

# 2

## PROGRAM/PROJECT REQUIREMENTS AND CRITERIA

A number of steps were undertaken to develop a program for the boathouse. These included a review of the study prepared by Arlington County's Water-Based Recreational Facility Task Force in 1995, feedback from crew coaches at the three Arlington County public high schools, and a study of the sizes, boat storage capacities and amenities at three area boathouses and one area boat club. This chapter provides a summary of the findings and identifies the minimum and maximum program for the boathouse.

### 2.1 REVIEW: WATER-BASED RECREATIONAL FACILITY TASK FORCE'S REPORT, 1995

In 1993, the Arlington County Board appointed an 11-member Task Force to study the feasibility of a water-based recreational facility to be located between GWMP and the Francis Scott Key Memorial Bridge. The Task Force made recommendations in a study, *Feasibility Study for a Boathouse Facility Located Between GWMP and Francis Scott Key Memorial Bridge*, in 1995.

#### 2.1.1 Building Program

The Task Force recommended a boathouse on the Arlington County shore that would be approximately 25,000 square feet in size. As per the Committee's recommendations, this boathouse would have primary spaces as identified in Table 2.1. The Task Force looked at accommodating rowing programs at

**Table 2.1: Boathouse Program Proposed by the Arlington County Task Force**

Proposed Use	Net Area
Shell Storage Area	13,560 SF*
Mechanical Room	1,200 SF
Lobby And Staircase/Elevator Area	1,600 SF on the first floor + 400 SF on the second floor
Four Offices	400 SF; 100 SF each
Efficiency Apartment	400 SF
Community Room/Fitness Area	2,000 SF
Locker Rooms / Toilets	2,300 SF
Storage	200 SF

\*Store a total of 132 rowing shells (36 eights, 24 fours, 16 doubles/pairs and 56 singles). Of these, the three Arlington County public high schools would have storage space for of 33 shells.

Arlington County's three public high schools and to broaden recreational access to the Potomac River for Arlington County's residents, workers and visitors. Recommended programs include: space for the three high schools rowing programs; community based rowing and paddling programs, boat storage, canoe and shell rental; community room rental; lockers, showers, restrooms; a vending machine area; viewing decks; and, a small efficiency apartment. The Task Force also recommended offering environmental education program and establishing a nature center oriented towards river ecology and exhibits.

#### 2.1.2 Parking

The Task Force recommends using the existing 100± parking spaces at the TRI site. In addition, 25 new spaces are proposed, adjacent to the proposed boathouse, for maintenance, emergency vehicles, deliveries, and for persons with disabilities. The study states that there is potential for 40 parking spaces at this location. In addition, the site to the west of the GWMP has potential capacity for a 70-space parking lot with two spaces for buses and a bus turn-around. Also, nearby Rosslyn provides the opportunity for parking in parking garages (2,754 spaces), hotels (1,200 spaces) and limited on-street metered spaces that have one and two hour limits. The nearest parking garage is an eight-minute walk and there is a Metro stop that is 10 minutes (walking) from the boathouse site.

The study anticipated that approximately 300 high schools students would row during the Spring months, mostly from 2:30PM to 5:30PM. The study discusses that the high school students would generate limited parking needs since the schools would continue to transport students to practice by bus or encourage them to run or bicycle as part of their training schedule. It would take the students approximately 14 minutes to bicycle from Washington-Lee High School and 25 minutes from Yorktown High School. (Students at Wakefield High School would not be able to bike as they are much further away.) During Fall months, there are fewer students (approximately 90) who participate in rowing programs. There is no busing provided by the Schools during the Fall, and the students would probably carpool, bicycle, run or use the Metro to practice.

Community rowers would generally use the boathouse prior to 8:00AM and after 5:30PM on weekdays and weekends.

### 2.1.3 Environmental Concerns

The Task Force identified potential effects on TR Island, including impacts to plant life (including threats to native species from introduced exotics), impacts on wetland birds (nesting species and those which use the island during migration), and impacts to other flora and fauna. The Task Force also recognized that other potential effects to the Potomac River include compliance with Arlington County's Chesapeake Bay Preservation Ordinance, impacts to the River's hydrology, impacts to the fish population, impacts to water quality, and the effects of additional trash and refuse

generated by facility users. Potential effects to the VA shoreline which would need to be evaluated include impacts to threatened plant species, removal of existing trees, effects on the viewshed, impacts of site lighting (both to wildlife and the viewshed), impacts from increased pedestrian traffic, and construction related impacts.

## 2.2 SUMMARY OF CASE STUDIES

Four area boathouses and one boat club were examined to identify existing programs, storage areas and amenities provided. This information is summarized in Table 2.2 and was used to help develop and provide comparison with the proposed boathouse.



Figure 2.1: Alexandria Boathouse



Figure 2.2: Potomac Boat Club



Figure 2.3: Sandy Run, Occoquan



Figure 2.4: Thompson Boat Center

**Table 2.2: Summary of Area Boathouses**

	ALEXANDRIA	POTOMAC BOAT CLUB	SANDY RUN, OCCOQUAN	THOMPSON BOAT CENTER
<b>Indoor Boat Storage Area / Bays</b>	± 9,500 SF / 5 bays	± 5,100 SF / 5 bays	± 7,000 SF / 6 bays	± 12,400 SF / 7 bays
<b>Number of Boats Stored (Inside and Outside)</b>	Eights=21 / Fours=10 / Dbles=10 / Sgles=±7	Eights=7or8/Fours=12 / Dbles=16/ Sgles=100	± 175 inside / ± 30 outside	Eights=85 / Fours=32 / Dbles=±20/Sgles=±50
<b>Boat Repair Area</b>	Part of Storage Bays	± 700 SF	None indoor	None indoor
<b>Lockers / Showers</b>	±1,750 SF	± 1,600 SF	None	Yes / ± 4,200 SF
<b>Outdoor Rigging Area</b>	±600 SF	None	Significant amount	Yes
<b>Office Space</b>	±1,500 SF – Office & Multipurpose Space	± 1,000 SF	Less than 250 SF	Less than 500 SF
<b>Parking</b>	Street / City	Less than 10 spaces + On-street parking	Significant amount	± 80 shared spaces

using a flashlight. The outdoor area is unfinished and there is one small shed to store equipment. There are no public facilities and the area is noisy due to the traffic on the bridge.

- **Program:** The crew had 20 members during the last season and is anticipated to be larger during the coming season. The largest number has been 50 students. There are men's and women's teams, both rowing coxed fours. Along with the team boats, the school has two coaching launches.
- **Regattas:** The crew participates in approximately 10 regattas during a season, all of which are out of town. The school takes between two and four boats to a regatta, on a team owned trailer. Arlington County provides a truck and driver for each regatta. The trailer is stored on school grounds.

### 2.3 ARLINGTON COUNTY PUBLIC HIGH SCHOOLS – EXISTING CONDITIONS

Three coaches (one from each school) were contacted to identify the existing conditions and needs of their rowing programs. The three schools currently have 27 boats and anticipate adding six new boats in the near future. The types of boats at each school are identified in Table 2.3 later in this chapter. The following section provides a description of how the three programs currently function.

#### 2.3.1 Wakefield High School

Wakefield currently rows out of the Capitol Rowing Club on the Anacostia River. During regular season, its boats are stored outside, under a vehicular traffic bridge. During off-season, the boats are stored within the bulwark of the bridge, an area originally meant for storing bridge maintenance equipment. According to the coach, this area has become a roosting place for birds so that all stored boats and equipment must be wrapped for protection. There is no electricity so storage-related activities are performed



Figure 2.5: Capitol Rowing Club

- **Training:** The crew trains with ergometers, exercising and rowing on the Anacostia River. The team trains during the Spring high school athletic season, in

the afternoon, five or six days a week, and for 2.5 hours per day. If they had better and closer facility, they would add a Fall program or extra hours.

- **Rowing Conditions:** The coach indicated that they need at least two kilometers of water, preferably straight, 200 meters wide and three to four feet deep. The crew loses approximately 10 to 15 percent of the rowing days due to inclement weather. Ideal conditions for rowing practice, as per the coach, include temperatures above 50F, winds below 15 mph and water that is free of wakes from motorboats.
- **Rowing Season:** Rowing season is officially in the spring, from the end of March to the beginning of June, but can also be in the Fall as a club sport. General boating season begins at the end of May and ends in September.
- **Conflicts:** Right-of-way on the water between different types of boats, and wake from other boats are concerns.
- **Travel-times:** Travel runs that simulated vehicles going for practice from the school to the boathouse and returning from the boathouse to the school after practice (conducted during the week of January 18<sup>th</sup>, 2002) indicate that it takes 18 minutes from the school to the rowing club and 21 minutes to return.

### 2.3.2 Washington-Lee High School (WL)

WL currently rows out of the Potomac Boat Club (PBC) on the Potomac River. All of its

shells are stored indoors and the coaches' launches are stored outside. The school team has been rowing out of PBC since 1949, when the team was founded, and has access to one storage bay for the eights and one for the fours. The school has access to a large ballroom where ergometers are stored during the Spring season only. Other than bathroom facilities, the students don't have access to locker rooms. In exchange for storing shells, the PBC members have unlimited access to the school's equipment, which puts heavy wear on the school's equipment.

- **Program:** The crew had 75 members during the last season. The largest number was 122 participants, in 2000. The program consistently averages 80 students. There are men's and women's squads, subdivided into experienced and novice rowers.
- **Regattas:** The school will participate in nine regattas in the 2002 spring season, out of which three would be outside the northern Virginia area. Six boats are transported on average for a typical regatta. These are transported on a trailer that is approximately 40 feet in length and towed by a one-half ton pick-up truck owned by Arlington County. The trailer is stored at the school.
- **Training:** Most rowing programs endeavor to practice on the water in shells each day. Time not spent on the water is spent doing weight training, ergometer workouts, running and stair or hill climbing. WL keeps its training equipment at PBC during Spring. All such equipment is stored at WL during other

times of the year and is moved using private vehicles. Practice times are between 3:30 PM and 6:30 PM during the weekdays and at various times during the morning on Saturdays. During the school's Spring Break, the team usually practices twice a day, once in the morning and once in the afternoon.

- **Rowing Conditions:** The ideal conditions for rowing are flat water, no wind, limited or no current, and limited or wakeless motorized boat traffic. An established traffic pattern is also important. Wind often plays a strong role and affects the conditions on wide bodies of water. The longer the body of water, the more advantageous since workouts are typically in the five to 45 minutes range. Depth is not a critical issue; however, FISA, the world governing body of competitive rowing specifies a minimum depth of six feet for racecourses. Typically, WL has its crews on the water for 1.5 hours per session, 6 days a week. The amount of time on the water is dependent on the planned workout, experience level of the crew, and weather conditions. WL loses approximately between one and two weeks on the water each spring season due to weather/water conditions. Crew that practice during other times of the year are less apt to lose water time. Spring has the most variable weather conditions for rowing.
- **Rowing Season:** For scholastic teams, the season runs from the end of February to the end of May. Collegiate teams train from the beginning of September to the

beginning of June. Club teams and individual scullers train and race year round. Nearly all of the teams and individuals are off the water from mid-November until the end of February.

- **Conflicts:** Motorized pleasure craft is the biggest threat. This is especially true below Memorial Bridge where there are no speed restrictions on boaters. In any case, according to the coach, pleasure boaters often have little knowledge of the fragileness of the rowing boats, and often they don't follow a standardized course which puts both parties at risk.
- **Travel-times:** Travel runs that simulated vehicles going for practice from the school to the boathouse and returning from the boathouse to the school after practice (conducted during the week of January 18<sup>th</sup>, 2002) indicate that it takes 15 minutes from the school to the rowing club and 22 minutes to return.

### 2.3.3 Yorktown High School

- **Storage:** Yorktown currently rows out of the Thompson Boat Center (TBC). The school stores all of its boats – 7 eights and 3 fours – at the Center, of which two eights are stored outside and the rest are stored inside. The school has a closet for storage at the TBC where it stores safety equipment, spare parts, tools and cox-boxes. Gas is stored in an outdoor storage area.
- **Program:** Yorktown had 80 team members during the last rowing season. The maximum number has been 90.

There are four categories of teams – Varsity Boys, Varsity Girls, Freshman Boys and Freshman Girls.

- **Regattas:** The team participates in regattas every weekend, from the end of March to the end of May, three of which are out of town and a few at the Occoquan. The school owns a trailer that is hauled by a pick-up truck. The trailer is 40 feet in length, and as wide as a normal truck. It is stored at Washington Lee High School.
- **Training:** The crew starts its training in January, at school, for two hours a day, Monday through Friday, until they are able to get on the water in late February or March. Then the students spend one hour training at school and one hour training on the water. The training equipment includes free weights, benches and ergometers. This equipment is stored in a closet that is shared with the

track team in the basement of the school.

- **Practice times** are from 5:30 AM to 7:30 AM and from 3:15 PM to 6:00 PM from Monday through Friday and from 6:00 AM to 12:00 PM on Saturdays. Practice is six days a week until the racing season starts, then it is five days a week.
- **Rowing Conditions:** The coaches seek water that is a few miles long (3 to 6 miles each way), that is protected from the wind, and is free of large boats travelling at high rates of speed. The crew misses maybe one day a week in March, and after that maybe one or two days a month. The best weather is a 70F-degree day with a slight drizzle of rain which keeps the water flat and powerboats away.
- **Rowing Season:** The high school rowing season is from late February to the end of May. There is also club rowing season

**Table 2.3: Existing Shells and Anticipated Expansion Plans at the Three Public High Schools**

School	Existing Shells				Anticipated Expansion Plans
	Eights	Fours	Two-Man	Total	
Wakefield	1	4	0	5	1 additional Eight + 1 additional Four
Washington-Lee	8	3	1	12	1 additional Four + 1 additional Two-Man shell
Yorktown	7	3	0	10	1 additional Eight + 1 additional Four
<b>Total Shells</b>	<b>16</b>	<b>10</b>	<b>1</b>	<b>27</b>	<b>2 additional Eights + 3 additional Fours + 1 additional Two-Man shell</b>

that goes from June through November, in which a number of the students participate.

- **Travel-times:** Travel runs that simulated vehicles going for practice from the school to the boathouse and returning from the boathouse to the school after practice (conducted during the week of January 18<sup>th</sup>, 2002) indicate that it takes 16 minutes from the school to the rowing club and 22 minutes to return.

## 2.4 POTENTIAL OTHER DEMAND

Based on discussions with area rowers and the boathouses, there is a significant demand for rowing programs, as well as storage spaces in the area. This demand is both from individual rowers, and schools that are either looking to expand, establish a rowing program or reduce their travel times to rowing facilities. Three schools that have been identified are Bishop O’Connell High School in Arlington County, which currently rows out of the Thompson Boat Center, Langley High School in Fairfax County, which rows out of Sandy Run boathouse, and McLean High School in Fairfax County, which rows out of Thompson Boat Center. Also, amongst the area boathouses, PBC has identified a waiting list of between 120 and 130 persons who are awaiting to become members of the club, and 40 people who are awaiting storage space for singles.

If the potential boathouse is constructed and the three Arlington County public schools are relocated, some space would become available at the PBC, Thompson Boat Center and the Capital Rowing Club, which would

help defray some of the existing demand. In addition, Georgetown University is planning to construct a boathouse upstream from Key Bridge. Once that boathouse is constructed, additional rack space would become available in the area. All current indications, based on conversations with rowers and boathouses, are that the existing and growing demand will fill up all of the spaces that will become available.

## 2.5 BOATHOUSE PROGRAM DEVELOPMENT

### 2.5.1 Typical Equipment Sizes

#### a. Boat Sizes

Current rowing shells vary in size from 24’-6” to 58’-0” in length (see Table 2.4) and can weigh up to 234 lbs. To store the long boats (eights and fours), a shelf space of approximately 58 feet in length is required.

**Table 2.4: Typical Boat Sizes**

<b>Boat Type</b>	<b>Boat Length</b>	<b>Wt. (lbs)</b>	<b>Manuf.</b>
Singles	24’- 6” to 26’- 10”	-	HBW
Doubles /Pairs	30’- 8” to 33’- 2”	-	HBW
	33’- 0” to 33’- 4”	-	Vespoli
Quad/ Fours	38’- 4” to 43’- 4”	-	HBW
	Coxless 41’- 0” to 43’- 4”	103 to 136	Vespoli
	Coxed Fours 43’- 4” to 44’- 0”	108 to 135	Vespoli
Eights	56’- 6” to 57’- 10”	-	HBW
	56’- 0” to 58’- 0”	193 to 234	Vespoli USA

*Note: Weight is for a fully rigged boat.  
HBW- Hudson Boat Works*

#### b. Trailer Sizes (Manufacturer – Vespoli USA)

- *Special* – 41 feet long, configured to carry a combination of 15 big boats, five high by three wide.
- *Longhaul* – 39 feet long. When towed by a ¾ ton pickup truck, it will carry nine one-piece eights on the upper three racks and three fours or a combination of smaller boats on the lower racks. When towed by a van, it will carry six one-piece eights on the upper two racks and six fours or a combination of smaller boats on the lower two racks.
- *Transporter* – 36 feet long, configured to carry nine shells. The two top racks will carry six one-piece eights and the lower rack will carry three fours or a combination of smaller boats.
- *Fours Carrier* – 32 feet long, designed to carry six fours when towed by either a van or a pickup truck.

#### c. Storage Dimensions

A typical boat storage area consists of boat-racks and area for storing oars. Boat-racks are typically stacked 20 feet apart, although, as in the Alexandria Boathouse’s case, the racks are stacked 25 feet apart, which allows space for boats to be repaired in the aisles. The vertical dimension of the racks depends on the height of the ceiling, however, the lowermost shelf is 2 feet 9 inches off the ground and then each shelf above that is 2 feet apart. Oars are usually stacked vertically, with the longest oar being approximately 12

feet 6 inches. This dimension often dictates the internal height of a boathouse.

### 2.5.2 Amenities to be Included

The following facilities are proposed to be included at a minimum within the boathouse:

#### a. *Boat Storage for the three Public High Schools*

Table 2.3 describes the number and types of boats owned by the schools and the number and types of boats desired in the near future. Each coach indicated that if they had additional storage space, it is likely that their program would expand with additional boats beyond those desired in the near term. To establish the minimum program, it was determined that storage space for the existing number of boats, which are the maximum that the schools have owned, along with those desired in the near term, would establish the space needs for the smallest boathouse.

In addition to the crew boats, there are motorized boats used by coaches. In most of the existing boathouses, these are stored outdoors during the rowing season. For the proposed boathouse, these boats could be stored outside during rowing season and brought into the boathouse during non-rowing seasons. These boats require gasoline, which is typically stored outside the main boat storage area. In this study, it has been assumed that a special gas storage room, separated from the main boat storage area by a firewall, could be provided adjoining the main building.

#### b. *Boat Storage for Community Programs*

Other than the high schools, it is prudent to have some boat storage space for community rowing programs. Since the high schools will only officially be on the water during the spring months, the boathouse should be used for other community rowing programs during the remaining portion of the rowing season. As is the case in the other boathouses in the area, the high school students could continue participating in rowing activities through non-competitive programs organized as part of the community rowing programs.

Other than the three high school programs, the only other official rowing program that could be identified in Arlington County is based in Bishop Denis J. O'Connell High School. Conversations with area boathouses, Arlington County Department of Parks, Recreation and Community Resources, and persons familiar with rowing activities in the area, indicated that while there are no official groups or organizations that are registered as being Arlington based, a large number of residents participate in the various programs offered by the area boathouses, including, but not restricted to, the Thompson Boat Center. However, it was impossible to document the actual number of Arlington residents who row in the area.

While it is feasible for some of the high school boats to be used for community rowing programs, it is likely that there would be additional boats that would be part of such a program. Based on the existing programs in the area, such boats would consist of singles, doubles, fours and some eights.

In addition to community rowing boats, if possible, there should also be some space for individuals to store boats. Most individuals in the area have singles or doubles.

#### c. *Exercise area and Storage*

Some space should be provided within the boathouse for exercise equipment for each school. Potentially, some of this equipment could be shared between the schools and community members. In addition, there should be separate storage space for each school to store equipment such as cox-boxes, etc.

#### d. *Lockers and showers*

Some space for showers and lockers should be included in the boathouse. While there could be a common shower area shared by the three schools, individual lockers in a common space should also be provided.

#### e. *Outdoor rigging area*

There should be some external rigging space between the boathouse and the river to provide area for rigging boats prior to taking them into the water and washing boats before returning them to the storage racks.

#### f. *Parking*

At a minimum, a bus/trailer drop-off area should be provided to allow easy vehicular transportation of the crew teams during daily practice, and of the boats during regattas.

**2.5.3 Minimum and Maximum Program**

Based on this analysis, a footprint of ±10,000 square feet should be considered as a minimum for the boathouse. Such footprint would allow a potential configuration of four storage bays for long boats (±48 shelves, where the storage floor allows six shelves to be stacked vertically) and one repair bay at the ground level. The three high schools would require two and 2/3<sup>rd</sup> bays or 32 shelves. The remaining bays could accommodate any expansion needs that the schools may have beyond the immediate future, or could be used for some community rowing programs. A footprint of ± 14,000 SF should be considered as a maximum for the boathouse as it would allow a potential configuration of six bays for storage of large boats (72 shelves), and a repair bay. In this case, three bays (40 shelves) would be

available to accommodate future needs of the three schools, other schools that may be interested in locating here and/or community rowing programs. In both cases, other than some equipment storage space and space for storing gas, other amenities could be located on a partial second floor. Table 2.5 provides a detailed listing of the suggested minimum and maximum programs. Figure 2.6 compares the footprints of the proposed Arlington boathouse and other area boathouses.

**Table 2.5: Minimum and Maximum Program for the Boathouse**

	Minimum Program	Maximum Program
Total Footprint / Area	±10,000 SF (100' x 100') / ± 15,000 SF	±14,000 SF (140' x 100') / ± 19,000 SF
Boat Storage	± 6,400 SF (4 bays – stores 48 long boats)	±11,200 SF (6 bays – stores 72 long boats)
Boat Repair Area	± 1,600 SF (1 additional bay)	+ 1,600 SF ( 1 additional bay)
Storage Area	± 1,500 SF	± 1,800 SF
Exercise Area	± 2,000 SF (2 <sup>nd</sup> Floor)	± 2,000 SF (2 <sup>nd</sup> Floor)
Lockers/Showers	± 2,000 SF (2 <sup>nd</sup> Floor)	± 2,000 SF (2 <sup>nd</sup> Floor)
Outdoor Rigging Area	4,000 SF	9,100 SF
Office Space	Less than 500 SF	Less than 500 SF
Parking	Space for trailer turnaround/emergency access	Space for trailer turnaround/emergency access
Dock/Float	Approx. 150 feet in length to allow two eights to use the dock simultaneously	Approx. 150 feet in length to allow two eights to use the dock simultaneously
Gas Storage	100 SF	+100 SF

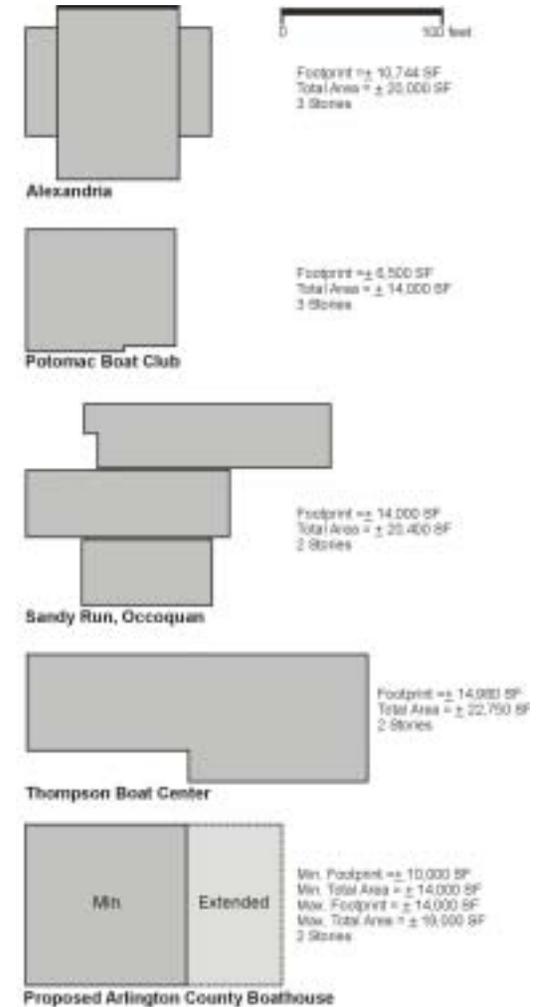


Figure 2.6: Comparison Between Proposed Boathouse Program and Area Boathouses