

# San Francisco Bay Area Water Trail



SAN FRANCISCO  
BAY AREA  
WATER  
TRAIL

## Issues and Recommendations for Improved Accessibility

*Funded by*  
California State Coastal Conservancy



*Prepared by*  
Beneficial Designs, Inc.  
April 2013



Introduction to  
“San Francisco Water Trail Issues and Recommendations for Improved Accessibility”



The following report was funded by the Coastal Conservancy and created by Beneficial Designs, Inc., after a visit to the San Francisco Bay Area in November, 2012. Peter Axelson and Mike Passo visited potential Water Trail sites along the Alameda and Contra Costa shoreline on November 8 with San Francisco Bay Area Water Trail (Water Trail) staff and consultants. The site visits gave Beneficial Designs, Inc. the opportunity to view and assess typical accessibility challenges at various types of potential Water Trail sites. Peter Axelson and Mike Passo gave a public presentation at the Coastal Conservancy's office in Oakland on November 9, during which they shared their findings and gave an overview of many of the issues and recommendations presented herein.

The Coastal Conservancy welcomes and appreciates the assessment, recommendations, discussion, citations, and list of resources included in the following report, which represents the views, opinions, and suggestions of Beneficial Designs, Inc., and was not edited by Coastal Conservancy staff apart from the addition of the cover page and these introductory remarks. The Coastal Conservancy and its project collaborators at the Association of Bay Area Governments (ABAG), San Francisco Bay Conservation and Development Commission (BCDC), and State Department of Boating and Waterways (Cal Boating), members of the Water Trail's Advisory Committee and Accessibility Sub-Committee, and site owners and managers around the Bay will find many ideas in this report to draw from and use, as appropriate to specific program and site needs.

Questions or comments related to the report may be directed to San Francisco Bay Area Water Trail staff at the Coastal Conservancy at the following address:

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For further information about the Water Trail, visit the Coastal Conservancy website at <http://www.scc.ca.gov/2010/07/30/san-francisco-bay-area-water-trail/>.

And

The San Francisco Bay Area Water Trail website at <http://www.sfbaywatertrail.org>.



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# San Francisco Water Trail

## Issues and Recommendations for Improved Accessibility

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# San Francisco Water Trail - Improved Accessibility

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## San Francisco Water Trail - Improved Accessibility

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### BACKGROUND

#### Philosophy & General Principles

In general, Beneficial Designs reviewed five water trail access sites at a variety of locations and launch types throughout the East Bay Area. The site types visited include:

- High Float Docks
- Low Float Docks
- Boat Launch Piers (a unique version of a high float dock)
- Low Bank Sandy Beaches (exposed and sheltered)
- Steep Bank (with Trail Through Rock Cribbing)

Each of the sites were reviewed with the goal of providing the most universally accessible option possible at a given site, without destroying the intended experience or nature of that environment. Many of the recommendations, therefore, will not result in “code compliance” (largely because code does not address many of the conditions that exist), but are focused on maximizing accessibility given the current environment. Some sites will inherently be more accessible to a broad spectrum of people than will other sites, due to these environmental considerations.

It is important to begin analyzing a water trail site by assuming the site can be completely accessible. From that assumption, however, it is important to take the environmental considerations into account in determining the ultimate accessibility modifications that are feasible for the site. Given the two considerations, three potential solutions for each type of site are provided and are defined as:

- 1) **Maximum Access Attainable Beyond Minimum Access Requirements:** Provides Full Access to the extent feasible regardless of cost and time to achieve and improves access to a level that exceeds the expectations of the community for program access (typically would include “Beyond Minimum Access Requirements” and “Minimum Access Requirements” recommendations).
- 2) **Beyond Minimum Access Requirements:** Exceeds the structural intent of the applicable accessibility guidelines and provides a level of access that the community would anticipate. (Typically would include “Minimum Access Requirements” recommendations).
- 3) **Minimum Access Requirements:** Provides reasonable accommodation and meets the structural intent of the applicable accessibility guidelines. May not meet the expectations of the community for program access.

It is also important to note that there is NO specific guidance provided in the State or Federal Guidelines, existing or proposed, that require access be provided into a personal watercraft.

The current guidelines only require access to the boat launch site with a clear space provided or to the high tide level at tidal beaches. This means that providing a compliant access route to a boat launch site would satisfy the minimum access requirements of the California Building Code (CBC) and Americans with Disabilities Act Accessibility Guidelines (ADAAG). However, it could be assumed that the community's expectations for program access would include some means of access into the watercraft as well.

Information is an important part of accessibility. Therefore, wayfinding and signage are important elements at all sites for improving accessibility to all people. There are seven categories of key information to provide to all users so that they may choose for themselves whether a site meets their unique accessibility needs. These include:

- 1) Site type (see above).
- 2) Distance from the current water trail site to the nearest adjacent water trail sites or safety access point (via water access) in either direction that a user might choose.
- 3) Transfer site characteristics (the useable area immediately adjacent to the water craft).
  - a. Length x Width x Height/Depth of available area
  - b. Surface type and firmness
  - c. Grade/Slope of area
- 4) Access route characteristics (the route of travel between parking and the water's edge).
  - a. Length of route (ft.)
  - b. Grade, maximum, and typical
  - c. Cross-slope, maximum, and typical
  - d. Width, minimum, and typical
  - e. Surface, type, and firmness
  - f. Obstacles, location, and magnitude
- 5) Exposure (wind, waves and current direction of exposure and magnitude of fetch in these directions, as well as maximum and minimum water level heights and tidal ranges).
  - a. Wind, direction(s), and fetch (distance of open water in a given direction)
  - b. Current, direction(s), and magnitude
- 6) Facilities (list of available facilities in the vicinity of the site).
- 7) Obstacles (list potential safety issues in the vicinity).
  - a. Vessel traffic
  - b. Large waves/swells
  - c. Current and wind in opposition

Any and all signage at the Water Trail Sites should incorporate as much information in the above seven categories as is feasible to provide.



### Tidal Range Issues

The tidal ranges in the San Francisco Bay area tends to range from +7 to -1 ft., based from the mean low tide.

It is assumed that any permanent platforms from which to begin a gangway or ramp out onto the water would need to start at a minimum of at least 1 ft. above the highest tides. This will mean that any analysis of tides should consider an 8 to 9 ft. tidal range. This equates to a minimum of an 84 ft. ramp that might accommodate all tide levels to the maximum accessibility possible. Therefore, conditions invariably will provide an 11% slope at the lowest of tides with an 80 ft. gangway at almost any location.

Tidal Information for November 8, 2012 is shown in Figure 1 (source: Pro Tides Website for Oakland, Middle Harbor, <http://www.protides.com/california/1871/2012/10/>)

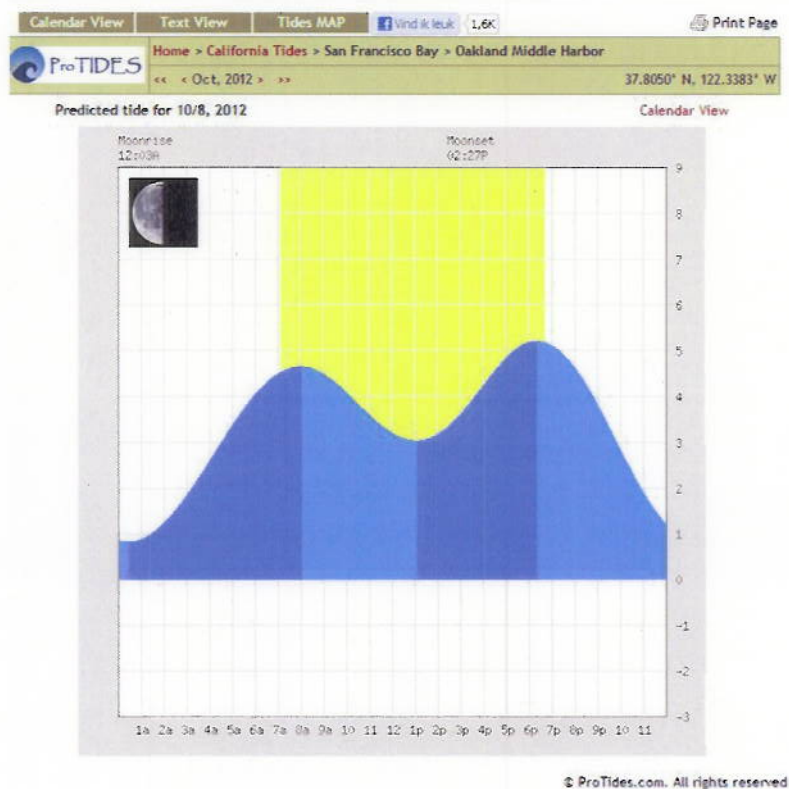


Figure 1. Tide chart for Nov 8, 2012

### SPECTRUM OF ACCESSIBILITY IMPROVEMENTS (NOT ALL-INCLUSIVE)

#### EZ Dock Type Floating Dock

Low float modular dock system made by EZ Dock (See Attachment C – Water Trail Accessibility Resources). Includes a single directional or multi-directional roller chute (EZ Launch) that accommodates stable loading and a seal launch ramp into the water.

### **Finger Docks (generally custom built)**

Provide one or more slots, 36 in. wide openings, with 36 to 48 in. wide docks on both sides, so that human powered water craft can go inside and be stable and supported on both sides for easy entry and exit from the craft.

### **Low Float Dock Systems**

There are a multitude of manufacturers that offer docks that float 6 to 8 in. above the water line.

### **Gangways**

Gangways should be designed to provide the minimum slope feasible for a given site. The standard practice of using a 30 ft. gangway should be modified to longer lengths to provide the minimum slope attainable. Extended gangways in a variety of locations can decrease maximum grades at the lowest tides or water levels.

### **Transfer Tiers (Tidal Tiers)**

Step systems with long (36 in.) treads and low (8 to 9 in.) risers with a transfer platform provided at the top tier located at the high tide level. When combined with transfer steps (defined below), a transfer tier system increases access to a wide variety of individuals in situations where ramps are impractical to reach all tide levels in an accessible manner (i.e. extremely steep banks, or excessive water level changes) by providing a maintainable access system where none is required by guidelines. These systems are not specifically defined in the guidelines because they exist below the high tide line. The design principal is derived from similar applications defined in Playground and Swimming Pool Guidelines. Further, this application modifies a transfer step to accommodate a user and the watercraft being used. This application provides a more durable solution in areas that may be subject to extreme wind, weather, or wave conditions.

### **Adaptive Paddling Seats**

Adaptation specific paddling seats ranging from the highly engineered seats (Chosen Valley Canoe Seat) to readily available commercial canoe seats (Crazy Creek or Wenonah).

### **Overhead Transfer Assist**

Handle overhanging the location where human powered craft are loaded. The overhead assistance is easier to use for a variety of people, especially when exiting a craft.

### **Transfer Steps**

A series of box-style steps set up to allow a transfer from standing or sitting position down to the dock/ground level or the level of the water craft. Steps should be 6 to 9 in. in height (coordinates with the transfer step concept codified in the Play Structure Accessibility Guidelines). Ideally, provision of a series of 3 steps, side by side (permanent or moveable) at a height of 18 in., 12 in., and 6 in. in succession. Include recessed handles and secure chair parking if possible, with a system for securing a floating water craft adjacent to the transfer steps.

### **Transfer Boards**

Moveable or permanent boards that extend out over a floating water craft to stabilize a boat and make entry and exit easier.

### **Toe Boards (low-profile edge protection at edge of all docks)**

2 x 4 boards (preferably painted bright colors) with a 2 x 4 spacer underneath, which creates a 3.5 in. high edge protection that fully line all docks. This barrier will assist people with visual impairments by creating a detectable barrier, and will also stop wheeled vehicles (strollers, walkers, wheelchairs, etc.), whether attended or unattended, from rolling off of the dock. It is further recommended that these toe boards have a color contrast with the adjacent surface to increase access to persons with limited vision. Color contrast is measured with regard to the brightness and darkness of the reflected light. Beneficial Designs has created a draft test procedure that is being used in a Universal Design standard for Fitness Equipment that can be provided upon request.

### **Temporary Beach Matting (Mobi-mat as an example)**

Roll-out matting that is easy to transport and can be temporarily staked out across soft sand beach surfaces to provide a relatively firm and stable surface. These types of surfaces require periodic (bi-weekly or monthly) maintenance to ensure that grade and cross slope requirements are maintained, and to sweep accumulated sand off of the surface.

### **Boardwalk**

A permanently accessible surface made of wood or plastic boards and pier piles (pin style piers, helical piers, etc.) that traverses relatively level soft sand or excessively wet soft surfaces.

### **Cement Access Route with Beveled Edges**

Standard cement construction for a permanent route, except that the edges are beveled down at a 30% slope and extend beyond the path of travel 12-24 in. into the soft sand surface. This allows sand to sweep up and over the cement and not deposit on its surface. It is also easier to maintain, and does not hold drifts of sand like curbing. Visual accessibility may be maintained by installing detectable surface where the bevel meets the tread surface.

## **DEFINITIONS**

### **Access Route**

Best path of travel from accessible parking or site access points to launch environment.

### **Launch Environment**

The area that contains the elements for transfer to the water at a specific site. The launch environment is a separate element of a site and is typically downhill from the parking or other outdoor developed areas provided at a facility.

### **Water Access Route (Gangway)**

Best path of travel within the launch environment from the connection of the access route to the transfer area into the water.

### **Water Trail Access Information (WTAI)**

Information provided to the public about a particular site that provides key information so that a user may choose for his/herself whether a site meets their unique accessibility needs and can adequately prepare for conditions they will encounter.

### **SPECIFIC RECOMMENDATIONS**

Upon review of the five representative sites, recommendations are provided from a perspective of providing maximum access possible. For each site, improvements are proposed from the following three perspectives:

- 1) Maximum Access Attainable Beyond Minimum Access Requirements**
- 2) Beyond Minimum Access Requirements**
- 3) Minimum Access Requirements**

**Exposed Steep Bank Access through Rock Cribbing**  
(shown in Figure 2)



**Figure 2. Steep Bank Access through Rock Cribbing**

#### Observations

- Steep; Grades 20 to 40%
- Narrow width; 8 ft. wide
- Paver stones; 8 x 8 in. with 2 in. gaps
- Access route long; 600 to 800 ft.
- Bathroom location; 600 ft. away
- Soft and unstable gravel on pathway
- Cement outdoor shower platform creates 2 to 4 in. lips
- See Appendix D for Specific Summary Information

Applicable Federal and State Code/Guidelines for Steep Bank Access:

- Appendix A, Item 3, Beach Access Route
- Appendix A, Item 4, Exterior Routes of Travel
- Appendix A, Item 5, Beaches, Trails, and Paths

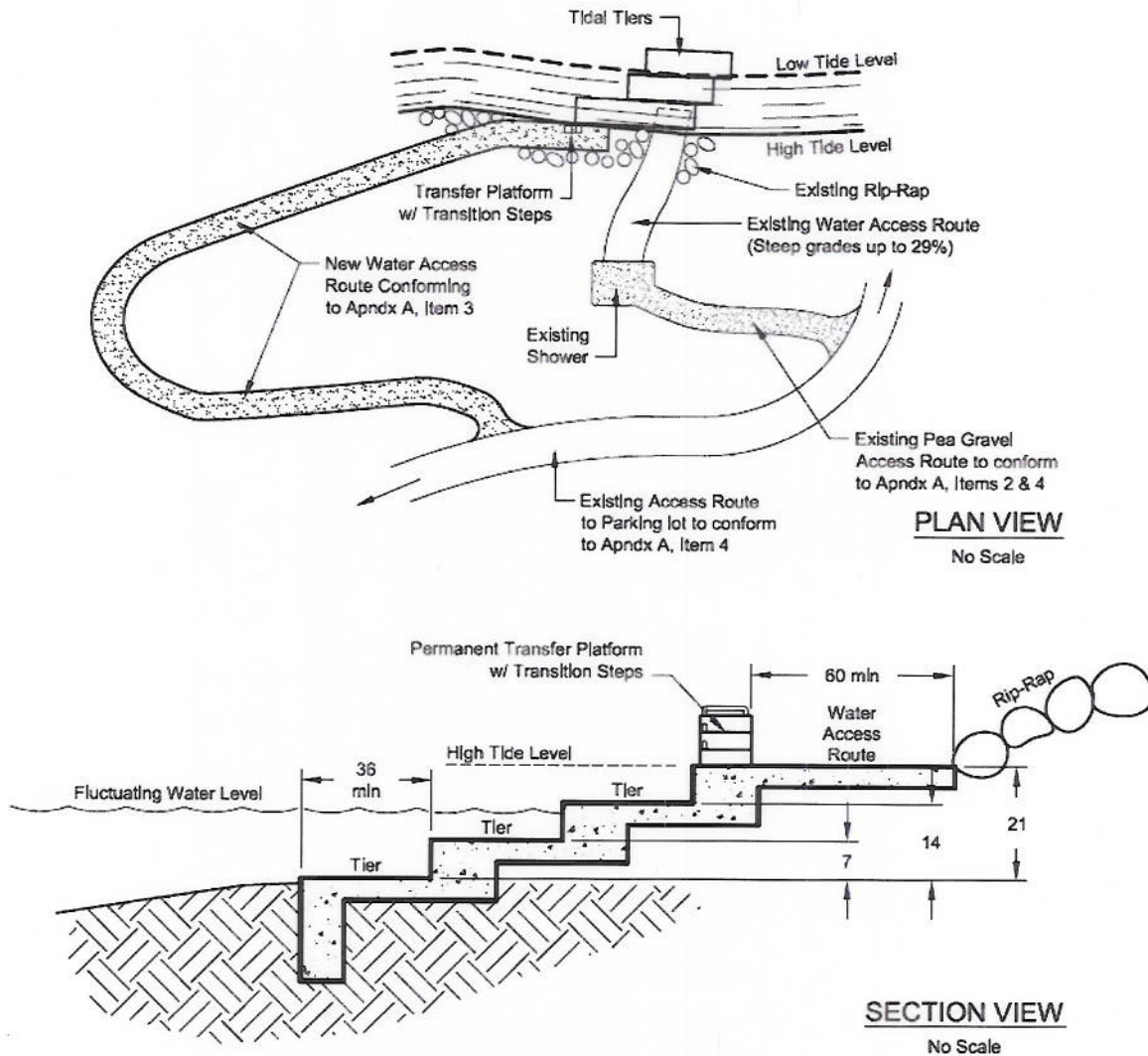
Recommendations

1) Maximum Access Attainable

- a. The site reviewed was primarily used by wind surfers. This site is too exposed for a floating dock, and there is no room for a fully compliant ramp that would work at all tide levels. In order to get maximum compliance at this site, it would be necessary to work with the owners of the marina to move the kayak/canoe launch inside the break wall of the marina to provide access for small water craft. The existing launch would be left for windsurfers (preferably with tidal tiers). Signage would be provided directing others to the greater access available for persons with impairments of limitations that prevent them from using this site.

2) Beyond Minimum Access Requirements

- a. There is insufficient room for a fully compliant ramp that would work at all tide levels. Therefore, the best opportunities for improving accessibility would be to move down the spectrum of opportunity by creating tidal tiers at the bottom of an accessible beach access route traversing the rip-rap. Provide a **Transfer Platform** with three transition steps at the high tide level in combination **with Tidal Tiers** that increase access all the way down to the low tide level. This will allow greater accessibility to as many people as possible and improve safety and accessibility if the Maximum Access option is impractical.



**Figure 3. Beyond Minimum Access Requirements at Steep Bank Access through Rock Cribbing**

**3) Minimum Access Requirements**

- a. Provide Water Trail Access Information (WTAI) information about the existing conditions.
- b. Install accessible parking for water trail users in the turnaround area at the Bus Parking location and mark with signage.
- c. Improve the soft, pea gravel surface to create a firm surface with no level changes of more than 0.25 in. vertical or 0.5 in. beveled.
- d. Create the long term accessibility improvement plan for the site. Look at moving into the marina if possible to create a low-float dock loading option close to restrooms and parking, or improve the path to an accessible beach access route with tidal tiers below the high tide level at the existing site.

**Low Float Dock with Gangway Access**  
(shown in Figure 4)



**Figure 4. Low Float Dock with Gangway Access**

Observations

- Large low float dock; 130 to 25 ft.
- Has 50 ft. ramp with 12% grade
- Transition plate at the bottom of the ramp 36 in. at 20% grade
- Water to deck height; 6 in.
- Ramp is 10 ft. wide
- See Appendix D for Specific Summary Information

Applicable Federal and State Code/Guidelines for Low Float Dock with Gangway Access:

- Appendix A, Items 1 & 4, Access Routes
- Appendix B, Items 1, 2 & 3, Gangway and Boarding Pier/Dock

Recommendations

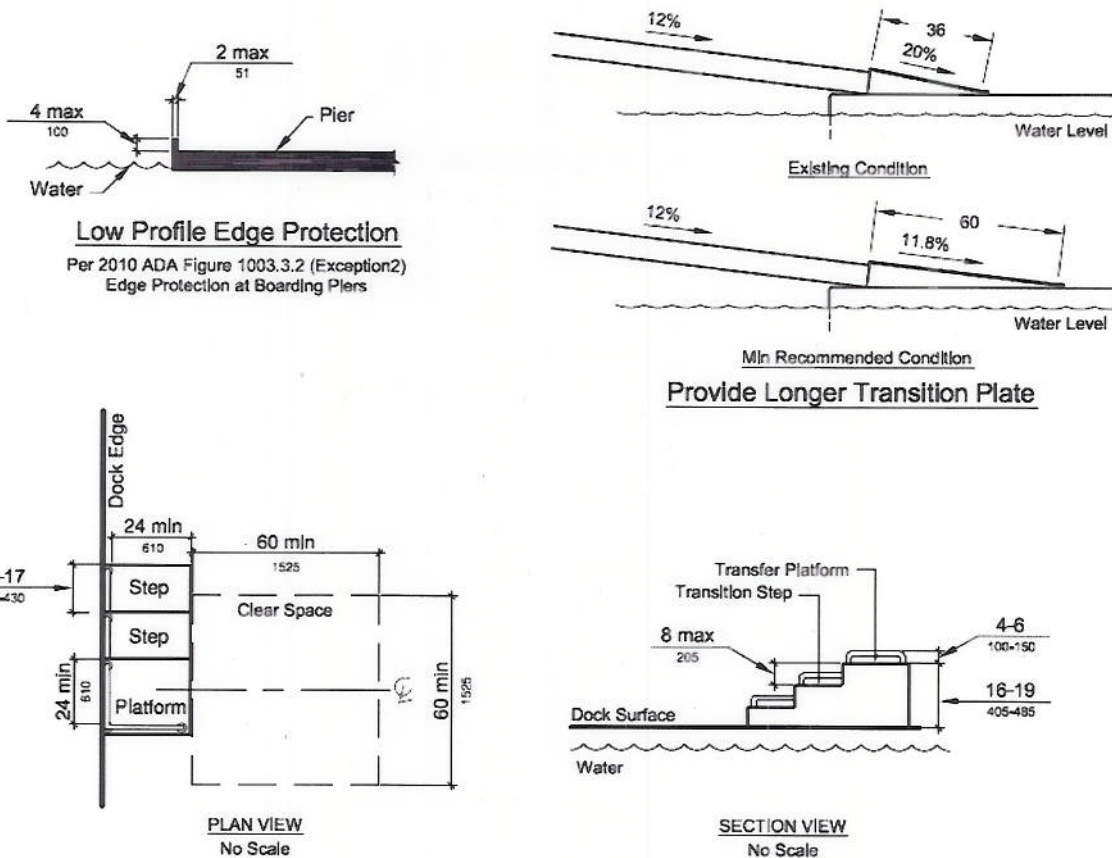
1) Maximum Access Attainable

- a. Install an EZ Dock type with EZ Launch type rolling boat launch on one side of the existing dock.
- b. Install a longer gangway with a bridge plate that has less slope than the gangway to improve access route grade to below 8.3% at low tide water level.

2) Beyond Minimum Access Requirements.

- a. Replace the 36 in. transition plate with one that is longer to achieve a slope of less than the existing gangway slope of 12% (the transition plate should have a slope that is less than the slope of the gangway but is currently 20%).
- b. Add a longer railing for the new transition plate.

- c. Install a permanent set of 3 transfer steps at one location on the existing dock.
- d. Install low-profile edge protection around the entire dock. This will act as a safety feature for people with visual impairments, will stop wheeled vehicles (wheelchairs, strollers, walkers, etc.) from accidentally rolling off of the dock when being used or stored, and will be a great place to securely moor boats while loading by all people.



**Permanent Transfer Steps**

Clear Space, Transfer Platform, Steps and Handrails to conform with 2010 ADA Section 1009.5 Transfer Systems

**Figure 5. Beyond Minimum Access Requirements at Low Float Dock with Gangway Access**

**3) Minimum Access Requirements**

- a. Since the facility has less than 25 boat slips, the slope of the gangway is in compliance with the guidelines.
- b. Install a longer transition plate at the bottom of the gangway to decrease access route grade.
- c. Provide WTAI information about the existing Boat Launch Pier situation.



**High Float Docks with Gangway Access**  
(shown in Figure 6)



**Figure 6. High Float Docks with Gangway Access**

**Observations**

- Currently leased by California Canoe and Kayak
- 50 ft. gangway at 12% grade
- 4 ft. long transition plate with 8% grade
- 11 in. drop at transition from high float dock to medium height float dock
- 10 in. drop to low float docks
- Low float docks unstable
- See Appendix D for Specific Summary Information

**Applicable Federal and State Code/Guidelines for High Float Dock with Gangway Access:**

- Appendix A, Item 4, Exterior Access Route (parking area through Plaza to gate)
- Appendix B, Item 1, Gangway
- Appendix B, Item 3, Dock

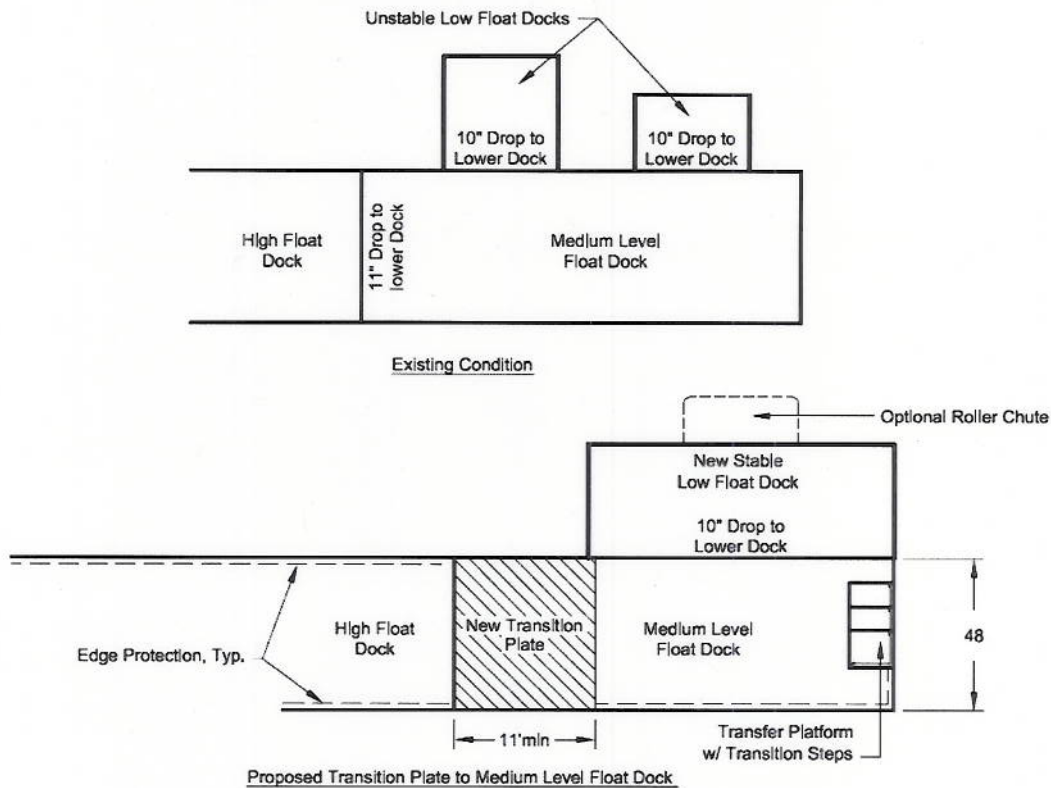


**Figure 7. 50 ft. gangway at 12% grade**

Recommendations

1) Maximum Access Attainable

- a. Replace the unstable low float dock sections with an EZ Dock type of low float solution.
- b. Install an EZ Launch type roller chute boat launch
- c. Look into cost sharing with the outfitter that would benefit most from the upgrade.
- d. In the current configuration, there is physically NO room to provide a longer gangway. Address the feasibility of reconfiguring the existing dock system to provide a gangway that improves the access route grade to below 8.3%.



**Figure 8. Maximum Access Attainable at High Float Dock with Gangway Access**

2) Beyond Minimum Access Requirements

- a. Install a permanent set of 3 transfer steps at medium level float dock.
- b. Look into cost sharing with the outfitter that would benefit most from the upgrade.

3) Minimum Access Requirements

- a. Install a full width (6 ft. wide) transition plate between high float and medium float docks. Should be about 11 ft. long to improve grade to below 8.33%.
- b. Install low profile edge protection on both high and medium float section of the dock.
- c. Provide WTAI information about the existing Boat Launch Pier situation.

**High Float Boat Launch Pier**  
(shown in Figure 9)



**Figure 9. Boat Launch Pier**

Observations

- Massive concrete boat launch area; 66 ft. long 14% grades
- Modular float dock system; 15% maximum grade, 98 in. wide.
- Elevation drop to existing height float deck; 77 in.
- Water to deck surface height is 18 to 19 in.
- See Appendix D for Specific Summary Information

Applicable Federal and State Code/Guidelines for High Float Boat Launch Pier:

- Appendix A, Item 4, Exterior Access Route
- Appendix B, Item 1, Gangway & Boarding Pier
- Appendix B, Items 2 & 3, Boarding Pier/Dock

Recommendations

1) Maximum Access Attainable

- a. Install a detached EZ Dock type of low float solution in the lagoon to the East of the boat launch pier.

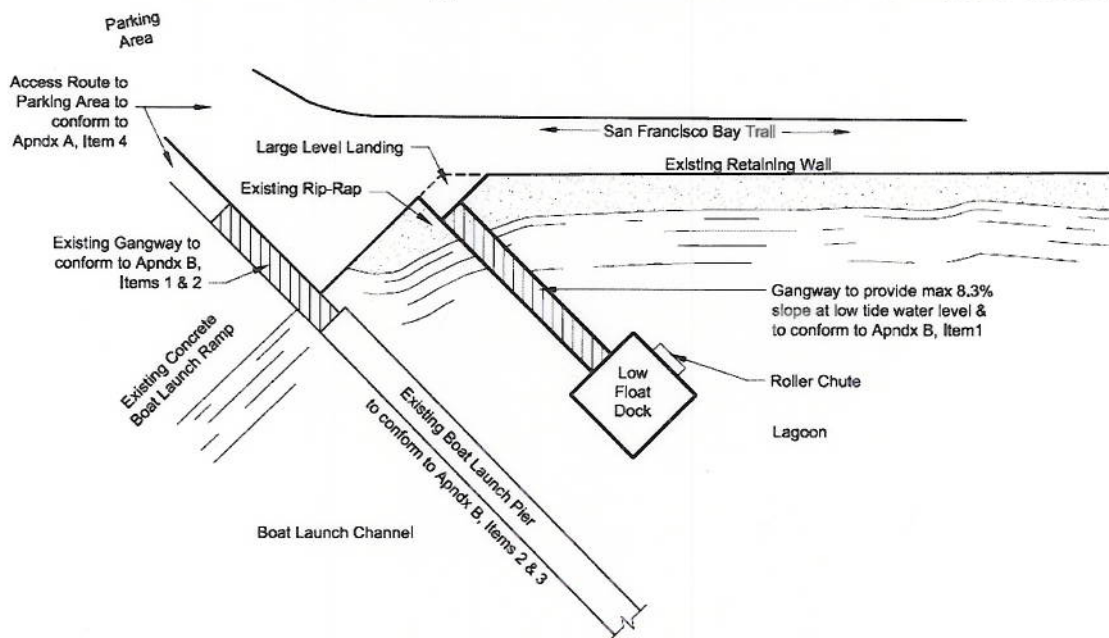
**Most Accessible Option:**

- Remove section of Railing and provide Large base platform at Rip Rap adjacent to existing boat launch area.



Figure 10. Boat Launch Pier Rip-Rap

- Provide a gangway that provides maximum 8.3% grade at low tide water level down to a low float dock with EZ Dock system in the middle of the lagoon.
- Provide EZ Launch type roller chute boat launch at new low float dock section



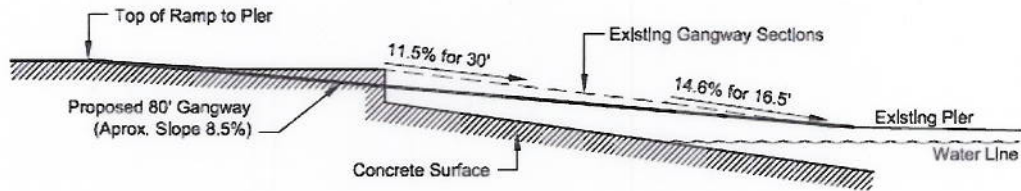
Gangway w/ Detached Low Float Dock

Figure 11. Maximum Access Attainable for Boat Launch Pier

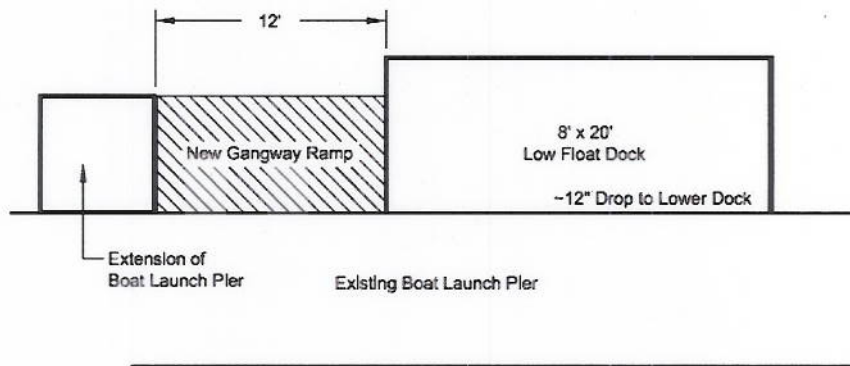
**Alternative Solution:** Modify existing high float Boat Launch Pier (East side of existing Boat Launch).

- Install detached EZ Dock with 12 ft. minimum access ramp and/or Parallel low float dock with transfer platform and ramp to access low float dock.

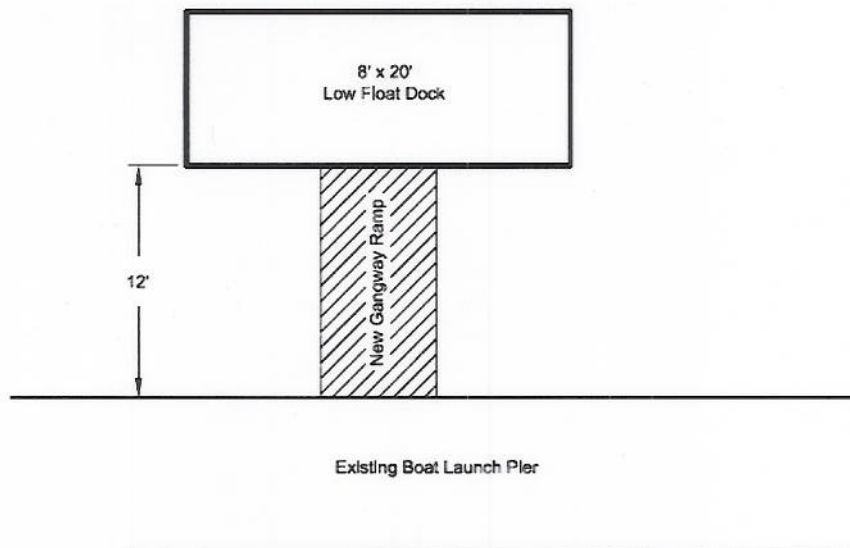
- Replace existing floats that rest on the boat launch surface (14% grade) at low tides, with a longer gangway to address 77 in. elevation change while providing grades of less than 8.33% at low tides.



80' Gangway to Accommodate Grade Issues



Attached Low Float Dock w/ Parallel Gangway Ramp

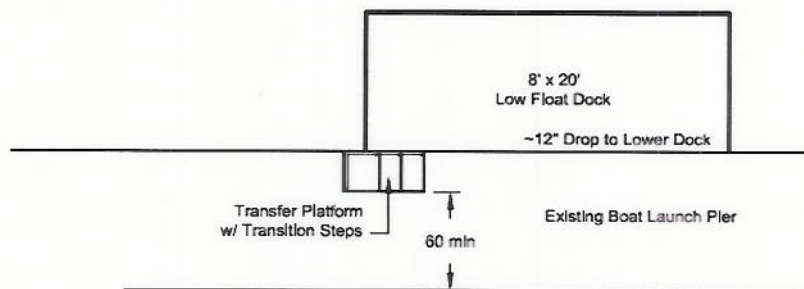


Detached Low Float Dock

**Figure 12. Maximum Access Attainable - Alternative Option for Boat Launch Pier**

2) Beyond Minimum Access Requirements

- a. Install a low float dock (8 ft. X 20 ft.) to the left side of the existing Boat Launch Pier.
- b. Install a set of 3 transfer steps on the Boat Launch Pier, if it is not feasible to install a 12 ft. ramp down onto the low float dock.
- c. Install low profile edge protection.



Attached Low Float Dock w/ Transfer Platform

**Figure 13. Beyond Minimum Access Requirements for Boat Launch Pier Rip-Rap**

3) Minimum Access Requirements

- a. Existing Pier is technically compliant as float sections rest on the boat launch surface which has no grade compliance requirements.
- b. Provide WTAI information about the existing Boat Launch Pier situation.

**Ramped Sandy Beach Access**  
(shown in Figure 14)



**Figure 14. Low Bank Sandy Beach Access**

Observations

- Beautiful section of San Francisco Bay Trail
- Concrete access route with 5 to 7% grades
- 10 ft. width, 10 in. curbs
- See Appendix D for Specific Summary Information

Applicable Federal and State Code/Guidelines for Ramped Sandy Beach Access:

- Appendix A, Item 3, Beach Access Route
- Appendix A, Item 4, Exterior Access Route
- Appendix A, Item 5, Outdoor Occupancy, Trail, or Path

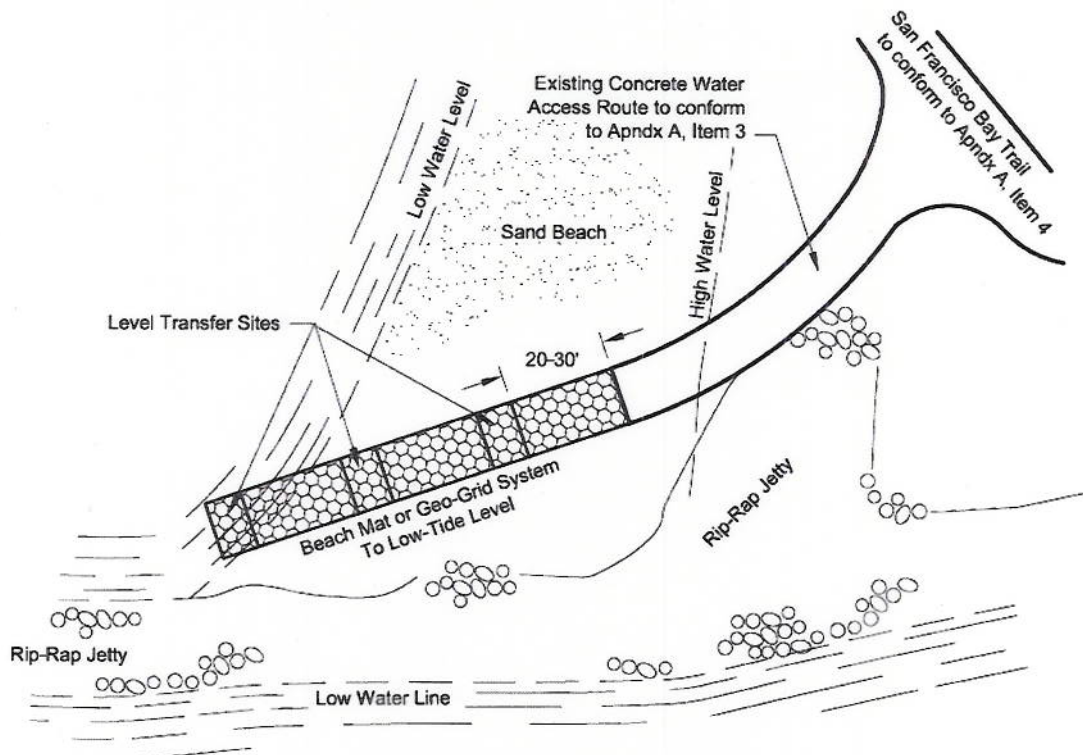
Recommendations

1) Maximum Access Attainable

- Extend the existing concrete ramp to the high water mark. In order to avoid extensive sand deposition, the edges of the concrete should have beveled sides that extend beyond the path of travel 12-24 in., rather than curb sides.
- Modify or install a rock jetty into the flow of the water to avoid current sand deposition problems.

2) Beyond Minimum Access Requirements

- Install a temporary beach mat (Mobi-Mat) or more permanent Geo-Grid system from the base of the existing cement ramp to the low tide level. Recommend creating level sections as transfer sites every 20 or 30 ft.
- Maintain the temporary beach mat to ensure grades of less than 8.33% and cross slopes of less than 2%.



Extend Water Access Route with Beach Mat or Geo-Grid System

**Figure 15. Beyond Minimum Access Requirements for Low Bank Sandy Beach Access**

3) Minimum Access Requirements

- a. Existing conditions meet minimum requirements to provide access to high tide level.
- b. Provide WTAI information about the existing Boat Launch Pier situation.
- c. Maintain the existing cement ramp by sweeping off accumulated sand on a regular basis (every 2 week).



# Appendix A

## Applicable Codes & Guidelines for Outdoor Access Routes

### Item 1: ADA Chapter 1: Application and Administration

*101.1 General. This document contains scoping and technical requirements for accessibility to sites, facilities, buildings, and elements by individuals with disabilities. The requirements are to be applied during the design, construction, additions to, and alteration of sites, facilities, buildings, and elements to the extent required by regulations issued by Federal agencies under the Americans with Disabilities Act of 1990 (ADA).*

#### *103 Equivalent Facilitation*

*Nothing in these requirements prevents the use of designs, products, or technologies as alternatives to those prescribed, provided they result in substantially equivalent or greater accessibility and usability.*

*Advisory 103 Equivalent Facilitation. The responsibility for demonstrating equivalent facilitation in the event of a challenge rests with the covered entity.*

### Item 2: Draft Final Accessibility Guidelines for Outdoor Developed Areas, Chapter 10, (<http://www.access-board.gov/outdoor/draft-final.htm#1016>)

#### **1016 Outdoor Recreation Access Routes**

**1016.1 General.** Outdoor recreation access routes shall comply with 1016.

**EXCEPTIONS:** **1.** In alterations to existing camping facilities, picnic facilities, and trailheads where a condition in 1019 does not permit full compliance with a specific requirement in 1016 on a portion of an outdoor recreation access route, that portion of the outdoor recreation access route shall comply with the specific requirement to the maximum extent feasible.

**2.** At viewing areas, where a condition in 1019 does not permit full compliance on a portion of an outdoor recreation access route with a specific requirement in 1016, that portion of the outdoor recreation access route shall comply with the specific requirement to the maximum extent feasible.

**3.** Where outdoor recreation access routes are provided within vehicular ways, outdoor recreation access routes shall not be required to comply with 1016.4, 1016.7, and 1016.8.

**1016.2 Surface.** The surface of outdoor recreation access routes and their related passing spaces and resting intervals shall be firm and stable.

*Advisory 1016.2 Surface.* A stable surface remains unchanged by applied force so that when the force is removed, the surface returns to its original condition. A firm surface resists deformation by indentations.

**1016.3 Clear Width.** The clear width of outdoor recreation access routes shall be 36 inches (915 mm)

minimum.

**EXCEPTION:** The clear width shall be permitted to be reduced to 32 inches (815 mm) minimum for a length of 24 inches (610 mm) maximum provided that reduced width segments are separated by segments that are 48 inches (1220 mm) long minimum and 36 inches (915 mm) wide minimum.

**1016.4 Passing Spaces.** Outdoor recreation access routes with a clear width less than 60 inches (1525 mm) shall provide passing spaces complying with 1016.4 at intervals of 200 feet (61 m) maximum. Passing spaces and resting intervals shall be permitted to overlap.

Advisory 1016.4 Passing Spaces. Entities should consider providing either a 60 inches (1525 mm) minimum clear width on outdoor recreation access routes, or passing spaces at shorter intervals if the clear width is less than 60 inches (1525 mm), where an outdoor recreation access route is:

- Heavily used;
- Adjoins outdoor constructed features that are heavily used;
- A boardwalk; or
- Not at the same level as the ground surface adjoining the outdoor recreation access route.

**1016.4.1 Size.** The passing space shall be either:

1. A space 60 inches (1525 mm) minimum by 60 inches (1525 mm) minimum; or
2. The intersection of two outdoor recreation access routes providing a T-shaped space complying with 304.3.2 where the base and the arms of the T-shaped space extend 48 inches (1220 mm) minimum beyond the intersection. Vertical alignment at the intersection of the outdoor recreation access routes that form the T-shaped space shall be nominally planar.

**1016.5 Obstacles.** Obstacles on outdoor recreation access routes and their related passing spaces and resting intervals shall comply with 1016.5.

**1016.5.1 Concrete, Asphalt, or Boards.** Where the surface is concrete, asphalt, or boards, obstacles shall not exceed ½ inch (13 mm) in height measured vertically to the highest point.

**1016.5.2 Other Surfaces.** Where the surface is other than specified in 1016.5.1, obstacles shall not exceed 1 inch (25 mm) in height measured vertically to the highest point.

Advisory 1016.5 Obstacles. The vertical alignment of joints in concrete, asphalt, or board surfaces can be obstacles. Natural features such as tree roots and rocks on outdoor recreation access routes can also be obstacles. Where an outdoor recreation access route is provided within a vehicular way, traffic calming devices can be obstacles. Where possible, obstacles on outdoor recreation access routes should be separated by a distance of 48 inches (1220 mm) minimum so persons who use wheelchairs can maneuver around the obstacles.

**1016.6 Openings.** Openings in the surface of outdoor recreation access routes and their related passing spaces and resting intervals shall comply with 302.3.

Advisory 1016.6 Openings. Spaces between the boards in a boardwalk and drainage grates are examples

of openings. Where possible, drainage grates should be located outside the minimum clear width of the outdoor recreation access route.

**1016.7 Slopes.** The slopes of outdoor recreation access routes shall comply with 1016.7.

**1016.7.1 Running Slope.** The running slope of any segment of an outdoor recreation access route shall not be steeper than 1:10. Where the running slope of a segment of an outdoor recreation access route is steeper than 1:20, the maximum length of the segment shall be in accordance with Table 1016.7.1, and a resting interval complying with 1016.8 shall be provided at each end of the segment.

Table 1016.7.1 Running Slope and Resting Intervals

Running Slope of Segment of Outdoor Recreation Access Route		Maximum Length of Segment
Steeper than	But not Steeper than	
1:20	1:12	50 feet (15 m)
1:12	1:10	30 feet (9 m)

Advisory 1016.7.1 Running Slope. Running slope can also be expressed as a percentage (grade).

**1016.7.2 Cross Slope.** The cross slope shall comply with 1016.7.2.

**1016.7.2.1 Concrete, Asphalt, or Boards.** Where the surface is concrete, asphalt, or boards, the cross slope shall not be steeper than 1:48.

**1016.7.2.2 Other Surfaces.** Where the surface is other than specified in 1016.7.2.1, the cross slope on other surfaces shall not be steeper than 1:33.

**1016.8 Resting Intervals.** Resting intervals shall comply with 1016.8.

**1016.8.1 Length.** The resting interval length shall be 60 inches (1525 mm) long minimum.

**1016.8.2 Width.** Where resting intervals are provided within an outdoor recreation access route, resting intervals shall be at least as wide as the widest segment of the outdoor recreation access route leading to the resting interval. Where resting intervals are provided adjacent to an outdoor recreation access route, the resting interval clear width shall be 36 inches (915 mm) minimum.

**1016.8.3 Slope.** Resting intervals shall have a slope complying with 1016.8.3.

**1016.8.3.1 Concrete, Asphalt, or Boards.** Where the surface is concrete, asphalt, or boards, the slope shall not be steeper than 1:48 in any direction.

**1016.8.3.2 Other Surfaces.** Where the surface is other than specified in 1016.8.3.1, the slope on other surfaces shall not be steeper than 1:33 in any direction.

**1016.8.4 Turning Space.** Where resting intervals are provided adjacent to an outdoor recreation access route, a turning space complying with 304.3.2 shall be provided. Vertical alignment between the outdoor recreation access route, turning space, and resting interval shall be nominally planar.

**1016.9 Protruding Objects.** Constructed elements on outdoor recreation access routes and their related resting intervals and passing spaces shall comply with 307.

Advisory 1016.9 Protruding Objects. Protruding objects on outdoor recreation access routes and their related resting intervals and passing spaces can be hazardous for persons who are blind or have low vision. Signs and other post mounted objects are examples of constructed elements that can be protruding objects.

**Item 3:** Draft Final Accessibility Guidelines for Outdoor Developed Areas, Chapter 10, Add 1018 Beach Access Route (<http://www.access-board.gov/outdoor/draft-final.htm#1018>)

### **1018 Beach Access Routes**

**1018.1 General.** Beach access routes shall comply with 1018.

**EXCEPTIONS: 1.** Where an entity determines that a condition in 1019 does not permit full compliance with a specific requirement in 1018 on a portion of a beach access route, that portion of the beach access route shall comply with the specific requirement to the maximum extent feasible. The entity shall document the basis for the determination, and shall maintain the documentation with the records for the construction or alteration project.

**2.** Where an entity determines that it is impracticable to provide a beach access route complying with 1018, a beach access route shall not be required. The entity shall document the basis for the determination, and shall maintain the documentation with the records for the construction or alteration project.

**3.** Removable beach access routes shall not be required to comply with 1018.7 and 1018.8.

Advisory 1018.1 General Exception 1. Exception 1 can be applied to specific requirements in 1018 on a portion of a beach access route where full compliance with the requirement cannot be achieved due to any of the conditions in 1019.

Advisory 1018.1 General Exception 2. An entity should first apply Exception 1 to determine the portions of a beach access route where full compliance with the specific requirements in 1018 cannot be achieved. An entity should then evaluate the entire beach access route, taking into account the portions of the beach access route that can and cannot fully comply with the requirements in 1018 and the extent of compliance where full compliance cannot be achieved to determine whether it would be impracticable to provide a beach access route. The determination is made on a case-by-case basis.

**1018.2 Connections.** Beach access routes shall connect an entry point to the beach to the:

1. High tide level at tidal beaches;
2. Mean high water level at river beaches; or
3. Normal recreation water level at lake, pond, and reservoir beaches.

**1018.3 Surface.** The surface of beach access routes and their related resting intervals shall be firm and stable.

Advisory 1018.3 Surface. A stable surface remains unchanged by applied force so that when the force is removed, the surface returns to its original condition. A firm surface resists deformation by indentations.

**1018.4 Clear Width.** The clear width of beach access routes shall be 60 inches (1525 mm) minimum.

**1018.5 Obstacles.** Obstacles on beach access routes and their related resting intervals shall comply with 1018.5.

**1018.5.1 Concrete, Asphalt, or Boards.** Where the surface is concrete, asphalt, or boards, obstacles shall not exceed ½ inch (13 mm) in height measured vertically to the highest point.

**1018.5.2 Other Surfaces.** Where the surface is other than specified in 1018.5.1, obstacles shall not exceed 1 inch (25 mm) in height measured vertically to the highest point.

Advisory 1018.5 Obstacles. The vertical alignment of boards on a beach access route or removable sections of a beach access route can be obstacles. Where possible, obstacles on beach access routes should be separated by a distance of 48 inches (1220 mm) minimum so persons who use wheelchairs can maneuver around the obstacles.

**1018.6 Openings.** Openings in the surface of beach access routes and their related resting intervals shall comply with 302.3.

**1018.7 Slopes.** The slopes of beach access routes shall comply with 1018.7.

**1018.7.1 Running Slope.** The running slope of any segment of a beach access route shall not be steeper than 1:10. Where the running slope of a segment of a beach access route is steeper than 1:20, the maximum length of the segment shall be in accordance with Table 1018.7.1, and a resting interval complying with 1018.8 shall be provided at each end of the segment.

Table 1018.7.1 Running Slope and Resting Intervals

Running Slope of Trail Segment		Maximum Length of Segment
Steeper than	But not Steeper than	
1:20	1:12	50 feet (15 m)
1:12	1:10	30 feet (9 m)

Advisory 1018.7.1 Running Slope. Running slope can also be expressed as a percentage (grade).

**1018.7.2 Cross Slope.** The cross slope shall comply with 1018.7.2.

**1018.7.2.1 Concrete, Asphalt, or Boards.** Where the surface is concrete, asphalt, or boards, the cross slope shall not be steeper than 1:48.

**1018.7.2.2 Other Surfaces.** Where the surface is other than specified in 1018.7.2.1, the cross slope on other surfaces shall not be steeper than 1:33.

**1018.8 Resting Intervals.** Resting intervals shall comply with 1018.8.

**1018.8.1 Size.** Resting intervals shall be 60 inches (1525 mm) by 60 inches (1525 mm) minimum.

**1018.8.2 Slope.** Resting intervals shall have a slope complying with 1018.8.2.

**1018.8.2.1 Concrete, Asphalt, or Boards.** Where the surface is concrete, asphalt, or boards, the slope shall not be steeper than 1:48 in any direction.

**1018.8.2.2 Other Surfaces.** Where the surface is other than specified in 1018.8.2.1, the slope on other surfaces shall not be steeper than 1:33 in any direction.

**1018.9 Protruding Objects.** Constructed elements on beach access routes and their related resting intervals shall comply with 307.

Advisory 1018.9 Protruding Objects. Protruding objects on beach access routes and their related resting intervals can be hazardous for persons who are blind or have low vision. Signs and other post mounted objects are examples of constructed elements that can be protruding objects.

**1018.10 Elevated Dune Crossings.** Where elevated dune crossings are part of beach access routes, handrails complying with 505 and edge protection complying with 405.9 shall be provided on the elevated dune crossings.

#### **EXCEPTIONS:**

1. The clear width of elevated dune crossings shall be permitted to be reduced to 48 inches (1220 mm) minimum.
2. Elevated dune crossings shall not be required to comply with 1018.8.

#### **Under the California Building Code:**

**Item 4:** California Building Code (CBC) - 1127B Exterior Routes of travel  
([http://publicecodes.cyberregs.com/st/ca/st/b200v10/st\\_ca\\_st\\_b200v10\\_11b\\_sec029.htm](http://publicecodes.cyberregs.com/st/ca/st/b200v10/st_ca_st_b200v10_11b_sec029.htm))

Division II – SITE ACCESSIBILITY

#### **SECTION 1127B EXTERIOR ROUTES OF TRAVEL**

**1127B.1 General.** Site development and grading shall be designed to provide access to all entrances and exterior ground floor exits, and access to normal paths of travel, and where necessary to provide access, shall incorporate pedestrian ramps, curb ramps, etc. Access shall be provided within the boundary of the site from public transportation stops, accessible parking spaces, passenger loading zones if provided, and public streets or sidewalks. When more than one building or facility is located on a site, accessible routes of travel complying with Section

1114B.1.2 shall be provided between buildings and accessible site facilities, accessible elements, and accessible spaces that are on the same site. The accessible route of travel shall be the most practical direct route between accessible building entrances, accessible site facilities and the accessible entrance to the site. If access is provided for pedestrians from a pedestrian tunnel or elevated walkway, entrances to the building from each tunnel or walkway must be accessible.

**Exceptions:**

1. Where the enforcing agency determines that compliance with these regulations would create an unreasonable hardship because of topography, natural barriers, etc., an exception may be granted when equivalent facilitation is provided through the use of other methods and materials.
2. In existing buildings, this section shall not apply in those conditions where, due to legal or physical constraints, the site of the project would not allow compliance with these regulations or equivalent facilitation without creating an unreasonable hardship. See Section 1.9.1.5.

**1127B.2 Design and construction.** When accessibility is required by this section, it shall be designed and constructed in accordance with this code. See Section 1114B.1 for a list of applicable sections.

**1127B.3 Signs.** At every primary public entrance and at every major junction where the accessible route of travel diverges from the regular circulation path along or leading to an accessible route of travel, entrance or facility, there shall be a sign displaying the International Symbol of Accessibility. Signs shall indicate the direction to accessible building entrances and facilities and shall comply with the requirements found in Sections 1117B.5.1, Item 2, and 1117B.5.8.1.

**1127B.4 Outside stairways.** See Section 1133B.4.

**1127B.5 Curb ramps.**

1. **General.** Curb ramps shall be constructed at each corner of street intersections and where a pedestrian way crosses a curb. Built-up curb ramps shall be located so that they do not project into vehicular traffic lanes. The preferred and recommended location for curb ramps is in the center of the crosswalk of each street corner. Where it is necessary to locate a curb ramp in the center of the curb return and the street surfaces are marked to identify pedestrian crosswalks, the lower end of the curb ramp shall terminate within such crosswalk areas. See Figure 11B-20C, Case E and Figure 11B-22.

2. **Width of curb ramps.** Curb ramps shall be a minimum of 4 feet (1219 mm) in width and shall lie, generally, in a single sloped plane, with a minimum of surface warping and cross slope.

3. **Slope of curb ramps.** The slope of curb ramps shall not exceed one unit vertical in 12 units horizontal (8.33-percent slope). The slope shall be measured as shown in Figure 11B-20E. Transitions from ramps to walks, gutters or streets shall be flush and free of abrupt change.

Maximum slopes of adjoining gutters, road surface immediately adjacent to the curb ramp, or accessible route shall not exceed one unit vertical in 20 units horizontal (5-percent slope) within 4 feet (1219 mm) of the bottom of the curb ramp. The slope of the fanned or flared sides of curb ramps shall not exceed one unit vertical in 10 units horizontal (10-percent slope).

**4. Level landing.** A level landing 4 feet (1219 mm) deep shall be provided at the upper end of each curb ramp over its full width to permit safe egress from the ramp surface, or the slope of the fanned or flared sides of the curb ramp shall not exceed one unit vertical in 12 units horizontal (8.33-percent slope).

**5. Finish.** The surface of each curb ramp and its flared sides shall comply with Section 1124B, Ground and Floor Surfaces, and shall be of contrasting finish from that of the adjacent sidewalk.

**6. Border.** All curb ramps shall have a grooved border 12 inches (305 mm) wide at the level surface of the sidewalk along the top and each side approximately  $\frac{3}{4}$  inch (19 mm) on center. All curb ramps constructed between the face of the curb and the street shall have a grooved border at the level surface of the sidewalk. See Figures 11B-19A and 11B-19B.

**7. Detectable warnings.** Curb ramps shall have a detectable warning that extends the full width and depth of the curb ramp, excluding the flared sides, inside the grooved border. Detectable warnings shall be slip-resistant and consist of raised truncated domes with a diameter of nominal 0.9 inch (22.9 mm) at the base tapering to 0.45 inch (11.4 mm) at the top, a height of nominal 0.2 inch (5.08 mm) and a center-to-center spacing of nominal 2.35 inches (59.7 mm) in compliance with Figure 11B-23A. "Nominal" here shall be in accordance with Sections 12-11A and B-102, State Referenced Standards Code. The detectable warning shall contrast visually with adjoining surfaces, either light-on-dark or dark-on-light. The material used to provide contrast shall be an integral part of the walking surface. The domes may be constructed in a variety of methods, including cast in place or stamped, or may be part of a prefabricated surface treatment.

Only approved DSA-AC detectable warning products and directional surfaces shall be installed as provided in the California Code of Regulations (CCR), Title 24, Part 1, Articles 2, 3 and 4. Refer to CCR Title 24, Part 12, Chapters 12-11A and B, for building and facility access specifications for product approval for detectable warning products and directional surfaces.

Detectable warning products and directional surfaces installed after January 1, 2001, shall be evaluated by an independent entity, selected by the Department of General Services, Division of the State Architect-Access Compliance, for all occupancies, including transportation and other outdoor environments, except that when products and surfaces are for use in residential housing, evaluation shall be in consultation with the Department of Housing and Community Development. See Government Code Section 4460.

**8. Obstructions.** Curb ramps shall be located or protected to prevent their obstruction by parked vehicles.

**9. Diagonal curb ramps.** If diagonal (or corner-type) curb ramps have returned curbs or other



well-defined edges, such edges shall be parallel to the direction of pedestrian flow. The bottom of diagonal curb ramps shall have 48 inches (1219 mm) minimum clear space as shown in Figures 11B-22(c) and (d). If diagonal curb ramps are provided at marked crossings, the 48-inch (1219 mm) clear space shall be within the markings [see Figures 11B-22(c) and (d)]. If diagonal curb ramps have flared sides, they shall also have at least a 24 inch (610 mm) long segment of straight curb located on each side of the curb ramp and within the marked crossing [see Figure 11B-22 (c)].

**Notes:**

1. For additional curb details, see Figures 11B-19A and 11B-19B.
2. If the distance from the curb to the back of sidewalk is too short to accommodate a ramp and a 4-foot (1219 mm) platform as in Figure 11B-20A, Case A, the sidewalk may be depressed longitudinally as in Figure 11B-20A, Case B, or Figure 11B-20B, Case C, or may be widened as in Figure 11B-20B, Case D.
3. If the sidewalk is less than 5 feet (1524 mm) wide, the full width of the sidewalk shall be depressed as shown in Figure 11B-20B, Case C.
4. As an alternate to Figure 11B-20A, Case A, one ramp may be placed in the center of the curb return as in Figure 11B-20C, Case E.
5. When a ramp is located in the center of a curb return, the crosswalk configuration must be similar to that shown on the plan to accommodate wheelchairs. See Figure 11B-22.
6. If the planting area width is equal to or greater than the ramp length, the ramp side slope distance equals 3 feet (914 mm). See Figure 11B-20D, Case G.
7. For Figure 11B-20C, Case F, and Figure 11B-20D, Case G, the longitudinal portion of the sidewalk may need to be depressed as shown in Figure 11B-20A, Case B.
8. If located on a curve, the sides of the ramp need not be parallel, but the minimum width of the ramp shall be 4 feet (1219 mm).
9. The ramp shall have a 12-inch-wide (305 mm) border with  $\frac{1}{4}$ -inch (6 mm) grooves approximately  $\frac{3}{4}$  inch (19 mm) on center. See grooving detail, Figure 11B-20D, Case H.

**Item 5:** California Building Code (CBC) 1132B Outdoor Occupancies,  
([http://publicecodes.cyberregs.com/st/ca/st/b200v10/st\\_ca\\_st\\_b200v10\\_11b\\_sec034.htm](http://publicecodes.cyberregs.com/st/ca/st/b200v10/st_ca_st_b200v10_11b_sec034.htm))

Division II – SITE ACCESSIBILITY

**SECTION 1132B OUTDOOR OCCUPANCIES**

**1132B.1 General.** Outdoor occupancies shall be accessible as required in this chapter. See also the general requirements in Section 1114B.1.1.

**1132B.2 Parks and recreational areas.** *The following parks and recreational areas shall comply with these regulations.*

**Exceptions:**

1. *In existing buildings, when the enforcing agency determines that compliance would create an unreasonable hardship, a variance shall be granted when equivalent facilitation is provided.*

2. *Where the enforcing agency finds that, in specific areas, the natural environment would be materially damaged by compliance with these regulations, such areas shall be subject to these regulations only to the extent that such material damage would not occur.*

3. *Automobile access shall not be provided or paths of travel shall not be made accessible when the enforcing agency determines that compliance with these regulations would create an unreasonable hardship.*

1. **Campsites.** *Campsites, a minimum of two and no fewer than three for each 100 campsites provided, shall be accessible by a level path or ramp and shall have travel routes with slopes not exceeding one unit vertical in 12 units horizontal (8.33-percent slope) to sanitary facilities. Permanent sanitary facilities serving campgrounds shall be accessible to wheelchair occupants.*

2. **Beaches, picnic areas.** *Beaches, picnic areas, day-use areas, vista points and similar areas shall be accessible.*

3. **Sanitary facilities.** *Sanitary facilities, to the extent that such facilities are provided, each public use area that is accessible to wheelchair occupants by automobile, walks or other paths of travel.*

4. **Boat docks.** *Boat docks, fishing piers, etc., shall be accessible.*

5. **Parking lots.** *Parking lots shall be provided with accessible parking spaces and with curb cuts leading to all adjacent walks, paths or trails.*

6. **Trails and paths.** *Trails, paths and nature walk areas, or portions of these, shall be constructed with gradients which will permit at least partial use by wheelchair occupants. Hard surface paths or walks shall be provided to serve buildings and other functional areas.*

7. **Nature trails.** *Nature trails and similar educational and informational areas shall be accessible to the blind by the provision of rope guidelines, raised Arabic numerals and symbols for identification, information signs and related guide and assistance devices.*

*For museums, orientation buildings, visitor centers, office buildings, retail stores, restaurants, etc., and sanitary facilities serving these uses, see Sections 1104B through 1111B and sections listed in Section 1114B.1.1.*

**1132B.3 Highway rest areas.** *The specific standards of accessibility for highway rest areas and similar facilities shall be as follows in Section 1132B.3.1, subject to other provisions in these regulations.*

**1132B.3.1 Permanent facilities.** *At least one kind of permanent functional area or facility, as applicable, shall be accessible to persons with disabilities, including:*

- 1. A sanitary facility for each sex.*
- 2. At least one picnic table and one additional table for each 20 tables, or fraction thereof provided.*
- 3. Information and display areas.*
- 4. Drinking fountains.*
- 5. At least one parking space.*
- 6. Curb ramps conforming to Section 1127B.5 shall be provided at pedestrian ways where appropriate.*



# Appendix B

## Applicable Codes & Guidelines for Gangways and Boating Piers

**Item 1:** ADAAG for Recreational Boating Facilities Chapter 1003, the 2010 ADAS Chapter 4 Accessible Route of Travel (<http://www.access-board.gov/recreation/guides/boating.htm#Accessible%20Routes>)

*ADAAG requires that at least one accessible route connect accessible buildings, facilities, elements, and spaces on a site. Accessible boat slips, accessible boarding piers at boat launch ramps, and other accessible spaces and elements within a boating facility must also be connected by an accessible route. The accessible route must comply with ADAAG provisions for the location, width (minimum of 36 inches), passing space, head room, surface, slope (maximum of 1:12 or 8.33%), changes in level, doors, egress, and areas of rescue assistance, unless otherwise modified by specific provisions outlined in this guide.*

### **Gangways**

*A gangway is a variable-sloped pedestrian walkway linking a fixed structure or land with a floating structure. Where gangways are provided as part of accessible routes to connect accessible boat slips on floating piers, the following exceptions to the ADAAG accessible route provisions have been included in the guidelines to deal with the varying water level changes and other factors in this dynamic environment. Designers and operators should note that there are no exceptions to the accessible route requirements where the accessible route connects fixed piers to land or other fixed structures.*

#### *Gangway Slope and Rise Exceptions*

*Gangways designed for the least possible slope will provide more independent access for persons with disabilities. As a minimum however, gangways must be designed to provide for a maximum 1:12 (8.33%) slope but are not required to be longer than 80 feet in length. For example, if the vertical distance between where the gangway departs the landside connection and the elevation of the pier surface at the lowest water level is 10 feet, the gangway would have to be at least 80 feet long. As water levels rise and fall, gangway slopes also rise and fall. At times, this gangway slope may be less than 1:20 (5%) and at other times it may be more than 1:12 (8.33%). In smaller facilities with less than 25 boat slips, the slope of the gangway may exceed 1:12 (8.33%), if the gangway is at least 30 feet long.*

*The maximum rise requirements in ADAAG do not apply to gangways. As a result, no intermediate landings on the gangways are required and gangways may be any length.*

*The gangway slope and rise exceptions do not apply to other sloped walking surfaces that may be part of the accessible route. For example, where a non-gangway sloped*

walking surface greater than 1:20 (5%) is provided as part of an accessible route connecting accessible spaces of a boating facility, it must comply with ADAAG slope and rise requirements. This would include a ramp connecting a fixed pier or a float with fixed switchback ramps.

**Item 2:** ADAAG for Recreational Boating Facilities, the 2010 ADAS Chapter 1003 Boarding Piers at Boat Launch Ramps (<http://www.access-board.gov/recreation/guides/boating.htm#Boarding%20Piers>)

*A boarding pier (sometimes called a courtesy pier or a launch dock) is the part of a pier where a boat is temporarily moored for embarking and disembarking. A boat launch ramp is a sloped surface designed for launching and retrieving trailered boats and other watercraft to and from a body of water. The provisions for boarding piers cover only those that are associated with boat launch ramps. Boarding piers that are not part of a boat launch ramp are classified as "boat slips" for purposes of these guidelines.*

*If boarding piers at boat launch ramps are provided, at least 5 percent but not less than one, must comply with these guidelines and be served by an accessible route. The exceptions for gangways, previously described above, may be applied to boarding piers (see Accessible Routes).*

*In addition, gangways connecting floating boarding piers may exceed the maximum slope specified in the guidelines, if the total length of the gangway is at least 30 feet.*

*ADAAG ramp requirements do not apply to the portion of the accessible route serving a floating boarding pier or skid pier if it is located within a boat launch ramp. For example, a facility provides a chain of floats on a launch ramp to be used as an accessible boarding pier. At high water, the entire chain is floating and a transition plate connects the first float to the surface of the launch ramp. As the water level decreases, segments of the chain rest on the launch ramp surface, matching the slope of the launch ramp. An accessible route must serve the last float because it would function as the boarding pier at the lowest water level, before it possibly grounded out. Because the entire chain also functions as a boarding pier, it must comply with all ADAAG provisions, including the 60-inch minimum clear pier width provision.*

**Item 3:** California Building Code (CBC) 1132B.2.4 Outdoor Occupancies, Parks and recreational areas, Boat docks.  
([http://publicecodes.cyberregs.com/st/ca/st/b200v10/st\\_ca\\_st\\_b200v10\\_11b\\_sec034.htm](http://publicecodes.cyberregs.com/st/ca/st/b200v10/st_ca_st_b200v10_11b_sec034.htm))

Division II – SITE ACCESSIBILITY

### **SECTION 1132B OUTDOOR OCCUPANCIES**

**1132B.2 Parks and recreational areas.** *The following parks and recreational areas shall comply with these regulations.*

**4. Boat docks.** *Boat docks, fishing piers, etc., shall be accessible.*

# Appendix C

## Water Trail Accessibility Resources

### Publications:

Canoeing and Kayaking for Disabled People by Geoff Smedley, British Canoe Union 1995.

Canoeing and Kayaking for Persons with Physical Disabilities by Janet Zeller and Anne Wortham Webre, American Canoe Association 1990.

Iowa DNR. 2006. Iowa Construction Site Erosion Control Manual.

Iowa Department of Natural Resources, Des Moines, IA.

[http://www.iowadnr.gov/water/stormwater/forms/construction\\_man1.pdf](http://www.iowadnr.gov/water/stormwater/forms/construction_man1.pdf).

Accessed March 2010.

Minnesota DNR. 2007. Trail Planning, Design, and Development Guidelines.

Minnesota Department of Natural Resources, Trails & Waterways Division, St. Paul, MN.

NPS. 2004. Logical Lasting Launches: Design Guidance for Canoe and Kayak

Launches. National Park Service, River, Trails, & Conservation Assistance

Program, Washington, DC. [www.nps.gov/rtca/helpfultools/launchguide.pdf](http://www.nps.gov/rtca/helpfultools/launchguide.pdf).

Accessed March 2010.

USAB. 1999. Regulatory Negotiation Committee on Accessibility Guidelines for

Outdoor Developed Areas: Final Report. United States Access Board,

Washington, DC. <http://www.access-board.gov/outdoor/outdoor-rec-rpt.htm>.

Accessed March 2010.

USAB. 2003. Accessible Boating Facilities: A Summary of Accessibility

Guidelines for Recreation Facilities. United States Access Board, Washington,

DC. <http://www.access-board.gov/recreation/guides/pdfs/boating.pdf>. Accessed

March 2010.

USDA Forest Service. 2006. Accessibility Guidebook for Outdoor Recreation and

Trails. USDA Forest Service Technology and Development Program:

Washington, D.C.

### Websites:

AccuDock, Kay-aKcess kayak dock system

<http://kay-akcess.com/kayak-dock-launch.html>

American Trails

<http://www.americantrails.org/resources/water/index.html>

American Rivers Blue Trails Guide

<http://www.bluetrailsguide.org>

Beneficial Designs

<http://www.beneficialdesigns.com/>

E-Z Dock, canoe/kayak dock launch system

<http://www.ez-dock.com/en/ez-dock-products/ez-launch.html>

Florida Paddling Trails Association

<http://www.floridapaddlingtrails.com/>

National Park Service, Rivers, Trails and Conservation Assistance Program

<http://www.nps.gov/ncrc/programs/rtca/index.html>

<http://www.nps.gov/ncrc/portals/rivers/proj/pg/watertrails.htm>

River Network River Voices on Water Trails

<https://rivernetwork.org/files/rv/rv2006v16n2.pdf>

### **Water Trail Development Guides**

Guidelines for Paddling Trail Development

[http://myfwc.com/Recreation/paddling\\_guidelines.htm](http://myfwc.com/Recreation/paddling_guidelines.htm)

Chesapeake Bay Gateways Network: Water Trail Toolbox

<http://www.baygateways.net/watertrailtools.cfm>

Iowa DNR Water Trails Toolkit

<http://www.iowadnr.gov/riverprograms/watertrails.html>

Minnesota DNR Water Trails Program

<http://www.dnr.state.mn.us/watertrails/index.html>



# Appendix D Water Trail Access Information - Five Representative Site Summary Table

Launch / Access Site	Exposed Steep Bank Access through Rock Cribbing	Low Float Dock with Gangway Access	High Float Dock w/ Gangway Access	High Float Boat Launch Pier	Ramped Sandy Beach Access
<b>Managing Agency</b>			California Canoe & Kayak		
<b>Boats Provided</b>	None	None	Canoes, Kayaks	None	None
<b>Boats Permitted</b>	Small Paddle	Small Paddle	Small Paddle	Motorized & Small Paddle	Small Paddle
<b>Access Route - Parking to Launch Environment</b>					
Length	774.8 ft	200 ft	+ 800 ft	+ 200 ft	+50 ft
Elev Change	+7 ft & -3.9 ft	-2 ft	-10 ft	-2 ft	-15 ft
<b>Grade</b>					
Typical	1.4%	< 5%	5%	< 5%	< 5%
Maximum	< 5%		10%		
<b>Cross Slope</b>					
Typical	1.1%	< 2%	< 2%	< 2%	< 2%
Maximum	3-5.4% for 48.3 ft				
<b>Tread Width</b>					
Typical	71.2 in	> 10 ft	10 ft	> 10 ft	10 ft
Minimum	42 in		4 ft		
<b>Surface</b>					
Type	Asphalt	Asphalt	Asphalt	Asphalt/Concrete	Concrete
Stability	Paved	Paved	Paved	Paved	Paved
Amount	96.9%	100%	100%	100%	100%
<b>Obstructions</b>					

Launch / Access Site	Exposed Steep Bank Access through Rock Cribbing	Low Float Dock with Gangway Access	High Float Dock w/ Gangway Access	High Float Boat Launch Pier	Ramped Sandy Beach Access
<b>Water Access Route</b>					
Length	51 ft	50 ft	100 ft	66 ft	> 10 ft
Elev Loss	10.1 ft	10 ft	12 ft	6.5 ft	5 ft
Grade					
Typical Maximum	19.7%	12%	8%	14%	5%
	25-29% for 22.4 ft	20% for 3 ft	12% for 50 ft	15%	7%
Cross Slope					
Typical Maximum	2.7%	< 2%	< 2%	< 2%	< 3%
	4 ft is 10.8%				
Tread Width					
Typical Minimum	94.9 in 62 in	10 ft 10 ft	6 ft 4 ft	98 in	> 10 ft
Surface					
Type	8x8 Brick Pavers w/ 2in gaps	Expanded Metal Gangway	Expanded Metal Gangway	Concrete/Composite Floating Dock Panels	Sand & Gravel
Stability Amount	Paved 100%	Hard 100%	Hard 100%	Hard 100%	Soft/Firm 100%
Obstructions	Soft and unstable gravel on pathway		(1) 10 & (1) 11" Step		Soft Sand Above High Tide Line
<b>Transfer Area</b>					
Launch Type	Beach Access	Low Float Dock	High, Mid & Low Float Dock	Conc Boat Launch / High Float Dock	Beach Access
Clear Space					
Length	10'	130 ft	8 ft	Unlimited / ~60 ft	>10 ft
Width	8'	25 ft	6 ft	~50 ft / 98 in	> 10 ft
Grade	20-40%	< 2%	Unstable Floating	14% / 0%	5%-10%
Cross Slope	< 2%	< 2%	Unstable Floating	0% / 0%	< 3%
Surface	Brick Pavers	Wood Decking	Composite/Plastic	Concrete / Composite	Sand/Gravel
Height Above Water	0 ft	6 in	6 in	0 - 19 in	0 ft
Boat Orientation	Perpendicular	Parallel	Parallel	Unlimited - Parallel	Unlimited

Launch / Access Site	Exposed Steep Bank Access through Rock Cribbing	Low Float Dock with Gangway Access	High Float Dock w/ Gangway Access	High Float Boat Launch Pier	Ramped Sandy Beach Access
<b>Water Conditions / Exposure</b>					
Fetch	> 2 mi	~ 0.25 mi	~300 ft	1000 ft	> 2 mi
Current	Tidal	Tidal	Tidal	Tidal	Tidal
Fluctuation Type	Tidal	Tidal	Tidal	Tidal	Tidal
Amount	~5.8 ft (1.77 m)	~5.8 ft (1.77 m)	~5.8 ft (1.77 m)	~5.8 ft (1.77 m)	~5.8 ft (1.77 m)
Wave Heights	Typ < 1 ft Max ~2 ft	< 1 ft	< 1 ft	< 1 ft	Typ 1 to 2 ft Max 4 ft
Facilities on Site	Parking Restroom Outdoor Shower	Parking Restroom Shower	Parking Garage Rentals Food	Parking Restroom Water	Parking Perimeter Bay Trail Access
Hazards			Unstable Low Float Dock		



**Appendix E**  
**Water Trail Access Information - Sample**  
**Publication Document**



# High Float Boat Launch Pier

San Francisco Bay Area Water Trail Program



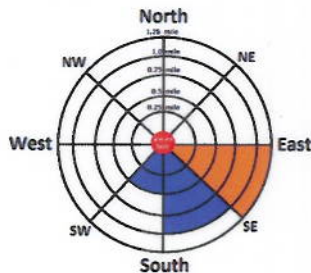
## Water Trail Access Information

### Amenities & Allowed Uses:

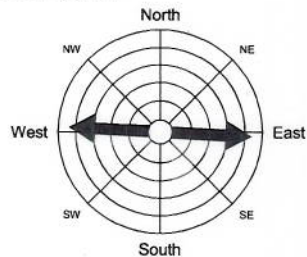
- Boat launch
- Drinking water
- Canoe access
- Fishing pier
- Hand launch
- Kayaking
- Motorboating
- Parking
- Restrooms

### Water Conditions / Exposure:

#### Fetch:



#### Current:



Type: Tidal

Fluctuation: ~8 ft

Type: Tidal

Wave Height: < 1 ft

### Access Route

Parking to Launch Environment	
Length	+ 200 ft
Elev Loss	2 ft
Grade	
Typical	< 5%
Cross Slope	
Typical	< 2%
Tread Width	
Typical	> 10 ft
Surface	
Type	Asphalt/Concrete
Stability	Paved
Amount	100%

### Water Access Route

Edge of Environment to Transfer Area	
Length	66 ft
Elev Loss	6.5 ft
Grade	
Typical	14%
Maximum	15%
Cross Slope	
Typical	< 2%
Tread Width	
Typical	98 in
Surface	
Type	Concrete/Composite Floating Dock Panels
Stability	Hard
Amount	100%

### Transfer Area

Launch Type	Concrete Boat Launch / High Float Dock
Clear Space	
Length	Unlimited / ~60 ft
Width	~50 ft / 98 in
Grade	14% / 0%
Cross Slope	0% / 0%
Surface	
Concrete / Composite	
Height Above Water	
0 / 19 in	
Boat Orientation	
Unlimited / Parallel	

**WARNING:** Conditions may have changed since December 2012 when this facility was assessed. Temporary obstacles are not reported.

Signage created by Beneficial Designs Inc. using data collected by a certified trail assessment coordinator.

The State Coastal Conservancy is leading the implementation of the San Francisco Bay Area Water Trail (Water Trail) in close collaboration with the Association of Bay Area Governments (ABAG), the San Francisco Bay Conservation and Development Commission, and the Department of Boating and Waterways. The Water Trail is a growing network of access sites (or "trailheads") that will help people using non-motorized, small boats or other beachable sail craft, such as kayaks, canoes, dragon boats, stand-up paddle and windsurf boards, to safely enjoy single and multiple-day trips around San Francisco Bay.

<http://scc.ca.gov/2010/07/30/san-francisco-bay-area-water-trail/>

**Appendix F**  
**Developing Essential Eligibility Criteria**

## Steps to Developing Nondiscriminatory Essential Eligibility Criteria

Developing guidelines for what your clients must be able to do should be an easy process. You probably already have guidelines in your head; you just need to write them down in a nondiscriminatory way. Think of this step as an exercise in writing down commonsense functions, and you are well on the way to success! The key is that essential eligibility criteria focus on ability rather than disability. Referring to an activity in terms of who can participate, rather than in terms of who can't, counteracts the tendency to stereotype what a person with a disability can do. Follow these steps:

1. Think in terms of the physical and mental abilities necessary for participation in your programs and activities. What does it take to participate in the specific activities of your program such as getting into a canoe or sea kayak and using a paddle? Do participants have to be able to think quickly? Do they have to be strong? Do they have to be able to understand directions? Does your program require an understanding of highly technical factors? Could adaptive equipment be used?
2. Divide the activity into the basic stages of participation (i.e., putting on equipment, using equipment, and returning equipment to a specific area). In effect, you need to separate the program into the discrete activities or variables that make it up. Could a companion safely assist a person in the completion of the task?
3. Consider the abilities necessary for remaining safe. What are the most likely causes of death or injury involved with that activity, and what do participants need to do to avoid them?
4. Prioritize the stages described in step 2 into the critical abilities necessary for safety. For example, when paddling a canoe, the ability to remain seated and balanced (with support if needed) is a higher safety priority than the ability to execute specific paddle strokes.
5. Do not use limiting words such as walk, climb, or see. Instead, describe the result that must be achieved in nondiscriminatory terms, such as access, ascend, or identify.
6. Consider basic rules of etiquette that participants must follow. These issues may include yielding to others who have the right of way or waiting for the rest of the group to catch up.
7. Determine whether the guidelines may be satisfactorily met with the help of a companion. A person may not be able to perform a function independently, but might easily do it with the help of a friend or family member.
8. Edit for simplicity. Stick to the basic physical or mental abilities necessary for participation-the fewer the better.

This is an excerpt from *Canoeing and Kayaking for People With Disabilities*, by Janet Zeller



## **An Example of An Essential Eligibility Statement...**

Elakah Expeditions Kayak Tours are open to all individuals who meet the following essential eligibility requirements.

Participants must:

- Be 18 years of age or older, or accompanied by an adult.
- Be able to manage all personal care and mobility independently, or with the assistance of a companion who accompanies the participant.
- Be able to get in and out of kayak independently or with the assistance of group members.
- Be able to comprehend and follow instructions.
- Be comfortable in the water including: floating on back independently with a properly fitted PFD, turning from face down to face up independently while wearing a properly fitted PFD, and holding breath while under water.
- In the event of a capsize, be able to exit the boat independently, and re-enter the boat with the assistance of one other boat and your paddling partner, following directions.
- Together with a paddling partner, be able to control a kayak and maintain a balanced upright position on flat water for up to 2 hours at a time, with adaptations if necessary.