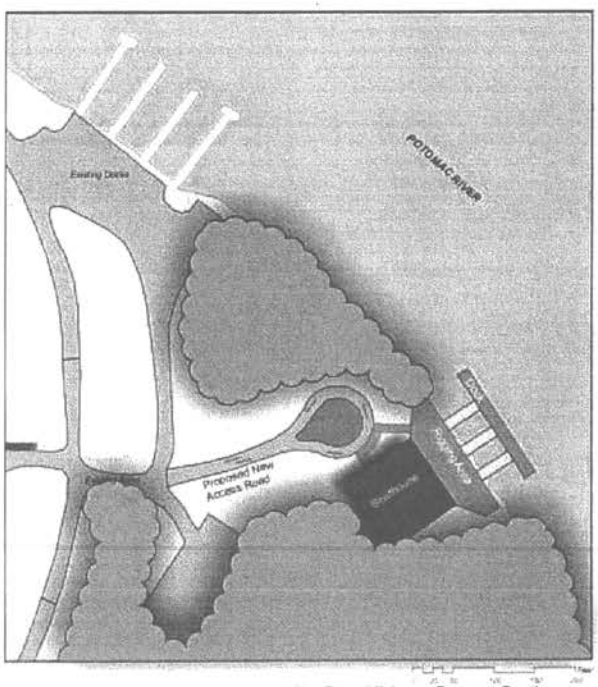


Figure 3.59: Enlarged Conceptual Site Plan, Minimum Program Boathouse

more than 400 feet to south of the existing sailboat launch area.

3.4.3 Site Analysis

Summary: A boathouse, as per the proposed minimum and maximum program, with a footprint that ranges from 10,000 SF to 14,000 SF, could be accommodated at the Daingerfield Island site. A number of measures and improvements would be necessary for this plan to work.

- A new road would be required off the existing road network to provide access to the proposed boathouse.
- Apart from the construction of the road and bus/trailer drop-off, a change of contract would be required with the concessionaire who is responsible for the management of the marina. As part of the management, the concessionaire maintains the internal roads and provides 24-hour security to the area.

3.4.3.1 – Physical Conditions

a. Existing Land Use

A proposed boathouse would add to the existing recreational uses in this area. The proposed plans would be in conformance with the Development Concept Plan (dated 1983) for the Island which identifies this area as the Development Zone for the Island.

b. Infrastructure

- Water: It is anticipated that a new 4-inch service line for the boathouse could be

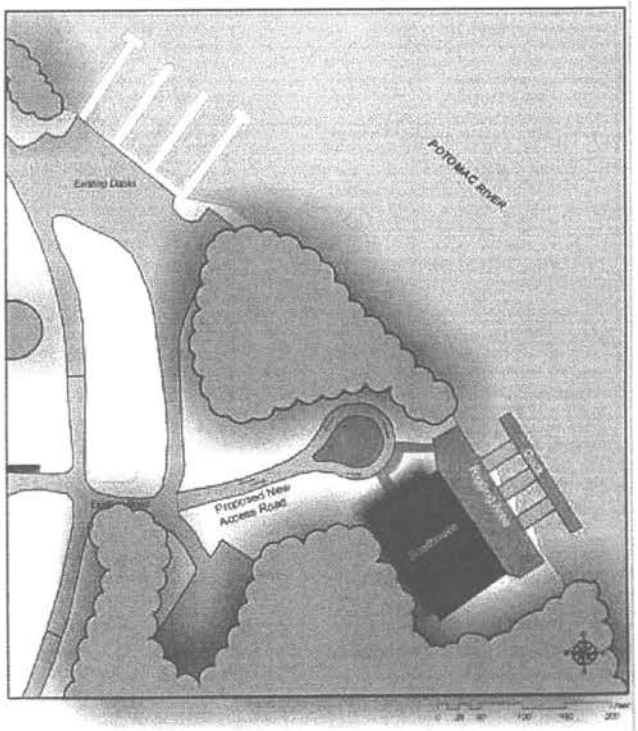


Figure 3.60: Conceptual Site Plan, Maximum Program Boathouse

extended from the 4-inch main at Marina Drive. Approximately 900-feet of 4-inch ductile iron water line would be required to connect to the boathouse. One new fire hydrant is likely to be required for fire protection.

- Sanitary Sewer: For the purposes if this study it is assumed that the boathouse can connect to the existing force main. A new 4-inch force main and ejector pump would be required for the boathouse. Approximately 1,000-feet of 4-inch ductile iron sanitary sewer force main would need to be installed to connect to the existing 6-inch force main.

- Electric/Telephone: For purposes of this study it is assumed that approximately 1,000-feet of new electric and telephone services would be required to serve the boathouse and connect to the existing facilities in Marina Drive.

A summary of the new utility services that are likely to be required for the boathouse is as follows:

- 1,000-feet of 4-inch ductile iron sanitary sewer force main
- one ejector pump/lift station
- 900-feet of 4-inch ductile iron water main
- 1,000-feet of two-way 4-inch PVC electric conduit with handbox
- 1,000-feet of two-way 4-inch PVC telephone conduit with handbox
- 100-feet of 15-inch RCP storm drain
- one fire hydrant
- two storm drain inlets
- one storm drain manhole
- two sanitary sewer manholes

3.4.3.2 – Environmental Conditions

- Floodplains: Observations of the low elevation topography at the potential development site support assessment that the site would be inundated by 100-year flood conditions. To decrease the likelihood of flood damage to the potential boathouse facilities, the habitable areas of the structure could be located on the second floor.

- Wetlands: As shown on the conceptual site plan, the potential boathouse at Daingerfield Island would be adjacent to or within existing riparian wetland areas at the Potomac shoreline. As discussed regarding topography, the addition of fill material in these areas could be required to construct sound foundations. In accordance with Section 404 of the Clean Water Act, the discharge of fill into wetlands could require permitting by the Army Corps of Engineers. The delineation of the wetlands on and near the project site would be compulsory in order to predict and minimize impacts to these areas by fill material. As per the conceptual site plan, construction of the smaller boathouse could disturb approximately 5,500 square feet of wetland, while the larger boathouse could disturb about 5,900 square feet of wetland area. In contrast to construction for foundations, the placement of beams at the river edge to support decking would reduce impacts to wetlands.

- Soils: Soils on the Daingerfield Island site provide a very good substrate for vegetative growth and exhibit moderate potential for erosion. To preserve soil for the growth of vegetation and to reduce the potential for soil erosion and sedimentation, the development of the potential boathouse facilities should retain the maximum practicable amount of undisturbed surface soil area. Development of the smaller boathouse would likely disturb approximately 0.8 acres of surface soil while development of the larger boathouse would likely disturb about 1.0 acres of surface soil.

- Geology: The Daingerfield Island site for the potential boathouse is underlain by alluvial material. Because this substrate is composed by repeated deposition of material over time, it could be inconsistent in composition and structure. Sample geologic borings would be required prior to detailed design and construction to provide a detailed understanding of the existing geologic material under the development site. If the existing substrate would not provide sufficient structural support for construction of the boathouse and roadways, additional fill material or structural measures could be necessary to support the boathouse facilities. However, previous development of similar land at Daingerfield Island indicates that geologic structural conditions would not likely significantly impede development of the boathouse facilities on the site.

- Vegetation: Some vegetation on the Daingerfield Island site would be removed

by development of the potential boathouse facilities. The smaller boathouse would clear approximately 35,400 square feet of treed area; the larger boathouse would clear about 42,100 square feet of treed area. Based on visual surveys and Virginia Natural Heritage Department records, the trees that would likely be removed are not rare, threatened or endangered species and are not part of critical habitat. However, performance of a site inventory of suitable habitat for rare species, as recommended by the Virginia Natural Heritage program, would allow further identification of potential impacts to critical habitat.

The dense SAV growth near the site could significantly interfere with rowers utilizing the facilities. If operation of the potential boathouse at this site would necessitate rowing through SAV, means of coping with the complications while not negatively impacting the Potomac would be necessary.

- Wildlife: There is no documented critical habitat on the site and there are no records of rare, threatened or endangered species within the vicinity of the site. Accordingly, development of the potential boathouse at the site would not likely disturb sensitive wildlife species. Performance of a site inventory of suitable habitat for rare species, as recommended by the Virginia Natural Heritage program, would allow further identification of potential impacts to critical habitat. Common urban species inhabiting the site should readily be able to utilize other similar habitat along the Potomac River, in proximity to the site, if disturbed by development of the boathouse.

- Topography: The potential boathouse at Daingerfield Island would be constructed near the riverbank on the eastern extent of the site. Since there is minimal change of grade at this location, the cut/fill that may be required at this site would be minimal.

- Stormwater: Construction of the potential boathouse facilities on the Daingerfield Island site would increase the amount of impervious surface on the site. As per the conceptual site plan, the smaller boathouse would add 18,900 square feet of impervious surfaces while the larger boathouse would add 23,200 square feet of impervious surfaces. This increase in impervious surfaces would increase the potential runoff volume on the site. The proximity of the facilities to the Potomac River would necessitate the development of stormwater measures to effectively restrict any infiltration of uncontrolled runoff into the river.

- Noise: This area is likely to experience a considerable amount of aircraft noise as planes are at a fairly low altitude as they approach/depart from National Airport.

3.4.3.3 – Operational Factors

a. Transportation (Access and Parking)

- Travel Times: During the week of January 18, 2002, travel times were obtained between this site and the three public high schools. Vehicles departed the schools at approximately 3:15 PM to simulate vehicles leaving the schools and traveling to after-school practice. Vehicles departed the Boathouse sites at approximately 6:00 PM to simulate vehicles leaving the Boathouses after practice and returning to school. These times were based on information received from the coaches of the rowing teams at Washington-Lee and Wakefield High Schools.

Table 3.7

School	*Travel Times to Site Depart 3:15 PM*	*Travel Times from Site Depart 6:00 PM*
Washington Lee	16 minutes	19 minutes
Yorktown	20 minutes	19 minutes
Wakefield	16 minutes	15 minutes
Average Travel Time	17 min 20 sec	17 min 40 sec

- Transit Access: The closest Metro Station at the National Airport is about 1.7 miles from the site and not easily accessible by pedestrian routes. In addition, there is currently no bus service to the site.

b. Rowing Conditions

- A channel was recently dredged along the eastern shoreline of the island that provides sufficient depth for rowing. Rowers would have to row south in this channel till it meets with the main channel in the river, at which location they could go north towards Chain Bridge, or south past Woodrow Wilson Bridge.

- This channel and the area to the north and northwest of Daingerfield Island are

heavily used by sailboats from the Washington Sailing Marina. In addition, this area is frequented by small powerboats. As a result, there is potential for conflicts between rowing shells, sailing crafts and the motorized vehicles. There is a 'no-wake' zone that extends ½ a mile north of the Woodrow Wilson Bridge which could be extended to the location of the proposed boathouse to reduce potential conflicts with the powerboats.

- The practicing teams would potentially lose between two and three rowing days per week due to inclement weather.

3.4.3.4 – Cultural/Visual Resources

a. Cultural Resources

As discussed pertaining to geology and soils, the site lies on alluvial and/or fill material. The Daingerfield Island peninsula has been repeatedly disturbed by colonial settlement and by use as a nursery area during construction of the GWMP (EDAW, Cultural Landscape Report, Mount Vernon Memorial Highway). Due to these disturbed conditions, the development of the potential boathouse facilities at the site, as per the conceptual plan, is not likely to be located on undisturbed ground with high potential to contain prehistoric archaeological artifacts. Performance of careful historic and archeological studies of the project site and adjacent areas, prior to initiation of construction, would help to insure against the loss of potentially valuable cultural resources due to development of boathouse facilities.

The GWMP would not be directly affected by construction of the boathouse facilities at this site. The visual character associated with the historic property could be affected by the development as discussed regarding the visual simulations of the conceptual plan.

b. Visual

To assess potential visual impacts of the proposed boathouse, simulations of the boathouse were prepared and overlapped with existing images. The locations of the images were determined based on their level of visibility from public places (see Figure 3.61). The existing boathouse at Alexandria was used as a model for the simulated architectural style of the proposed boathouse.



Figure 3.61: Location of Visual Simulations



Figure 3.62: Existing View from Upstream along the Potomac River

View 1: From the Potomac River, north of the Daingerfield Island, the boathouse would not visible (see Figure 3.63). However, the docks would be visible. The boathouse would be located just beyond an existing stand of trees (shown here by an outline).

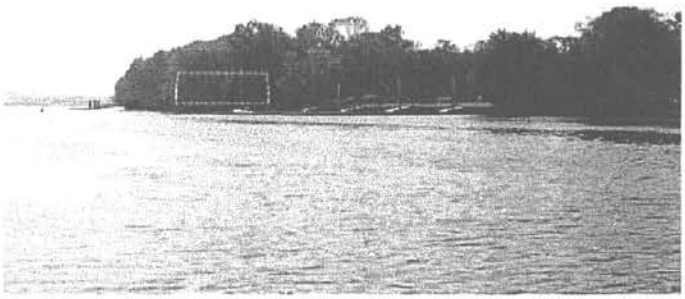


Figure 3.63: Simulation of Proposed Smaller Boathouse – View from Upstream along the Potomac River



Figure 3.64: Existing View from Downstream along the Potomac River

View 2: From the Potomac River, south of the Daingerfield Island, the boathouse and the docks would be visible within the strand of existing trees (see Figure 3.65). The simulation illustrates the relationship of the proposed boathouse to the existing piers for Washington Sailing Marina.



Figure 3.65: Simulation of Proposed Smaller Boathouse – View from Downstream along the Potomac River



Figure 3.66: Existing View from Downstream along the Potomac River

View 3: From the Potomac River, south of the Daingerfield Island, the larger boathouse and the docks would be visible within the strand of existing trees (see Figure 3.67). The larger boathouse would have a greater potential impact due to its larger size.

3.4.3.4 – Order of Magnitude Cost

A preliminary cost estimate of the conceptual plans, prepared for comparison purposes only, indicates that the redevelopment of this site with a potential boathouse could cost the following:

Table 3.8: Preliminary Cost Estimates

	Smaller	Larger
Boathouse @$200/SF	$3.0 million	$3.8 million
Site Improvements	$0.85 million	$1.0 million
30% Contingency	$1.15 million	$1.4 million
Total	**$5.0 million**	**$6.2 million**



Figure 3.67: Simulation of Proposed Larger Boathouse – View from Downstream along the Potomac River

4 SYNOPSIS OF COMMENTS FROM THE 2000 PUBLIC SCOPING SESSION

NPS conducted a public scoping process towards the end of 1999 and beginning of 2000 seeking comments on four locations for a potential rowing facility on the Virginia side of the Potomac River. Three of the potential sites are on NPS lands within the George Washington Memorial Parkway. The first is across from Theodore Roosevelt Island, the second between the parallel spans of the 14th Street Bridge, and the third is on Daingerfield Island. One site is not on NPS land; it is along Four Mile Run on privately owned lands at Potomac Yards. Approximately 120 separate comments were received during this process. Of these, 101 were received from individuals and 19 were from area organizations.

This Chapter provides a synopsis of the comments received and categorizes the various issues highlighted in these comments for the three sites on NPS property. Because this is a facility and site analysis, rather than a NEPA document, these comments were not specifically responded to in this study.

The comments received fall under two major categories: one, which are specific to each location, and the second, which apply to the proposed project and include issues relevant to the potential program, need and management of the proposed facility. The following are the key issues that were identified as relevant to accommodating the proposed Boathouse.

4.1 SITE SPECIFIC COMMENTS

There is significant difference in opinion regarding the preferred location of such a facility. Various strengths and weaknesses have been highlighted regarding each site, as follows:

4.1.1 Rosslyn Site, Across Theodore Roosevelt Island

Approximately 92 commentators indicated their preference for one of the four sites. Of these 67 were in favor and 25 against locating the boathouse at this site.

4.1.1.1 – Safety

There appears to be agreement amongst most comments received, that the water within this area, upstream from Memorial Bridge, offers the best weather-related protection for rowing. The narrowness of the river and the high bluffs along the Virginia shore offer protection from winds so there are greater year-round rowing opportunities. Of the approximately 66 commentators who favored the Rosslyn site, most emphasized that this was the safest site. A number of comments emphasized that rowing shells are designed for calm water use and are prone to being swamped, and that ensuring stable waters is crucial for students as there will be a number of beginners amongst their midst.

- A few of the comments highlighted that this site is closest to other rowing facilities in the vicinity (Thompson Boat Center, Potomac Boat Club, Fletchers Boathouse) and during emergency situations, would have better access to other facilities and safety support launches.
- A number of commentators indicated that, in this part of the river, above Memorial Bridge, motorized water vehicles are controlled by speed limits, which prevents excessive and dangerous washes and improves safety for rowing.

4.1.1.2 – Proximity

- Some comments highlighted that the area has close proximity to the Arlington County high schools and the rowing area on the Potomac River that is now used by the schools.
- Some commentators also indicated that they supported this site as all major rowing regattas on the Potomac River are held on this stretch of water between Fletchers Boathouse and Roosevelt Bridge.

4.1.1.3 – Transportation Access

- A few of the commentators indicated that limited access from the northbound lanes of the GWMP and a pedestrian bridge are manageable as the site would only be used by the rowers, coaches and occasionally family members of these persons.
- Some of the commentators who were against locating the boathouse here indicated that the parking area may not be large enough to accommodate trailers. In addition, traffic generated by boaters will reduce already limited parking available for visitors to Theodore Roosevelt Island and pedestrian/bike trail users.
- A few of the commentators who were in favor of locating the boathouse here indicated that parking could be built in Rosslyn and with access via the Mt. Vernon trail to TRI. Arlington County could acquire the site of the former maintenance facility in Rosslyn near North Lynn Street and Key Bridge and convert a portion of this site for parking.
- A few of the comments against locating the boathouse here indicated that emergency access was restricted to northbound GWMP only. That there may not be enough room for adequate turn-around for large fire trucks due to limited space available between GWMP and the Potomac River.
- Supporters indicated that children could take Metro to and from the site reducing the burden on parents to shuttle them back and forth during practice.

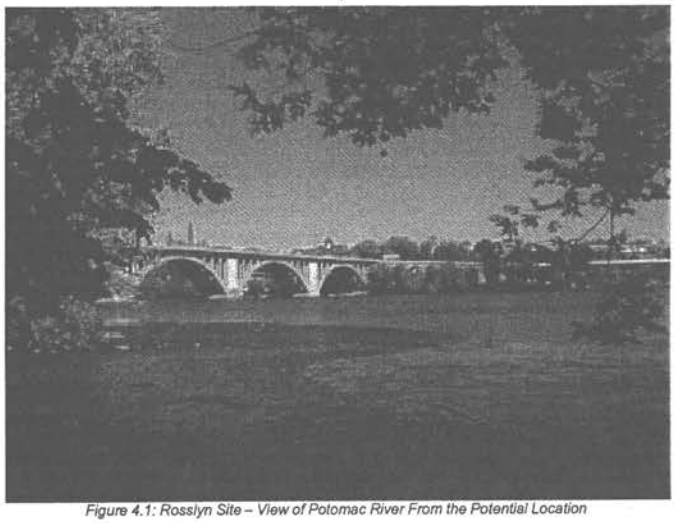


Figure 4.1: Rosslyn Site – View of Potomac River From the Potential Location

4.1.1.4 – Environmental Issues

There were differing opinions regarding the compatibility of boathouse facilities and natural resources. These were as follow:

- A few of the commentators indicated that boathouses and rowing seem to be entirely compatible with bird habitat. One highlighted that this is visible at the Potomac Boat Club where birds are not intimidated by the presence of rowers or coaching launches.
- A few others indicated that it is more beautiful and natural than the other sites being considered and is an ideal way to bring people in proximity with nature without detracting from the natural environment.
- Nearly all of the commentators against locating the boathouse at this location

indicated that they had preferred this area to remain in wilderness. A few indicated that in a region where natural open space is quickly diminishing, it seems extremely important to protect what little remains and is accessible to the public. This is a fabulous site for birds and other wildlife that are seldom seen in other parts of our urban areas. Putting a boathouse with constant traffic and noise nearby seems totally inappropriate for TRI. Goal should be to minimize the loss of green space and especially ecological habitat.

- A few of the commentators also highlighted that TRI was a memorial to a conservationist president – the memorial's theme and purpose is the conservation of natural resources, and the development of the boathouse would detract the public's enjoyment and appreciation of the memorial. Also, development in the vicinity of the Potomac Heritage Hiking Trail would be inconsistent with the theme of the trail to conserve natural and historic resources.

4.1.1.5 – Visual Condition Issues

- Some of the commentators supporting this site indicated that a beautiful boathouse such as that designed by Mr. Robert Fay would enhance the scenic value of the GWMP and TRI. One commentator went on to say that, in places like Boston and Philadelphia, many artists center their river landscapes around beautiful and quaint boathouse structures. Motorists driving along the GWMP might prefer seeing a beautiful architectural structure rather than looking across the river to the somewhat unsightly Whitehurst Freeway.

- A few of the commentators indicated that the boathouse could be designed using "woodsy" or earth tone colors with new landscaping surrounding it to make the facility blend into the scenery.

- One commentator indicated that they would like to see an environmental friendly and viewer friendly building.

- A few of the commentators against locating the boathouse here indicated that such a facility would have a high visual impact due to proximity to GWMP. Also, that it would require clearing many trees.

- A few of the commentators were concerned that the existing view from the Key Bridge shows a continuous line of trees along the Potomac. That, the proposed location of the boathouse would destroy some of these trees and would detract from the view of the shoreline from the bridge, the parkway, TRI and from Georgetown.

4.1.1.6 – Cultural/Historical Issues

- Some of the commentators indicated that, in 1934, the National Capital Park and Planning Commission acquired land along the Potomac River in Rosslyn for a portion of the GWMP. The acquisition agreement included a provision that "the parties to this agreement agree that as to the location and development of a county wharf on the area so designated..." The commentators mentioned that the NPS should live up to the letter and spirit of the agreement.

- A few of the comments highlighted that since President Roosevelt was a naturalist, and also in favor of physical fitness, one or more boathouses would be a natural interpretive addition to his legacy.

4.1.2 14th Street Bridge

Approximately 92 commentators indicated their preference for one of the four sites. Of these, eight specifically indicated their preference for the 14th Street Bridge site, 13 specifically indicated that they were against locating a boathouse here and 10 preferred this site as a second choice.

4.1.2.1 – Safety

- A number of the comments against locating the boathouse at this location indicated that the River immediately above and below this area is quite wide and offers little protection from winds, due to which, weather conditions can change rapidly. Some went on to say that conditions for rowing deteriorate especially during afternoons and the water is often not rowable for novice rowers.

- A few of the commentators also indicated that motorized vehicles are not speed-restricted in this area. That, these boats often travel at high speeds and make large wakes that can swamp a slender rowing boat. The wide area upstream of the site is a favorite area for water-skiers

and jet skis and is traveled by tour boats. All of these activities can threaten the safety of rowers, especially those using smaller shells.

- Comments against locating the boathouse at this site also voiced concern that the three bridges (the 14th Street Bridge, Metro rail Bridge, and the railroad trestle) create obstacles for crews who have to maneuver through and can face the risk of being carried against the bridge abutments.

- A few of the commentators added that, crews wanting to head upstream to more protected water would be required to cross the river below the bridges (due to the customary rules of the river) and would be vulnerable to unseen motorized traffic moving downstream through any of the other archways. This could be further compounded due to the location of the Columbia Island Marina, which is the launching area for powerboats.

- Some of the commentators also indicated that, at the Potomac Boat Club, recreational boats are not permitted to row down river from the 14th Street Bridge because of dangerous rowing conditions. That this area has a history of accidents involving both experienced and inexperienced rowers who were overcome by the sudden changes in wind waves and current that occur with the bridge pilings and widening river.

- One comment highlighted that, rowing conditions would be similar to the Alexandria Community Boathouse where the river conditions in all but the early morning hours are often variable and un-conducive to rowing activities for all ages and skill levels. During the spring months, when the T.C. Williams High School crew is most active in preparing for their racing season, the team is prevented in practicing on the water because of weather conditions anywhere from once or twice (varsity heavy weight men) to three times a week (varsity light weight women, who are 120 pounds). The commentator also added that, the river conditions preclude the use of smaller boats (fours, pairs, doubles, or singles) and limits the times at which adult, community boathouse members can safely use them to the early morning hours only. The commentator mentioned that coaches at the Boathouse and the

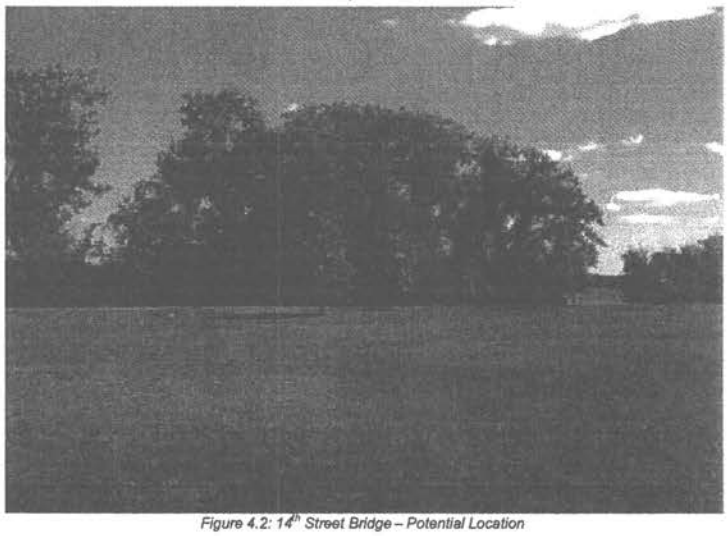


Figure 4.2: 14th Street Bridge – Potential Location

T.C. Williams High School Crew have all but given up on the idea of hosting regattas due to these conditions. As per the commentator, in a recent year, despite strong safety precautions, equipment was damaged because conditions changed rapidly during a regatta and the water went from rowable to unrowable in a matter of minutes.

- One commentator indicated that a private ferry service is anticipated to provide daily service to four locations in the core Washington area: the Pentagon, Washington Harbor in Georgetown, Maine Avenue, and the Navy Yard. This ferry service will adversely impact the rowability of the Potomac River from several of the boathouse sites. The site most impacted would be the one between the 14th Street bridges where the ferries would come into direct conflict with rowers transitioning between the boathouse and the calmer water up river from Memorial Bridge. Their hours of primary service are identical to the hours in the morning and afternoon when most rowers are afloat.

4.1.2.2 – Transportation Access

- A few of the commentators highlighted that the boathouse would require a long (3/4 mile) driveway for emergency and service access and that there may not be enough room for adequate turn-around for large fire trucks in available space between bridges, ramp and Mount Vernon Trail. One commentator indicated that the single lane road that NPS may have to construct from the Gravelly Point Parking Lot to the boathouse for boathouse for emergency and service use would destroy or reduce the size of several soccer fields that presently lie within or near its route. That, this road will also become a speedway for the existing Mount Vernon Trail users and would adversely impact the highly visible environment near the trail and the GWMP. The commentator went on to state that if such a road is needed, the NPS should widen the existing Trail so it can accommodate motor vehicular traffic, or, emergency and service vehicles should access the site by a short road that would connect directly to the boathouse from the nearby northbound GWMP.
- A few of the commentators voiced concerns that the emergency and service access is restricted to northbound GWMP.
- One commentator indicated that the distance between the parking and boathouse would require NPS to build a new parking lot closer to the boathouse.
- One commentator supporting locating the boathouse here indicated that there appears to be most amount of parking at this location.
- One commentator also suggested that impact on the existing parking lot that is directly northwest of the Navy Memorial on Columbia Island should be studied.

4.1.2.3 – Environmental Issues

- A number of persons also mentioned that the noise from low flying airplanes approaching/leaving the Reagan National Airport can be very loud in this area and can hinder communication within a boat.
- One commentator mentioned that the constant flow of vehicles over the bridges creates a resident cloud of exhaust fumes that makes the area unsuitable for outdoor athletic activity.

4.1.2.4 – Visual Condition Issues

- A few of the commentators mentioned that the boathouse would not be visible from GWMP, and would be located in an area where aesthetics are not a primary concern.
- Another commentator indicated that the site seems to be aesthetically unattractive.

4.1.3 Daingerfield Island

Approximately 92 commentators indicated their preference for one of the four sites. Of these, 10 specifically indicated their preference for the Daingerfield Island site, 22 specifically indicated that they were against locating a boathouse here

4.1.3.1 – Safety

- A number of the commentators against locating the boathouse here indicated that the site has similar issues as the 14th Street Bridge site, where the width of the

River, strong wind, and exposure to waves caused by large yachts and ferries plying the Potomac River to Washington DC are potential safety concerns.

- Other safety concerns highlighted by a few of the commentators included close proximity to sailboats and motorized boats at the Washington Sailing Marina.
- One of the commentators indicated that sheltered water conditions are limited to a cove near the Daingerfield Island Sailing Marina. That this area provides protected water circumscribed by the volume of traffic from the sailing marina including the Georgetown Sailing Team.
- A few of the commentators also indicated that recent dredging has created a channel close to the shore near the location of the Washington Sailing Marina. They mentioned that creating a boathouse next to the Marina would result in congestion due to the narrowness of the channel, and potential for accidents between the rowboats and the sailboats. The commentators indicated that rowing shells require very little water to float them, thus they do not need to be close to the channel. On the other hand, many of the sailboats at the Marina require four feet of water and so have to stay in the channel.

4.1.3.2 – Proximity

- One of the main criticism of most of the commentators against locating the boathouse here was that the site is quite a distance from the high schools in North

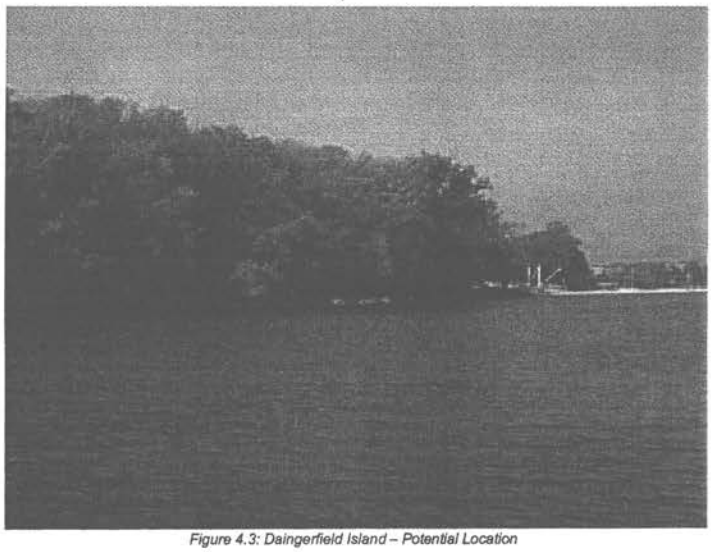


Figure 4.3: Daingerfield Island – Potential Location

Arlington and could take approximately 30 minutes to get to. The comments indicated that given the limited time frame high school crews have to practice (2:45 PM to 5:30 PM), such extended travel time could be extremely detrimental to their success.

4.1.3.3 – Transportation Access

- Commentators in favor of locating the boathouse here indicated that the adjacent parking area was designed to accommodate boat and trailer traffic.
- A number of commentators also indicated that the location is easily accessible from both northbound and southbound GWMP.

4.2 COMMENTS RELEVANT TO OVERALL PROJECT

The following comments highlighted issues that were not site specific but relevant to either, the need for the project, the project program and management or applicable to any of the sites.

4.2.1 Need

- A number of comments highlighted a need for additional rowing facilities in the area. One person indicated that they had been on the waiting list for a storage shelf space at the Thompson Boat Center for more than two years.
- A few of the commentators mentioned that a NPS study in 1989 recognized the need for two additional boathouses in the area.

4.2.2 Program

There were approximately 34 commentators who discussed the potential program of a boathouse.

- A number of these commentators requested NPS to use this opportunity (of providing a boathouse) to expand access to the boathouse and the river to the general public and not restrict the use of the boathouse to only Arlington Schools.
- A large number of commentators recommended providing accessibility and storage space for other forms of non-motorized boats including dragon boats, swan boats, war canoes and outriggers. These are larger boats and need permanent housing or mooring.
- A few of the comments mentioned that there should be a plan anticipating the use of the boathouse for hosting regattas, which would require ample parking for spectators, rowers and large boat trailers, outside storage racks, restrooms and concession facilities.
- One of the comments indicated that there should be four bays for the four high school teams with sizes of bays proportionate to the actual or potential size of each high school crew team. If sizes of bays are equal, then bay size should be equal to the size needed by the largest crew team.
- A few of the comments also mentioned that there should be some office space for each crew team with sufficient phone, fax and computer lines.
- In contrast, a few of the commentators mentioned that the boathouse should be as small as possible, containing only one floor with no training or meeting space. That, it should be restricted to only rowers and house only house shells, equipment, and lockers with a small restroom. To conserve space, the boathouse should not contain showers. No new parking lots should be built and expanding existing lots should provide for parking needs.
- Some of the commentators mentioned the need for a gas pump, or fire retardant storage facilities to store gas cans that should be located a safe distance from the boathouse.
- Some of the commentators mentioned that the TRI site could be used as a nature/interpretive center where there could be classrooms, as part of the boathouse, and talks discussing conservation/birding or other educational classes could be held.
- One of the commentators indicated that the building should be large enough to have a maximum of 150 people for short periods of time and be able to handle 40 to 50 people for daily use.
- A few of the commentators stated that the boathouse should be large enough to accommodate Arlington County high schools and selected Fairfax County schools (McLean, Langley, JEB Stuart, etc).
- One commentator mentioned that parking should be close to the launching docks so that, rowers carrying their shells on their vehicles will also be able to use the facility. That, if necessary, this could be achieved by a small launching dock near the parking area.
- One commentator indicated that existing boathouses such as Thompsons should be evaluated for expansion.
- Some comments suggested considering the inclusion of a top-floor restaurant as a convenience, to help defray ongoing costs, and to provide a great location for

people to dine while enjoying the view of the Potomac River, TRI and Georgetown.

4.2.3 Management

There were a few commentators who discussed the management of a boathouse. Two key comments were the following:

- One commentator mentioned that there should be a round-the-clock use of the parking and right-of-way for boat launching or fishing which will allow competitive boaters to train before and after work during Fall, Winter and Spring.
- Another comment mentioned that a boathouse permit on NPS property should exclude future expansion of the facility and no associated facility (restaurants, snack bars, meeting halls, etc.) should be constructed nearby.

4.2.4 Environmental Impacts

- One commentator suggested that the impact on Chesapeake Bay Preservation Area Designation and management regulations as implemented in Arlington County and the City of Alexandria should be examined. The comment mentioned that some requirements of the regulations, such as locating all non-water-dependent structures and features outside of the Resource Protection Areas, may affect site selection.

4.2.5 Alternate Sites

A few commentators offered suggestions of other sites in the area.

- One commentator suggested considering locating the boathouse between Spout Run and Windy Run with parking at the Old Woodmont School and access by the pedestrian path along Windy Run.
- Another commentator mentioned any potential sites on Georgetown waterfront, both above and below Key Bridge.
- One commentator indicated that Potomac Yards, which was an industrial/commercial area, is a logical choice and could also provide adequate space for future expansion.
- One commentator suggested using the existing marina at Columbia Island.
- One comment mentioned the NPS maintenance area on the Rosslyn side of the Parkway, near Roosevelt Island. The pedestrian bridge from the TRI parking lot leads to a trail that goes by the maintenance area. A larger pedestrian bridge could be constructed and crews could walk their boats across the parkway to docks that would be erected on the water, on the Virginia shore across from the island. The newer, larger bridge for crews walking their boats could be funded by projects such as T-21 grants.

4.2.6 Historical/Cultural Resources

- A few of the commentators against locating a boathouse on GWMP land indicated that construction of the proposed facility would destroy what little is left of the relaxed, scenic atmosphere envisioned when the GWMP was built. That, the GWMP is a National Park, and the boathouse, which might be appropriate for a County Park, is totally inappropriate for this location.

4.2.7 Aesthetics

A few of the commentators highlighted their concern regarding the design of a boathouse facility.

- One commentator mentioned that, avoid a design that looked like Thompson's Boat Center. That, look to the boathouses on boathouse row in Philadelphia or Boston for how boathouses should look like.
- Another commentator mentioned that any new structure should be in keeping with the beauty, history and significance of the GWMP.

5 CONSULTATION AND COORDINATION

The preparation of this study included conversations and consultations with area rowers, high school coaches, site visits, case studies and review of existing reports. The following is a description of such activities:

5.1 ACTIVITIES UNDERTAKEN

5.1.1 Meetings with NPS

- A kick-off meeting was held with NPS Staff on 15th October 2001.
- A half-day workshop was held between NPS staff and the EDAW team on 19th December 2001.
- A meeting was held between NPS and EDAW staff on 9th January 2002.

5.1.2 Site Visits

EDAW team conducted numerous site visits for the purpose of gathering information and taking photographs of the various sites. The dates for these visits include the following:

- 15th October 2001
- A boat trip on 25th October 2001
- 1st November 2001
- 12th November 2001, collecting access/parking/site feature data
- Week of 28th January 2002, conducted travel time runs.
- Visited TR Island site on 4th February 2002 in order to obtain detailed measurements of the existing bridge and to locate utility structures. Also visited the Daingerfield Island site to verify recent utility construction.

5.1.3 Case Studies

- Thompson Boat Center – visited on 16th November 2001
- Capital Rowing Club – visited on 21st November 2001
- Potomac Boat Club – visited on 23rd November 2001
- Sandy Run Regional Park – visited on 27th November 2001
- Alexandria Boathouse – visited in December 2001

5.1.4 Other Presentations

- Presented project status to Arlington County's Water-Based Recreational Facility Task Force on 4th February 2002

5.2 PERSONS CONTACTED/CONSULTED IN PERSON, VIA EMAIL OR BY PHONE

- Audrey Calhoun - Superintendent, NPS, GWMP
- Al Loftin – Assistant Superintendent, NPS, GWMP
- Patrick Gregerson – Chief of Planning/GIS, NPS, National Capital Region
- Deborah Feldman – Park Planner, NPS, GWMP
- Steve Herzog – former Landscape Architect, NPS, GWMP
- Heather Germaine – Natural Resource Specialist, NPS, GWMP
- Ann Brazinski – Natural Resource Specialist, GWMP
- Matthew Virta, Cultural Resource Manager, NPS, GWMP
- Barry Wood – GIS Specialist, NPS, GWMP
- Lisa Grandle – Department of Parks, Recreation and Community Resources, Arlington County
- George Kirschbaum - crew coach at Washington-Lee High School
- Chuck Soderlund - crew coach of Wakefield
- Paul Wilkins – crew coach at Yorktown High School and Assistant Manager at the Thompson Boat Center
- Carole Robinson – President, Arlington Boathouse Foundation
- Eric Meyers – Chairman, Water-Based Recreational Facility Task Force, Arlington County. Also member of the Potomac Boat Club.
- Sarah Dunham – Member, Capital Rowing Club, Washington D.C.
- Brian Hennesy – Park Manager, Sandy Run Regional Park, Occoquan
- Steven Weir – crew coach, TC Williams High Shool, Alexandria

- Patricia Thomas – Senior Associate Director of Athletics, Georgetown University, Washington D.C.
- Luis Araya – Arlington County Department of Public Works
- Jean Taylor Frederico – Director, Office of Historic Alexandria
- Pamela J. Cressey - Alexandria Archaeology Museum
- Rene Hypes – Natural Project Review Coordinator, VA Department of Cultural Resources
- Louis Hydel – Harrisonburg US Department of Agriculture
- Geoffrey Byrd – Site Plan Coordinator, City of Alexandria, Transportation and Environmental Services
- Bill Hicks – Transportation and Environmental Services, Watershed Program Administrator, City of Alexandria
- Daniel Ryan – Fisheries Biologist, Washington D.C.
- Patrick Andrus – National Historic Register, Capital Area, Washington D.C.
- Gary Scott – Historian, National Capital Region
- Ann Bridges – General Engineer, NPS, GWMP

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