

Maintenance Assistance Program

2011 Workshop

Oregon State Marine Board





MAINTENANCE MANUAL

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Maintenance Assistance Program Manual

INTRODUCTION

AGENCY

The Marine Board is a state agency with a governor-appointed policy board. The five members of the board serve staggered four-year terms. Though appointed by the Governor, members must be confirmed by the Senate. A list of current Board members can be viewed at <http://www.boatoregon.com>. The Board appoints a director who hires agency staff and carries out the mission, goals and policies of the Board.

Agency Mission Statement

“The Oregon State Marine Board is Oregon’s boating agency . . . dedicated to safety, education and access in an enhanced environment.”

Statutory Authority

The powers and duties of the Board can be found in Chapter 830 of Oregon Revised Statutes.

<http://www.leg.state.or.us/ors/830.html>.

Organization

The Marine Board consists of five major sections: Boating Registration, Boating Safety, Boating Facilities, Business Services, and Administration, which included the Director’s office. A brief description of each section is provided below.

Administration. This section includes the Director’s office, legislative affairs, administrative rulemaking, information, event permitting, triennial survey, customer satisfaction, personnel, and Board support and liaison.

Business Services. This section performs the fiscal/accounting functions of the agency, including budget preparation and tracking, receipts and disbursements, payroll services, materials and supplies purchases, inventory, and information systems.

Boating Registration. All motorized boats in Oregon, including sailboats over 12 feet in length must be titled and registered. In addition to boats, the agency titles and registers floating homes, houseboats, and boathouses. The Boating Registration Section also licenses ocean charter boats and registers all hunting, fishing and boating guides and outfitters in the state. Boaters can renew registrations online through the agency’s



The Marine Board serves recreational boaters

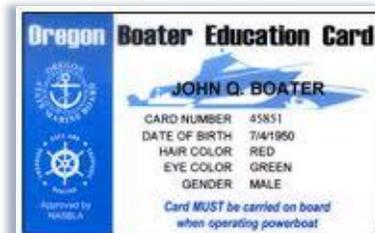


website or at 87 bonded agents statewide. Over 177,000 boats are registered in Oregon along with 1,036 guides and outfitters and 249 charter boats.

Boating Safety. This Section provides several programs, including law enforcement, waterway marking, mandatory education, boating safety, clean marina, abandoned vessels, and aquatic invasive species. The agency contracts with county sheriffs and Oregon State Police (OSP) Fish

and Wildlife Division to enforce boating laws and regulations. The agency trains and equips certified marine deputies. Contracts with 31 counties and OSP support more than 100 full-time and seasonal officers statewide.

All operators of motorboats 10hp and higher are required to possess a card showing they have passed a boating education course. More than 264,000 cards have been issued to boaters. The clean marina program provides voluntary certification to participating marinas who adopt specified clean practices in their operation. There are 47 certified clean marinas in Oregon.



Sample Boater Education Card

The aquatic invasive species is a new program created in 2010. All boats, 10-feet and longer including nonregistered boats are required to possess an AIS permit. Proceeds from the permit are used to provide boat inspection and cleaning teams and educate boaters about the spread of invasives. In addition to registered boats, which receive the permit when they are registered, approximately 45,000 permits have been issued.

Boating Facilities. The Marine Board assists public agencies that own and manage boating facilities by providing matching grants for acquisition, planning, development and maintenance. Eligible grant applicants include port authorities, park and recreation districts, cities, counties, and state agencies as well as federal agencies through a county government sponsor.

Boating Facility Grants are competitive and awarded by the Board each biennium.

Agencies that operate public recreational boating facilities can choose to participate in the Marine Board's Maintenance Assistance Program (MAP) and receive annual assistance to supplement their maintenance efforts. Federal agencies and private marinas that receive Boating Facility Grants are not eligible for annual MAP grants.



Launch ramp constructed with grant assistance from the Marine Board

In addition to state grants, the Marine Board is the designated state agency for two federal grant programs: the Clean Vessel Act (CVA) program and Boating Infrastructure Grant (BIG) program. Federal CVA grants can be used for boat waste collection systems like pump outs, dump stations, and floating restrooms. Funds from the federal BIG program are intended to build facilities such as transient moorage to serve non-trailerable boats.

In addition to grants, the Section also provides engineering, environmental permitting and project planning and inspection services to local governments. The Marine Board has awarded over \$50 million in state funds for facilities improvements for more than 1,100 projects statewide.

Agency Revenues

The Marine Board receives no money from the state General Fund. Agency revenues come from a mix of state and federal sources, all of which are derived from boaters. State sources include registration fees and marine fuel taxes paid by owners of registered boats.



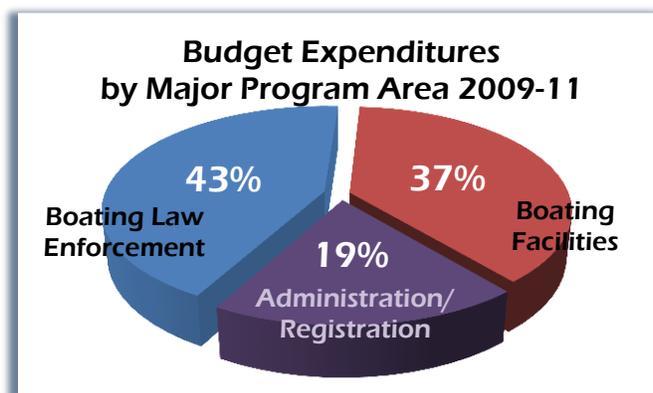
Inspecting a restroom for ADA compliance.

Federal sources include grants from the US Coast Guard for boating safety programs and the US Fish & Wildlife Service for boat waste facilities and transient moorage. State marine fuel taxes account for approximately one-third of the agency's funds, registration and titling fees about 44%, and the remaining 21% federal funds.

Revenues grew in all but three biennia since 1993-1995. Higher revenues are attributable to increased registration and titling fees, mandatory education, and greater success in utilizing federal funds, particularly Clean Vessel Act and nationally competitive Boating Infrastructure Grants. The most significant reduction in revenue occurred in the 2009-11 biennium. This was due to fewer boats being registered and titled, lower fuel tax receipts, and a lack of competitive projects to submit for federal BIG funding.

Agency Budget

The Legislature approves a budget for the Marine Board every two years. In 2009-2011, the Marine Board's budget exceeded \$31 million. More than 80 percent of this money was passed directly back to the boaters in the form of marine law enforcement and safety services, boating education and facility



improvements. Funds allocated for Boating Facility Grants, MAP, and technical assistance amounted to 37% of the total agency budget, while law enforcement received 43% and the remainder going to boating safety education, administration and other programs.

MAINTENANCE ASSISTANCE PROGRAM

Background

In 1985, the Maintenance Assistance Program was developed through the Marine Board's budget at the result of additional funds being provided to the agency by HB 2350, the capture of the marine fuel tax paid by recreational boaters. The development of the MAP program was in response to reduced local government funding for operations and maintenance and the desire by the Board to protect, preserve, and extend the useful life of the Facility Grant Projects.

The MAP program funding is meant to augment existing levels of maintenance at eligible recreational boating facilities and is not intended to replace the program maintenance funding provided by participants or be the sole source of funding for boating facility maintenance.

During the last 26 years the MAP program rules have been modified seven times and several supplemental policy adoptions. The most recent rule modification was in 2006. The Marine Board will be seeking public comment in 2011 for rule modification and implementation for the 2012-13 fiscal year.

Purpose

Since the development of the MAP program, in 1985, there has never been a participant-wide training session. Consistent, current information and timely training can help participants avoid program compliance issues and concerns.

The purpose of the *MAP Maintenance Manual* is to provide guidance for the successful participation in the MAP program and to help participants protect boater-generated financial investments in facility improvements. MAP program goals call for all eligible boating facilities to be maintained and operated to a standard that ensures:

- Recreational boaters will experience safe and usable boating facilities;
- Recreational boaters will have similar experiences at boating facilities statewide;
- Boating facilities will be attractive for a family boating experience, and;
- The useful life of Marine Board funded boating facility improvements is maximized.

Scope

This *MAP Maintenance Manual* is intended to provide guidance for the overall maintenance and operation of eligible boating facilities by highlighting components to inspect, monitor, repair or replace.

This manual does not include guidance on budgeting, staffing levels, equipment, supplies or management of eligible boating facilities. These items are to be determined by the program participant.

Benefits

It is the Marine Board's intention that the use and application of the *MAP Maintenance Manual* will provide added benefits to eligible Program participants in the form of:

- Reduced liability by implementing site inventory inspection and monitoring procedures;
- Active role in boating facility improvement planning;
- Reduced expenses by implementing a programmed approach to boating facility operation and maintenance;
- Increased boater facility use by creating a safe and enjoyable boating experience;
- Reduced boater complaints, and;
- Improved relationship with adjoining property owners and the local community.



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Maintenance Assistance Program Manual

DEFINITIONS

Base Course	Crushed rock placed over <i>subbase</i> material and compacted to form a solid, uniform surface under concrete or <i>asphalt</i> .
Bathymetry	Relating to the <i>topography</i> (ground surface) below the water surface.
Bathymetric Survey	The process by which the underwater ground topography is measured and mapped.
BMP's	Best Management Practices - Construction procedures implemented to avoid or minimize impacts to water quality or aquatic species such as fish.
Buoy	An anchored floating object used to delineate a <i>channel</i> , in-water navigation hazard, or boating regulation.
Cast-In-Place	The process of placing freshly mixed concrete into forms at the construction site. Once the concrete has hardened it remains where it was placed.
Commercial Use	This can include boat rentals, outfitter and guide operations, tour boats, or other for-profit or participant fee-based activities.
Encapsulation	The process of completely sealing foam <i>floatation</i> to keep it contained and protect it from damage or degradation.
Floating Restroom	A self-contained sanitation facility that is not connected to land and provides restroom facilities to boaters on the water. The restroom is towed to open water, anchored, and towed back to shore for pumping.
Head-In Stall	A <i>parking stall</i> with a <i>curb</i> or <i>wheel stop</i> at the far end which requires parked vehicles to back out.
Lift Station	A device that contains a pump for the purpose of pushing sewage to a higher elevation (e.g.; gravity sewer main, drainfield, holding tank).

Lift-Off Connection	A type of <i>gangway land connection</i> that allows rotation under normal water levels but will detach from the <i>land connection</i> and allow the <i>gangway</i> to float during high-water events.
Occupy Area	The non-delineated 10-foot width within a <i>launch lane</i> that is occupied by the vehicle, trailer, and boat.
Off-season	The six-month period of lowest registered boat use that generally occurs from October 15 th to April 15 th .
Parking Facility	A designated area that is comprised of some or all of the following components: <i>access road</i> , <i>staging areas</i> (ready and tie-down), <i>maneuver area</i> , <i>parking area</i> , <i>parking aisles</i> , and <i>travel lanes</i> .
Peak Season	The three-month period of heaviest boat use that generally occurs from June 1 st to August 31 st .
Pervious	A surface characteristic that allows water to infiltrate or be absorbed.
Portable Toilet	A temporary single-stall toilet that can be easily moved and relocated.
Pull-Through Stall	A <i>parking stall</i> that allows a vehicle to enter from one end and exit from the other. No backing is required.
Pumpout	A unit that pumps out sewage from a boat's on-board holding tank. The sewage is then pumped to a disposal system.
Routine Maintenance	Ordinary facility upkeep activities that are performed on a daily, weekly or monthly basis.
Shoulder Season	The three-month period of moderate boat use that generally occurs from April 15 th to May 31 st and September 1 st to October 15 th .
Staging Area	A designated short-term <i>parking area</i> in close proximity to the <i>launch ramp</i> used to prepare (ready) a boat for launch or secure (tie-down) a boat after retrieval.
Stormwater	Water that originates during precipitation events. Stormwater that does not soak into the ground

becomes surface *runoff* and either flows directly into surface *waterbodies* or is channeled into storm drains or treatment facilities where it eventually discharges to surface waters.

Tie-Up Zone

All remaining *boarding floats* available for *mooring* beyond the end of the *trailer zone*. Used to load and unload passengers and gear.

Transient Float

A platform-type floating structure secured by *piling* that provides short-term tie-up, usually for larger cruising boats. *Upland* access is provided via a *gangway*.

Vessel Waste Collection System

This includes *pumpouts*, *dump stations*, and *floating restrooms*.

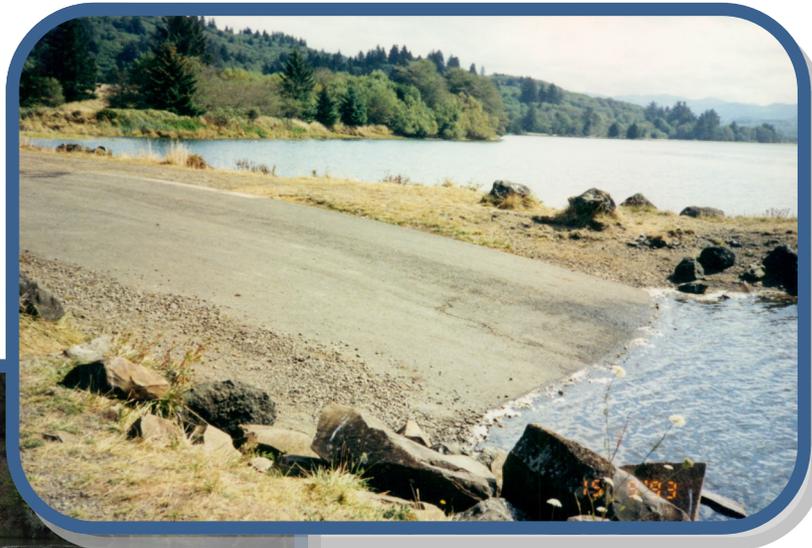
Wave Attenuator

A structure, barrier, or device to reduce *wave/wake* action and their potential damage to boats and facility structures. The attenuator may consist of a series of lashed logs, deep draft concrete *floats*, wave fence, *jetty/groin*, or a combination of these structures.



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LAUNCH RAMPS



Maintenance Assistance Program Manual

LAUNCH RAMPS

Purpose

For the purposes of the MAP program, launch ramps are an inclined, improved hard surface structure that extends into the water, upon which trailerable boats can be launched and retrieved.

Typically, launch ramp surfaces are concrete but launch ramps more than twenty years old may be constructed of asphalt. Asphalt launch ramp construction is no longer allowed by environmental regulatory agencies and will not be discussed specifically in this manual but several inspection and maintenance items still apply.

There are two main styles of concrete ramp construction. For older launch ramps the concrete will be precast planks attached together by a hook and eyebolt, the gap between the planks is typically backfilled with gravel. This design style is no longer constructed due to the high levels of maintenance they require (e.g.; frequent replenishing of gravel, broken planks, and monitoring for undermining.)



Old Style Plank Launch Ramp
Gaps and Separation

Current designs provide a continuous concrete surface that is composed of either cast-in-place concrete or a combination of precast planks and cast-in-place concrete nestled together. For further information on launch ramp design criteria see *Recreational Boating Facilities Design Guidelines, Third Edition*.

Scope

Launch ramps are located throughout Oregon in both inland and coastal environments. They provide boating access to a diverse system of waterways that include estuaries, bays, rivers, lakes and reservoirs. Launch ramps are built to meet a variety of site challenges, including dramatic water level fluctuations, strong currents, and bank and soil conditions. The use of launch ramps is not limited to motorized boats but MAP program participation is limited to facilities categorized as motorized or mixed-use, meaning a significant percentage of use occurring at the boating facility is by motorized or registered boats.

This manual section is intended to provide guidance for the routine, seasonal or annual maintenance and inspection of publicly owned launch ramps. Proper regular

maintenance will help to ensure that Boating Facility Grant investments made by the Board are protected.

Public Perception

Most boaters travel to a boating access site specifically to use the launch ramp. The launch ramp is the single most important component of their boating experience. To the public it will not matter how convenient boat trailer parking area is or how clean the restrooms are if the launch ramp is unusable and unsafe. A poor launching or retrieval experience can often form a lasting negative impression of the boating facility, the operating agency and its use of public funds.

Maintenance

Launch ramps are one of the most challenging and costly boating components to repair when routine maintenance and inspections are not consistently performed. Repairs to launch ramps within the ordinary high water zone require environmental permits and these can take a great deal of time to obtain. Permit conditions imposed by environmental regulatory agencies – due to their concerns with endangered species, water quality, and aquatic habitat – can severely restrict the method, timing and cost of repairs. Regular maintenance can extend the useful life of a launch ramp and help to avoid premature repairs.



Multiple Launch Ramp Repairs

It is your responsibility as the facility owner, operator or staff to monitor and document launch ramp conditions. An inventory of current conditions should be completed prior to the start of the peak boating season. *(An example of an inventory form is included in Appendix B.)* Consistent documentation provides useful comparisons of current conditions with past conditions and helps to prioritize repairs and establish a programmed approach for consistent long-term maintenance.

Historic condition review should include the following questions:

- Are launch ramp conditions changing?
- Are the changes creating an unsafe launch or retrieval situation?
- If changes are occurring, how rapidly are the changes happening?
- What is causing the change in conditions?

Routine Maintenance

The frequency of routine maintenance will depend on local waterway and weather conditions, the level of site development, and the amount of boating use that occurs. Routine maintenance and operation activities are typically completed on a daily, weekly or monthly schedule that is adjusted for the boating use season. Proper and consistent

maintenance activities ensure that the launch ramp is clean, safe and usable for boaters. Regular maintenance also extends the useful life of the launch ramp, protects public investments made by the Board and the owner, and reduces or eliminates liability exposure to the facility owner and operator.

Launch Ramp Surface Debris and Materials

The launch ramp surface provides essential traction for vehicles, gives boaters a visible driving reference, and serves as a safe walking surface for boaters disconnecting and connecting their boats from their trailers. The launch ramp surface must be kept clean and free of debris and sediment.



Inspect the launch ramp for moss, slime, seaweed or other aquatic growth to be removed from the ramp to maintain surface usability and boater safety. Aquatic growth can be removed with a stiff brush or broom. Chemicals should not be used to remove the growth because of potential waterway pollution and contamination.



Seasonal Maintenance

The frequency of seasonal maintenance depends on the level of site development, local water and weather conditions, and the amount of boating use at the site. Seasonal maintenance and operation activities are typically performed on a quarterly schedule that is adjusted for the boating use season. Seasonal and annual maintenance provides the most significant protection, preservation and extension of the useful life of the launch ramp.

Ramp Edge

Riprap protects the launch ramp edge from undercutting. When undercutting occurs, the integrity of the launch ramp may be compromised and there is an increased potential for personal safety and property damage. It is also important to keep riprap below the launch ramp surface height. When riprap extends above the launch ramp surface height it creates a potential safety hazard and can cause property damage.



Inspect the launch ramp edges looking for displaced riprap. Place the riprap back along the ramp edge. This can usually be done by hand for the isolated pieces that are displaced either by waterway events or people. Make sure the riprap does not rise above the edge of the launch ramp. Placement of additional riprap should only be done in consultation with environmental regulatory agencies.

Launch Ramp Toe

The launch ramp toe is the end of the concrete ramp. Typically, the toe is reinforced with rock to prevent erosion around the toe of the ramp and to reduce the abruptness of the drop off at the end of the ramp. This rock can be displaced by currents or wash caused by boats as they “power load” onto trailers.

Inspect the launch ramp toe for a drop-off or hole, broken concrete or asphalt and displaced riprap. This can be done during low tides or low water levels, or by using a pole to probe the area. A damaged launch ramp toe can be a hazard to boaters and result in property damage and personal injury.

Repairs to the launch ramp toe should be made in consultation with the environmental regulatory agencies and the Marine Board. Depending upon the age and surface construction materials of the launch ramp and the severity of the damage, it may be necessary to pursue replacement of the launch ramp.

Monitoring historical launch ramp conditions is very important. The required environmental regulatory permits for major repairs or ramp replacement can take 2-4 years to obtain.

Overall, a launch ramp replacement project can take 5-7 years to secure a site survey, complete design and engineering, obtain land use planning, consider public comment, obtain environmental regulatory agency permit approvals and secure funding. The historic condition monitoring allows the owner and operator to be proactive in the programmed replacement of the launch ramp.



Historic condition review should include the following questions:

- Was the drop-off, hole, or surface construction material damage created during a high water event?
- Are boater’s powerloading onto their trailers?
- Has the launch ramp surface broken or failed?
- If so, where and is there any exposed rebar or other materials that can cause property damage or personal safety concerns?

Cast-in-place and Precast Concrete Launch Ramp

Concrete launch ramps are designed to provide a smooth, consistent surface for boaters to launch and retrieve their boats safely. Whether it consists of a monolithic slab or precast planks, the surface should be even without gaps, ridges, depressions or cracks. A v-groove finish should provide enough traction for vehicles to maneuver on the ramp without spinning their wheels.



Inspect the cast-in-place and precast concrete launch ramp structure for cracks, exposed rebar, settling, gaps between precast planks and separation between cast-in-place and precast concrete sections.

The most common types of concrete launch ramp cracking include crazing, drying shrinkage, corrosion and loss of support.

Crazing is usually cosmetic and appears as a pattern of fine cracks that do not penetrate much below the surface. The cracks are barely visible except when the concrete is drying after the surface has been wet. The cracks will then appear as a pattern of small dark lines. Areas that have this pattern of cracking should be documented.

Drying shrinkage cracks are caused by excess water evaporating during the curing process. The restraint to shrinkage provided by the subgrade and rebar reinforcement causes tensile stresses to develop. The restraint to drying concrete is the most common cause of concrete cracking. These cracks are larger and often restricted to one or two cracks. Areas that have this type of cracking should be documented and monitored for progressive severity.

Corrosion, either from reinforcing steel or other embedded metals, is one of the leading causes of deterioration in concrete. This is why all rebar used in launch ramp construction is epoxy coated and corrosive cracking is rare. Corrosive cracking can be recognized by a rust colored stain appearing along the crack or rust colored puddling in areas. These areas should be documented and monitored.

Loss of support beneath a concrete launch ramp is usually caused by settling and undermining of soils and subbase materials. But it can also occur during construction due to inadequate subbase preparation or formwork support. Inadequate support can cause a variety of



problems from cracking to launch ramp failure. Larger cracks, settling or shifting of the launch ramp are often indicators that there may be serious concerns for the integrity of the ramp and user safety. Routine maintenance of the launch ramp edge and toe are very important can help prevent a loss of support and potential launch ramp failure.

Historic condition review should include the following questions:

- Are there cracks or chipped edges in the concrete?
- If so, have they gotten worse? Make sure to document and photograph the location, length, width and date.
- Does the ramp appear to be moving or settling?
- Are there any visible gaps or spaces?
- Is there any rebar exposed?
- Has the riprap location been maintained around the launch ramp edge and toe?

Trench Drains

A trench drain is a continuous open-drain system placed across a wide expanse of asphalt such as the boat trailer parking area or concrete launch ramp to intercept sheet flow of stormwater runoff. Installation of trench drains at the top of a concrete launch ramp is a typical feature of modern launch ramp design. Any runoff that is directed towards the ramp is captured and deflected towards a catch basin.

Trench drains are one way to capture and treat stormwater that contains hydrocarbons before it can enter the waterway. *(Maintenance of trench drains is covered in the Parking Section.)*

Concrete Abutment

Concrete abutments are site-built concrete structures. Installation of concrete abutments provide two important functions. The first is to provide an ADA accessible path onto the boarding floats and the second is to provide a connection point for the attachment of the boarding floats. *(Maintenance of abutments is covered in the Boarding Float Section.)*

Annual or Bi-Annual Maintenance

Typically, launch ramps do not require additional annual or bi-annual maintenance because their maintenance and operations are covered under routine and seasonal maintenance. However, annual or bi-annual maintenance also referred to as preseason and postseason



Concrete Abutment

activities for launch ramps may be triggered by limited acts of nature such as severe or non-routine storm events or water conditions such as extreme low-water or high water. These unanticipated extreme events can create or reveal unforeseen situations that may require additional maintenance inspections and current condition inventory updates.

Boater Concerns, Comments and Complaints

Boaters concerns, comments or complaints can be helpful. Quite often they can draw attention to previously unknown submerged hazards or other unsafe conditions. Boaters can become an advocate to support change or facility improvements. Document the boater's concerns, comments and complaints. This information will be essential for future Boating Facility Grant applications.

Many boater concerns about launch ramp conditions cannot be corrected immediately due to environmental regulatory agency restrictions. Communicating these requirements to boaters can be a challenge.

Emergency Facility Closure

In the event it is necessary to temporarily close a boating facility for safety please notify the Marine Board, Boating Facilities Section Manager immediately.

CANTILEVER LAUNCH RAMP

MAP Maintenance Manual Appendix

Inspection Guideline



2013

Overview

In the mid-1990s a new launch ramp design (cantilever) was developed with the intent of reducing impacts to the submersible land by having the lower portion of the ramp supported above the river bed. This design reduced impacts to shellfish beds and reduced the amount of fill needed to extend the boat ramp into areas of significant riverbed depth.

This launch ramp design is not commonly used. There are only four boat launches in the state utilizing this system. However, this design can be an option when extreme quantities of fill material would otherwise be needed to deal with natural river bed contours having large vertical changes or steep bank lines.

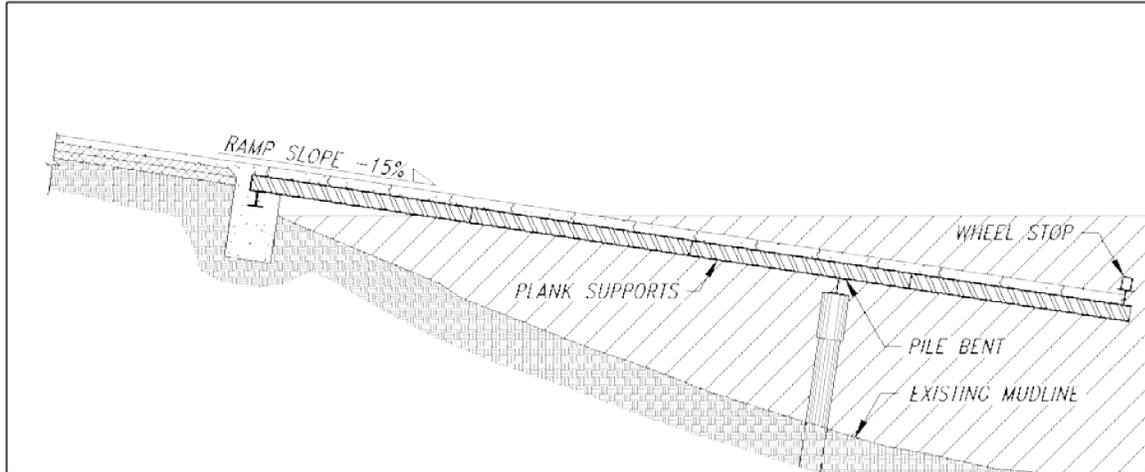
A typical modern hard-surfaced launch ramp is constructed of rebar-reinforced cast-in-place concrete or pre-cast concrete panels over a compacted base of gravel material. Pre-cast panel ramps are also held in place with a steel frame support system. Please refer to the section of this Manual dealing with launch ramps for routine inspection and maintenance activities to keep these ramps serviceable.

Technically, cantilever ramps consist of an extension of a typical hard-surfaced launch ramp that extends above the natural river bed out into the deeper water. The cantilever segment of the ramp is supported by a steel structure and requires additional inspection beyond what is routine for a traditional ramp. Because ninety percent of a cantilever launch ramp structure is below the water, it is more challenging to visually inspect and to maintain.

This guideline is a supplement to the section of the Maintenance Assistance Program Manual dealing with Launch Ramps. It is intended to give the facility owner a better understanding of the cantilever system and the periodic underwater inspections required for this kind of structure. Other aspects of general boat ramp and boarding float inspection and maintenance are covered elsewhere in the Manual. This supplement is intended to be used in conjunction with the Maintenance Assistance Program Manual and not the sole guideline used to inspect the ramp in its entirety.

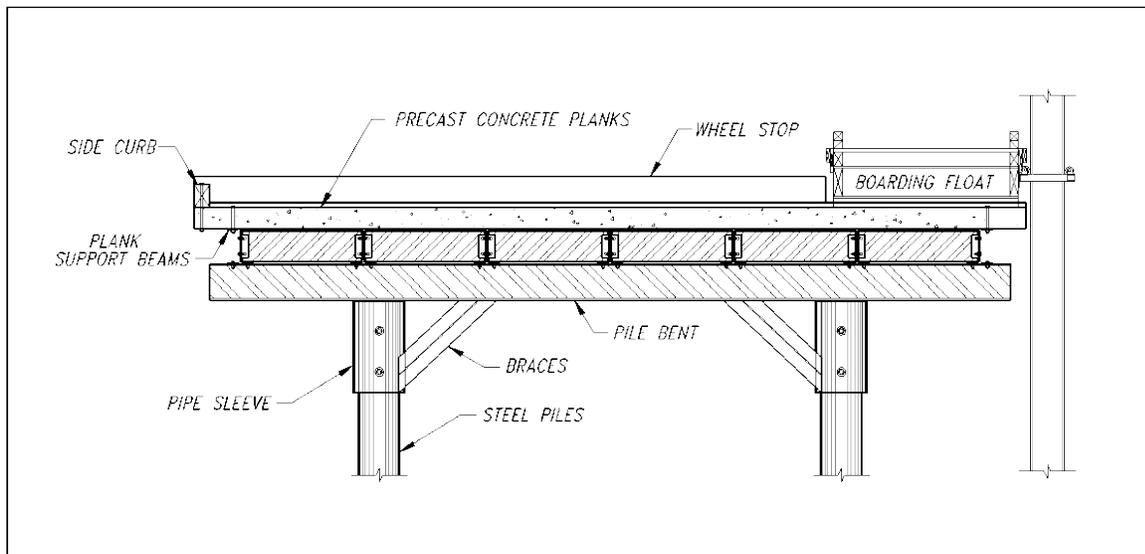
Cantilever Ramp Design

The lower section of a cantilever launch ramp (the portion that is constructed utilizing precast concrete planks) is supported by a steel grid system and held up off the river bed by steel beams and piles. The lower portion of the steel grid system extends past the pile bent creating an overhang-like structure or “cantilever” ramp. The following image illustrates the portion of the ramp that is cantilevered past the steel piling.



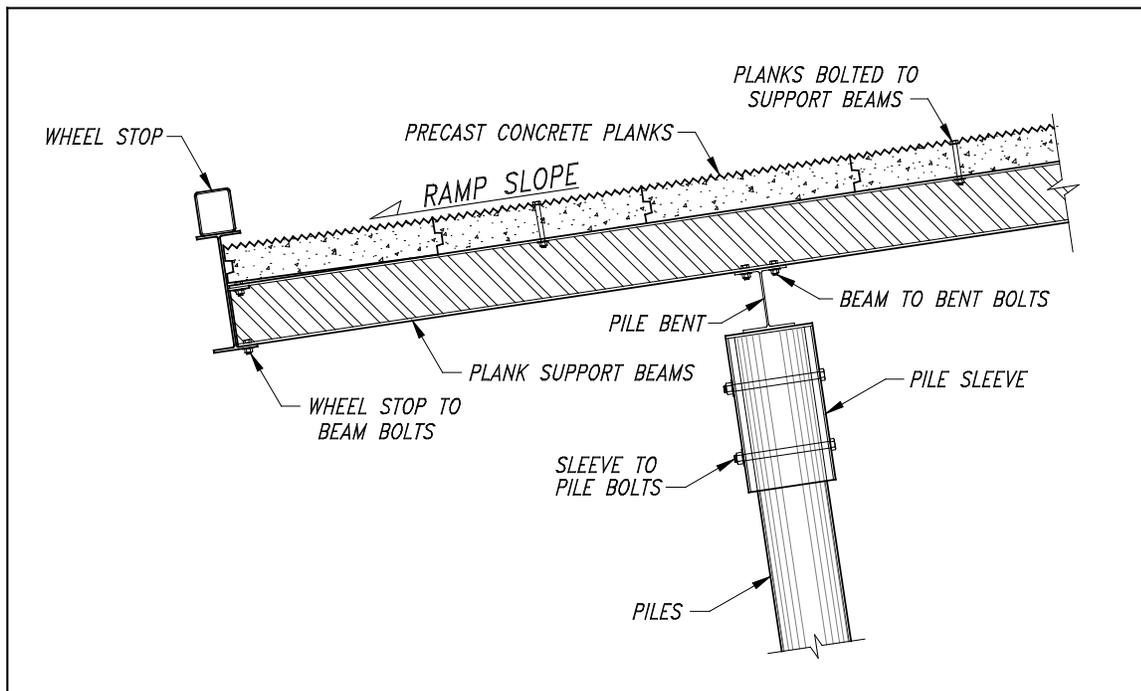
CANTILEVER RAMP INTO RIVER

A standard launch ramp design is constructed on a base of rock fill with a perimeter of riprap for erosion protection that also provides a tactile warning to boaters that they are no longer on the concrete launch ramp surface. Instead of riprap, the cantilever launch ramp provides an 8"-high curb that is bolted to the planks to help define the ramp edge for boaters. Cantilever launch ramps typically have a minimum of one set of boarding floats, running parallel of the launch ramp, that provide additional edge delineation for boaters as they back down the launch ramp.



SECTION VIEW OF CANTILEVER RAMP

Cantilever ramps are also designed to extend deeper into the water than typical ramps so the toe of the ramp is submerged even during extreme low-water events. This helps to prevent boaters from accidentally backing off the end of the launch ramp. In addition, a 12" high steel wheel stop is incorporated across the end of the ramp as an additional safety measure.



SIDE VIEW OF CANTILEVER RAMP

Ramp Maintenance

In general, launch ramps are one of the most challenging and costly components of boating facilities to repair, particularly if routine maintenance and inspections are not consistently performed and repairs are not promptly made. The facility owner or operator must task staff to regularly monitor and document any launch ramp conditions or changes in order to fix problems in a timely manner. Taking care of minor maintenance issues will help avoid more costly and time consuming repairs in the long run.

Cantilever ramps do not necessarily require a higher level of maintenance than typical hard-surfaced launch ramps, but they do require more inspections to make sure the supporting structure is in good condition. These inspections are extremely important since the majority of the design components associated with cantilever launch ramps are normally located well below the water surface making them more difficult to monitor or inspect on a routine basis. Due to their unique design, it is recommended that a cantilever launch ramp be inspected for structural integrity by a diver at a minimum of once per year.

Otherwise, general maintenance activities associated with hard-surface launch ramps also apply to cantilever launch ramps. Please refer to the Launch Ramp section of this Manual for basic ramp maintenance tasks.

Routine Inspection

Routine inspections are typically completed on a daily or weekly schedule. The frequency of routine inspections will depend on local waterway and weather conditions, the level of site development, and the amount of boating use that occurs. Proper and consistent inspection activities ensure that the launch ramp is clean, safe, well maintained, and usable for boaters. This also extends the useful life of the launch ramp, protects public investments made by the Board and the owner, and reduces or eliminates liability exposure to the facility owner and operator.

Routine inspections are done at a higher level, mainly keeping an eye on things, looking for changes in the condition and operation of the facility while staff is already present for routine maintenance activities. Keep notes or a log of any observations so they can be monitored and investigated as needed.

While performing routine maintenance around the ramp, staff should look for any changes in the ramp system such as things that are out of place or have moved. These changes might indicate a problem that would require additional investigation. An example would be a gap or space between the precast planks, which should be tightly nested together.

Look for debris such as logs or other woody material that may become wedged or snared up against or under the cantilever portion of the launch ramp. This debris should be removed as soon as possible to avoid damage to the cantilever structure or dislodging of the precast concrete planks. Any build-up of material on the launch ramp or floats will increase the surface area exposed to waterway currents and should be removed to reduce strain on the structure. Debris buildup in the vicinity of the ramp can also be a boating hazard. A boat may be needed to access the debris and safely remove it from the launch ramp.

Quarterly Inspection

Quarterly inspections provide the most significant protection, preservation, and extension of the useful life of the launch ramp. These inspections are typically scheduled in advance, and entail an in-depth assessment, which might require specialized skills. The typical 3-4 month schedule may vary according to the boating-use season but an in-depth inspection should also be scheduled after any significant storm or high water event.

The exposed ramp should be physically walked and inspected for signs of movement in the precast planks, including lateral movement, uplifting or settling, and changes in plank spacing or gaps between planks. Also check the precast plank condition for cracks, chips, breaks, exposed rebar, anything that might indicate a problem with the precast plank(s). The concrete curbing bolted to the precast planks along the side of the ramp without floats also needs to be inspected for damage, weakness, or loose connectors.

Corrosion, either from reinforcing steel or other embedded metal inserts, is one of the leading causes of deterioration in concrete. This is why all rebar used in launch ramp construction is epoxy coated. Corrosive cracking is rare but can be recognized by a rust-colored stain appearing along a crack or rust-colored puddles in areas.



EXAMPLE OF PLANK SEPARATION

Historic condition review should include the following questions:

- Are there cracks or chipped edges in the concrete?
- Does the ramp appear to be moving or settling?
- Are there any visible gaps or spaces?
- Is there any rebar exposed?
- Is there any rust colored staining on the concrete?
- Has the riprap location been maintained around the upper launch ramp edge?

Make sure to document and photograph the location, length, width, and date of all findings. This is an important evaluation tool for future inspections, repairs, and replacement.

Pre- & Post-Season Maintenance

Cantilever launch ramps should have an annual or bi-annual underwater dive inspection. A diver should inspect the steel beam and pile support system from below so the integrity of the ramp can accurately be evaluated.

The frequency of the dive inspections may be triggered by limited acts of nature such as severe or non-routine storm events or water conditions such as extreme low-water or high water. These unanticipated extreme events can create or reveal unnoticed situations that may require additional maintenance inspections and current condition inventory updates.

The diver should inspect the precast concrete planks for cracking, breaks, spalling and exposed rebar. The diver should be looking for any defects or damage on the top, bottom, and sides of the precast concrete planks.

Precast concrete plank movement may be indicated by excessive space or gaps between planks where the tongue and groove is not tightly nestled together or by non-parallel spacing between planks. If plank movement is detected, the diver should inspect the structure for potential sources of the plank movement and determine what corrective actions need to occur.



EXAMPLE OF VERTICAL PLANK MISALIGNMENT

Along the side of the ramp where there are no boarding floats, concrete curbing is bolted to the edge of the planks. The curb should be inspected for damage, concrete condition, and bolted connections visually inspected.

Steel Piling and Grid System

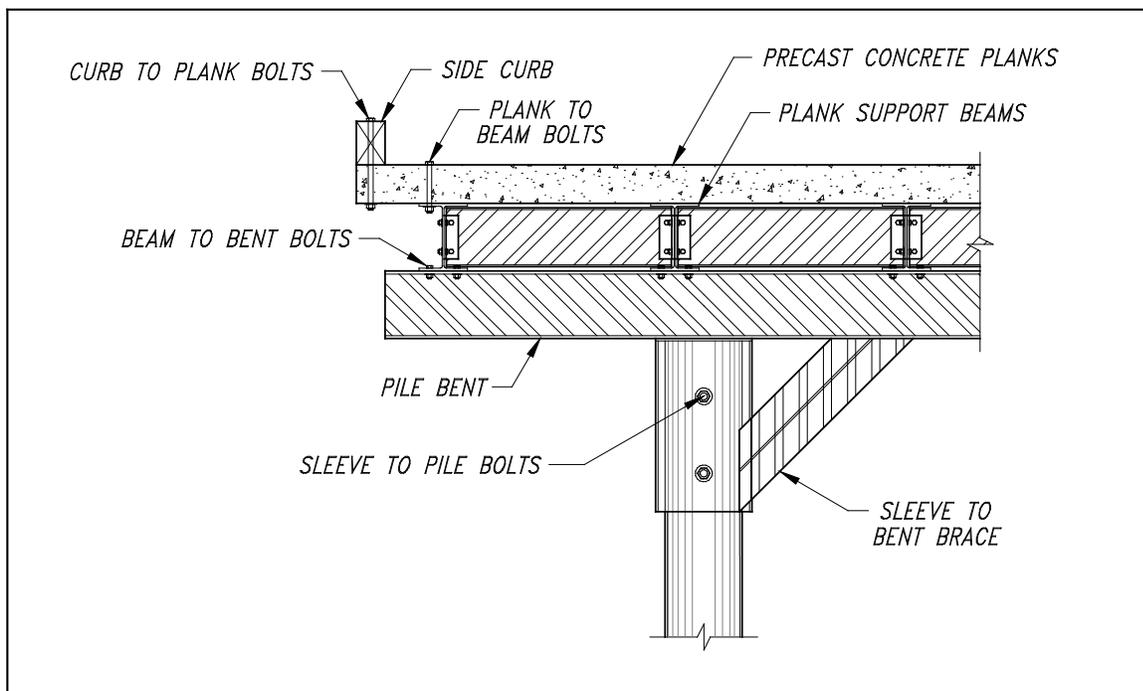
At the end of the launch ramp lane there is a 12"-high by 20'-wide steel wheel stop to prevent boaters from backing off the end of the launch ramp. The wheel stop at the end of the ramp should be inspected for any damage or defects. Inspect all of the welds

and bolted connections to make sure the support beams are securely attached to the end of the plank.

Inspect all piling for any changes in alignment or movement. Piles are driven into the ground and a pipe sleeve is attached to the top where a flange is bolted to the steel piling and the steel grid system.

The steel grid system – made up of plank support beams and pile bents – creates a supportive framework for the precast concrete planks to sit on. The diver needs to inspect all of the bolts and bolted connections for bolt to nut tightness, corrosion of the bolts & nuts, damaged bolts, and especially any missing bolts that hold the steel grid system and piling together.

Cantilever launch ramps located in or near a marina environment with electrical power on floats and boats are also susceptible to potential damage from stray electrical current. The electrical currents can accelerate corrosive action of the steel grid system, piling, and connectors. As a precaution for stray currents, zinc anodes should be attached to the frame and monitored or replaced during dive inspections.



DETAIL VIEW OF CANTILEVER RAMP

Dive Inspection Recommendations

Before an inspection is scheduled, the diver should be given a set of the launch ramp design plans for reference to help establish key inspection points. It is recommended

that the dive inspection be completed during low-water levels when the water clarity and lighting is best, such as in late summer or early fall. Completing the dive inspection during this time will improve visibility and due to the low-water velocity improve the diver's ability to hold position for inspecting, photographing, or taking video of individual components of the structure.

Dive Inspections should include but not be limited to:

- Precast Concrete Plank Movement/Gaps between Planks
- Precast Concrete Plank Condition
- Concrete Side Curbs
- Large Debris Accumulation
- Steel Structure Condition (Corrosion, Damage, etc.)
- All bolted connections for the steel support system assembly
 - Precast concrete plank to steel beam
 - Plank support to pile bent
 - Pile bent to piles
 - Blocking to plank supports
 - Wheel stop to plank supports
 - Side curb to plank

The diver should address each of the above items in their written report. The report should include photos, video, and marked up drawings to illustrate areas of concern. A copy of all dive reports must be provided to the Marine Board.

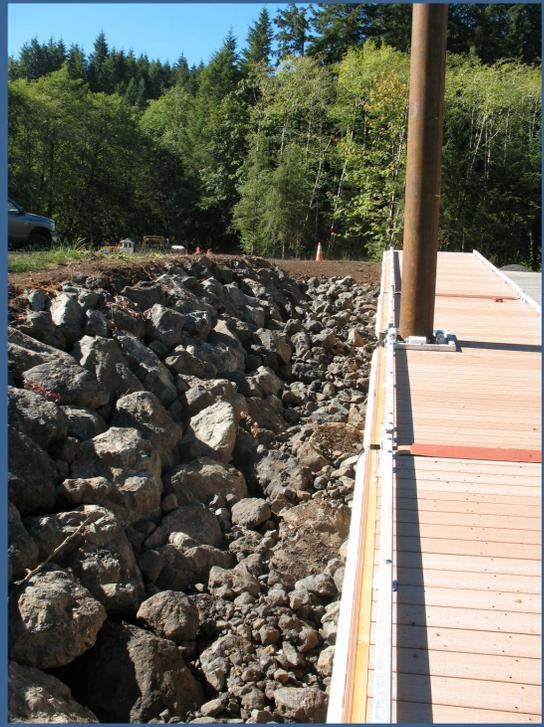
Boater Concerns, Comments and Complaints

Boaters concerns, comments or complaints can be helpful. Quite often they can draw attention to previously unknown submerged hazards or other unsafe conditions. Boaters can become an advocate to support change or facility improvements. Be sure to document all boater concerns, comments, and complaints. This information may be essential for future Boating Facility Grant applications.

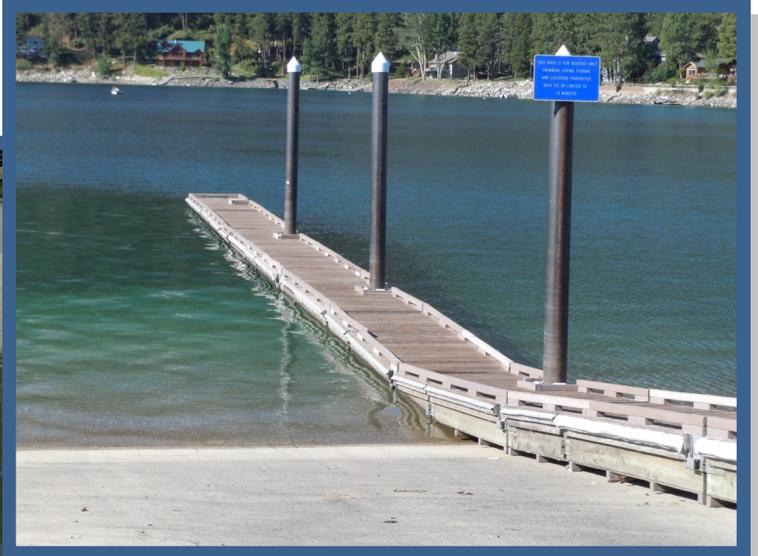
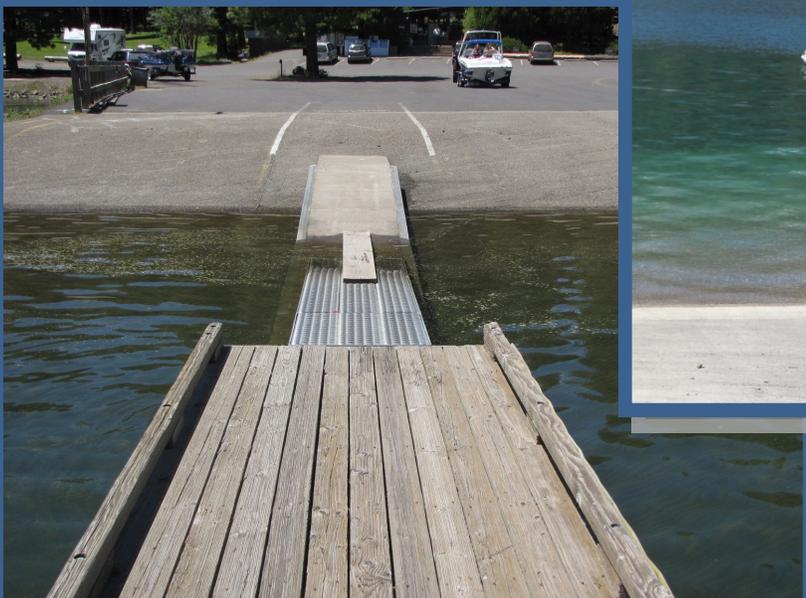
Many boater concerns about launch ramp conditions cannot be corrected immediately due to environmental regulatory agency restrictions. If possible, try to communicate these challenges to boaters so that they can appreciate the fact you are concerned about following proper regulatory procedures and complying with state and federal environmental laws.

Emergency Facility Closure

In the event it is necessary to temporarily close a boating facility for safety please notify the Marine Board's Boating Facilities Section Manager immediately.



BOARDING FLOATS



Maintenance Assistance Program Manual

BOARDING FLOATS

Purpose

Boarding floats, sometimes referred to as courtesy docks, act as a platform to help boaters load and unload their boats and gear. Boarding floats also serve as a physical and visual guide to help boaters safely and efficiently launch and retrieve boats. Boarding floats are always associated with a launch ramp but not all launch ramps have boarding floats due to site or waterbody conditions that may not be suitable for the installation of boarding floats.

Typically, boarding floats are constructed of wood but concrete and plastic boarding floats are also available. Concrete board floats are rare and not recommended for a number of reasons, including: they are difficult to patch when damaged; they are over-height when grounded out; and they have fragile bottoms that are subject to damage from debris trapped under the floats when they ground out on the ramp. Plastic floats are most commonly used in private home docks or at isolated waterbodies with minor wave or wakes.

There are two styles of boarding floats. The most common style is supported by a concrete abutment and steel piling. The second style is a self-adjusting boarding float, which is used on lakes and reservoirs with large water fluctuations. Self-adjusting boarding floats travel up and down a guideway as the water levels fluctuate.



Current Marine Board boarding float designs utilize a variety of materials including wood, composites, recycled plastic and steel. Due to their component construction, they can be easily repaired. OSMB-designed floats also meet current ADA requirements. For further information on boarding float design criteria see *Recreational Boating Facilities Design Guidelines, Third Edition*.

Scope

Boarding floats may be located on rivers, lakes, reservoirs, coastal bays and estuaries. The use of boarding floats is not restricted solely to motorized boats but MAP program participation is limited to facilities categorized as motorized or mixed-use, meaning a significant percentage of overall use at a boating facility is by motorized or registered boats. Because of these requirements, low-freeboard floats designed for use by paddle craft are not an eligible facility component for MAP funding.

This manual section is intended to provide guidance for the routine, seasonal or annual maintenance and inspection of publicly owned boarding floats. Proper regular maintenance will help to ensure that Boating Facility Grant investments made by the Board are protected.

Public Perception

The boating public appreciates and desires boarding floats. However, boarding floats can also attract other users such as swimmers, sunbathers and anglers. These uses often conflict with boating, especially when dock space is at a premium and non-boaters interfere with boaters. Therefore, non-boaters should be discouraged or prohibited from using boarding floats to avoid these conflicts and to secure use of the facility for boaters who are the intended users. In addition to conflicts, these other uses place additional wear and tear on the boarding floats by subjecting them to unintended uses and vandalism, such as holes carved into the walers or brackets attached to bull rails to support fishing poles. Vandalism reduces the overall lifespan of boarding floats, necessitating even greater financial investments in these facilities.

The boating public will appreciate that they can safely launch and retrieve their boats without fear of hitting a swimmer or diver or accidentally cutting someone's fishing line. This will significantly reduce user conflict which improves the boater's experience.

Maintenance

Boarding floats are one of the most maintenance intensive components of a boating facility. Boaters hit them when backing down the launch ramp and when returning to the ramp. To the public this damage, if left unattended, appears as neglect or abandonment and can attract unwanted uses of the boating facility.

Timely repairs to boarding floats will extend the lifespan of the facility and help avoid premature replacement. Concerns of environmental regulatory agencies with endangered species, water quality and habitat impacts make the replacement of the boarding floats very challenging and costly.

It is the responsibility of the facility owner to monitor and document boarding float conditions. An inventory of current conditions should be completed prior to the start of the peak boating season. *(An example of an inventory form is included in Appendix B.)* Consistent documentation provides useful comparisons of current conditions with past conditions and helps to prioritize repairs and establish a programmed approach for consistent long-term maintenance.

Historic condition review should include the following questions:

- Are the boarding float conditions changing?
- Are the changes creating an unsafe situation for loading or unloading of people?
- If changes are occurring, how rapidly are they happening?
- What factors may be causing the change in conditions?

Routine Maintenance

The frequency of routine maintenance will depend on the level of site development and the amount of boating use that is currently occurring. Routine maintenance and operation activities are typically completed on a daily, weekly or monthly schedule that is adjusted for the boating season. Proper and consistent maintenance activities ensure that the boarding floats are clean, safe and usable for boaters. It also extends the useful life of the boarding floats and protects Boating Facility Grant investments made by the Board. Routine maintenance and operation can also reduce or eliminate liability exposure for the facility owner and operator.

Boarding Floats

Boarding floats have many components that can be replaced or repaired. Often times a small repair can be fixed quite easily. But if left unattended the damage can worsen and become costly to repair. Close inspection of the boarding floats should be made routinely. These structures receive the most boater impact and should be kept in good condition to eliminate personal injury and property damage.

Boarding float components to inspect on a routine basis:

(See section diagram for boarding float component location details)

- Decking
- Rub strip
- Bull rails
- Hinges
- Belting

Decking

Inspect the decking for boards that are loose, cracked, damaged or rotten. Evaluate damaged boards to determine if they can be reattached, repaired or replaced. Also look for any raised screws that can create a tripping hazard. All raised screws need to be countersunk to eliminate the hazard.

The decking on the majority of boarding floats is wood but current design uses a composite recycled plastic and wood material which has an estimated 40 year lifespan. The composite decking does not require painting or staining to protect the decking like traditional wood. In addition, the composite decking is molded during fabrication to create a slip resistant surface.

Boating facility owners or operators should replace damaged wood decking on their boarding floats with composite decking if the boarding floats still have structural integrity. This will extend the useful lifespan of the boarding floats. If boarding floats have considerable rot then isolated damaged wood decking can be replaced with new wood decking until replacement floats can be obtained. Decking materials and screws can be found at local home improvement stores and do not need to be special ordered.

Rub Strip

Rub strip is a flexible, non-marring material attached to the sides of a boarding float to protect both boats and boarding floats against damage from impact and contact. When rub strip is unattached the anchoring screws are exposed and can cause property damage or personal injury.

The rub strip design most commonly used consists of foam that is encased in a woven polyester textile cover that is abrasion resistant. Older-style vinyl and rubber rub strip can mar a boat, and when pulled against often tears exposing a metal backing plate that can cause serious property damage or personal injury. *(A list of common replacement component material and supplies is included in Appendix C)*

Inspect the rub strip looking for areas that are unattached or damaged. Reattach the loose rub strip; determine if repairs can be made to the damaged area and order a replacement piece if one is not available from inventory.



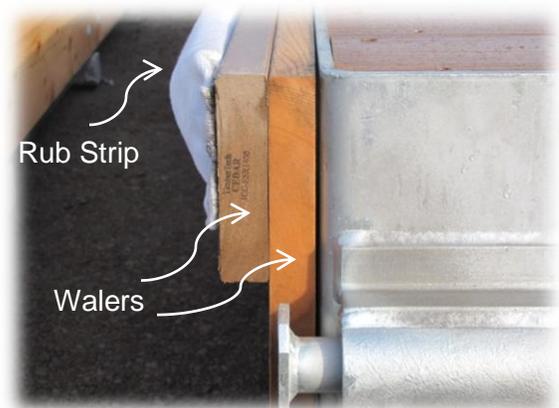
Walers

Walers are located along the top outside edge of a boarding float. They are typically made of wood but current design uses the same composite material as identified for decking. The walers prevent damage to structural members of a boarding float and provide a surface to attach a rub strip.

Inspect walers looking for damage or rot and replace them as needed.

Bull rail

Bull rails are a continuous wood or steel railing spaced above the decking surface and along all edges except at the place where boarding floats attach to the abutment. Bull rails are used to tie-off and secure boats during a short-term stay. Bull rails are preferred over metal cleats because they provide edge protection to prevent people



from walking off of the boarding float and they provide a continuous surface for boats to tie to regardless of what location other boats are secured.

Inspect bull rails for loose, damaged or missing sections and repair or replace as needed. During inspection tighten any loose bull rails making sure they are firmly fastened.

Hinges

Hinges connect boarding floats and are constructed from galvanized steel, although some boarding floats utilize a belting material. The constant movement of the boarding floats will wear away the galvanization and the hinges can become rusted.

Inspect hinges frequently. While inspecting hinges check the hinge pins, which run length-wise through the hinge cylinders. If any hinge pins are missing or loose they should be replaced immediately. Over time with constant wave and wake action hinge pins can back themselves out and fall off if the retainer bolts or cotter pins are missing.



The hinge plates, located on the corners of the boarding float, are the attachment point for the hinge connections. Inspect the hinge plate making sure it is securely fastened to the boarding float.

Belting

Belting is commonly used to cover the hinges and the gap between the boarding floats. Inspect the belting making sure it is securely attached, not curled up or damaged. The belting provides a smooth transition between one boarding float to the next and ensures that no one can trip over the gap between boarding floats.

Belting is typically attached only on one side because as the boarding floats ground out, the angle between the float decks lessens. If both sides of the belting were attached, the belting would buckle and a bump would be created causing a trip hazard. Belting is attached using galvanized wood screws and can be trimmed to cover the gap, lay flat on the deck and not block the bull rail. *(A list of common replacement component material and supplies is included in the Appendix C)*

Historic condition review should include the following questions:

- Are the boarding float components (decking, rub strip, bull rails, hinges and belting) functioning properly to provide a safe and usable structure for the boating public?
- Are replacement materials easily available to avoid unsafe conditions and impact to boater safety?

- If changes are occurring, how rapidly are the changes happening?
- Can you determine what is causing the change in conditions?

Seasonal Maintenance

The frequency of seasonal maintenance is based upon the level of site development and the amount of boating use that is currently occurring. The seasonal maintenance and operation activities are typically completed on a quarterly schedule that is adjusted for the boating use season.

Boarding float components and supporting structures to inspect on a seasonal basis:

(See section diagram for boarding float component location details)

- Pile rollers
- Grounding rails
- Debris
- Abutment
- Traffic Delineators

Pile Rollers

Inspect pile rollers at internal pile pockets and external pile hoops looking for missing or severely worn pile rollers and missing bolts or pins used to secure the roller.

Rollers will wear over time and lose their ability to roll up and down smoothly on the pile surface as the water fluctuates. Missing or severely worn rollers should be replaced to avoid pile pocket, pile hoop or piling damage. Replacement rollers can typically be purchased through a marine products supplier and can be attached using stainless steel axles, bolts, and nuts.



Grounding Rails

Inspect grounding rails looking for missing, partially disconnected or loose grounding rails. Grounding rails are typically constructed of recycled plastic and will be the portion of the boarding float that comes in contact with the launch ramp surface when

grounding. The rails provide some additional height to reduce the potential damage caused by minor woody debris and rock that can be moved onto the launch ramp by wave and wake. Replacement or repair to grounding rails can be difficult and may require removal of the boarding float section.

Debris

Inspect for debris such as large and small wood, rock and gravel, and sediment. Debris can accumulate on the ramp surface under the boarding floats and can cause damage, uneven walking surfaces and significant reduction in the useful life of the boarding floats. During high water flows woody debris can accumulate or build up along a set of boarding floats creating additional loading and potential for damage. Debris build up during high water needs to be removed immediately. Debris accumulation is one of the most common boater complaints since it is a direct impact to the ability of the boater to safely launch and retrieve.



Debris buildup under the boarding float

Debris should be removed but depending upon the type and amount may require consultation with environmental regulatory agencies whose concerns are endangered species, water quality and habitat impacts. Debris can also accumulate along the bank during high water or storm events. The added weight and hydrodynamic drag can cause damage to the floats and the piles. Removing debris as it accumulates reduces the long term damage and is more manageable.

Concrete Abutment

Inspect the concrete abutment looking for cracks, settling or damage. It is difficult to repair a concrete abutment. Minor cracks can be groated but if there is settling, structural damage or a consistent worsening of the cracks it is often best to replace the abutment.

Installation of concrete abutments provide two important functions. The first is to provide an ADA accessible path onto the boarding floats and the second is to provide a connection point for the attachment of the boarding floats. Concrete abutments are constructed on the launch ramp so that the boarding floats have a solid surface to ground-out upon which reduces damage.



When replacing a concrete abutment it is important to remember that it forms an ADA accessible path and is part of

the anchoring system to the boarding floats. The abutment in conjunction with the piles will hold the boarding floats in place. Some abutments have a hinge connection with the boarding floats. If your abutment has a hinge connection, inspect the connection looking for wear or loose fitting. Loose hinges can cause damage to the boarding floats, pile hoops and abutment. If your abutment does not have a hinged connection a transition plate will bridge the space between the abutment and first boarding float. Inspect the condition of the transition plate to eliminate any trip hazards and the ADA accessible path. For further information on concrete abutment design criteria see *Recreational Boating Facilities Design Guidelines, Third Edition*.

Historic condition review should include the following questions:

- Are there cracks or chipped edges in the concrete?
- If so, are they worsening? Make sure to document and photograph the location, length, width and date.
- Does the abutment appear to be moving or settling?
- Is the hinge connection or transition plate functioning properly?

Traffic Delineators

Inspect traffic delineators making sure they are still present and have not been damaged or torn off by vehicles. Traffic delineators are typically placed on the corner closest to the top of the ramp and the launch lane. Abutments which are constructed between two launch lanes typically have traffic delineators on both sides of the abutment. Replacement of traffic delineators is usually completed with an epoxy that is recommended by the manufacturer.

Traffic delineators are used to assist in backing down the ramp by providing a visual reference to the alignment of the floats which can otherwise be difficult to see as vehicles crest the vertical curve in the launch ramp. Maintenance of traffic delineators will reduce the maintenance frequency of boarding floats. (*A list of common replacement component material and supplies is included in the Appendix C*)

Annual or Bi-Annual Maintenance

Annual or bi-annual is also referred to as preseason and postseason maintenance and operation. The frequency of annual or bi-annual maintenance will largely depend upon the waterway and weather conditions. These activities typically ensure that the boarding floats will continue to provide safe and usable service to boaters. The current conditions inventory is normally done annually or at the preseason inspection. Completing



the inventory form at that time will provide documentation to monitor historic and current conditions, prioritize repairs and establish a programmed approach for consistent long term maintenance and replacement.

Float Floatation Materials

Inspect the boarding floats looking for listing, tilting or exposed floatation. If the boarding floats are listing or tilted when floating it can be an indicator that the bottom of the boarding float has been damaged and some of the floatation is missing. This will require temporary removal of the boarding float to make repairs.

Floatation provides buoyancy for the boarding floats and can include plastic tubs or polystyrene. Polystyrene is the most common form of floatation. Polystyrene is required by law to be fully encapsulated. If polystyrene is exposed the float will need to be repaired immediately. If you see small white beads of foam it is a good indicator that the boarding float has received structural damage.

Piling

Inspect piling for changes in alignment and movement within the pile pocket or pile hoop. Piles are commonly steel but older piling may be wooden. Piles are driven into the ground and used to maintain horizontal position of a boarding float. Steel piling have a cone-shaped covering affixed to the top of a pile that discourages birds from perching.

Seasonal removal and installation of boarding floats

Depending upon the waterway and weather conditions the boarding floats may need to be removed and installed seasonally. This typically occurs in rivers with significant debris flow during high water or storm events or areas that experience freezing waterbodies. During high water debris can accumulate or build up alongside the boarding floats placing additional loads on the structure and increasing the potential for severe damage. Because of this issue some boarding floats are removed seasonally and then reinstalled in the shoulder boating season.

Boarding floats are also removed from waterbodies that have a tendency to freeze. This usually occurs on reservoirs or lakes. On reservoirs with self-adjusting boarding floats, the floats are pulled to the top of the abutment and secured out of the water. Otherwise the floats are removed and stored in the parking area to prevent ice damage which can destroy a boarding float. When boarding floats are removed this is the perfect opportunity to fully inspect the floats for damage and make repairs before the shoulder and peak boating seasons begin.



Historic condition review should include the following questions:

- Are the boarding floats tilting or listing?
- If so, can you determine the cause?
- Does the piling appear to have moved or become loose within the pile pocket or pile hoop?
- Have the boarding floats been seasonally removed?

Repair or Replacement of Boarding Floats

The repair or replacement of boarding floats will depend upon several things such as the age of the boarding floats, construction materials, waterway conditions and amount of boating use. The typical useful lifespan of boarding floats is 10 years in a coastal environment and 15 years for inland use.

Depending upon the condition of the boarding floats it may be prudent to begin the process to replace the boarding floats. Monitoring historical conditions is very important because the required environmental regulatory permits can take 2-4 years to obtain. It is typical that a boarding float and piling replacement project can take 2-4 years to complete survey, design, engineering, public comment, environmental regulatory agency permit approvals and secure funding. The historic condition monitoring allows the owner and operator to be proactive in the programmed replacement of the boarding floats.

Boater Concerns, Comments and Complaints

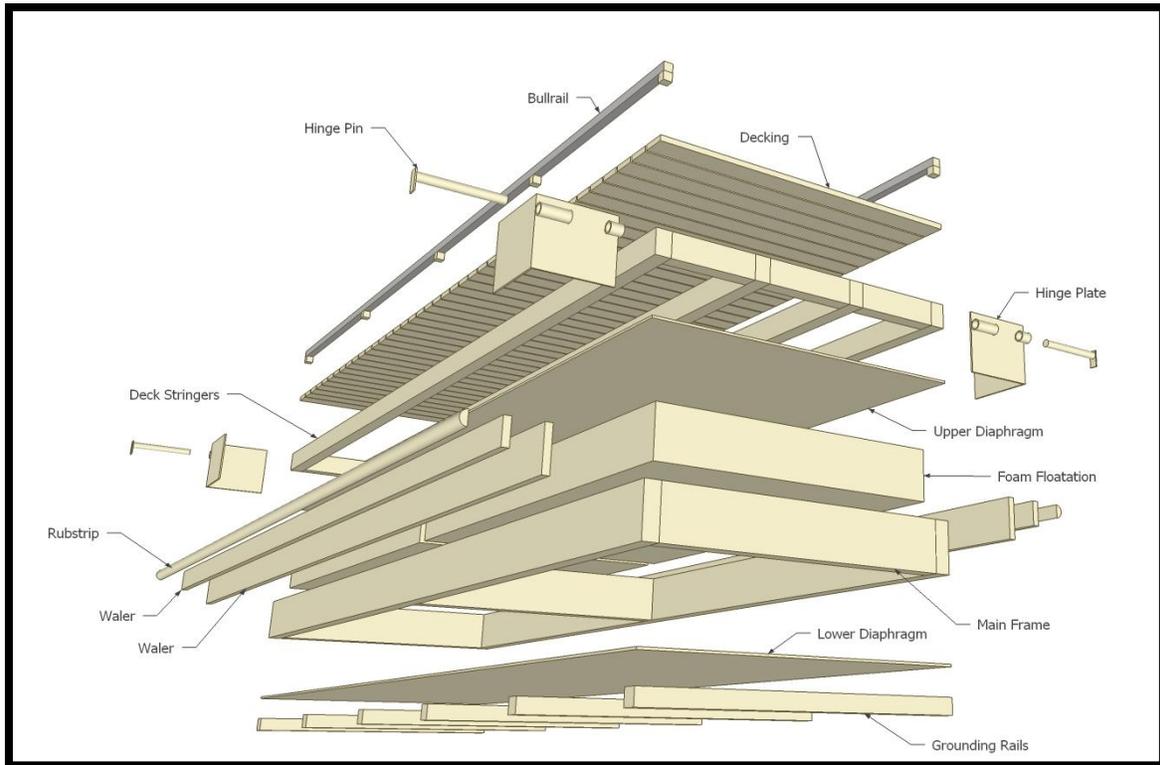
Not all concerns, comments or complaints by boaters are bad. Quite often they can be useful tools to draw attention to a situation such as the discovery of submerged or hazardous obstacles; the boater can become an advocate to make changes or facility improvements. Document the boater's concerns, comments and complaints. This information will be essential for future Boating Facility Grant applications.

Many boater comments about boarding float conditions are the result of their perception that the boating facility is being neglected and not maintained. Some maintenance such as debris removal may require consultation with environmental regulatory agencies and take additional time. It can be challenging to communicate these requirements to boaters.

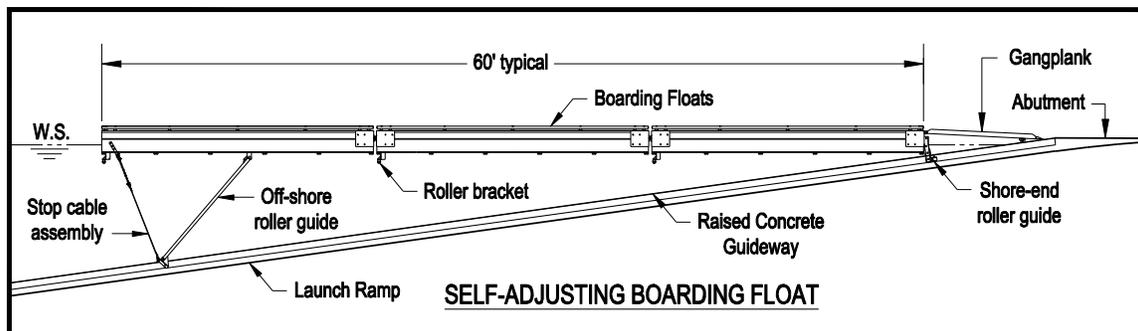
Emergency Facility Closure

In the event it is necessary to temporarily close a boating facility for safety please notify the Marine Board, Boating Facilities Section Manager immediately.

RECREATIONAL BOARDING FLOATS



Exploded view of standard Marine Board wood boarding float design



Self-adjusting boarding floats

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TRANSIENT FLOATS

Maintenance Assistance Program Manual

SHORT TERM TIE-UP DOCKS

Purpose

For the purposes of the Maintenance Assistance Program (MAP) program, short term tie-up docks (tie-up docks) are floating docks that provide destinations for cruising boats to stay from one to ten days. These boats are generally larger in size and non-trailerred. To qualify for MAP assistance, tie-up docks cannot provide home-port or tenant based moorage or allow longer than a ten-day stay with a 30 day period. Tie-up docks typically provide access to upland amenities such as picnic shelters, campgrounds or event centers. Not all boating facilities are suitable for the installation of tie-up docks.



Typically tie-up docks are constructed of concrete. Wood tie-up docks can be used but are only recommended for lake or reservoir applications. Wooden tie-up docks on lakes and reservoirs have similar maintenance requirements as boarding docks. (*Reference Boarding dock Section for maintenance guidelines of wooden tie-up docks*)

Current Marine Board tie-up dock design utilizes a variety of building materials including wood, composites, recycled plastic and steel. Due to their component construction, they can be easily repaired. OSMB-designed docks also meet current ADA requirements. For further information on tie-up dock design criteria see *Recreational Boating Facilities Design Guidelines, Third Edition*.

Scope

Tie-up docks may be located on rivers, lakes, reservoirs, coastal bays and estuaries. The use of tie-up docks is not restricted solely to motorized boats but grant funding opportunities are limited to facilities where a significant percentage of overall use at the facility is by motorized or registered boats. Because of these requirements, low-freeboard docks designed for use by paddle craft are not a boating facility component eligible for MAP funding.

This manual section provides for the routine, seasonal or annual maintenance and inspection of publicly owned tie-up docks. Proper maintenance will help ensure that Boating Facility Grant investments by the Board are protected.

Public Perception

Tie-up docks appeal to boaters who enjoy cruising the diverse system of waterways. The docks can be resting waypoints for boaters or they can be destinations that offer access to nearby attractions rich in cultural, historic or natural significance. Yacht Clubs or other boating groups often pre-arrange weekend and holiday outings to tie-up docks, with the advanced approval of the facility manager.



Typically, tie-up docks serve as secure, short-term on-water moorage, allowing boaters to enjoy nearby upland amenities and attractions and then return to sleep aboard their boat. These users generally expect a high level of maintenance at the facilities. If boaters encounter a poorly-maintained tie-up dock, they may feel that the boating facility is not safe and their boats are not secure. A well-maintained dock provides an attractive destination for boaters who provide a significant economic benefit to local communities.

Tie-up docks can also attract other users such as swimmers, sunbathers and anglers. These uses often create conflict, especially when dock space is at a premium and non-boaters interfere with boat operation and access to the dock. Non-boaters should be discouraged or prohibited from using tie-up docks to avoid these conflicts and to secure use of the facility for boaters who are the intended users. In addition to conflicts, these other uses place additional wear and tear on tie-up docks by subjecting them to unintended uses and vandalism, such as holes carved into the wales, brackets attached to bull rails to support fishing poles, garbage and debris, stolen piling rub blocks, signs, graffiti and impact to accessible paths. Vandalism reduces the overall lifespan of the docks, necessitating even greater financial investments in these costly facilities.

Boaters appreciate and value, an attractive, well-maintained facility where they can safely leave their boats without being confronted by non-boaters, to go to an outdoor concert, eat a meal at a local restaurant, or hike an interpretative trail without fear their boat will be vandalized or their valuables stolen while they are gone. Providing this kind of environment greatly improves the boater's experience and guarantees return visits to the facility and economic benefit to local communities.

Maintenance

Tie-up docks should be thoroughly inspected twice a year; before the beginning of the boating season (early spring) and at the end of boating season (late fall). The inspections will not only reveal those areas that need immediate repairs, but also provide a benchmark for future repairs for those areas showing signs of wear and tear.

Timely repairs to tie-up docks will extend the lifespan of the facility, help avoid premature replacement and ensure continued performance as designed for the waterway and boating use. Compliance with environmental regulatory agencies' protections for water quality, endangered species, and habitat impacts makes tie-up dock replacement very challenging and costly. For these reasons, and to avoid premature replacement maintenance becomes a critical necessity.

It is the responsibility of the facility owner to monitor and document tie-up dock conditions. An inventory of current conditions should be completed before and after the peak boating season (*An example of an inventory form is included in the Appendix B.*) Consistent documentation provides useful comparisons of current conditions with past conditions and helps to prioritize repairs and establish a programmatic approach for consistent long-term maintenance.

Historic condition review should include the following information:

- How are the tie-up dock conditions changing?
- How do the changes affect safety for boats or boaters?
- How rapidly are the changes happening?
- What factors may be causing the change in conditions?

Routine Maintenance

The frequency of routine maintenance will depend on water and weather conditions, the level of site development and the amount of boating activity that is currently occurring. Routine maintenance and operation tasks are typically completed on a daily, weekly or monthly schedule according to the boating season.

These docks are heavily used by boaters and are subjected to significant impacts from water and environmental conditions. Proper and consistent maintenance ensures that the docks are clean, safe, and will perform as designed for boating use. It also extends the useful life of the docks, protects Boating Facility Grant investments and can reduce or eliminate liability exposure for the facility owner and operator.

Tie-up docks have many components that can be replaced or repaired. A small repair that could easily be fixed can quickly worsen and become a costly repair if left unattended. A close inspection of the docks should be made routinely. Routine maintenance and operation can also reduce or eliminate liability exposure for the facility owner and operator.

Short Term Tie-up Docks

Tie-up docks are an assembly of thin-walled concrete pods that are held together with structural timber connectors and thru-rods. The concrete pods are filled with polystyrene foam, which provide buoyancy for the system. The mass of the concrete gives the docks great stability in rough water. The concrete deck provides a non-slip surface for the marine environment.

This dock system design has advantages and disadvantages. The modular nature of

the system allows damaged components to be replaced relatively easily. The dock can be disassembled, repaired, and re-assembled while floating in-place. The main disadvantage to this system is the number of components that need to be monitored and maintained throughout the useful life of the dock.

Short Term Tie-up Dock components to inspect on a routine basis:

(See diagram page 39 for dock component location details)

- Concrete decking
- Rub strip
- Wales
- Bull rails

Concrete Decking

Concrete decking should be kept clean and clear of plant growth, dirt and bird droppings. This can be accomplished using a stiff fiber bristle brush and water. Avoid using chemicals to clean the dock surface. Take all necessary precautions to avoid contamination of the waterway.

Concrete can chip or spall when struck or impacted by a solid object. Fortunately, the concrete used in the docks can be patched by following standard patching practices. This generally involves the application of a two-component, polymer-modified, portland cement, fast-setting, non-sag mortar such as SikaTop 123. Be sure to thoroughly clean the patch area of dirt and loose pieces prior to applying the patch material. Consider using a concrete bonding adhesive to help bond the patch to the dock since most repairs are small and thin making it difficult to get good adhesion to the base material. Be sure to follow the directions that accompany the product.



Inspect concrete decking for cracking, chips, spalling and keep decking clean and clear of plant growth, dirt and bird droppings. Make repairs as soon as possible and monitor patch adhesion.

Rub Strip

Rub strip is a flexible, non-marring material attached to the sides of a tie-up dock to protect both boats and the docks against damage from impact and contact. When rub strip is unattached the anchoring screws are exposed and can cause damage or injury.

The most commonly used rub strip is polyester textile encased foam that is abrasion resistant. Older-style vinyl and rubber rub strips can mar a boat, and when torn exposes a metal backing plate that can cause serious damage or injury. *(A list of common replacement component material and supplies is included in Appendix C).*



When replacing large sections of rub strip, inspect the condition of the wale board also because it may be necessary to replace the wale board at the same time in order to provide a new surface for the fasteners to be driven into. To replace a small rub strip section it is best to first remove about 2 inches of the foam core from the damaged section. Then fold the fabric back and underneath itself, and fasten it to the wale board to make a clean line or transition. If the rub strip is damaged in the middle of section, replace the entire section rather than having multiple seams or transitions. When ordering replacement rub strip, custom lengths can be specified which will have the factory finished ends.

Inspect the rub strip looking for areas that are unattached or damaged. Reattach the loose rub strip; determine if repairs can be made to the damaged area and order a replacement piece if one is not available in your inventory.

Wales

Wales are located along the top outside edge of a tie-up dock. The wales prevent damage to structural members of a dock and provide a surface to attach a rub strip. Wales are typically made of wood or composite wood-like material.

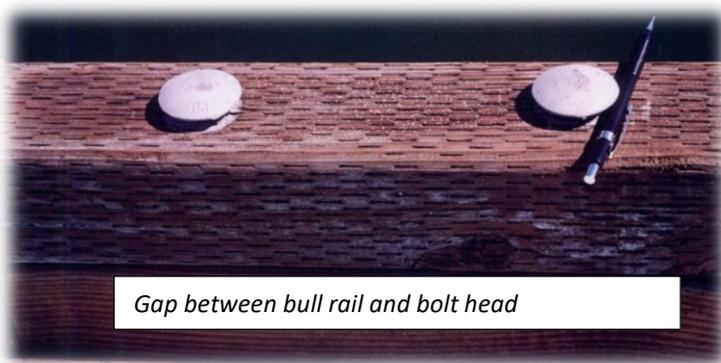
Inspect wales looking for damage or rot and replace as needed.

Bull rails

Bull rails are a continuous wood or steel railing extending above the deck and along the dock edges. Bull rails are used to tie-off and secure boats during a short-term stay. Bull rails are preferred over metal cleats because they provide edge protection to prevent people from walking off of the dock and they provide a continuous surface for boats to tie to regardless of what location other boats are secured.

Older timber style bull rails were often constructed of pressure treated lumber attached to the dock with bolts through a supporting wood block. Wood will swell and shrink depending upon the time of year and age of the lumber, causing gaps and loose connections. Wood Bull rails are also subjected to the pulling motion of boats that are tied up and rocked by wave and wake action. This type of movement can create wear, loosen connections and create gaps between individual components.

It is not uncommon to see as much as ¼" of gap between a bull rail bolt head and the top of a timber bull rail. If left unattended, these problems can result in broken bull rails or support blocks, boats becoming unsecured at the damaged bull rail, and damage to the docks.



Loose bull rail bolts can allow a boat's mooring lines to work themselves into the gap created between the bull rail and the spacer blocks. This, unfortunately, requires the boater to cut their mooring lines before they can leave the dock.

The steel bull rails also need to be inspected routinely, tightened and firmly secured in order to avoid similar damage to the docks or boats.



Thread condition can greatly affect the relationship between the bolt and nut torque and actual tightness

of the components being held together by the compressive force of the bolt. In a marine environment, thread corrosion and rust can render the torque tightening method ineffective for systems that have been near water for a few years. Friction between the nut and the bolt threads can be a sign of deformed or damaged bolt threads and can be a misleading indication that the bolt has been tightened. If the bull rails cannot be secured firmly in place the bolt may need to be replaced.

Loose bolts may eventually oversize the hole to the point that a replacement bolt of the same size will be ineffective. In this case an oversize bolt or wood plug may be required.

Bolts that are working loose can leave a rusty residue on the adjacent wood. The residue comes from water getting into the bolted joint and corroding the loose bolt. During wave or wake events the joint is flexed, causing rusty water to be worked out of the joint.

Inspect bull rails for loose, damaged, or missing sections and repair or replace as needed. During inspection tighten any loose bull rail fasteners making sure they are firmly secured, replace fasteners as needed.

Historic condition review should include the following information:

- How are the tie-up dock components (decking, rub strip, wales and bull rails) functioning to provide a safe and usable structure for the boating public?

- What replacement materials are easily available to avoid unsafe conditions and impact to boater safety?
- How rapidly are dock condition changes happening?
- What is causing the change in conditions?

Seasonal Maintenance

The frequency of seasonal maintenance will depend on water and weather conditions, the level of site development, age of the facility and the amount of boating activity that is currently occurring. Seasonal maintenance and operation tasks are typically completed on a quarterly schedule according to the boating season.

Short Term Tie-up Dock components to inspect on a seasonal basis:

(See diagram page 39 for dock component location details)

- Pile wear pads or rollers
- Concrete Abutment
- Gangway
- Debris

Pile Wear Pads or Rollers

Piling wear pads or rollers are located within a pile pocket and are used to reduce friction that may restrict the docks from fluctuating as water elevations change, keep a tight tolerance to greatly reduce the risk of users inadvertently stepping into the gaps around the piling and provide subtle cushioning between the piling and the dock within the pile pocket. As their name implies wear pads or pile rollers will wear over time and need to be replaced. Missing or severely worn wear pads or rollers should be replaced to avoid pile pocket, pile hoop or piling damage. Replacement wear pads can either be created in-house by purchasing the raw material and shaping it to the proper dimensions or by providing the material and required dimensions to a fabricator. Pile rollers can typically be purchased through a marine products supplier and can be attached using stainless steel axles, bolts, and nuts.

Inspect wear pads or pile rollers on internal pile pockets and external pile hoops looking for missing or severely worn wear pads or pile rollers and missing bolts or pins used to secure the roller. Replace component pieces and connectors as necessary.

Concrete Abutment

A concrete abutment is a common feature used to connect a gangway to land. The other end of the gangway is supported by the floating dock. The installation of a concrete abutment provides two important functions: an ADA accessible connection to the gangway and an entry to the facility.



When replacing a concrete abutment it is important to remember that it forms an ADA accessible path and is part of the connection point to the gangway. For further information on concrete abutment design criteria, see *Recreational Boating Facilities Design Guidelines, Third Edition*.

Gangways may also be connected to a fixed pier or bulkhead. Because fixed piers and bulkheads are not common they are not covered in this manual but several inspection and maintenance items will still apply. For further information on fixed pier or timber bulkhead design criteria, see *Recreational Boating Facilities Design Guidelines, Third Edition*.

Some abutments have a hinge connection to the gangway. Loose hinges can damage the abutment and gangway. If the abutment does not have a hinged connection a transition plate should bridge the lift off space between the abutment and gangway connection.

Inspect the concrete abutment for cracks, settling or damage. It is difficult to repair a concrete abutment. Minor cracks can be grouted, but if there is settling, structural damage, or a consistent worsening of the cracks it is often best to replace the abutment.

If there is a hinge connection, inspect it for worn or loose fitting hardware. Inspect the transition plate condition and ensure there are no trip hazards on the ADA accessible path. Replace any missing or damaged bolts at the hinged or transition plate interface immediately.

Gangway

The majority of gangways are bridge-like aluminum structures that provide pedestrian access between a tie-up dock and upland amenities. Gangways are connected to land by a concrete abutment, fixed pier or timber bulkhead. The concrete abutment is the most common and is highlighted above.

Hinge pins are usually constructed with stainless steel and will require little maintenance. However, there may be some hinge pins and hinge barrels constructed with galvanized steel. The constant movement of the connection will eventually wear away the galvanization and the hinge components can become rusted. Regardless of the material used, constant movement the hinge pins can potentially back themselves out and fall off if the retainer bolts or cotter pins are missing. If the landside gangway connection is a lift-off style make sure to keep debris and plant growth away from the connection point to keep the gangway from becoming stuck.



Two aluminum gangways spanning land to dock connection

The waterside connection to the tie-up docks allows for free movement to accommodate water level fluctuation. The gangway end has rollers that move up and down on roller plates that are hidden by a transition plate. The transition plate creates a barrier-free path onto the dock. For further information on gangway design criteria, see *Recreational Boating Facilities Design Guidelines, Third Edition*.



Gangway transition plate

Inspect the gangway welds, looking for cracks or breaks. These items can be indicators of structural fatigue or failure and should be examined and repaired by a certified aluminum welder.

Inspect the hinge connection frequently since they are the moving connection points that attach the gangway to the abutment. During the inspection of the hinge pins, if any cotter pins or bolts are missing or loose they should be replaced immediately. Alternatively, a padlock can be used in place of a cotter pin or bolt for greater security.

Inspect the waterside connection looking for wear or missing rollers and a damaged transition plate. Replace or repair these items as needed.

Debris

During high water flows, woody debris can accumulate or build up along a set of tie-up docks creating additional loading and potential for damage. Debris accumulation is also a common boater complaint since debris can damage boats and impact the boaters' ability to safely use the facility.



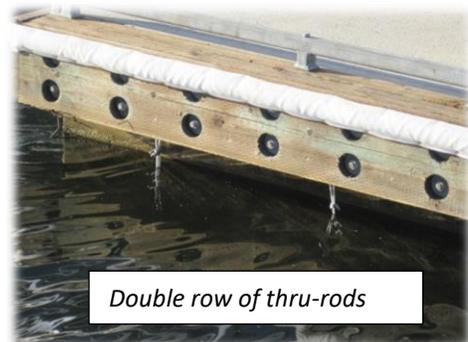
Debris matt at tie-up dock

Debris build-up during high water needs to be removed immediately. Debris should be removed as soon as possible. A boat may be needed to access the debris and remove from the dock.

Inspect around and under tie-up dock for debris such as large and small woody items.

Thru-rods and timber connectors

Thru-rods are typically $\frac{3}{4}$ " diameter steel rod with threads on each end that are inserted through chases in the concrete dock pods. The thru-rods hold the structural connectors to the concrete pods making several connections to form the short term tie-up dock system. Thru-rods can be in a single or double row, located four to nine inches below the deck surface. The loading and dock design will



Double row of thru-rods

determine the number and configuration of the thru-rods used in the available chases. Generally it is common to have a rod in every hole but this may not be the case for all docks. Reference should be made to the construction or shop drawings to determine which holes should have thru-rods.

Thru-rods apply a force to the timber connectors that in turn compress uniformly against the sides of the concrete tie-up docks. Friction between the timber connectors and the concrete provide a rigid connection from one dock section to the next. The wood will shrink as it loses moisture and can result in the loss of friction between the wood and the concrete. This loss of moisture can be significant and have a detrimental effect on the function of the tie-up dock facility.

The single most important item with this style of dock system is to make sure that the thru-rods that hold the concrete dock assembly together are tight. This one item of maintenance will increase the longevity of the dock system and will dramatically reduce the potential for damage from wave, wakes or storm events.

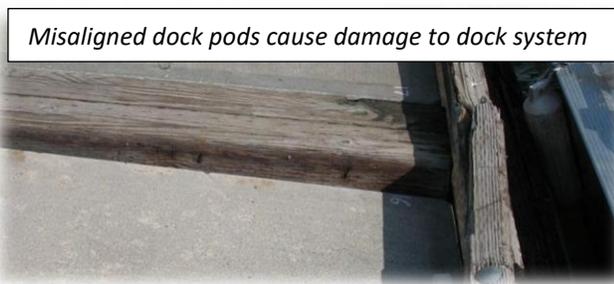
Thru-rods should be periodically tightened using normal pressure to achieve a uniform tightness. Thru-rods have nuts on both ends, so turning only one nut may not effectively tighten the thru-rod. A wrench or socket should be placed on both ends when tightening thru-rods. Thread condition can greatly affect the ability of the bolt and nut to tighten and form a compressive force. In a marine environment thread corrosion and rust can render the tightening useless for systems that have been near water for a few years. Friction between the nut and the bolt threads can be a sign of deformed or damaged bolt threads. Frictional drag can be a misleading indication that the nut has pulled up tight against the washer applying a force to the connectors when in-fact no force is being applied at all. Sometimes this is apparent when there is visible space between the nut and the washer.

Other indicators of thru-rod connections that are not functioning properly include, the rod turning but the nut is not pulling up tight against the dock or if the friction between the nut and bolt is so great that the nut has seized to the bolt making it impossible to tighten. This will require that the rod be cut behind the nut so a new rod assembly can be installed. To reduce the chance of corrosion or rust seizing up the bolt/nut threads, an anti-seize compound should be used on the threads. Take extreme precautions to avoid any chemicals entering the waterway.

Thru-rod inspection and warning signals

Vertical misalignment

As the number of loose rods increase, an individual dock pod will begin to move under foot and may feel “springy”. This feeling is the dock pod movement adjusting to the weight of a person. This means that weight is not being carried collectively



by the docking system but individually by that pod. This is an indication that the majority of the thru-rods in a particular pod are loose. At this point, space or gaps between the timber connectors and the concrete pods may be noticeable. Some pods may begin to “pop up” or sit higher than the adjacent dock pods creating an uneven walking surface and trip hazard.

Loose or missing thru-rods and nuts

As thru-rod connections continue to loosen, the dock system will begin to come apart. Nuts will have backed off the thru-rods and some will be missing allowing the thru-rods to begin to work their way out of the dock. Watch for thru-rods protruding beyond the wale board indicating that the nuts have fallen off the other end of the thru-rod.

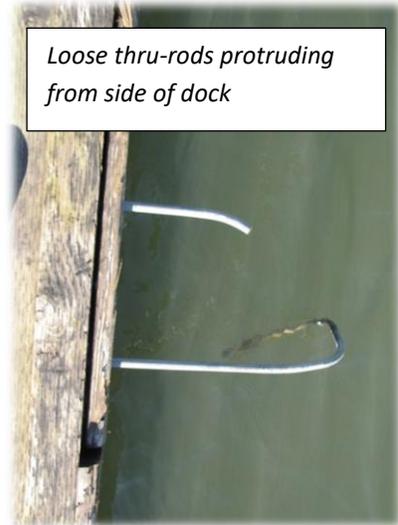
During an adverse or storm event the added slack in the connector system will allow a greater degree of movement which will begin to shear thru-rods and split timber connectors. This will lead to the facility physically being torn apart causing a great deal of damage that will be costly to repair or replace.

When inspecting the tie-up dock, monitor the joints between the concrete pods and the backside of the timber connectors for signs of chafing. Loose thru-rods will allow the individual concrete pods to be moved by wave and wake action. When the concrete dock pods rock back and forth the rough sides of the concrete pods will scrape the timber connectors adjacent to the concrete. The abrasive action will wear away wood from the backside of the inner timber connector creating additional gaps in the system.

Instead of uniform wear an individual pod will abrade a notch in the back side of the connector. When the thru-rods are retightened the connector will only have contact at the mid-section of the pod since the connector will contact the adjacent pod where no abrasion has occurred before contacting the pod that was loose. This decreases the contact area and holding ability of the connector system, which can further compromise the tie-up dock system.

Thru-rods should be inspected and tightened quarterly. Additional inspections should be made after any higher than normal water events or storm events.

If any of the above conditions are noted during inspection, take immediate corrective actions since these are severe warning signals of pending structural failure and extremely costly repairs or replacement.



Loose thru-rods protruding from side of dock



Loose thru-rods causing multiple areas of cracking and damage to dock

Historic condition review should include the following information:

- How are the tie-up dock facility components (wear pads, pile rollers, concrete abutment, gangway, debris and thru-rods) functioning to provide a safe and usable structure for the boating public?
- What replacement materials are easily available to avoid unsafe conditions and impact to boater safety?
- How rapidly are dock condition changes happening?
- What is causing the change in conditions?

Annual or Bi-Annual Maintenance

Annual or bi-annual is also referred to as preseason and postseason maintenance and operation. The frequency of annual or bi-annual maintenance will largely depend upon the waterway and weather conditions. These activities typically ensure that the tie-up docks will continue to provide safe and usable service to boaters.

The current conditions inventory is normally done annually or at the preseason inspection. Completing the inventory form at that time will provide documentation to monitor historic and current conditions, prioritize repairs and establish a programmed approach for consistent long-term maintenance and replacement.

Dock Floatation Materials

Floatation provides buoyancy to the tie-up docks and can include plastic tubs or polystyrene foam. Polystyrene is the most common form of floatation and the law requires that it be fully encapsulated. The dock must be repaired immediately if polystyrene foam is exposed. The presence of small white beads of foam in the water is a good indicator that the docks have likely sustained structural damage.

Inspect the tie-up docks looking for listing, insufficient freeboard or exposed floatation. If the docks are listing or floating too low in the water it can be an indicator that the bottom of the dock has been damaged and some of the floatation is missing or water is replacing the lost floatation. Repairing the damaged dock will require temporary removal of the dock section to evaluate whether it can be repaired or will need to be replaced. An underwater dive inspection can provide beneficial information about the dock underwater conditions.

Piling

Piles are commonly steel but older piling may be wooden. Piles are driven typically with a vibratory hammer into the ground and used to maintain horizontal position of a tie-up dock. Steel piling have a cone-shaped covering affixed to the top the piling that discourages birds from perching.

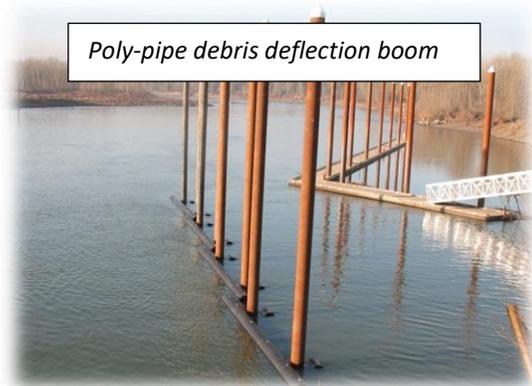


Inspect piling for changes in alignment and movement within the pile pocket or pile hoop. If pile caps are missing, they should be replaced.

Debris Deflection Boom

Tie-up docks by design stick out into the waterway in order to provide full utilization of all sides of the docks and compliance with environmental regulatory agencies' protections for water quality, endangered species and habitat. These docks are subjected to significant impacts from water and environmental conditions. Because of this tie-up docks come into contact with frequent debris, wave, wake and environmental exposure. There are two main styles of debris deflection boom. The first is a log boom where the floating logs are typically chained together and supported by piling. The log booms have a tendency to trap debris rather than deflect it around the boating facility. This style works well for low velocity waterways.

The second is a poly-pipe debris deflection boom that usually is constructed in individual 40-foot sections that are held in place with two steel piles. If more than one section of boom is needed then each boom section overlaps the previous in a shingled fashion. The debris deflection boom is designed to deflect debris away from the boating facility but it also provides some wave attenuation.



Both styles of debris boom will require inspection of the connections, joints, and floatation. Monitoring of the piling for leaning, tilting, bobbing or swaying is recommended. It may be necessary to occasionally clear large debris from the debris deflection boom but more frequently from the log boom. This must be completed by boat.

Repair or Replacement of Short Term Tie-up Docks

Whether short term tie-up docks are repaired or replaced depends upon factors such as their age, type of construction materials, waterway conditions, amount of boating use and consistent maintenance. The typical useful lifespan of tie-up docks is 35 years.

Monitoring the condition of the tie-up docks is critically important because it allows the owner and operator to be proactive in the planned replacement of tie-up docks. A tie-up dock replacement can take 5-8 years to complete the survey, design, engineering, environmental and local permitting and then secure funding.

The dock's condition can change quickly as it nears the end of its life, so it may be prudent to forecast tie-up dock replacement several years in advance.

Boater Concerns, Comments and Complaints

Not all boater feedback is bad. Quite often it can alert facility owners to emerging situations such as the discovery of submerged or hazardous obstacles. Boaters can also advocate for operational changes or facility improvements. Document all boater

suggestions and comments, both positive and negative that are received. This information will be essential for future Boating Facility Grant applications.

Many boater comments about tie-up dock conditions are the result of their perception that the boating facility is being neglected and not maintained. Some maintenance such as debris removal may require approval from regulatory agencies and take additional time. Though it can be challenging, it is important to communicate these requirements to boaters.

Emergency Facility Closure

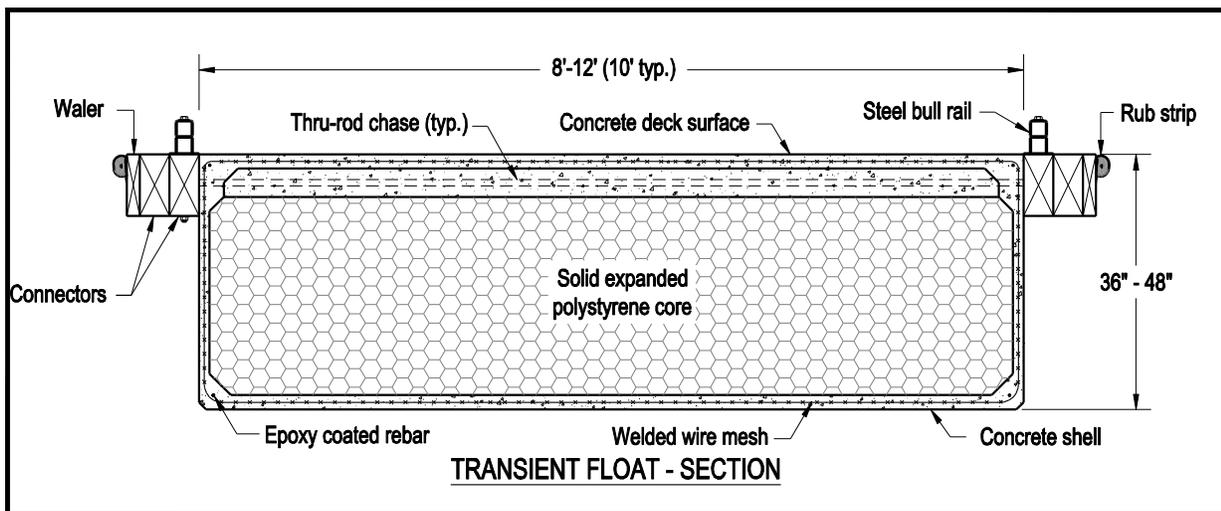
When it is necessary to temporarily close a boating facility for safety reasons, please notify the Marine Board, Boating Facilities Section Manager. We will coordinate messaging to alert boaters of the situation.

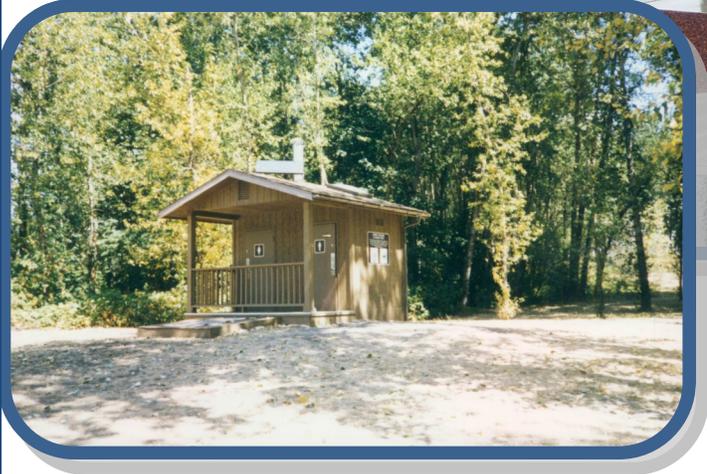
RECREATIONAL SHORT TERM TIE-UP DOCKS



Tie-up dock facility showing gangway connection to upland amenities

Tie-up dock section showing typical construction





RESTROOMS



Maintenance Assistance Program Manual

UPLAND RESTROOMS AND TOILETS

Purpose

For the purposes of the MAP program upland restrooms include flush, vault, composting and portable toilets. Sanitation is required at all MAP eligible boating facilities and is typically located as close to the launch ramp as practicable and usually within a 200-foot radius of the top of the launch ramp.

The style of sanitation used at boating facilities will depend upon the level of site development, availability of utilities, and level of boating activities. Restrooms should be ADA accessible, vandal resistant and durable in a marine environment. For further information on restroom design criteria see *Recreational Boating Facilities Design Guidelines, Third Edition*.

Scope

Upland restrooms are located throughout Oregon at a diverse system of boating facilities from small rural sites to boat accessible only islands and large urban facilities. The use of restrooms is not limited to motorized boat owners but MAP program participation is limited to facilities categorized as motorized or mixed-use, meaning a significant percentage use occurring at the boating facility is by motorized or registered boats.

This manual section is intended to provide guidance for the routine, seasonal or annual maintenance and inspection of publicly owned restrooms. Proper regular maintenance will help to ensure that Boating Facility Grant investments made by the Board are protected.

Public Perception

The public expects every style of sanitation facility to be clean, stocked and open for use. When a boater encounters a restroom that is dirty, does not have any toilet paper or is closed they may become angry and frustrated. Nobody likes to be denied use of a restroom, especially when they need one. A poorly maintained restroom can discourage boaters, especially families, from using a site. A poor experience with a restroom can often leave a lasting negative impression of the overall boating facility, the operating agency and its use of public funds.

Maintenance

The four styles of sanitation used at boating facilities include portable toilets, composting toilets,



vault toilets and flush restrooms. Each style of sanitation has some common maintenance needs and also some that are unique to that style.

Portable toilets are constructed of a thin wall plastic sheeting enclosure containing a waste collection tank with a toilet seat. The structure has vents and uses chemicals to reduce odors. Portable toilets are typically used at seasonal boating facilities, where there is low annual use but a concentrated period of high use. Portable toilets may also be used where site conditions are not conducive to permanent structures or to augment existing sanitation during peak use. Portable toilets are inexpensive, can be rented and generally their maintenance is under contract.

Vault toilets are used in areas that have a large volume of boating activities but the site does not have access to utilities such as electricity, water or sewage. Vault toilets can be found at any size facility. They are inexpensive in relation to their useful lifespan. Typical vault toilets are constructed of precast concrete and are delivered to the site ready for installation. Normally, vaults toilets provide one or two-stalls and may be unisex.



Composting toilets are typically used at very remote facilities where road access is limited or non-existent, prohibiting the installation of a vault toilet. The majority of composting toilets are located on islands where access is only available by boat. Composting toilets usually have to be built onsite but may come as a kit ready to be assembled onsite. Composting toilets sit atop holding tanks or bins that are connected to an onsite drainfield. Residual liquids flow to the drain field and the solids combine with wood chips or bulking materials in the bin and are mixed to become compost. The compost can be used around adjacent trees or other plantings. Normally these are single or two-stall toilets.



Flush restrooms are the sanitation style most preferred by boaters and are located at high-use boating facilities where utilities are readily available. They can be constructed of masonry block, precast concrete, wood or metal. The most common are precast concrete and masonry block. Currently, precast concrete are recommend because of their price, durability, convenience and ease of maintenance. Flush restrooms can be as small as a single stall unit or as large as a ten-stall unit at urban boating facilities.

Restrooms are not difficult to maintain but are often one of the jobs most dreaded by maintenance staff. This dread may be due to odors, improper use, or even vandalism. Regular cleaning of restrooms can help reduce objectionable odors. Modern prefabricated restrooms are designed to withstand vandalism and for the most part can be hosed down or



pressure washed. The very nature of sanitation facilities require that maintenance activities be considered a daily routine. Neglected maintenance can lead to more abuse and vandalism and minor repairs can quickly become costly repairs.



Many components such as toilets, sinks, valves, hand dryers, dispensers, timers, heaters, and other items installed in restrooms should have specific instruction or user manuals that describe maintenance and operation procedures and products to maximize the useful life of the component. If you do not have these documents, many are now available online. Keep product manuals for the life of the item.

It is the responsibility of the facility owner to monitor and document restroom conditions. An inventory of current conditions should be completed prior to the start of the peak boating season. (*An example of an inventory form is included in Appendix B.*) Consistent documentation provides useful comparisons of current conditions with past conditions and helps to prioritize repairs and establish a programmed approach for consistent long-term maintenance.

Historic condition review should include the following questions:

- Are restroom conditions changing?
- Are the changes creating an unsafe or environmental situation?
- If changes are occurring, how rapidly are the changes happening?
- What is causing the change in conditions?

Routine Maintenance

The frequency of routine maintenance will depend upon the level of site development and the amount of boating use that occurs. Routine maintenance and operation activities are typically completed on a daily, weekly or monthly schedule that is adjusted for the boating use season. Proper and consistent maintenance activities ensure that the restroom is clean, safe and usable for boaters. Regular maintenance also extends the useful life of the restroom, protects the investment made at the facility, and reduces or eliminates liability exposure for the facility owner and operator.

Inside Cleaning, Stocking and Sanitizing

All styles of sanitation facilities need to be cleaned, stocked and sanitized. Maintenance of portable toilets is usually performed under contract. Portable toilet maintenance performed by a contracted service should be monitored by staff. Portable toilets should be located where their vents cannot be blocked.

The cleaning, stocking and sanitizing of restrooms typically include the following routine maintenance activities:

- Clean toilets and urinals inside and out
- Wipe down walls, toilet partitions and doors
- Clean sinks inside and out and wipe down counters
- Clean mirrors and fixtures
- Sweep and mop floors
- Check and empty waste receptacles
- Check and restock toilet paper and paper towel dispensers
- Test and clean hand dryers or blowers, if available,
- Clean ceiling areas, skylights and wall vents removing all cobwebs, insect nests or other items
- Test electrical lights and fans and replace burned out bulbs or tubes

Outside Cleaning

Routine cleaning of the outside of the restroom should include the following:

- Remove all cobwebs, insect or bird nests
- Pick up litter, cigarette butts or other debris
- Sweep all sidewalks and surrounding hard surface areas to remove debris
- Remove any vegetation growing on sidewalks or along the restroom

Composting Toilet – Compost Routine Service

Composting toilets rely on aerobic bacteria to break down waste. To ensure air is worked through all levels of waste so that the bacteria work effectively, the compost material needs to be mixed regularly. This mixing can be done by hand or by a battery-powered drum. Tossing dry wood shavings or bulking material into the toilet will add necessary carbon to compost the material. A short drain line is connected to an onsite drainfield to capture any residual liquids. Periodically, the composted waste can be removed by hand and used as compost around trees and other vegetation.

Signs

Inspect signs for vandalism, attachment, message content and normal wear and tear. Repair or replace signs and fasteners as necessary.

Seasonal Maintenance

The frequency of seasonal maintenance is based upon the level of site development and the amount of boating use that occurs. The seasonal maintenance and operation activities are typically completed on a quarterly schedule that is adjusted for the boating use season.

Doors, Locks and Hinges

Inspect doors, locks, locksets and hinges for proper operation, corrosion, excessive wear, proper fit, weather-proofing, and movement. Clean, repair, or replace, and lubricate, as necessary, using manufacturers recommended products.

Ventilation

Vault toilets require unobstructed ventilation to reduce unpleasant odors. Inspect the ventilation shaft and remove any branches or obstructions that could interfere with proper ventilation.

Composting toilets require ventilation to allow for efficient composting and also to reduce the risk of unpleasant odors. Inspect the ventilation shaft and remove any branches or obstructions that could interfere with proper ventilation. Listen for the operation of the battery and solar powered fan.



Flush restrooms utilize fans and wall vents to help with ventilation. Inspect the fans to make sure they are operating correctly and that the wall vents are clean and free from obstruction.

Exterior and Interior Lighting

Inspect restroom lighting making sure that all fixtures are working properly and there are no burned out bulbs or malfunctioning components. Repair or replace as necessary.

Exterior lighting is an important safety feature and a deterrent to vandals. Inspect and clean the casing or housing of the light in order to provide the maximum coverage and brightness. Inspect any photocells, timers, switches for proper operation. Repair or replace any malfunctioning components as necessary.

Annual or Bi-Annual Maintenance

Annual or bi-annual is also referred to as preseason and postseason maintenance and operation. The frequency of annual or bi-annual maintenance will largely depend upon the waterway and weather conditions. These activities typically ensure that the restrooms will continue to provide safe and usable service to boaters. The current conditions inventory is normally done annually or at the preseason inspection. Completing the inventory form at that time will provide documentation to compare historic and current conditions, prioritize repairs and establish a programmed approach for consistent long-term maintenance and replacement.

Waste Collection Vaults for Vault Toilets

Vault toilet waste is generally removed once or twice a year depending upon use levels. This can be scheduled and coordinated with other vault servicing. Household garbage and non-biodegradable items often find their way into the vaults. Once there, it is

difficult to remove. Installation of a sign and locating a garbage receptacle nearby can help to reduce this activity.

Plumbing for Flush Restrooms

Visually inspect all fixtures for leaks, drips, slow drainage, chips and cracks or loose mountings. Inspect the operation of all valves, faucets and drains. Adjust or repair as necessary.

Inspect all mechanical room pipes for leaks, drips and slow drainage. Inspect valves for proper operation. Adjust or repair as necessary.



Electrical

Visibly inspect any overhead wires, transformers, or mast heads for wear, clearance or debris accumulation and notify the appropriate utility company to avoid potential loss of service.

Inspect service panels for secure attachment to walls, moisture damage and tripped circuit breakers. Clean any dust or debris from the panel. Inspect any wiring entering or leaving the panels, junction boxes and circuit disconnects for discoloration, nicks, abrasions and loose connections. These can be signs of potential problems, vandalism or theft.

Exterior and Interior Painting or Staining

Inspect the exterior and interior painted or stained building surfaces for bubbling, cracking, peeling or wear from repetitive vandalism repairs. Regular repainting and resealing will extend the useful life of the building. Anti-graffiti and marine environment coatings are recommended.

Concrete and Masonry Structures

Visually inspect all slabs and foundations for cracks, movement, spalling and other obvious defects. Make necessary repairs and continue monitoring for changes.

Sidewalks, stairs and steps need to be visually inspected for cracks, chips, loose nosing, standing water and other defects. Make necessary repairs and continue monitoring for changes.

Inspect masonry interior and exterior walls for cracks, loose brick or masonry units, major vertical or horizontal displacement and other obvious defects. Make necessary repairs. Be sure to obtain matching masonry materials, sealant or mortar. Continue your monitoring for changes.

Metal Structures

Inspect metal surfaces for rust and corrosion. Clean, prime and paint as required. Corrosion beyond surface penetration should be repaired or replaced as soon as possible.

Inspect handrails for loose attachments to walls or walkways, damaged surfaces, and loose or broken connections. Make necessary repairs.



Winterization

If the restroom is closed seasonally due to freezing weather, winterization will help to protect the structure and reduce maintenance expenses when it is reopened. Typically winterizing a restroom involves removing as much water from the plumbing system as possible.

Common practices are listed below:

While winterizing a restroom, inspect and repair any cracks or chips, and paint or caulk where necessary. Repairs should be made before the effects of moisture and freezing infiltrate these areas and cause more damage.

Turn off the water supply to the building and the power supply to the hot water heater. Open hose bibs in and on the building to drain any remaining water. Drain the water heater, accumulation tanks, treatment tanks and any other water storage tanks. Follow the owner's manuals for more specific instructions. Open all faucets, drinking fountains, showers and flush any remaining water from toilets. Blow out the water lines by connecting a clean, compressed air supply to a hose bib. Set the air pressure to 45 psi maximum and blow out the lines until there is no moisture in the exhausting air. Setting the air pressure too high could damage fixtures so use caution when using this procedure.

Pour an appropriate amount of environmentally friendly potable water antifreeze to drain traps and fixtures to protect them from freezing. Include floor drains, sinks, toilets and urinals. (Environmentally friendly potable water antifreeze is available at any RV or marine supply store.)

Lubricate locks, latches and hinges before cold and wet weather occurs. Remove all paper goods from the restroom, dispensers and storage areas to eliminate the possibility of mildew and mold growth and minimizes animal and insect nesting.

Roofing, Gutters and Downspouts

Restroom roofs are typically constructed of precast concrete, asphalt shingles, metal or cedar shakes. Visually inspect the roof and remove all organic materials and other debris to maximize the useful life of the restroom. Inspect the roof for leaks, cuts,

abrasions, bubbles, open seams, soft, spongy feel or substrate material, and loose or missing pieces.

Inspect flashing, downspouts, scuppers and gutters for evidence of leaking, loose or separated joints or seams. Clean and clear any debris and make sure they are firmly secured. Repairs or replacement should be made as needed.

Visually inspect joint sealant and caulking around walls, floors, flashings, sunlights and door frames. Check for shrinking, cracking and other signs of deterioration. Remove all loose caulk and replace with fresh caulking.

Repair or Replacement of Restrooms

The need for major repairs or replacement of sanitation facilities will depend upon several things such as the age of the building, construction materials, utilities, method of sewage disposal and amount of boater use. Restroom structures typically have the longest useful lifespan of boating components because the internal parts can be replaced independently of the structure easily.

Depending upon the condition of the current condition it may be prudent to begin the process of replacing a restroom before it is in poor condition. Monitoring historical conditions is very important to document ongoing maintenance repairs, changes in the environment, sewage disposal and boater use patterns. A restroom replacement project can take 1-3 years to obtain a survey, design, engineering, planning department approvals, public notification and secure the necessary funding. The historic condition monitoring allows the owner and operator to be proactive in the programmed replacement of the restroom.

Boater Concerns, Comments and Complaints

Not all concerns, comments or complaints by boaters are bad. Quite often they can be useful tools to draw attention to a situation such as the discovery of vandalism. The boater can become an advocate to make changes or facility improvements. Document the boater's concerns, comments and complaints. This information will be essential for future Boating Facility Grant applications.

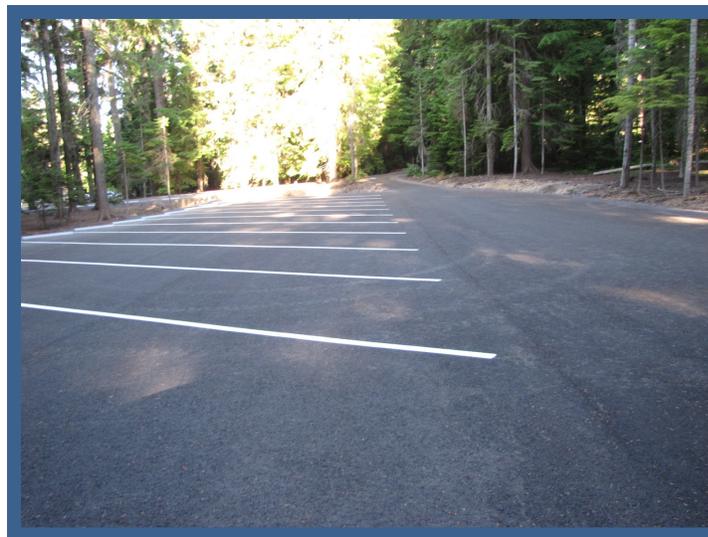
Many boater comments about restroom conditions are the result of high use and vandalism. Some maintenance such painting or roof repairs should be completed at a time that will pose minimal impact to the boaters.

Emergency Facility Closure

In the event it is necessary to temporarily close a boating facility for safety please notify the Marine Board, Boating Facilities Section Manager immediately.



PARKING



Maintenance Assistance Program Manual

PARKING FACILITIES

Purpose

For the purposes of the MAP program, boating facility parking can include hard surfaces such as asphalt, concrete, and paving stones or temporary surfaces such as gravel. A site must have at least six spaces for boat trailers with tow vehicles and two single car parking spaces to be eligible to be included in the MAP program.

Parking facilities also include the following components: access road, ready and tie-down areas, maneuver area, sidewalks and pathways that provide direct access to other boating components, stormwater surface treatment, security lighting and signage. In general the type of parking is determined by the level of site development, amount of boating use, property size and ability to treat stormwater.

The majority of boating facilities have hard surface parking areas. Most gravel parking areas are at rural single-lane launch ramp facilities. A paved parking area is preferred by boaters because it is pleasing to drive and walk on; is free of potholes and mud; and has



a clear and understandable traffic flow and defined parking spaces. Properly built and maintained paved parking require less maintenance than gravel or dirt.

Modern parking area designs consider many factors, such as: sight distance, turning radius, staging, parking stall width and length, travel lane width, directional flow, stormwater treatment, ADA accessibility and signage. For further information on parking facility design criteria see *Design Guidelines for Recreational Boating Facilities, Third Edition*.

Scope

Boating facility parking is associated with boating access sites located throughout Oregon in both inland and coastal environments. Parking areas are built to meet a variety of site challenges, including water level fluctuations, soil conditions, limited space and a variety of permitting requirements. The use of boating facility parking areas is not restricted solely to motorized boats but MAP program participation is limited to facilities categorized as motorized or mixed-use, meaning a significant percentage of overall use at a boating facility is by motorized or registered boats. Because of this

limitation, boating access sites eligible for MAP funding generally have a higher proportion of stalls designated as boat trailer parking than to single car parking.

This manual section is intended to provide guidance for the routine, seasonal or annual maintenance and inspection of parking facilities located at publicly-owned boating access sites. Proper regular maintenance will help to ensure that Boating Facility Grant investments made by the Board are protected.

Public Perception

Paved boating facility parking areas appeal to boaters by providing a smooth traveling surface, no dust, clear and understandable traffic flow and parking stalls. If boaters encounter a poorly-maintained parking area, they may feel that the boating facility is not safe and their vehicle is not secure.

However, boating facility parking facilities can also attract other users such as swimmers, sunbathers, anglers and other park visitors. These uses often conflict with boating, especially when parking is at a premium and non-boaters interfere with boaters. Therefore, non-boaters should be discouraged or prohibited from using boat trailer spaces to avoid these conflicts and to secure use of the facility for boaters who are the intended users. In addition to conflicts, these other uses place additional wear and tear on boat trailer parking facilities by subjecting them to unintended uses and vandalism. Vandalism reduces the overall lifespan of parking facilities, necessitating even greater financial investments.

The boating public will highly value an attractive, well-maintained facility where they can safely leave their vehicles without being confronted by non-boaters. Providing this kind of environment greatly improves the boater's experience and guarantees return visits to the facility. A poor parking experience can often form a lasting negative impression of the boating facility, the operating agency and its use of public funds.

Maintenance

Boating facility parking areas are one of the most challenging and costly boating components to repair when routine maintenance and inspections are not consistently performed. Repairs to parking areas often have to be done during the peak boating season because of weather requirements. This can be a major disruption to the boating public. Regular maintenance can extend the useful life of a parking area and help to avoid premature repairs.

It is your responsibility as the facility owner, operator or staff to monitor and document parking area conditions. An inventory of current conditions should be completed prior to the start of the peak boating season. (*An example of an inventory form is included in Appendix B.*) Consistent documentation provides useful comparisons of current conditions with past conditions and helps to prioritize repairs and establish a programmed approach for consistent long-term maintenance.

Historic condition review should include the following questions:

- Are parking area conditions changing?
- Are the changes creating an unsafe parking facility situation?
- If changes are occurring, how rapidly are the changes happening?
- What is causing the change in conditions?

Routine Maintenance

The frequency of routine maintenance will depend upon the level of site development, environmental factors, and the amount of vehicle traffic using the site. Routine maintenance and operation activities are typically completed on a daily, weekly or monthly schedule that is adjusted for the boating use season. Proper and consistent maintenance activities ensure that the boating facility parking is clean, safe and usable for boaters. Regular maintenance also extends the useful life of the parking area, protects the investment made at the facility, and reduces or eliminates liability exposure for the facility owner and operator.

Cleaning Boating Facility Parking Areas

Gravel and paved boating facility parking areas should be clean and clear of garbage and debris that would impact the ability of boaters to safely use the facilities.

Inspect the parking facilities (access road, parking area, maneuver area, staging area, sidewalks or paths, stormwater treatment area and turf. Clean and clear the areas of all garbage and debris.

Seasonal Maintenance

The frequency of seasonal maintenance depends on the level of site development, weather conditions, and the amount of boating use at the site. Seasonal maintenance and operation activities are typically performed on a quarterly schedule that is adjusted for the boating use season. Seasonal and annual maintenance provides the most significant protection, preservation and extension of the useful life of the parking facilities.

Annual or Bi-Annual Maintenance

Annual or bi-annual is also referred to as preseason and postseason maintenance and operation. The frequency of annual or bi-annual maintenance will largely depend upon the weather conditions. These activities typically ensure that the parking facilities will continue to provide safe and usable service to boaters. The current conditions inventory is normally done annually or at the preseason inspection. Completing the inventory form at that time will provide documentation to compare historic and current conditions, prioritize repairs and establish a programmed approach for consistent long-term maintenance and replacement.

Hard Surface Parking Areas

Hard surface parking areas can develop pavement distress, which relates to the function of abnormalities in a pavement. Pavement distress is classified by types. The

Federal Highway Administration has published a document to assist with detailed pavement distress identification, *Distress Identification Manual*.

Pavement Maintenance Strategies

Boating facility parking surfaces provides essential traffic control for vehicles, gives boaters a visible driving reference, and serves as a safe walking surface for boaters accessing other boating facility components.

Inspect the parking area for cracks, breaking, depressions, and pooling of rain water.

The following are different maintenance strategies that can be used to extend the useful life of the pavement.

Crack Sealing

Pavements can crack for many different reasons. Fatigue cracking is the most common form of cracking. Picture bending a paper clip many different times; eventually it will break. The same is true of pavements. Vehicle loading is the main cause of fatigue cracking. Low severity fatigue cracking is an excellent candidate for crack sealing.



Recently crack sealed pavement

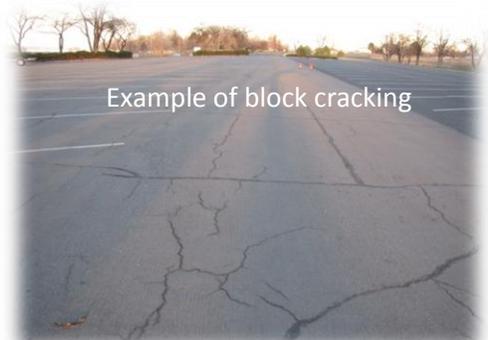
Sealing cracks caused by low severity fatigue helps to keep water from migrating into the base materials and pumping fine aggregates to the surface when compressed by vehicle loads. Water in the base can also freeze in colder climates, causing frost heaves, a type of pavement distortion. Sealing low severity fatigue cracks is a good preventative maintenance technique.



Moderate to high severity fatigue

Pavements that have moderate or high severity fatigue cracking are not good candidates for crack sealing. The base below has likely failed due to water migration, poor construction practices, or some other variable. Crack sealing here is costly and non-effective.

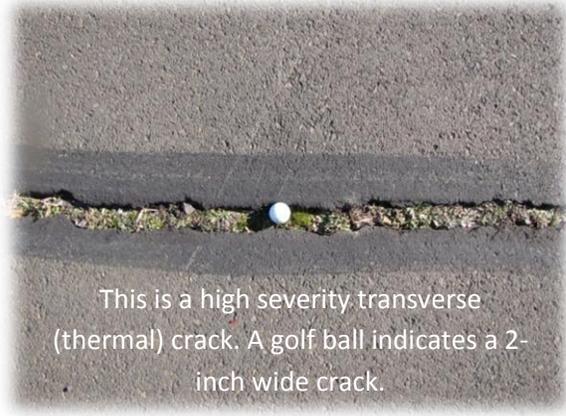
Block cracking occurs when the pavement no longer expands and contracts with the elements. It is not a catastrophic pavement failure, it is simply a function of old pavement (>30 years). Crack sealing can be a good use of maintenance dollars. However, if the pavement is heavily distressed with block cracking, a surface treatment or overlay is likely a better use of resources.



Example of block cracking

Longitudinal cracking in parking lot pavements is most prevalent in the form of paving joint failure; where two paving panels meet during construction. Regardless of how this has happened, keeping these joints sealed and free of water will extend the life of the joint and the surrounding pavement. Crack sealing of longitudinal joints is a good maintenance strategy.

Transverse cracking in parking lots is very common; especially in eastern Oregon climates that experience a large change in temperature. Large temperature fluctuations cause a pavement to crack when it fails to hold together due to hot high and cold low temperatures. Picture a rubber band that is continually stretched and contracted. If the rubber band is stretched too far, it will eventually break. This can also occur with pavement. Asphalt mixes are intended for specific climates. If an incorrect mix is used, transverse (thermal) cracking will result. Different asphalt cements only have so much elasticity. Crack sealing transverse cracks is a good use of maintenance resources protecting the crack from further degradation along with the neighboring pavement.



This is a high severity transverse (thermal) crack. A golf ball indicates a 2-inch wide crack.

Reflective cracking is simply the reflection of crack(s) through the wearing surface from an existing and underlying pavement. Crack sealing is a good treatment for reflections of low-severity fatigue, low-severity block, longitudinal and transverse cracking.

Surface Treatment

Surface treatments such as slurry seals, chip seals and pavement overlays can extend the useful life of the parking areas.

Slurry seals are a mixture of emulsified asphalt and fine aggregate. This homogenous mixture is applied to the surface of a flexible pavement but adds no structure to the existing pavement. This pavement maintenance strategy seals small cracks and other small surface defects. It can also rejuvenate sun-bleached surfaces, giving a new contrasting look while protecting the underlying surface and extending the pavement's useful life. Theoretically, a slurry seal applied to a pavement in good condition every 3 to 5 years and can extend the life of pavement indefinitely.



Sample Slurry Seal

At coastal boating facilities, pavement may show varying degrees of raveling, or aggregate dislodgment. This stripping may be due in part to saltwater draining from boats and trailer removed from the water. A coarse aggregate slurry seal can fill the

surface voids in the raveled pavement, offsetting the need for a more costly pavement repair strategy.

Chip seals are widely used on eastern Oregon roads to extend the existing pavement service life. Roadways where traffic is moving in a uniform direction, free of tight turning maneuvers, good candidates for chip seal treatments. Because boaters are performing tight maneuvers such as turning and parking in a lot, this maintenance strategy should be reserved for roadways. Turning maneuvers cause dislodging of the surface aggregate, or chip raveling. A more durable solution would be to use a homogenous slurry seal.

Overlays are used on pavements in fair condition. Crack sealing and other pavement maintenance strategies may be cost prohibitive for pavement in fair condition where structure needs to be added. A typical structural addition is a 2-inch overlay of asphaltic concrete to an existing pavement. This additional structure will add life to the existing underlying pavement



while providing a new wearing surface. Moderate to high severity fatigue, potholes and other pavement failures must first be corrected before overlaying an existing pavement. Pavement overlays are costly, but not nearly as expensive as a full reconstruction.

Reconstruction

Pavements that are not well maintained or are simply very old require reconstruction. The majority of the pavement likely has moderate to high severity fatigue cracking. Rather than trying to perform a series of full depth pavement repairs, the existing pavement and base are removed and replaced. Pavement replacement alone without base correction is not a good strategy since the pavement has likely already failed once due to base failure. Pavement reconstruction is often a very costly repair resulting from poor construction methods or a lack of pavement maintenance.

Parking facilities with small areas of failure such as potholes and patches would benefit from isolated areas of reconstruction before another pavement strategy is applied.



Gravel Parking Surfaces

Gravel parking areas are typically used at seasonal boating facilities, where there is low annual use but a concentrated period of high use. Gravel parking may also be used where site conditions are not conducive to permanent hard surface parking.

A typical gravel roadway or parking lot consists of a minimum of 6-inches of compacted, crushed base aggregate. Gravel parking areas require more maintenance than paved parking areas.

Inspect the gravel parking area for rutting, potholes, and washboard conditions. Repairs, regrading and replenishing gravel can provide a safe, smooth parking service, which reduces potential liability for property damage or personal injury.



Pavement Surface Markings

Striping is used to convey information to drivers. Stop bars, cross walks, parking spaces, directional arrows, stripe-out areas, and ADA parking symbols are examples of striping that shows typical boating facility designations. Boating facilities are designed to provide an easy-to-follow traffic pattern for boaters. Keeping striping and pavement markings visible will improve a boater's experience.



Types of Striping

The majority of boating facilities use either paint or thermoplastic materials for pavement marking. Care should be used when choosing a striping material. Factors such as remaining life of pavement, time until the next surface treatment, and abrasive actions such as sediment removal using a front end loader or grader should be considered. It does not make sense to install a striping product that will last longer than the pavement.

Painted striping is by far the most commonly used striping in Oregon boating facilities. It is the least expensive of all striping material and has a typical lifespan of 2 to 5 years. Painted markings are easy to maintain because the materials are inexpensive and a walk behind striper can be rented.

Thermoplastic striping has been used in Oregon for many years, including boating facility parking lots on a limited basis. It is applied in either liquid form or extruded form. Thermoplastic is a long lasting product but is considerably more expensive than painted striping. Typical uses include lane striping and stall striping, but more common uses include legends and stop bars.



Inspect pavement markings for clear, easily readable traffic indicators. Restripe as needed.

Curbing

Curbing is used in parking lots and roadways mainly to keep traffic on the pavement and to define traffic flow. It can also be used as an aid to channel stormwater. Two types of curbing exist; cast-in-place and extruded. Cast-in-place curb is often more expensive and is placed prior to paving. Extruded curbs costs less, are formed in a machine, and epoxied to the pavement surface. Boating facilities typically use extruded curbing.



Curbing can fail and may need corrective action. Breaks and spalling are typical concrete failures. If small sections of curb fail, they can be removed and recast. Curbs showing early signs of failure, (cracking) can often be epoxied, allowing them to last longer before complete failure.

Inspect curbs for cracking, spalling and breakage. Repair or replace as needed.

Curbed Islands

Curbed islands are designed to delineate roadways from parking and to control traffic flow. Another use is to delineate parking itself, typically on the ends of the rows. Curbed islands will sometimes be used to divert stormwater. Plantings are often installed inside the curbed islands for beauty and break-up the large expanse of pavement.



Inspect the islands to prune and trim plantings as needed and remove any garage or debris. Using the correct species of planting inside curbed islands is paramount as survivability of some species is difficult. Tree species should be carefully considered since some have root structures that with age, cause excessive damage to pavement surfaces through uprooting. Pavement damaged by uprooting trees is unsightly and very expensive to repair.

Sidewalks and Pathways

Sidewalks and pathways designate pedestrian access to boating facility components. Sidewalks are typically raised above the roadway and provide a partial barrier from vehicles. Lips or gaps in concrete greater than ½ inch should be corrected to reduce tripping hazards.

Inspect sidewalks, stairs and steps for cracks, chips, loose nosing, standing water and other defects. Make necessary repairs and continue monitoring for changes. Keep sidewalks clean and clear of garbage and debris.

Stormwater Features

Stormwater features are important components in any facility. Rain and storm surge need to be effectively handled to improve water quality. Stormwater features are designed to effectively drain parking lots and partially treat the runoff.

Trench Drains

Installing a trench drain at the top of a concrete boat ramp is a typical practice in modern designs. Any runoff that is directed towards the ramp, (eventually to the body of water) is captured and diverted to a catch basin.

Trench drain grating should be removed and all contaminants removed at least annually.



Trench drain at the top of the launch

Catch Basins

Catch basins are used to collect stormwater in parking lots. Stormwater is directed toward the catch basin via the parking lot slope and drained into the unit. Water is drained via a tee pipe fitting and discharged either into a stormwater retention pond, bioswale, or waterway. Tee's are used to help prevent the flow of hydrocarbons into the environment; holding them until they can be removed from the catch basin. At least annually, catch basins should be inspected and cleaned of contaminants and sediments.



Trapped catch basin

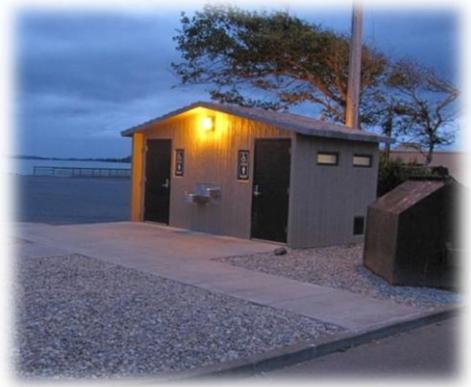
Curb cuts

Curb cuts are specifically designed into curbing to allow stormwater to drain off the pavement surface; usually into a bioswale. Make sure these curb cuts are free of debris to allow stormwater to freely flow off the parking area, which makes for less ponding.

Many boating facilities are inundated during storm events or during winter months. Often times when the water recedes, sediment is left behind. To make for a usable boating facility, this sediment must be removed and properly disposed. Be sure to follow all state and federal guidelines for sediment removal and disposal.

Care should be taken to not damage the parking lot surface during sediment removal. Free-floating bladed equipment is preferred to equipment that uses pressure applied to the pavement surface.

Any stormwater features that allow for draining of the parking areas should be serviced after a high water event. Trench drains and catch basins can become clogged with sediment as can bioswales. To prevent early pavement failure and to allow for a usable facility, pavements must be allowed to properly drain.



Security Lighting

Exterior lighting is an important safety feature and a deterrent to vandals.

Inspect and clean the casing or housing of the light in order to provide the maximum coverage and brightness. Inspect any photocells, timers, switches for proper operation. Repair or replace any malfunctioning components as necessary.

Repair or Replacement of Parking Areas

The need for major repairs or replacement of parking facilities will depend upon several things such as the age of the parking, construction materials and amount of boater use. Depending upon the current condition it may be prudent to begin the process of replacing parking facilities before it is in poor condition. Monitoring historical conditions is very important to document ongoing maintenance repairs, changes in the environment and boater use patterns. A parking facility replacement project can take 1-3 years to obtain a survey, design, engineering, planning department approvals, public notification and secure the necessary funding. The historic condition monitoring allows the owner and operator to be proactive in the programmed replacement of the restroom.

Boater Concerns, Comments and Complaints

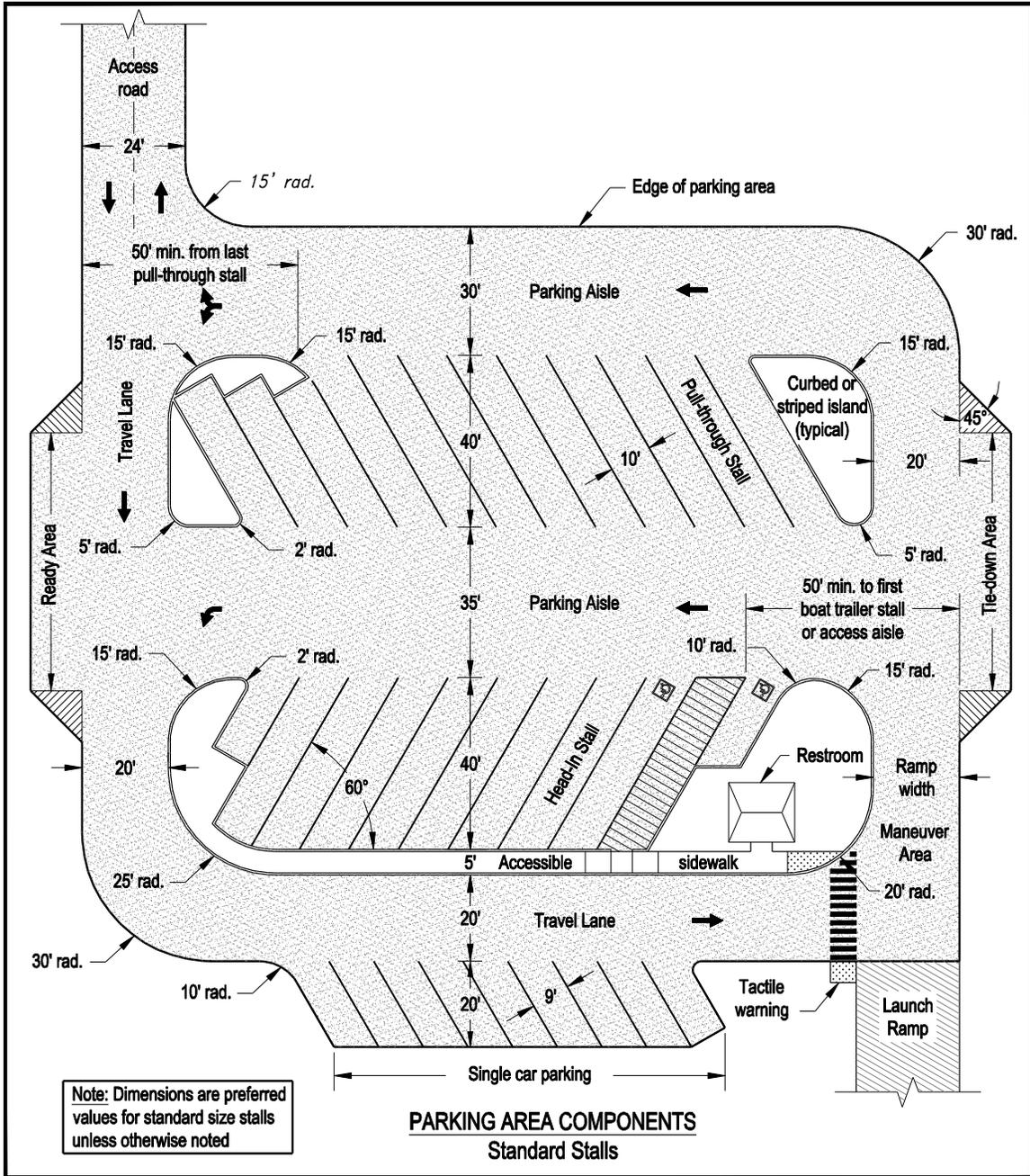
Boaters' concerns, comments or complaints can help draw attention to poor conditions, missing signs or directional features, and vandalism. The boater can become an advocate to make changes or facility improvements. Document the boater's concerns, comments and complaints. This information will be essential for future Boating Facility Grant applications.

Many boater comments about parking conditions are the result of unintended other users and vandalism. Some maintenance items should be scheduled at a time that will pose minimal impact to the boaters.

Emergency Facility Closure

In the event it is necessary to temporarily close a boating facility for safety please notify the Marine Board, Boating Facilities Section Manager immediately.

PARKING FACILITIES



Parking area components with standard size stalls

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PUMPOUT & DUMP STATIONS



Maintenance Assistance Program Manual

PUMPOUTS AND DUMP STATIONS

Purpose

For the purposes of the MAP program, portable pumpout stations, pumpouts and dump stations are for the collection of marine generated sewage from recreational boats. Pumpouts and dump stations are typically located on transient floats or marine fuel stations to provide convenient access for larger boats with holding tanks. Portable pumpout stations in general provide backup sewage collection in the event the main pumpout is not operational or to augment existing service during peak use periods. To qualify for MAP assistance, a pumpout, dump station or combination unit must be free to all recreational boaters and pumpout and dump station use must be logged and reported.

Typically, pumpouts and dump stations are installed together as combination units and have stainless steel enclosures. Fiberglass enclosures are not recommended because they are difficult to repair.

Current Marine Board specifications for pumpouts recommend the use of peristaltic style pumps in both stand-alone pumpout stations and in combination with the installation of a dump station. Marine Board siting criteria for pumpouts and dump stations take into account the amount of use by large boats with holding tanks and the amount of boats that have port-a-potties or use other containers for sewage containment. In addition, locations for pumpouts and pump stations require the availability of utilities and float infrastructure. OSMB will be adding an appendix to the *Recreational Boating Facilities Design Guidelines, Third Edition* on design criteria for pumpout and dump stations. Until then, contact OSMB with any questions.

Scope

Pumpouts and dump stations may be located on rivers, lakes, reservoirs, coastal bays and estuaries. The use of pumpout and dump stations is not restricted solely to motorized boats but MAP program participation is limited to facilities categorized as motorized or mixed-use, meaning a significant percentage of overall use at a boating facility is by motorized or registered boats. Because of these requirements, dump stations installed on waterways principally used by paddle craft are not a boating facility component eligible for MAP funding.



This manual section is intended to provide guidance for the routine, seasonal or annual maintenance and inspection of publicly owned pumpout and dump stations. Proper regular maintenance will help to ensure that Boating Facility Grant investments by the Board are protected.



Public Perception

Pumpout and dump stations are needed by boaters who have holding tanks or port-a-potties onboard. These users generally expect a high level of maintenance at these facilities. If boaters encounter a poorly-maintained pumpout or dump station, they may feel that the boating facility owner does not care about the environment. Boaters in general want to do the right thing by disposing of sewage properly. A well-maintained pumpout and dump station can be an attractive amenity for boaters who can provide a significant economic boon to local communities.

However, pumpout and dump stations because of their location being principally on transient floats can become blocked and unusable. Transient floats attract other users such as swimmers, sunbathers and anglers. These uses often conflict with boating, especially when dock space is at a premium and non-boaters interfere with boaters. Therefore, non-boaters should be discouraged or prohibited from using transient floats to avoid these conflicts and to secure use of the facility for boaters who are the intended users. In addition to conflicts, these other uses place additional wear and tear on pumpouts and dump stations by subjecting them to vandalism and unintended uses, such as fishermen cleaning their catch on top of the dump station. Vandalism reduces the overall lifespan of pumpout and dump station, necessitating even greater financial investments.



Garbage on Dump Station Impacting Use.

The boating public will highly value, an attractive, well-maintained facility where they can conveniently use the pumpout and dump station without being confronted by non-boaters or the remnants of their activities. Providing this kind of environment greatly improves the boater's experience and guarantees return visits to the facility.

Maintenance

Pumpouts and dump stations do not require intensive maintenance but need consistent routine maintenance. Timely repairs to pumpouts and dump stations help serve boaters, especially if no other facilities are the waterway. Being responsive to repairs will extend the lifespan of the facility and help avoid premature replacement.

It is the responsibility of the owner to monitor and document pumpout and dump station conditions. An inventory of current conditions should be completed prior to the start of the peak boating season (*An example of an inventory form is included in the Appendix.*) Consistent documentation provides useful comparisons of current conditions with past conditions and helps to prioritize repairs and establish a programmed approach for consistent long-term maintenance.

Historic condition review should include the following questions:

- Are the pumpout and dump station enclosures intact?
- Did the pumpout perform the 5-gallon bucket test in less or more time?
- If not, are there holes, leaks or damage to the hose and nozzle?
- Is there blockage within the line or hose?
- Does the dump station lid open easily?
- Does the dump station rinse hose have adequate pressure?
- If not, are there holes, leaks or damage to the hose or nozzle?

Routine Maintenance

The frequency of routine maintenance will largely depend on the amount of use the units receive. Routine maintenance and operation activities are typically completed on a daily, weekly or monthly schedule that is adjusted for the boating season. Proper and consistent maintenance activities ensure that the boarding floats will be clean, safe and usable for boaters; extends the useful life of a pumpout and dump station; and reduces or eliminates liability exposure for the facility owner and operator.



Pumpouts and dump stations have many components that can be replaced or repaired. A small repair that could easily be fixed can worsen and become a costly repair if left unattended. A close inspection of the pumpout and dump station should be made routinely.

Pumpouts and Portable Pumpout Stations

Pumpouts and portable pumpout stations have four pump types. The diaphragm pump is a positive displacement pump that uses a combination of the reciprocating action of a rubber diaphragm and non-return check valves to pump a fluid. These are the oldest style of equipment and are being phased out in favor of more effective and efficient peristaltic pumps.

A peristaltic pump is also a positive displacement pump. The fluid is contained within a flexible tube fitted inside a circular pump casing. A rotor with a number of "rollers", "shoes" or "wipers" attached to the external circumference compresses the flexible tube. As the rotor turns, the part of the tube under compression closes, forcing the fluid

through the tube. This is currently the most common and reliable style pumpout available for marine sewage collection.

A manual or hand pump is the other style typically used on small portable pumpout stations or on an optional pumpout located on a floating restroom. It is a diaphragm style pump but typically requires manual labor to use.



The last pump type is a vacuum pump. Currently there are none installed in Oregon at publically owned boating facilities, but installation at a large marina would be a good solution to provide direct-to-slip service.

Pumpout station design has advantages and disadvantages. The component nature of the equipment allows damaged or worn components to be replaced relatively easily. The pumpout station can be disassembled, repaired, and re-assembled. The main disadvantage to this system is the number of pieces that need to be monitored and maintained throughout the useful life of the pumpout station.

Pumpout station components to inspect on a routine basis:

(See section diagram for component location details)

- Nozzle tip
- Ball valve
- Sight glass
- Hose
- Pumpout enclosure
- Pumpout testing

Nozzle tip

The nozzle tip is the portion of the pumpout nozzle assembly that is tapered to provide universal access into a boat holding tank. The nozzle tip is removable from the assembly making replacement very easy. Using a wire tied onto quick clamp adaptor can help to avoid accidental loss and frequent replacement of the nozzle. Because the nozzle tip comes into direct contact with sewage it needs to be replaced at a minimum of once per year.

Inspect the nozzle making sure the tip is present and there is no visible cracking or wear that would prevent a seal from forming for optimal suction. Replace the nozzle as needed.

Ball valve

The ball valve is located on the nozzle assembly and acts as a manually-operated open and shut lever. The ball valve must be turned to the open position when a boater is

preparing to pumpout their holding tank. When the unit is not in use the ball valve should be in the off position.

Inspect the ball valve lever making sure the lever easily moves into the open and closed positions. After inspection place the lever in the closed position.



Sight glass

The sight glass provides a visible indicator to the boater that the pumpout is operating and when it has completed pumping the holding tank.

Inspect the sight glass for cracking or damage that can lead to leakage. If any solids are present, pump a five-gallon bucket of water through the unit to clear the sight glass. If it does not clear there may be a blockage.

Pumpout hose

The pumpout hose can come in many different lengths but the most common is 25-feet. One end of the hose is attached to the pump and the other to the nozzle assembly.

Inspect the hose for any leaks, cracks or damage. Any damage to the hose will prevent or drastically diminish suction and the unit's the ability to evacuate sewage from a boat holding tank. Damage to the hose exposes people directly to sewage which increases liability to the facility owner.



Pumpout Enclosure

The pumpout enclosure typically consists of a stainless steel or fiberglass cabinet. A clean pumpout enclosure invites boater's to use the equipment.

Inspect the interior and exterior of the pumpout enclosure and perform the following routine cleaning activities as needed:

- Clean the enclosure exterior removing bird droppings, fish guts, dirt and grime
- Remove all cobwebs or insect nests
- Pick up litter, cigarette butts or other debris on or near the enclosure
- Remove any vegetation growing on or near the enclosure.

Pumpout Testing

During routine inspections and cleaning, test the pumpout by filling a five-gallon bucket with water and timing how long it takes to empty the bucket.

Dump Stations

Dump stations capture sewage from port-a-potties or other containers. Dump stations have very few components. Because there are few working parts dumps stations are

easily repaired.

Dump station components to inspect on a routine basis:

(See section diagram for component location details)

- Rinse hose
- Interior and exterior of the enclosure
- Hinges

Rinse Hose

The rinse hose is typically located on the side of the enclosure with a kitchen sink style nozzle. The rinse hose is used to rinse remaining sewage from the port-a-potty bowl.

Inspect the rinse hose and nozzle for cracks, leaks or damage. Repair or replace as needed. Inspect water pressure making sure it is sufficient to provide adequate rinsing capability.

Interior and Exterior of Enclosure

Dump station enclosures typically consist of a stainless steel or fiberglass cabinet. A clean dump station cabinet invites boaters to use the equipment.

Inspect the interior and exterior of the dump station enclosure and perform the following routine cleaning activities as needed:

- Clean the enclosure surface removing bird droppings, fish guts, dirt and grime
- Remove all cobwebs or insect nests
- Pick up litter, cigarette butts or other debris on or near the enclosure
- Remove any vegetation growing on or near the enclosure.
- Clean and sanitize the inside making sure it drains completely



Hinges and Lid

Inspect hinges and lid for proper operation, corrosion, excessive wear, proper fit, and movement. Clean, repair, or replace, and lubricate using manufacturers recommended products.

Seasonal Maintenance

Seasonal maintenance and operation activities are typically completed on a quarterly schedule that is adjusted for the boating use season. However, the frequency of seasonal maintenance may vary depending on a number of factors including the age of the facility and its design features, the type of boating use that occurs at the facility, and local conditions.



Pumpouts and dump stations do not typically have seasonal maintenance requirements.

Annual or Bi-Annual Maintenance

Annual or bi-annual is also referred to as preseason and postseason maintenance and operation. The frequency of annual or bi-annual maintenance will largely depend upon the waterway and weather conditions. These activities typically ensure that the pumpouts and dump station will continue to provide safe and usable service to boaters.

The current conditions inventory is normally done annually or at the preseason inspection. Completing the inventory form at that time will provide documentation to compare historic and current conditions, prioritize repairs and establish a programmed approach for consistent long-term maintenance and replacement.

Structural Enclosure Inspection

Inspect the pumpout and dump station enclosure for damage and corrosion. Repair or replace as needed.

Signs and Instructions

All pumpouts and dump stations should have an international Clean Vessel Act symbol conspicuously displayed. The international sign is the indicator to boaters that a pumpout or dump station is present. Additional international signs can be located near the on-water entry into a facility. Use instructions should be located on the pumpout and dump stations.



Disconnected Hose Rack

Inspect for sign placement, fading or damage. Replace signs as needed.

Winterization

If a pumpout or dump station are seasonally closed due to freezing weather, winterization will help to protect the structure and reduce maintenance expenses when it is reopened. Typically, winterizing a pumpout or dump station requires the removal of as much water from the plumbing system as possible. Follow the owner's manual for instructions.

Repair or Replacement of Pumpouts and Dump Stations

The repair or replacement of pumpouts and dump stations will depend upon several things such as the age of the equipment, waterway and weather conditions and amount of boating use. The typical useful lifespan of pumpouts and dump stations is 10 years.

Historic condition monitoring allows the owner and operator to be proactive in the programmed replacement of the pumpout and dump station.

Boater Concerns, Comments and Complaints

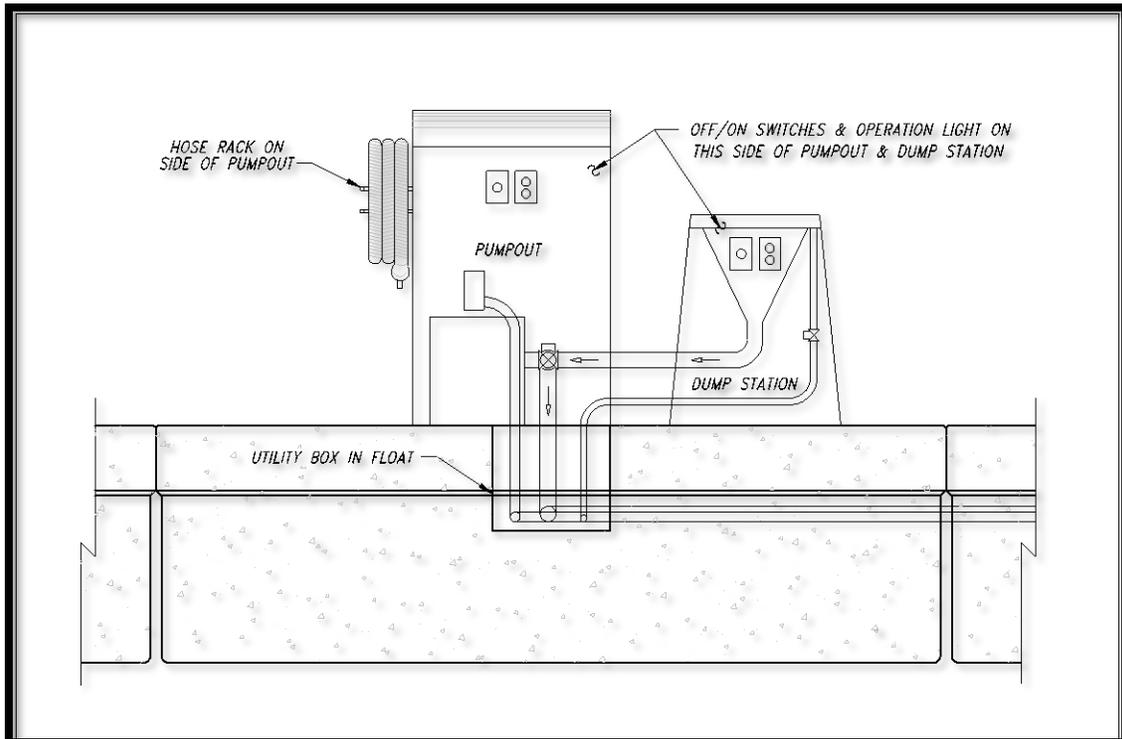
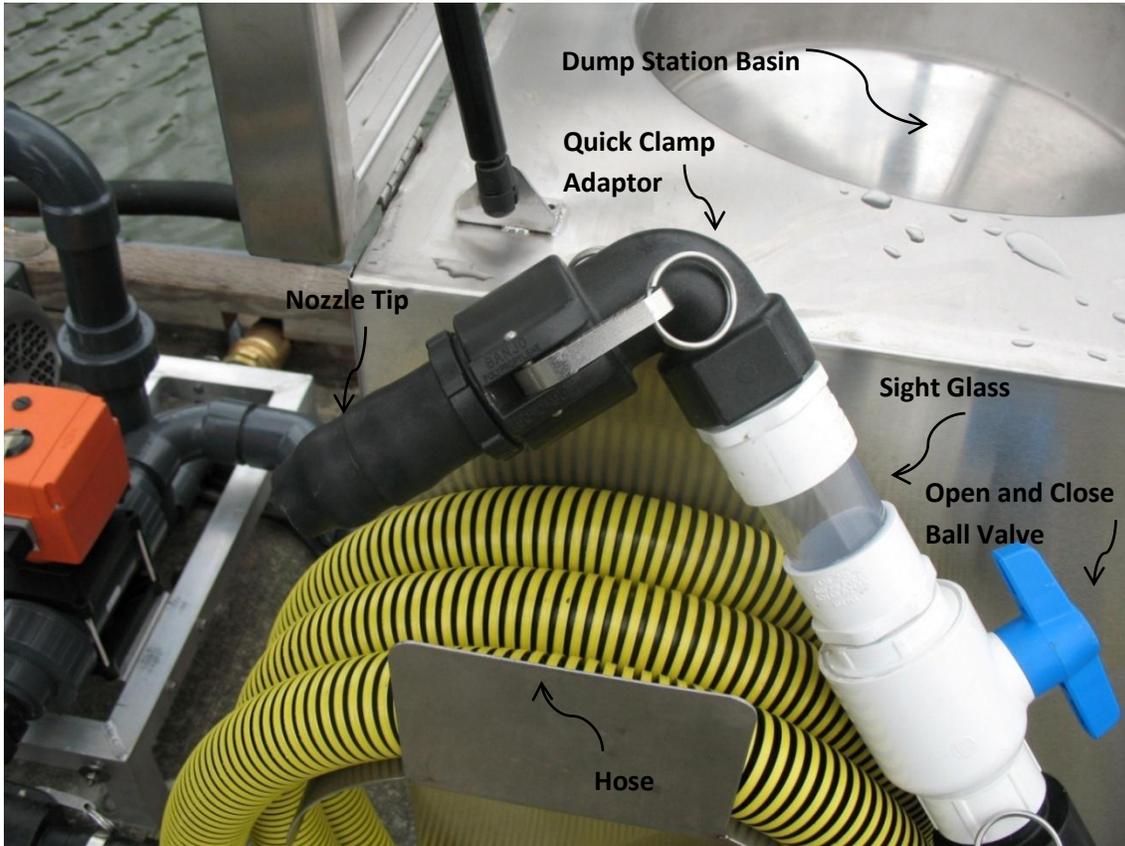
Boaters' concerns, comments or complaints can help draw attention to mechanical

issues or missing equipment. The boater can also become an advocate to make changes or facility improvements. Document the boater's concerns, comments and complaints. This information will be essential for future Boating Facility Grant applications.

Emergency Facility Closure

In the event it is necessary to temporarily close a boating facility for safety please notify the Marine Board, Boating Facilities Section Manager immediately.

PUMPOUT AND DUMP STATION



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FLOATING RESTROOM



FLOATING RESTROOMS AND TRAILERS

History

Floating restrooms were first used in Oregon in 1990. One was installed at Howard Prairie Reservoir while the other had shared use between Tillamook Bay and Detroit Lake. These units consisted of two floatation pontoons, a 400 gallon sewage holding tank, and wooden restroom building that housed two recirculating toilets. Both units were just recently retired after 20 years of service.

California Department of Boating and Waterways had been providing on-water sanitation facilities since the late 1980's. In fact, the first two Oregon units were built from plans provided by California.



First Floating Restroom in Oregon



Current Floating Restroom Model

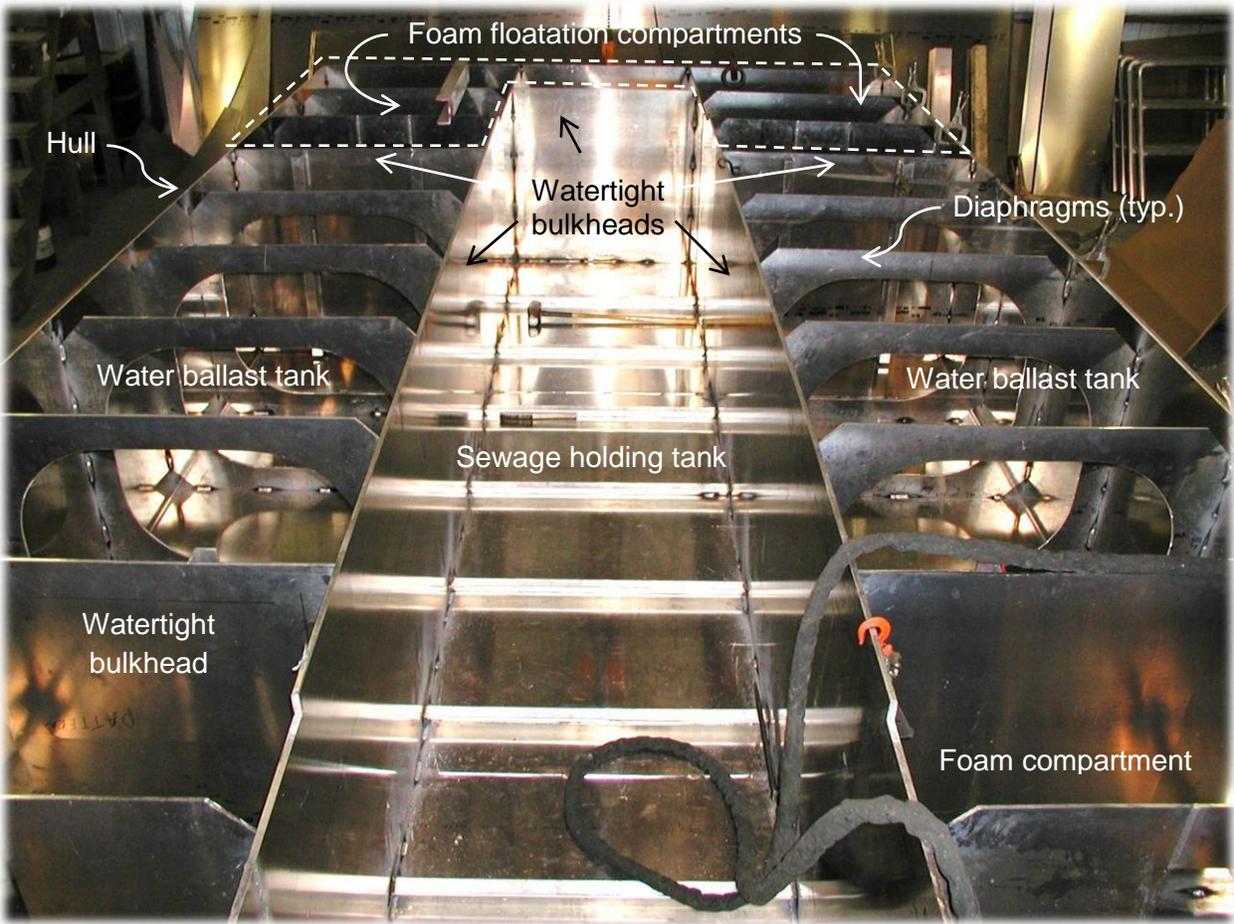
In 1995, Marine Board engineers redesigned floating restrooms to improve their stability, capacity, and durability. Stability was greatly improved by using a barge-style hull with built-in water ballasting tanks. Water ballast increases draft and decreases freeboard, which places more mass below the water surface. The result is a unit that is less likely to pitch or roll from the effects of waves and wakes. The restrooms were also given a larger footprint to increase stability and to accommodate a 1200-gallon sewage holding tank. Lastly, all wood materials were replaced with aluminum for improved durability, longevity, and lower maintenance.

The floating restroom has changed little since 1995 with the exception of the toilets. Recirculating flush toilets were initially used. These toilets are self-contained and recirculate filtered and treated waste water for flushing. Those toilets are no longer manufactured and cannot be replaced. Current models use an electronically activated flush toilet using lake or river water for each flush.

Overview

The floating restroom is comprised of three main components: barge, superstructure, and toilet system. Marine grade aluminum is used as the primary material because of its durability, corrosion resistance, longevity, and recyclability. The barge provides a structurally stable platform that supports the superstructure, which houses the toilet system. The barge also houses and protects the sewage holding tank.

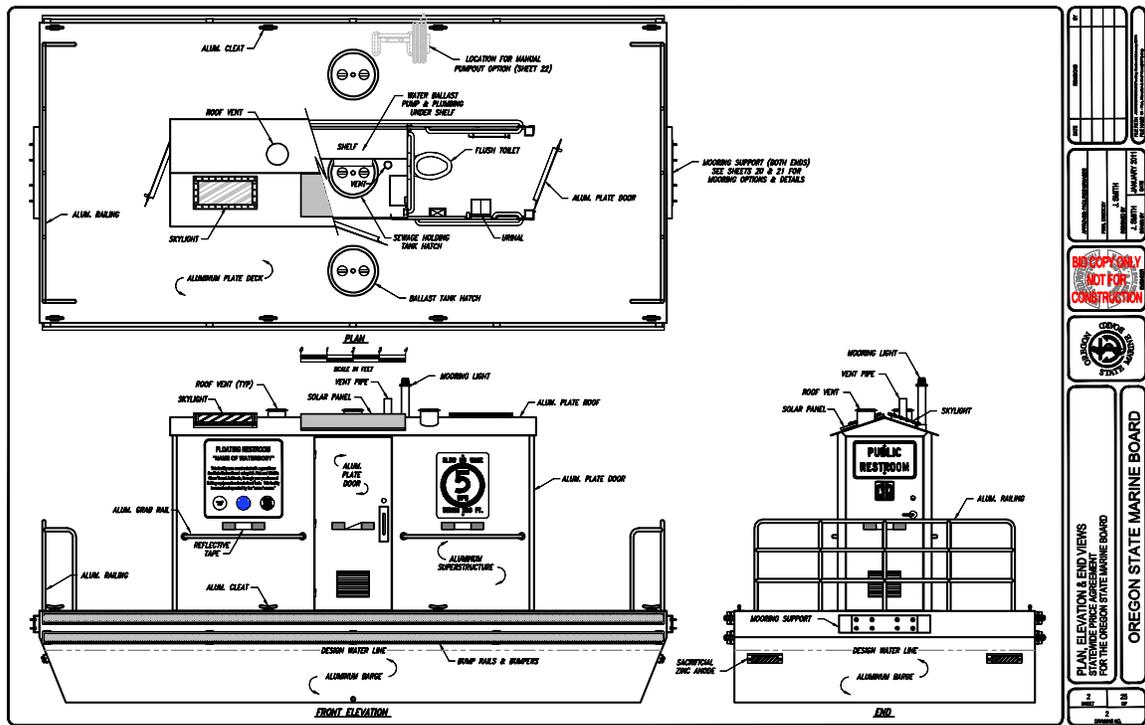
The barge is approximately 24 feet long, 11.5 feet wide, 3.5 feet deep and divided into 7 watertight compartments. The four corner compartments have foam floatation. The two side compartments (ballast tanks) are filled with water once the floating restroom is anchored in place. Each ballast tank holds 1200 gallons. Adding water ballast lowers the unit into the water, reduces the freeboard, and greatly increases the stability of the floating restroom. The center compartment is a 1200 gallon sewage holding tank of double wall construction.



Aluminum barge under construction showing internal components

The superstructure is approximately 14 feet long, 3.5 feet wide, 7.5 feet high and divided into three compartments. The superstructure is centered on the barge and provides ample access on all sides. The two end compartments are toilet rooms and

each contains a flush toilet and urinal (2001 and later). The center compartment is the mechanical room and contains the water ballast pump, low voltage power system, tank monitoring system, storage, access to the sewage holding tank and the toilet flushing equipment (2007 and later). The roof of the superstructure has skylights for each toilet compartment, vents for all three compartments, mooring light, sewage holding tank vent pipe and solar panel (2007 and later). The doors have vents, privacy locks and power closers. Grab bars are located along both sides of the superstructure and on three walls of the toilet rooms. Full width guardrails are located at each end of the floating restroom. The superstructure and barge deck have a sandblasted finish to eliminate glare and to provide a non-slip surface.



Floating Restroom drawing sheet showing plan, elevation, and end views

The recirculating toilet system (prior to 2007) consists of a fiberglass shell that houses a manually activated (foot pedal) hydraulic pump, chemical reservoir, 75 gallon holding tank and toilet bowl. The system is initially primed with 15 gallons of water and chemical. When full, a drain plug is opened and all waste is emptied into the 1200 gallon holding tank and the system is then cleaned and recharged.

The water flush toilet system (2007 and later) consists of two stainless steel flush toilets, button activated flush valves, water pump, and water holding tank. The pump supplies fresh water to a 13 gallon holding tank which meters out about ½ gallon per flush. Waste is discharged directly into the sewage holding tank after each flush. A special valve in the toilet bowl closes after each flush to retain a small amount of water in the bowl.



Toilet room with recirculating toilet



Toilet room with freshwater flush toilet

Floating restrooms are towed to a location and anchored in place by piling or a cabling system. When the sewage holding tank is full the floating restroom is towed to shore and pumped by a commercial truck sanitation service.

Purpose

For the purposes of the MAP program floating restrooms cannot be connected to shore and must be available to the public for a minimum of the three month peak boating season. Floating restrooms are located on water in areas of concentrated boating activities where there are few or no opportunities to access upland restrooms. Placing floating restrooms in these areas provide convenient access to restrooms. OSMB will be adding an appendix to the *Design Guidelines for Recreational Boating Facilities, Third Edition* on design criteria for floating restrooms. Until then, contact OSMB with any questions.

Scope

Floating restrooms may be located on rivers, lakes, reservoirs, coastal bays and estuaries. The use of floating restrooms is not restricted solely to motorized boats but MAP program participation is limited to facilities categorized as motorized or mixed-use, meaning a significant percentage of overall use at a boating facility is by motorized or registered boats. Because of these requirements, floating restrooms are not located on waterways that restrict motorized boat use.

This manual section is intended to provide for the routine, seasonal or annual maintenance and inspection of floating restrooms. Proper regular maintenance will help to ensure that Boating Facility Grant investments by the Board are protected.

Public Perception

The public expects floating restrooms to be clean, stocked and open for use. When a boater encounters a restroom that is dirty, does not have any toilet paper or is closed they may become angry and frustrated. Nobody likes to be denied use of a restroom, especially when they need one. A poorly maintained restroom can discourage boaters, especially families, from using a site. A poor experience with a restroom can often leave a lasting negative impression of the overall boating facility, the operating agency and its use of public funds.

Maintenance

Restrooms in general are not difficult to maintain but are often one of the jobs most dreaded by maintenance staff. This dread may be due to odors, improper use, or even vandalism. Regular cleaning of restrooms can help reduce objectionable odors. Floating restrooms are designed to withstand vandalism and for the most part can be washed down. The very nature of sanitation facilities require that maintenance activities be considered a daily routine. Neglected maintenance can lead to more abuse and vandalism and minor repairs can quickly become costly repairs.

Many components such as toilets, urinals, valves, pumps and other items installed in restrooms should have specific instruction or user manuals that describe maintenance and operation procedures and products to maximize the useful life of the component. If you do not have these documents, many are now available online. Keep product manuals for the life of the item.

It is the responsibility of the facility owner to monitor and document floating restroom conditions. An inventory of current conditions should be completed prior to the start of the peak boating season. *(An example of an inventory form is included in Appendix B.)* Consistent documentation provides useful comparisons of current conditions with past conditions and helps to prioritize repairs and establish a programmed approach for consistent long-term maintenance.

Historic condition review should include the following questions:

- Are restroom conditions changing?
- Are the changes creating an unsafe or environmental situation?
- If changes are occurring, how rapidly are the changes happening?
- What is causing the change in conditions?

Routine Maintenance

The frequency of routine maintenance will depend largely depend upon the amount of use the unit receives. Routine maintenance and operation activities are typically completed on a daily, weekly or monthly schedule that is adjusted for the boating use season. Proper and consistent maintenance activities ensure that the restroom is clean, safe and usable for boaters. Regular maintenance also extends the useful life of the restroom, protects the investment made at the facility, and reduces or eliminates liability exposure for the facility owner and operator.

Inside Cleaning, Stocking and Sanitizing

All styles of sanitation facilities need to be cleaned, stocked and sanitized. The cleaning, stocking and sanitizing of restrooms typically include the following routine maintenance activities:

- Clean toilets and urinals inside and out
- Wipe down walls and doors
- Sweep and mop floors
- Check and empty waste receptacles
- Check and restock toilet paper
- Clean ceiling areas, skylights and door vents removing all cobwebs, insect nests or other items
- Check and clean floor drains
- Clean the mechanical room



Outside Cleaning

Routine cleaning of the outside of the restroom should include the following:

- Remove all cobwebs, insect or bird nests
- Pick up litter, cigarette butts or other debris
- Sweep and mop deck surface to remove all bird droppings, dirt and grime
- Wash handrails and door handles

Data Recording

Check and record holding tank level with level monitor or visually by removing the deck hatch in the mechanical room.

Check and record the door counter reading (recirculating toilet units) or flush counter reading (freshwater flush units).

Recirculating Toilet

Recirculating toilets have a manually powered flushing mechanism consisting of a foot pedal connected to a diaphragm pump. Every time the foot pedal is depressed, chemically treated waste water is filtered and pumped through a hose to the underside of the toilet bowl rim and washes waste into the toilet's holding tank. A separate chemical reservoir also meters a small amount of chemical into the holding tank with each flush. The diaphragm pump is a closed hydraulic system and will not function properly if fluid is low or if there are leaks in the system.

Follow the owner's manual instructions for proper priming of the toilet. This entails placing 15 gallons of water in the toilet's holding tank and adding chemical to the water. Flush the toilet several times until chemical is visible in the flush water. The chemical is typically blue in color.

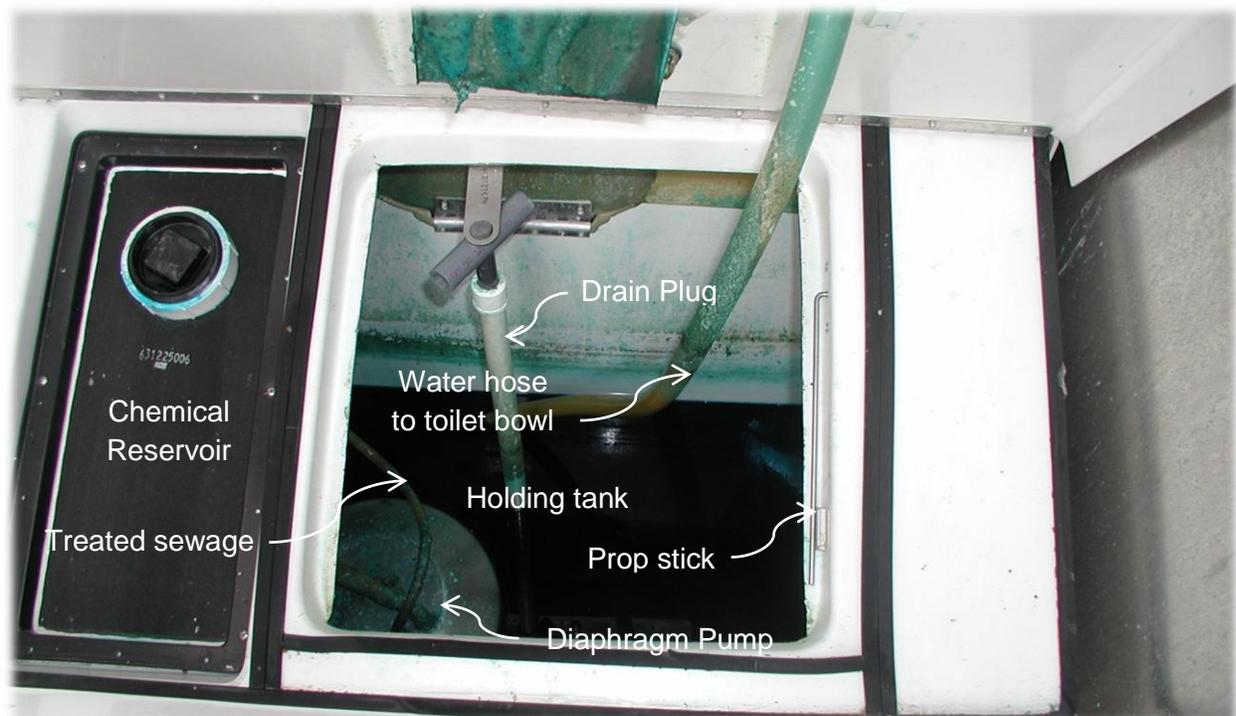
Follow the owner's manual instructions for servicing of the toilet. Always use proper gloves and other protection while servicing toilets. Servicing starts with the removal of several screws from the lid of the toilet shell and lifting the lid open. A prop stick will keep the lid open during servicing. Press down on the spring loaded drain plug to remove the plug and allow waste to drain into the main sewage holding tank. Clean and rinse the inside of the toilet's holding tank prior to replacing the drain plug. Prime the toilet, close and secure the lid.

Check the chemical reservoir during each regular servicing and add liquid chemical as needed. Observe the metering hose from the reservoir during a flush cycle to ensure that chemical is flowing.

The pump's diaphragm is the most likely part to wear out and fail. The Marine Board has several new diaphragms in stock and will supply these as needed. Other parts are not readily available since this toilet is no longer produced. Some parts such as springs or bolts may be common enough to find equivalent substitutes at a hardware store.

The chemical reservoir has a small diaphragm pump that can be disassembled, cleaned and often repaired without needing exact replacement parts.

As older floating restrooms with recirculating toilets are retrofitted with freshwater flush toilets, used parts will be recycled and available for use on these older existing units. Contact the Marine Board for the availability of a specific part.



Recirculating toilet with lid open and ready for servicing

Freshwater Flush Toilet

Since 2007, all new floating restrooms utilize pressurized freshwater flush toilets.

This system is more intricate and involves more components than recirculating toilets but provides greater efficiency, comfort and sanitation. The toilet functions like any other flush toilet except that water is kept in the bowl by means of a mechanical flapper and not a trap. The lack of a trap allows waste to directly discharge unobstructed into the sewage holding tank. Each flush injects a half gallon of water into the bowl and simultaneously opens the flapper to allow waste to discharge and then closes the flapper to allow a small amount of water to remain in the bowl.

A pump draws lake or river water into the system and stores it in 13 gallon holding tank at about 70 psi. Once the system is at pressure the pump shuts off and will not start again until system pressure drops to about 40 psi.

Each time the flush button in the toilet room is pushed, a solenoid valve opens to allow water (regulated at 40 psi) into the toilet. This valve is on a timer and will close after a preset amount of time. Generally, the valve stays open long enough to allow about a half gallon of water to pass through.

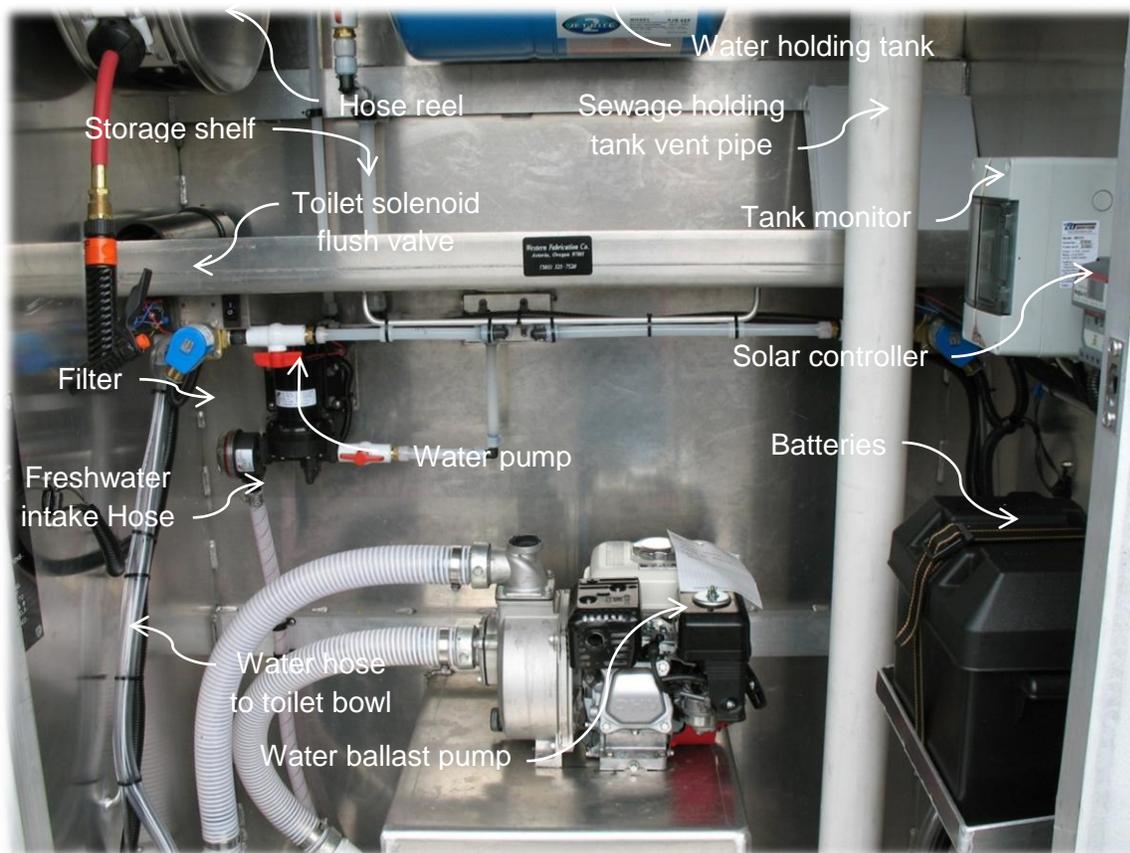
A motor attached to a cam also starts and opens the flapper valve in the bottom of the toilet bowl to allow waste to discharge and then closes to allow water to fill the bowl.

The water pump, solenoid valve, and flapper motor are powered by two 12-volt deep-cycle marine batteries that are constantly trickled charged by a controller and solar panel located on the roof of the floating restroom.

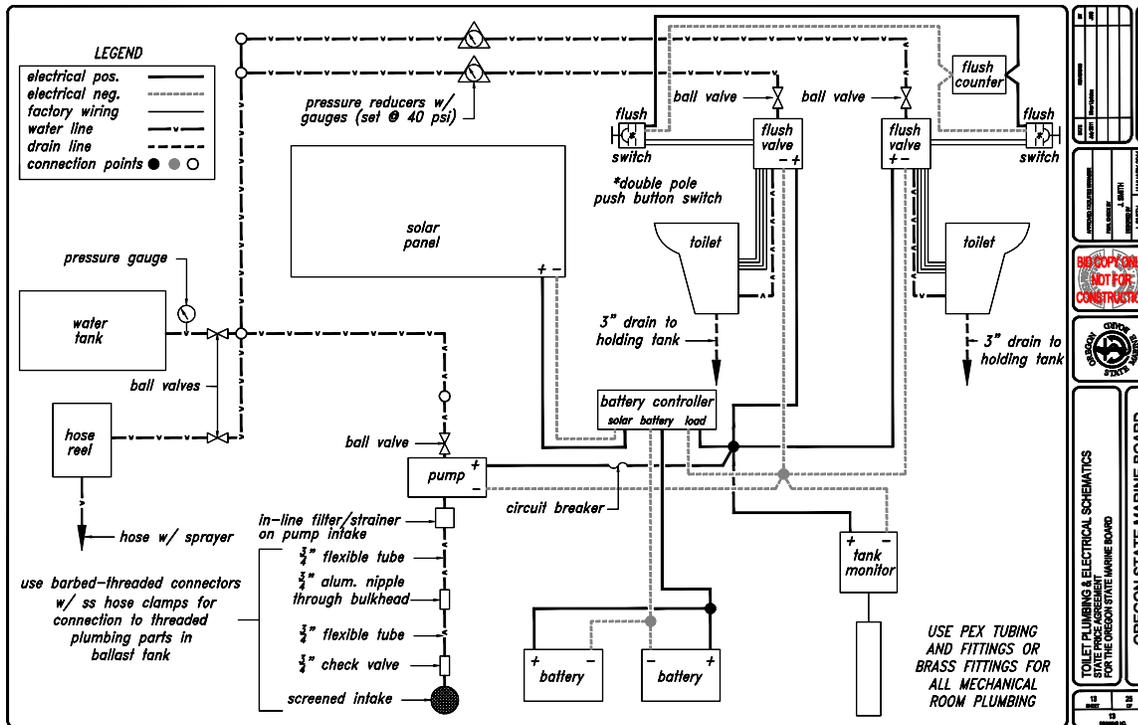
Operation and maintenance of the flushing toilet include the following:

- The water pump is self-priming once air is purged from the intake line. To initially purge the line, close the ball valve to the holding tank and open the washdown hose nozzle until water is drawn into the pump and then open the holding tank ball valve to fill the tank.
- The pump is fitted with a screened filter on the intake side and should be inspected and cleaned during routine servicing. The threaded filter cover is gasketed but adding teflon tape to the threads will help to ensure an airtight seal.
- Inspect the water pump intake hose and fittings for leaks and correct as needed. Air leaks on the intake hose can cause the pump to lose prime. When this happens the pump will generally run continuously.
- If the pump does not cut in or cut out at designed pressures, it could indicate a faulty pressure switch on the outlet side of the pump. Refer to the owner's manual for servicing or replacement.

- All floating restrooms come equipped with a spare water pump to minimize any down time if a pump should fail. The pump has quick disconnect fittings for the plumbing and electrical lines for easy replacement of the pump.
- If the solenoid valve will not shut off it usually indicates that debris is keeping the valve open. Refer to the owner's manual for instructions on disassembling and cleaning the valve. Check the diaphragm to ensure that it is not damaged.
- If the flapper motor will not work it is usually an indication that water or moisture has caused internal corrosion. The motor can be disassembled, cleaned, and reassembled with success or replaced as a unit.



Mechanical room of current floating restroom model



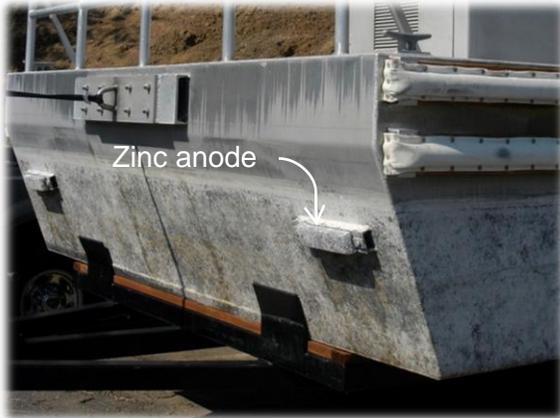
Freshwater flush toilet plumbing & electrical schematics

Seasonal Maintenance

The frequency of seasonal maintenance is based upon the amount of use the unit receives. The seasonal maintenance and operation activities are typically completed on a quarterly schedule that is adjusted for the boating use season.

Seasonal inspection and cleaning should include the following:

- Wash/scrub the rub strips along both sides of the floating restroom annually. Repair or replace any loose or damaged sections.
- The self-contained solar powered mooring light should be checked for proper operation. Repair or replace as needed. The floating restroom should never be anchored without a properly functioning mooring light.
- Check the battery terminals for corrosion or loose connections and correct as needed.
- Inspect the sacrificial zinc anodes located at both ends of the floating restroom hull. Replace damaged, deteriorated or missing zincs.



Lower portion of hull in need of cleaning



Rub strips need cleaning and repair

Signs and reflective tape

Inspect signs for vandalism, attachment, message content and normal wear and tear. Repair or replace signs, fasteners and reflective tape as necessary.

Annual or Bi-Annual Maintenance

Annual or bi-annual is also referred to as preseason and postseason maintenance and operation. The frequency of annual or bi-annual maintenance will largely depend upon the waterway and weather conditions. These activities typically ensure that the floating restrooms will continue to provide safe and usable service to boaters. The current conditions inventory is normally done annually or at the preseason inspection. Completing the inventory form at that time will provide documentation to compare historic and current conditions, prioritize repairs and establish a programmed approach for consistent long-term maintenance and replacement.

Floating Restroom Pumping

Arrangements should be made to have the tank pumped by a commercial pumping service when the sewage holding tank is 80% full. Tow the floating restroom to shore and pump the tank through the hatch located in the floor of the mechanical room.

Trailer for Launching and Retrieving

Although the base-design of the floating restroom has not changed significantly since 1995, that cannot be said for the trailer. Prior to 2007 there was one transport trailer used to deliver all floating restrooms. This trailer was constructed for highway use. Since transporting the floating restroom on the highway requires an overwidth permit and pilot car, it is best left to a professional moving company such as a mobile home carrier.

Early models of the floating restroom did receive a light duty trailer for launching, retrieving, and local on-site storage. These trailers were never designed to be used on the highway. Since 2007 every floating restroom has its own transport trailer and

remains with the unit after delivery for launch, retrieval, and storage. Although the structural design of the light duty and transport trailers varies greatly the function is similar. The trailer has a flatbed with minimal wood decking, three or four axles, and a tongue equipped with a pintle hook for hitching to a dump truck.

The operation and maintenance of the floating restroom trailer for launching and retrieval include the following activities:

- Trailer tires should be checked for proper inflation prior to each use.
- It is important that no metal-to-metal contact of the trailer framing to the underside of the floating restroom occur. Wood decking and fasteners should be inspected and repaired prior to loading the floating restroom onto the trailer.
- Current trailers are equipped with a telescoping tongue to accommodate easier launch and retrieval but should be fully retracted when towing.
- The vent stack and mooring light are removable and must be removed when towing on the highway to limit overall height.
- The floating restroom should always be secured to the trailer with two straps and the winch cable.



Floating Restroom stored on trailer



Floating restroom being launched

On-water Transport of Floating Restroom to Anchoring Location

Floating restrooms must be towed to and from the anchoring location. This is best accomplished using a work barge with a flat end but a 20-foot or larger boat with a minimum 125 hp motor will work as well. A motor with a prop is preferred to a motor with a jet. Pushing the floating restroom is preferred since it allows greater control in maneuvering and is faster. A work barge generally has the required flat end for pushing. However, a boat with a standard bow can be outfitted with a simple framework that provides a flat surface to bear against the end of the floating restroom.

The on-water transportation of the floating restroom includes the following activities:

- Always secure the boat to the floating restroom with ropes attached to the floating restroom deck cleats only.
- Always provide cushioning material between the boat and floating restroom when pushing.
- When towing (pulling) secure tow rope to front corners of floating restroom deck cleats.
- Always empty the floating restroom water ballast tanks prior to towing.
- Secure the floating restroom to floats when not anchored.
- Never allow the floating restroom to ground out on a hard surface such as concrete, asphalt or rocks.



Floating Restroom being towed



Floating restroom being pushed with a work boat

Anchoring the Floating Restroom at Destination

Floating restrooms can be anchored using one of three methods; piling, deadman, or two-point cabling (seaflex). Each is well suited to a particular application.

Driven steel piles located at both ends of the floating restroom provide a very secure connection and keep the floating restroom in a constant location. Steel piling is used when water fluctuations are small or moderate, water depth at point of anchoring is shallow, and pile driving equipment is available, feasible, and cost effective.

Deadman anchoring consists of one end of a cable/chain assembly secured to only one end of the floating restroom and the other end of the cable/chain assembly attached to concrete weights on the waterway bed. This is the simplest anchoring method but should only be used where water fluctuation is minimal and the water depth at point of anchoring is shallow. Since the floating restroom is connected at only one end it is free to pivot about the anchor point. This means that the floating restroom will constantly change position but is limited by the length of the cable/chain assembly.

Two-point cabling, or seaflex, provides the advantage of piling but is better suited to deep water situations and where and water levels fluctuate severely. Concrete anchors are set at two locations with a cable/chain/seaflex assembly attached to the concrete anchors and both ends of the floating restroom. Seaflex is an engineered cable that can stretch to twice its length. The cable/chain/seaflex assembly is winched tight, which keeps the floating restroom in position and also prevents it from rotating. As water levels change the seaflex maintains tension in the cable assemblies and a constant floating restroom position.

The anchoring of the floating restroom includes the following activities:

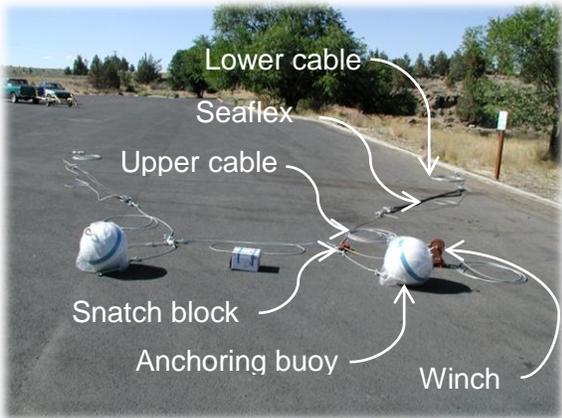
- OSMB staff will provide a complete list of anchoring parts for purchase and/or fabrication as well as detailed installation diagrams. All cables and connectors should be assembled prior to anchoring. In addition, OSMB staff will be available to assist in the anchoring process.
- Anchors are custom made from cast concrete according to specifications provided by OSMB. A backhoe is used to load the concrete anchors on blocks at one or both ends of the floating restroom deck for transport to the anchoring location. The anchors are secured with ropes to the floating restroom handrails, guardrails, and cleats during transport.
- Once the floating restroom is at the anchoring location, the cable assemblies are attached and the anchors are tipped off the deck and into the water. Final connections and adjustments are then made.
- All cabling and connections should be inspected annually and replaced as needed. Cable is susceptible to eventual breakage which often occurs near the floating restroom end. One or more submerged buoys rigidly attached to the cable will keep the lower portions of the cable assembly floating in the event of a break. This will make locating and retrieving the cable much easier.
- Snatch blocks on the seaflex system should be inspected and greased annually and replaced every other year. If the pulley on the snatch block seizes up then friction from winching the cable tight can cause undue wear on the cable and eventual failure. Snatch blocks are inexpensive and easily replaced.



Pile anchoring



Deadman anchoring



Seaflex cabling assembly



Winch end of seaflex system



Concrete anchors being loaded onto deck



Concrete anchors being deployed

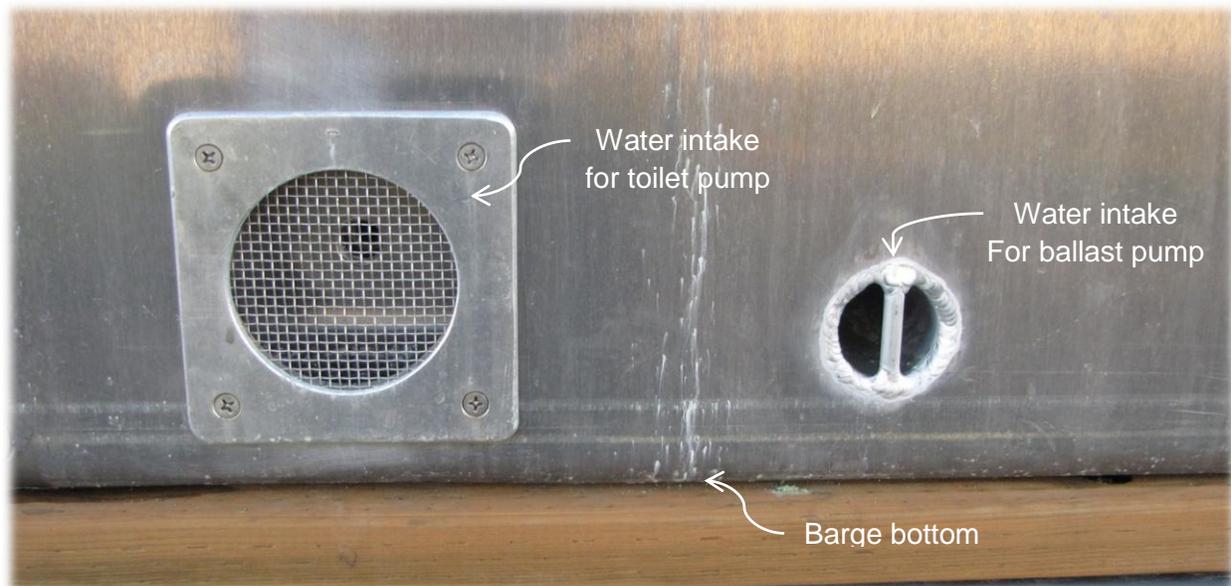
Water Ballasting

Water ballast is critical to improved stability of the floating restroom and should be added only after the floating restroom has been properly anchored. Furthermore, water

ballast should be thoroughly drained prior to towing. Complete instructions for filling and draining the water ballast tanks are posted inside the mechanical room on the left hand wall. Follow manufacturer's instructions for proper operation and maintenance of the water ballast pump. The pump is a standard gas operated trash pump. An owner's manual is included but in the event that it is lost a replacement can often be obtained on-line from the manufacturer's website.

Maintenance and operation of the water ballast includes the following activities:

- Check for plumbing leaks while pump is running and correct as needed.
- Inspect the water intake located on the side of the barge opposite the mechanical room door near the bottom. This is a screened intake and should be free of debris.
- Gas for the pump should never be stored in the mechanical room.



Freshwater intakes

End of Season Maintenance and Operation

The floating restroom should be removed from the water at the end of each boating season, winterized, and stored on the trailer. In areas where freezing is not a concern and boating activity occurs all year then the floating restroom can be left in the water. However, the unit should be removed yearly for inspection and cleaning.

Have the sewage holding tank pumped and rinsed prior to removing the floating restroom from the water.

Power wash the hull sides and bottom after removal.

Inspect the hull for damage. Any cracks or holes should be repaired by a welder certified for field welding of aluminum structures.

Winterizing

Winterizing the floating restroom is imperative and should not be overlooked. There are a number valves and piping that are susceptible to breaking if allowed to freeze.

Operations and maintenance to winterize the floating restroom includes the following:

- Drain and/or pump as much water out the water ballast system as possible
- Disconnect the flexible lines from the water ballast pump and further drain any water from lines and pump. It is recommended that compressed air be used to blow any remaining water out of the lines.
- Refer to owner's manual for proper long term storage of the water ballast pump.
- Remove ballast tank drain plugs to drain remaining water from ballast tanks. Reinstall drain plugs after draining.
- Recirculating toilets should be drained, cleaned, and dried. Refer to owner's manual for proper freeze protection of pump system.
- Flush toilet system should be thoroughly drained including the pump. Open all valves, break connections where possible, and purge lines with compressed air.
- A small electric heater capable of maintaining a temperature above freezing may be installed in the mechanical room as a safeguard.
- Pump and clean the sewage holding tank.
- Store trailered floating restroom in a level and secure location, lock all doors and chock the trailer tires.

Repair or Replacement of Restrooms

The need for repairs or replacement of floating restrooms will depend upon several things such as the age of the structure, availability of parts and amount of use it receives. Floating restroom structures typically have a long useful lifespan because the internal parts can be replaced independently of the structure.

Depending upon the current condition it may be prudent to begin the process of replacing a restroom before it is in poor condition. Monitoring historical conditions is very important to document ongoing maintenance repairs, changes in the environment, sewage disposal and boater use patterns. The historic condition monitoring allows the owner and operator to be proactive in the programmed replacement of the restroom.

Boater Concerns, Comments and Complaints

Boaters' concerns, comments or complaints by can help draw attention to mechanical issues, missing equipment, and vandalism. The boater can become an advocate to make changes or facility improvements. Document the boater's concerns, comments and complaints. This information will be essential for future Boating Facility Grant applications.

Many boater comments about restroom conditions are the result of high use. Some maintenance items should be completed at a time that will pose minimal impact to the boaters.

Emergency Facility Closure

In the event it is necessary to temporarily close a boating facility for safety please notify the Marine Board, Boating Facilities Section Manager immediately.

Maintenance Assistance Program Manual

PROGRAM RULES AND POLICIES

OAR 250-014-0004

Maintenance Assistance Program

(1) Program Description:

(a) The Board is authorized by ORS 830.150(2) (a) to provide funds for annual maintenance of improved public marine facilities.

(b) The Board is also authorized to provide federal Clean Vessel Act CFR 50 Part 85 funds made available through the U.S. Fish and Wildlife Service, to assist in the maintenance of vessel waste collection facilities, floating restrooms, and related support facilities.

(c) Federal Clean Vessel Act funds require at least a 25% non-federal match of funds, which is usually provided by the Board. All participants must agree to comply with any and all federal funding requirements.

(d) The intent of the Maintenance Assistance Program (MAP) is to augment existing levels of routine maintenance at improved public marine facilities provided by eligible participants throughout the state. Eligible participants are encouraged to use MAP funds to enhance their existing level of funding and to improve the quality of maintenance provided.

(e) This program is not intended to replace participant maintenance funds or be the sole source of funding for all boating facility maintenance. The Program is voluntary and by accepting MAP funds the participant agrees to comply with all program rules, policies and procedures.

(f) Eligible participants include cities, counties, park and recreation districts, port districts and state agencies.

(g) Eligible facilities include boat ramps, boarding floats, restrooms, parking areas, access roads, transient tie-up floats, floating restrooms, vessel waste collection systems and related facilities. To be eligible, a facility must be open at least during the peak season of use and, at a minimum, provide:

(A) A single-lane boat ramp with at least 6 vehicle/boat trailer and 2 single car parking spaces or at least 100 linear feet of transient tie-up floats; Vessel waste collection facilities; or floating restrooms.

(B) A single-stall restroom; and

(C) One garbage can.

(h) The MAP funds may be used for routine and ordinary maintenance of boating facilities to include but not limited to: cleaning boat ramps, docks, parking areas, restrooms, garbage and

litter pick up, grounds keeping, and minor repairs to eligible facilities. Federal Clean Vessel Act funds may be used for routine and ordinary maintenance of vessel waste collection facilities and floating restrooms to include cleaning, septic disposal, minor repairs and deployment and winterization.

(2) Allocation:

(a) MAP funds are provided, on an allocation basis each fiscal year, to eligible participants who own or operate eligible facilities. The amount of MAP funds available in any fiscal year shall be one-half of the biennial amount approved by the Board.

(b) Federal Clean Vessel Act funds are provided to eligible participants contingent on availability and approval by the U.S. Fish and Wildlife Service.

(c) Prior to each biennial period the Board shall approve the MAP allocation formula and point system for site elements found at eligible facilities. The point system will establish the Board's share of the estimated level of effort necessary to meet the minimum level of maintenance expectations as established by the Board. Each point has a value of \$100. The MAP payment shall be made to eligible participants annually, on or about August 1, using the allocation methodology as follows:

(A) Determine the Base Allocation for each boating facility. Calculate the number of launch lanes, boat trailer parking spaces, restroom stalls, length of boarding floats, length of transient tie-up floats, grounds and garbage service by the point values as prescribed by the Board. Multi-site participants with facilities that are only accessible by boat or participants that provide four or more facilities will receive additional points as established by the Board.

(B) Determine the Boating Facility Allocation. Adjust the Gross Allocation with a 25% reduction for each \$1 facility fee charged by the participant in excess of \$2. Facility fees may be any day use, entry, launch, parking or other fee charged to users for a single use of the boating facility. The Board will use the highest of any single use fee paid by the boater. Any fee charged over \$5 will disqualify that facility from receiving any MAP funds. The Board may prescribe other fee reduction values for transient tie-up facilities based on local or regional market conditions. Facility Allocation = Gross - (.25 Gross) (Fee \$2).

(C) The Board may balance the number of launch lanes to the number of parking spaces in conformance with the "Design Guidelines." The Board may further make adjustments for restrooms that clearly serve other developed activity areas besides boating, such as large day use areas, marinas, campgrounds and downtown areas. These facilities will assume to have joint use and points will be adjusted accordingly. The Board may further make adjustments for restrooms that have seasonal stall closures where the entire restroom facility is not open to public boating use.

(D) Adjust the Boating Facility Allocation for seasonal facility closures:

(i) 50% MAP Allocation = 3 month peak season;

(ii) 25% MAP Allocation = 3 month shoulder season;

(iii) 25% MAP Allocation = 6 month off-season.

(E) Determine Total Eligible Boating Facility Participant Allocation. Participant's annual allocation is the sum total of each eligible facility. Total Allocation = (Facility 1 + Facility 2 +...).

(d) Determine the Base Allocation for each vessel waste collection facility. Calculate the number of pumpouts, dump stations and floating restrooms by the development point values as prescribed by the Board.

(A) Adjust the Vessel Waste Collection Systems Allocation for seasonal closures when the facility is not open for public use:

(i) 50% Facility Allocation = 3 month peak season;

(ii) 25% Facility Allocation = 3 month shoulder season;

(iii) 25% Facility Allocation = 6 month off-season.

(B) Determine Total Eligible Vessel Waste Collection Systems Participant Allocation. Participant's annual allocation is the sum total of each eligible facility. Total Allocation = (Facility 1 + Facility 2 +...).

(C) Boat waste collection facilities built with Board grants are required to provide free use for the public. No user fees may be collected or charged. The facility must be open and available to the general boating public to include hoses, adapters, power and other necessary items for operation and use.

(D) The Board shall re-allocate any MAP funds remaining in the biennium to the Marine Facility Grant Program.

(3) Procedures:

(a) On or about May 15 of each year, the Board shall estimate the funds available for the next fiscal year, and shall use the point allocation in Section 2 of these rules to estimate each participant's allocation.

(b) Eligible participants shall be notified in writing of their estimated allocation for the ensuing fiscal year.

(c) For the fiscal year beginning July 1 and ending June 30, the participant shall certify by July 15 to the Board the following:

(A) The participant has adopted a budget that includes the estimated MAP allocation; and

(B) The number of eligible improved marine facilities and site elements maintained by the participant; and

(C) That the MAP funds will be spent only to maintain improved marine facilities in accordance with the MAP procedures and policies; and

(D) The season(s) of use that the improved marine facility will be open and maintained for public use; and

(E) The amount of any user fees to be charged during the fiscal year for use of the eligible boating facility by boaters. User fees include the highest of any entrance, day use, launch ramp, parking, transient moorage or other fees paid daily, monthly, or annually.

(d) Any participant that does not certify to the Board by July 15, as required above, shall be deemed to have waived participation in the MAP program.

(e) Participants allocated more than \$10,000 annually shall submit to the Board an estimated expenditure report at the end of each fiscal year period and an operations and maintenance budget outlining actual MAP and participant expenditures for labor, supplies, materials and services for all eligible sites individually. Reports shall be in the manner and form as required by the Board. Failure to submit this report within the specified time shall result in participant disqualification.

(4) Policies:

(a) It is the policy of the Board that the MAP program is designed to supplement funds expended by an eligible participant in the maintenance of improved boating facilities. The intent of the Board is to assist in improving the quality of maintenance at improved boating facilities. MAP funds may not be used to match grant funds or other capital projects.

(b) Funding for the program may be denied to an eligible participant if the Board determines that a sponsor has expended MAP funds for purposes other than those allowed by these rules, failure to provide an adequate level of maintenance, or failure to provide additional funds beyond MAP or failure to report any changes in facility user fees or season of use.

(c) It is the policy of the Board to encourage eligible participants to develop and improve the quality of facilities using the Facility Grant Program in order to reduce the cost of maintenance and operations.

(d) It is the policy of the Board to encourage free public access to the waters of this state.

(e) It is the policy of the Board to allow MAP funds to be expended on small tools and equipment capital purchases not to exceed \$1,000 for each site, provided the applicant provides sufficient maintenance that complies with expectations as established by the Board.

(f) The Board requires that park maintenance expenditure records be available to the Board for inspection and audit upon request. The Board may establish certain operation and maintenance expectations based on use, seasons and/or level of site development.

(g) Restroom facilities at each site must be available and maintained for public use whenever the boating facility is available and open for public use, but in no instance may this be less than 3 months during peak season.

(h) Only motorized and mixed use facilities are eligible for MAP. It is the policy of the Board that facilities located on bodies of water that are principally non-motorized or where motorboat use is prohibited, are not eligible for MAP.

(i) The Board may require participants to report on the maintenance needs and activities performed. The report shall be in such form and detail as the Board may require.

(j) If a participant's actual annual maintenance expenditures or budget for marine facility maintenance is less than the MAP allocation, a maximum of 10% of the total annual MAP allocation may be carried forward to the next fiscal year. All carry-forward amounts must be fully expended within that period. The participant shall reimburse the Board for any excess MAP funds not expended within the fiscal year. Failure to notify the Board of unexpended MAP funds may result in disqualification from the program.

(k) The participant shall match any MAP funds received from the Board. Participant match may include cash and/or in-kind services directly relating to maintenance of boating facilities. Participant match may only include those items relating to boating facilities and shall not include any cash or in-kind activities expended on campgrounds, marinas, fuel stations, trails, picnic shelters, swim areas or other large day use components.

(l) It is the policy of the Board that MAP funds may not exceed 60% of a participants total maintenance expenditure on boating facilities.

(m) It is the policy of the Board not to increase a participants' allocation of MAP funds during any fiscal year.

(n) MAP participants are encouraged to document any percentage of estimated in-kind matching sources to include: fleet services, overhead, program administration, higher level supervision or other general service assessments/charges. MAP participants are encouraged to develop a cost accounting system that separates out MAP funds by line item revenue and expenditures. Expenditure detail should be sufficient to demonstrate that MAP funds provided are being appropriately expended.

(o) Participants shall identify any shared use of public boating facilities such as restrooms and parking areas with non-boating use such as campgrounds, sports fields, trails, etc. Where shared use occurs, participants shall estimate the percentage of use shared facilities that is attributable to boaters.

(p) MAP funds are principally targeted for labor, supplies, or contract services that will be expended at the site. Justification will be required for expenditures for overhead, program administration, supervision or other general service assessments/charges that amount to 15% or more of MAP funds received.

(q) MAP participants that provide four or more sites may shift up to 25% of the individual MAP site allocation to other eligible MAP sites to accommodate changing use patterns, water conditions or maintenance needs, provided that minimum maintenance expectations are met at all sites.

(r) Any daily, monthly or annual use fees charged at MAP sites must be uniform for a specific class of users. No differential in-area or out-of-area annual, seasonal or day use fees may be charged at MAP sites.

[Publications: Publications referenced are available from the agency.]

Stat. Auth.: ORS 830.110 & ORS 830.150

Stats. Implemented: ORS 830.150

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Policy 93-02

Use of Facility Grant Funds or Maintenance Assistance Funds (MAP) to develop or maintain recreational transient tie-up boating facilities used by commercial tour boat operators, rental craft or other non-recreational watercraft.

Authority: ORS 830.150
OAR 250-14-001 through 004
Effective Date: 01-03-94

Definitions:

“Board” – The State Marine Board.

“Commercial Activities” – Any individual, partnership, firm, corporation, association or other entity having a financial profit as a goal and/or charges fees to provide services, supplies or goods. Includes rental, and sales of boats; charter or transport of persons for hire.

“Facility Grant” –Funds derived in part from boat registration fees and motorboat fuel taxes collected from recreational motorboats, used to provide assistance to local and state agencies in constructing and improving public recreational boating facilities statewide.

“Floats or Floating Structure” – A structure supported by polystyrene foam floatation and held in place by piling and mooring devices, including but not limited to boathouses, floating homes, marinas, and walkways, boarding floats or combination thereof, representative of one defined project.

“Maintenance/Operation” – Ordinary and routine daily or weekly activities to clean, service or perform minor repairs to existing facilities. Includes services and supplies.

“Maintenance Assistance Program (MAP)” – Funds that are provided to eligible public agencies for routine maintenance and operations of improved motorboat facilities.

“Transient Tie-Up Facility”- A platform type floating structure secured by/to piling that provides a short-term (less than 72 hours) temporary recreational boat tie-up and pedestrian access to and from a boat in the water. No boat shall tie-up for longer than 12 cumulative days in any 30 calendar day period.

“Sponsor”- Eligible Facility Grant and MAP participants that include cities, counties, park and recreation districts, port districts, state and federal agencies.

Applicable Situations

Provides guidance to sponsors for the development of use of, or conditional use of, or maintenance of recreational transient tie-up facilities for commercial activities at public recreational transient tie-up boating facilities funded in whole or in part with Marine Board Facility Grant Funds and/or use MAP Funds.

Policies

It is the policy of the State Marine Board to not allow use of any portion of publicly funded recreational transient tie-up facilities for rental craft, commercial fishing, selling, net repairs, fueling; commercial log salvage, storage, firewood pile rehandling; commercial or private float, boathouse, floating home, launching or construction; commercial tour boats temporary landing, loading, offloading, and/or use of restroom or parking facilities; commercial food/beverage/marine supply concession stands or similar activities. Some joint use exemptions may apply; see below.

Since public recreational boater fees are used for grants to develop and maintain (with MAP) public recreational transient tie-up facilities the boaters should be the principal recipients of the use and enjoyment of these facilities.

Due to safety concerns and to reduce conflicts no fishing, swimming, diving, crabbing or sunbathing is permitted on launch ramps, floats, or transient tie-up floats.

Public recreational transient tie-up facilities are not designed or engineered for use by any type of commercial activity. Mixing commercial activities with public recreational transient tie-up facilities may also create user conflicts, operations management and maintenance concerns.

A sponsor may have problems with liability/insurance associated with the use of public facilities by commercial operators; especially those charging a fee. Sponsors may not be able to claim relief under Oregon's recreational use immunity laws when commercial activities occur.

A public facility sponsor shall notify the Board of any commercial use proposed at any public recreational transient tie-up facility developed in whole or part with Marine Board Facility Grants funds.

The Board shall review and may deny, approve or conditionally approve any request for development or commercial use of recreational transient tie-up facilities based on the merits of the request, benefits to the boaters/public, impacts to structure (design/engineering), user conflicts, impacts to maintenance and operation, impacts to management of the facility and other guidelines as follows:

1. Facility Grant funds shall not be used for the feasibility, design or construction of any portion of the facility to be used for or support the use of commercial activities. If joint use is permitted the sponsor or commercial operator shall pay for those improvements necessary to support commercial activities; and
2. The sponsor and/or commercial operator shall be required to fund in whole or in part any necessary upland facilities (parking, concession stand, restroom, etc.) used to support those commercial activities; and
3. Maintenance Assistance Program funds (MAP) shall not be used for maintenance of that portion of the facility used for commercial activities. If commercial activities are approved, the Board recommends that a fee be charged by the public sponsor to assure regulatory control and proper maintenance of the facility is conducted; and
4. Commercial activity area(s) shall be clearly marked and signed to reduce conflicts with public recreational boating users. Commercial activities shall not unduly restrict the use

of the facility by recreational boaters or restrict any navigational channel or recreational activity area; and

5. No personal (exclusive, long term mooring) use of public recreational transient tie-up facilities is permitted. The transient tie-up facilities shall be available to the public on a first come first serve basis.
6. Special use of public transient tie-up facilities may be granted on a case by case basis, for public events (example visiting tall mast ships).

Note: Policy Concept approved by the Board on 8-10-93

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Policy 93-03

Use of Facility Grant Funds or Maintenance Assistance Funds (MAP) to develop or maintain recreational fish cleaning stations, boat wash facilities, and on-water fuel stations.

Authority: OAR 830.150
ORS 250-14-001

Effective Date: 01-03-94

Definitions:

“Board” – State Marine Board

“Boat Wash Facilities” – A public facility that is used by recreational boaters to clean (wash down) vessels, either in or out of water.

“Commercial Activities”- Any individual, partnership, firm, corporation, association or other entity having a financial profit as a goal and/or charges fees to provide services, supplies or goods. Includes rental, and sales of boats; charter or transport of persons for hire.

“Facility Grant” – Funds derived in part from boat registration fees and motorboat fuel taxes collected from recreational motorboats, used to provide assistance to local and state agencies in constructing and improving public recreational boating facilities statewide.

“Fish Cleaning Station” – A public facility that is used by recreational boaters/anglers for the purpose of cleaning and disposing of fish wastes.

“Fuel Floats”- A public facility on-water facility used by recreational boaters for the purpose of dispensing fuel (gasoline or diesel). The fuel float includes floats, piling, tanks on land, utilities and dispensing unit(s).

“Maintenance/Operation”-Ordinary and routine daily or weekly activities to clean, service or perform minor repairs to existing facilities. Includes services and supplies.

“Maintenance Assistance Program (MAP)” – Funds that are provided to eligible public agencies for routine maintenance and operations of improved motorboat facilities.

“Sponsor”-Eligible Facility Grant and MAP participants that include cities, counties, park and recreation districts, port districts, state and federal agencies.

Applicable Situations

Provides guidance to sponsors for the development of use of, or conditional use of, or maintenance of recreational fish cleaning, boat wash, or fuel facilities at public boating recreational boating facilities funded in part with Marine Board Facility Grant Funds and/or us MAP Funds.

Policies

It is the policy of the State Marine Board to not allow use of any commercial use of any portion of publicly funded 1) recreational fish cleaning facilities by operators or patrons of commercial charter boats and 2) fuel float facilities for rental craft, commercial repairs, fueling; loading, offloading of commercial boats; or similar activities. Some joint use exemptions may apply; see below.

Since public recreational boater fees are used for grants to develop and maintain (with MAP) public recreational fish cleaning and fuel float facilities, the boaters should be the recipients of the use and enjoyment of these facilities.

Public recreational fish cleaning and fuel float facilities are not designed or engineered for use by any type of commercial activity. Mixing commercial activities with public recreational fish cleaning and fuel float facilities may also create user conflicts, operations management and maintenance concerns.

A sponsor may have problems with liability/insurance associated with the use of public facilities by commercial operators; especially those charging a fee. Sponsors may not be able to claim relief under Oregon's recreational use immunity laws when commercial activities occur.

A public facility sponsor shall notify the Board of any commercial use proposed at any public recreational fish cleaning and fuel float facilities developed in part with Marine Board Facility Grant funds.

The Board shall review and may deny, approve or conditionally approve any request for development or commercial use of recreational fish cleaning and fuel float facilities based on the merits of the request, benefits to the boaters/public, impacts to structure (design/engineering), user conflicts, impacts to maintenance and operation, impacts to management of the facility and other guidelines as follows:

Fish Cleaning Station

1. The Board may approve grant funds on a 50/50 match basis for construction of fish cleaning stations developed at public recreational boating facilities. The Board will allow a portion of MAP funds to be used of maintenance of fish cleaning facilities; and
2. Use by operators or patrons of commercial charter boats, fish caught by bank anglers or private fish farm operations should be discouraged and/or a fee be charged by the sponsor assessed to the commercial operator or users for use of the facility. The fee charged shall be used to cover the costs of maintenance, operations, utilities, etc.; and
3. Facility Grant funds shall not be used for the feasibility, design or construction of any portion of the fish cleaning facility to be used for or support the use of commercial activities. If joint use is permitted the sponsor or commercial operator shall pay for those improvements necessary to support commercial activities.

Fuel Float Facilities

1. The Board shall approve grant funds only for a portion of the fuel floats to include the floating platform, access floats, piles and gangway. As match the sponsor shall provide fuel tanks, fuel lines and utilities, dispensing food/beverage/marine supply concession.

2. MAP funds shall not be allowed for maintenance of any portion of the fuel floats or dispensing operation. All maintenance and operation costs shall be borne solely by the sponsor using proceeds from the sale of fuel.
3. On all projects the sponsor shall be required to indemnify the Board from any liability with respect to the operation, storage or dispensing of fuel to include any accidental fuel spills.
4. The sponsor is encouraged to apply for grant funds to place a marine pumpout and/or dump station (including utilities) adjacent to the fuel floats to provide for vessel waste disposal. MAP funds are permitted to be used for the maintenance of vessel waste collection facilities.
5. Fuel floats are to be used only for short term temporary tie-up while fueling or using vessel waste collection facilities. No personal (exclusive, transient or long term mooring) use of public fuel floats is permitted.
6. The fuel float and vessel waste collection facility shall be available to the public on a first come first serve basis. Any fees collected by sponsors at the facility shall be used to support maintenance of the same.

Note: Policy Concept approved by the Board on 8-10-93

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Policy 93-04

Use of Facility Grant Funds or Maintenance Assistance Funds (MAP) to develop or maintain recreational short term overnight moorage facilities associated with upland campgrounds.

Authority: ORS 830.150
 OAR 250-14-001 through 004

Effective Date: 01-03-94

Definitions:

“Board” – State Marine Board

“Facility Grant” – Funds derived in part from boat registration fees and motorboat fuel taxes collected from recreational motorboats, used to provide assistance to local and state agencies in constructing and improving public recreational boating facilities statewide.

“Long Term Moorage” – Individual moorage/marina (slips) that are provided to recreational boaters used for a period longer than 14 days with a monthly, annual or seasonal fee charged.

“Maintenance/Operation”- Ordinary and routine daily or weekly activities to clean, service or perform minor repairs to existing facilities. Includes services and supplies.

“Maintenance Assistance Program (MAP)” – Funds that are provided to eligible public agencies for routine maintenance and operations of improved motorboat facilities.

“Short Term Moorage” – Individual moorage (slips) that are provided to recreational boaters generally associated with public campgrounds used for a period up to 14 days (or maximum length as established by the sponsor) with a daily fee charged. No boat shall occupy an individual slip for longer than 14 cumulative days (or maximum length as established by the sponsor) in any 30 calendar day period.

“Sponsor” – Eligible Facility Grant and MAP participants that include cities, counties, park and recreation districts, port districts, state and federal agencies.

Applicable Situations

Provides guidance to sponsors for the development, use of, conditional use of, or maintenance of short term overnight recreational moorage facilities. Short term overnight recreational moorage facilities (generally associated with developed public recreational campgrounds), where a daily use fee is charged, funded in part with Marine Board Facility Grant Funds and/or use MAP Funds.

Policies

It is the policy of the State Marine Board not to allow any commercial use of any portion of publicly funded short term overnight recreational moorage facilities by livery or rental operators or patrons of commercial charter boats; commercial repairs, fueling; loading, offloading of commercial boats; or similar activities. Some joint use exemptions may apply.

Since public recreational boater fees are used for grants to develop and maintain (with MAP) public recreational short term moorage facilities, the boaters should be the principal recipients of the use and enjoyment of these facilities.

Due to safety concerns and to reduce conflicts no fishing, swimming, diving, crabbing or sunbathing is permitted on launch ramp, floats, or transient tie-up floats.

Public recreational short term moorage facilities are not designed or engineered for use by any type of commercial activity. Mixing commercial activities with public recreational short term moorage facilities may also create user conflicts, operations management and maintenance concerns.

A sponsor may have problems with liability/insurance associated with the use of public boating facilities by commercial operators; especially those charging a fee. Sponsors may not be able to claim relief under Oregon's recreational use immunity laws when commercial activities occur.

A public facility sponsor shall notify the Board of any commercial use proposed at any public recreational short term moorage facilities developed in whole or part with Marine Board Facility grant Funds.

The Board shall review and may deny, approve or conditionally approve any request for development or commercial use of recreational short term moorage facilities based on the merits of the request, benefits to the boaters/public, impacts to structure (design/engineering), user conflicts, impacts to maintenance and operation, impacts to management of the facility and other guidelines as follows:

1. The Board may approve grant funds on a 50/50 match basis for construction of recreational short term moorage facilities developed adjacent to developed public overnight campground facilities.
2. Use by operators or patrons of commercial livery or rental operators or patrons of commercial charter boats; commercial repairs, fueling; loading, offloading of commercial boats; or similar activities should be discouraged and/or a fee be charged by the sponsor assessed to the commercial operator or users of the facility. The fee charged shall be used to cover the costs of maintenance, operations, utilities, etc.; and
3. MAP funds shall not be allowed for maintenance of any portion of the short term moorage facility. All maintenance and operation costs shall be borne solely by the sponsor using proceeds from the overnight slip rental; and
4. Facility Grant funds shall not be used for the feasibility, design or construction of any portion of the short term moorage facility to be used for or support the use of commercial activities. If joint use is permitted the sponsor or commercial operator shall pay for those improvements necessary to support commercial activities.
5. Commercial activity area(s) shall be clearly marked and signed to reduce conflicts with public recreational users. Commercial activities shall not unduly restrict the use of the facility by recreational boaters or restrict any navigational channel or recreational activity area; and

6. No personal (exclusive, long term mooring) use of the public short term moorage facilities is permitted. The short term moorage facilities shall be available to the public on a first come first serve basis or associated with the campground site.

Note: Policy Concept approved by the Board on 8-10-93.

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Policy 93-05

Use of Facility Grant Funds or Maintenance Assistance Funds (MAP) to develop or maintain recreational long term moorage/marina facilities.

Authority: ORS 830.150
 OAR 250-14-001 through 004

Effective Date: 01-03-94

Definitions:

“Board”- The State Marine Board.

“Commercial Activities” – Any individual, partnership, firm, corporation, association or other entity having a financial profit as a goal and/or charges fees to provide services, supplies or goods. Includes rental, and sales of boats; charter or transport of persons for hire.

“Facility Grant” – Funds derived in part from boat registration fees and motorboat fuel taxes collected from recreational motorboats, used to provide assistance to local and state agencies in constructing and improving public recreational boating facilities statewide.

“Long Term Moorage” – Individual moorage/marina (slips) that are provided to recreational boaters used for a period longer than 14 days with a monthly, annual or seasonal fee charged.

“Maintenance Assistance Program” – Funds that are provided to eligible participants for routine maintenance and operation of improved motorboat facilities. Funds are provided on an allocation basis.

“Marina Revolving Loan Program” – Offers low interest loans to eligible sponsors for acquisition, development, or rehabilitation of long term moorage/marina facilities with interest and principal paid back through slip/moorage fees.

“Sponsor”- Eligible Facility Grant and MAP participants that include cities, counties, park and recreation districts, port districts, state and federal agencies.

Applicable Situations

Provides guidance to sponsors for the development or use of, or conditional use of, maintenance of long term public recreational moorage facilities that charge a monthly, annual or seasonal fee.

Policies:

It is the policy of the State Marine Board to not fund (use facility grants) or maintain (using MAP funds) any form of public long term moorage/marina facilities or related support facilities.

The Board believes that general public recreational boater fees should not be used to construct or maintain individual slips rented on an exclusive long term basis at the exclusion of the general public.

Public long term moorage/marina facilities should be operated similar to a commercial activity with revenues collected sufficient to cover the cost of development, maintenance and operations.

To assist sponsors in the development of long term moorage facilities the Board intends to pursue the concept of a Marina Revolving Loan Program; to provide low interest loans for acquisition, development, or rehabilitation of public long term moorage facilities with interest and principal paid back through slip/moorage fees.

Note: Policy Concept approved by the Board on 8-10-93.

POLICY 93-06

Use of public recreational boat launching facilities for commercial activities, developed or maintained using Facility Grants Funds or Maintenance Assistance Funds (MAP).

Authority: ORS 830-150
 OAR 250-14-001

Effective Date: 01-03-94

Definitions:

“Board”- The State Marine Board.

“Boat Launch Facility”- Includes any type of public boat ramp, floats, parking are, restroom/toilet and any other support facilities that are ordinarily used by trailer boats to gain access to the water.

“Commercial Activities” – Any individual, partnership, firm, corporation, association or other entity having a financial profit as a goal and/or charges fees to provide services, supplies or goods. Includes rental, and sales of boats; charter or transport of persons for hire.

“Facility Grant” – Funds derived in part from boat registration fees and motorboat fuel taxes collected from recreational motorboats, used to provide assistance to local and state agencies in constructing and improving public recreational boating facilities statewide.

“Floats or Floating Structures” – A structure supported by polystyrene foam floatation and held in place by piling and mooring devices, including but not limited to boathouses, floating homes, marina, and walkways, boarding floats or combination thereof, representative of one defined project.

“Maintenance/Operation” – Ordinary and routine daily or weekly activities to clean, service or perform minor repairs to existing facilities. Includes services and supplies.

“Maintenance Assistance Program (MAP)” – Funds that are provided to eligible public agencies for routine maintenance and operations of improved motorboat facilities.

“Sponsor” – Eligible Facility Grant and MAP participants that include cities, counties, par and recreation districts, port districts and state agencies.

Applicable Situations

Provides guidance to sponsors for the development, use of, conditional use of, or maintenance of recreational transient tie-up facilities for commercial activities at public recreational transient tie-up boating facilities, funded in whole or in part with Marine Board Facility Grant Funds and/or use MAP Funds.

Policies

It is the policy of the State Marine Board to not allow use of any portion of publicly funded reaction boat launch facilities for rental craft, commercial fishing, selling, net repairs, fueling; commercial log salvage, storage, firewood, pile rehandling; commercial or private float, boathouse, floating home, launching or construction; commercial tour boats temporary landing, loading, offloading, and/or use of restroom or parking facilities; commercial food/beverage/marine supply concession stands or similar activities. Some joint use exemptions may apply.

Since public recreational boater fees are used for grants to develop and maintain (with MAP) public recreational boat launch facilities, boaters should be the principal recipients of the use and enjoyment of these facilities.

Due to safety concerns and to reduce conflicts no fishing, swimming, diving, crabbing or sunbathing is permitted on launch ramps, floats or transient tie-up floats.

Public recreational boat launch facilities are not designed or engineered for use by any type of commercial activity. Mixing commercial activities with public recreational boat launch facilities may also create user conflicts, operations management and maintenance concerns.

A sponsor may have problems with liability/insurance associated with the use of public facilities by commercial operators, especially those charging a fee. Sponsors may not be able to claim relief under Oregon's recreational use immunity laws when commercial activities occur.

Boater trailer parking spaces are provided exclusively for vehicles with recreational boat trailers. Single car parking in these spaces shall not be permitted; trailers shall not be unhooked from tow vehicles.

Parking at recreational boat launch facilities shall be for a period not longer than 72 hours to accommodate boaters engaging in boat camping activities. Alternative parking areas (designated) should be established for boaters gaining access to vacation homes, summer homes, cabins or long term boat in camping facilities. A fee may be assessed by the sponsor for these special designated parking areas to cover the cost of security, garbage collection, and trailer storage.

Any public facility sponsor shall notify the Board of any commercial use proposed at any public recreational boat launch facility developed in whole or part of Marine Board Facility Grant funds.

The Board shall review and may deny, approve or conditionally approve any request for development or commercial use of recreational public recreational boat launch facility based on the merits of the request, benefits to the boaters/public, impacts to structure (design/engineering), use conflicts, impacts to maintenance and operation, impacts to management of the facility and other guidelines as follows:

1. Facility Grant funds shall not be used for the feasibility, design or construction of any portion of the facility to be used for or support the use of commercial activities. If joint use is permitted, the sponsor or commercial operator shall pay for those improvements necessary to support commercial activities; and

2. The sponsor and/or commercial operator shall be required to fund in whole or in part any necessary upland facilities (parking, concession stand, restroom, etc.) used to support those commercial activities; and
3. Maintenance Assistance Program funds (MAP) shall not be used for maintenance of that portion of the facility used for commercial activities. If commercial activities are approved, the Board recommends that a fee be charged by the public sponsor to assure regulatory control and proper maintenance of the facility is conducted; and
4. Commercial activity area(s) shall be clearly marked and signed to reduce conflicts with public recreational users. Commercial activities shall not unduly restrict the use of the facility by recreational boaters or restrict any navigational channel or recreational activity area; and
5. No personal (exclusive, long term mooring) use of public recreational boat launching facilities is permitted. The public recreational boat launching facilities shall be available to the public on a first come first serve basis.
6. Special use of public recreational boat launching facilities may be granted on a case by case basis, for public events (example water ski tournaments, fairs, etc.).

MAP Allocation Component Point Values Year-Around Availability

Site Component	Description	Points
Launch Ramp		
	First Lane	6
	Additional Lanes	4
Boarding Floats		
	First 150-feet	3
	Additional Sections 150- feet	2
Transient Floats		
	First 100-150-feet	3
	Additional Sections 150- feet	2
Upland Sanitation		
	Portable Toilet	8
	Composting or Vault Toilet	10
	Flush Restroom	12
	Additional Stalls	4
Parking		
	First 6-30 Stalls	6
	Additional Blocks of 30	6
	Gravel Overflow	3
Garbage		
	Minimum 1 can	6
Turf and Vegetation		
	Areas only directly around boating components	6
Floating Restrooms		
	Standard 2 Stall Unit	60
Pumpout & Dump Station		
	Connected to Sewer	7
	Connected to Holding Tank	13
Pumpout Station		
	Connected to Sewer	5
	Connected to Holding Tank	11
Portable Pumpout Station		
	Empty to Sewer	5
Dump Station		
	Connected to Sewer	2
	Connected to Holding Tank	7

Attachment A

Maintenance Assistance Program 2015-2016

Sponsor:

Site Name Feature	Size/ Quantity	Use Fee \$		Fee Reduction %		Fee Adjusted Point Value
		Points Possible	Seasons of Use*	Months of Use	Seasonal Point Value	
Restroom type						
Vegetation Maintenance						
Garbage Can or Dumpster						
Paved Single Car Parking						
Paved Boat Trailer Stalls						
Hard Surface Ramp, X Lanes						
Boarding Dock, total linear feet						
Short Term Tie-Up, total linear feet						

MAP Allocation for X site elements at _____ Park

Allocation Subtotal: \$

Fee Adjustment: \$

*Seasons: P=Peak, S=Shoulder, O=Off
Minus (-) denotes partial season

MAP Grant: \$

Sample

Site Name	Program Administration MAP Funds	Program Administration Local Funds	Personnel Labor MAP	Personnel Labor Local Funds	Outside Contracts MAP Funds	Outside Contracts Local Funds	Materials & Supplies MAP Funds	Materials & Supplies Local Funds	Total MAP Funds	Total Local Funds	TOTAL
Boat Landing									7		
GRAND TOTAL	1	2		3		4		5 and 8	6		

It is the policy of the Board that the MAP Program is designed to supplement funds expended by an eligible Participant in the maintenance of improved boating facilities. The intent of the Board is to assist in improving the quality of maintenance at improved boating facilities. MAP Funds may not be used to match grant or other capital projects. OAR 250-014-004(4)(a)

- Program Administration cannot exceed 15% of MAP funds received without prior approval. Expenditures include overhead, administration, supervision, or other service charges.
- Labor costs can include but is not limited to Participant employees, volunteers, correctional work crews, or concessionaires who work on boating facility maintenance items.
- Outside contracts can include expenditures on services provided by others such as garbage/trash pickup disposal, portable toilets, utilities, plumbers or electricians.
- Materials and supplies can include purchases of expendable items or replacement items such as toilet paper, hoses, light bulbs, lumber, signs, paint, float bumpers. Small tool or equipment purchases are allowed but may not exceed \$1,000 provided the item is for maintenance of boating related facilities.
- MAP funds cannot exceed 60% of a Participant's total maintenance expenditures on boating facilities. The total within this column should equal the allocated amount of funds received plus any carry-forward from the previous year. (see 8. below)
- Participant match may include cash and/or in-kind services directly relating to maintenance of boating facilities. Participant match may only include those items relating to boating facilities and shall not include any expenditures or in-kind activities relating to campgrounds, marinas, fuel stations, trails, picnic shelters, swim area or other large day-use components.
- MAP Participants that provide four or more sites may shift up to 25% of the individual MAP site allocation to other eligible MAP sites to accommodate changing use patterns, water conditions, or maintenance needs, provided that minimum maintenance expectations are met at all sites.
- If a Participant's actual maintenance expenditures for boating facility maintenance is less than the MAP allocation, a maximum of 10% of the total annual MAP allocation may be carried forward to the next fiscal year. All carry-forward amounts must be fully expended within that period. The Participant shall reimburse the Board for any excess MAP funds not expended or inadvertently documented within the fiscal year.

MAP Expenditure Report

SITE NAME	Program Administration MAP Funds	Program Administration Local Funds	Personnel Labor MAP	Personnel Labor Local Funds	Outside Contracts MAP Funds	Outside Contracts Local Funds	Materials & Supplies MAP Funds	Materials & Supplies Local Funds	Total MAP Funds	Total Local Funds	TOTAL
									0	0	0
									0	0	0
									0	0	0
									0	0	0
TOTALS	0	0	0	0	0	0	0	0	0	0	0

I certify to the best of my knowledge that the above information is true and correct.

Agency _____

Signature _____

Title _____

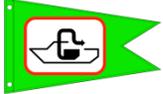
Date _____

Return completed form to: **Doug Baer, Environmental-Grants Analyst**
 Oregon State Marine Board
 PO BOX 14145
 Salem, OR 97309-5065

Or scan or fax to 503-378-4597
 Send email to douglas.baer@state.or.us

ORDER FORM ~ PUMPOUT & DUMP STATIONS

FLOATING RESTROOM

QUANTITY	DESCRIPTION
	INTERNATIONAL CLEAN VESSEL ACT (CVA) SIGN 24" x 18" 
	BOAT WASTE PUMPOUT CREDIT SIGN 18"x18" 
	CVA THANK YOU SIGN 8 ½" x 11" 
	CLEAN MARINA THANK YOU SIGN 8 ½" x 11" 
	CVA FLAG 2' X 3' 
	DIRECTIONAL STICKER FOR PUMPOUT
	DIRECTIONAL STICKER FOR DUMP
	Courtesy International Nozzles for your Pumpouts. (Limit 2 per agency)
	Diaphragm for Floating Restroom

Return order form to:

Ordered by:

OSMB-Boating Facilities
 Jennifer Peterson
 PO Box 14145
 Salem, OR 97309

Or fax to: 503-378-4597

Phone: _____

OSMB BOATING FACILITY INSPECTION FORM

GRANT MAP CVA NON-GRANT GPS VERIFY (top of ramp) _____
FACILITY NAME: _____ DATE: _____
OPERATING AGENCY: _____ COUNTY: _____
FEE: \$ _____ Parking Fee Launch Fee Entry Fee

PARKING: Grant # _____ Surface _____
of Trailer Spaces _____ # of Single Car Spaces _____ Overflow: Yes No Surface _____
of Disabled Trailer Spaces _____ # of Disabled Car Spaces _____ Access Road : Yes No
Road Surface _____ Directional Signage: Yes No Sidewalks: Yes No Curbing: Yes No
ADA Accessible Stormwater features Lights
MAINTENANCE NEEDS:
Concrete Asphalt Gravel Striping Curbing Signs Islands Turf Management Garbage
Comments: _____

RESTROOMS: Grant # _____
Flush Vault Portable Composting # of Stalls _____ Showers # of Shower Stalls: _____
MAINTENANCE NEEDS:
Cleaned/Stocked Hand Dryers/Paper Towels Odor Inside Building Outside of Building
Sinks Drinking Fountain Lights-Inside & Out ADA Access ADA Stalls (ramp, doors, grab rails, etc)
Garbage Signs Rain Gutters
Comments: _____

RAMP: Grant # _____
Plank CIP Asphalt Gravel/Dirt Pole Slide Hoist # of Lanes _____
MAINTENANCE NEEDS:
Ramp Surface Maneuver Area Staging/Ready Area Toe of Ramp Rip Rap Sediment
Comments: _____

DOCKS/DEBRIS BOOM/PILING: Grant # _____
Boarding Docks: # of Docks _____ Type: Treated Wood Untreated Wood Concrete Aluminum
Short Term Tie-Up: Yes No # of Tie-Up Spaces _____ Abutment Fixed Pier Gangway Bulkhead
Type: Treated Wood Untreated Wood Treated Wood Concrete
Piles: # of Piles _____ Type: Wood Steel
Abutment Gang Plank Traffic Delineator **Debris Boom:** Yes No Type: Polypipe Log
MAINTENANCE NEEDS:
Pile Hoops Decking Bull Rails Rub Strips Belting Piling Transition Plate
Signage Hinges Debris Traffic Delineator
Comments: _____

CVA: Grant # _____ Pumpout Dump Station Pump/Dump Combo
 Brand: _____ Meter Hours _____ Pumped 5 Gal Bucket Dry in _____ Seconds.
MAINTENANCE NEEDS: Fair 10 sec. Good 15 sec. Excellent 20 sec.
 Hose/Water Supply On/Off Switch Nozzle Operating Instructions Clean
 Dump Station Hinges International Pumpout Symbol Credit Sign
 Manual Diaphragm Peristaltic
 Comments _____

FLOATING RESTROOM: Grant # _____ Recirculating Toilets Flush
 Balance: Level Listing Mooring: Seaflex Deadman Piles
MAINTENANCE NEEDS:
 Holding Tank Level Indicator Light (Beacon) Reflective Tape Doors
 Clean/Stocked Chemical Solution Signs Buoy
 Operation & Instruction Rub Strips Door Counter Ballast Pump
 Slow No Wake Sign # Count _____
 Comments: _____

MISCELLANEOUS: Grant # _____
 Fuel: Yes No Gas: \$ _____/gal Diesel \$ _____/gal
 Garbage: Yes No Dumpster(s) Qty: _____ Full Half Full Empty
 Can(s) Qty: _____ Location _____
 Turf Sports Area Concessionaire Marina Credit Signs
 Fish Cleaning Station Fishing Pier Picnic Camping Caretaker
 Boat Wash Station
 Other Uses: _____

 Additional Comments: _____

OVERALL FACILITY RATING: Excellent (9-10) Fair (5-6)
 Good (7-8) Poor (0-4)
 Inspected By (Please Print): _____
 Copy to Operating Agency: Yes No Date Sent: _____

Boating Facility Site Use and Activity Form

Site Name:	
Location:	
Waterbody:	

Site Uses	Amount Directly Related to Motorized Boating

MAP Allocation Funding	
Launch Ramp (lanes)	\$
Boarding Floats (feet)	\$
Transient Floats (feet)	\$
Restroom (Type stalls)	\$
Parking (Type spaces)	\$
Turf (directly related to boating area)	\$
Garbage (minimum one can)	\$
Pumpout and Dump Station	\$
Pumpout Station Only	\$
Dump Station Only	\$
Floating Restroom	\$
Total	\$

Boating Facility Inventory Form Launch Ramp

Rank	Existing Condition Description
Excellent	Requires routine maintenance. Looks like new.
Good	Requires routine maintenance. Beginning to show age, slight increase in maintenance.
Fair	Requires an increase in maintenance but additional expense is minor.
Poor	Requires frequent increasing maintenance and increased expenses.

Insert Photo – Additional photos on separate sheets

Launch Ramp Average Lifespan	Inland	40 years
	Coastal	30 years

Item	Excellent Y/N	Good Y/N	Fair Y/N	Poor Y/N	Maintenance Needed or Item Monitored
Ramp Surface					
Debris & Material					
Ramp Edge					
Ramp Toe					
Cast-in-Place Concrete					
PreCast Concrete					
Trench Drains					
Abutment					

Boating Facility Inventory Form Boarding Docks

Rank	Existing Condition Description
Excellent	Requires routine maintenance. Looks like new.
Good	Requires routine maintenance. Beginning to show age, slight increase in maintenance.
Fair	Requires an increase in maintenance but additional expense is minor.
Poor	Requires frequent increasing maintenance and increased expenses.

Insert Photo – Additional photos on separate sheets

Boarding Docks Average Lifespan	Inland	15 years
	Coastal	10 years

Item	Excellent Y/N	Good Y/N	Fair Y/N	Poor Y/N	Maintenance Needed or Item Monitored
Decking					
Rub Strip					
Bull Rails					
Hinges					
Belting					
Walers					
Pile Rollers					
Grounding Rails					
Debris					
Abutment					
Traffic Delineator					
Floatation					
Piling					

Boating Facility Inventory Form Short Term Tie-Up Docks

Rank	Existing Condition Description
Excellent	Requires routine maintenance. Looks like new.
Good	Requires routine maintenance. Beginning to show age, slight increase in maintenance.
Fair	Requires an increase in maintenance but additional expense is minor.
Poor	Requires frequent increasing maintenance and increased expenses.

Insert Photo – Additional photos on separate sheets

Short Term Tie-Up Docks Average Lifespan	Inland	40 years
	Coastal	30 years

Item	Excellent Y/N	Good Y/N	Fair Y/N	Poor Y/N	Maintenance Needed or Item Monitored
Concrete Decking					
Bull Rails					
Rub Strip					
Pile Rollers					
Concrete Abutment					
Gangway					
Debris Boom					
Floatation Freeboard					
Piling					
Through Rods					
Timber Connectors					
Walers					

Boating Facility Inventory Form Restrooms and Toilets

Rank	Existing Condition Description
Excellent	Requires routine maintenance. Looks like new.
Good	Requires routine maintenance. Beginning to show age, slight increase in maintenance.
Fair	Requires an increase in maintenance but additional expense is minor.
Poor	Requires frequent increasing maintenance and increased expenses.

Insert Photo – Additional photos on separate sheets

Restrooms Average Lifespan	Inland	40 years
	Coastal	30 years

Toilets Average Lifespan	Inland	25 years
	Coastal	15 years

Item	Excellent Y/N	Good Y/N	Fair Y/N	Poor Y/N	Maintenance Needed or Item Monitored
Inside					
Outside					
Signs					
Doors/Locks/Hinges					
Lighting					
Ventilation					
Holding Tank					
Plumbing					
Electical					
Paint					
Masonry					
Metal					
Roof, Gutters, Downspouts					

Boating Facility Inventory Form Parking

Rank	Existing Condition Description
Excellent	Requires routine maintenance. Looks like new.
Good	Requires routine maintenance. Beginning to show age, slight increase in maintenance.
Fair	Requires an increase in maintenance but additional expense is minor.
Poor	Requires frequent increasing maintenance and increased expenses.

Insert Photo – Additional photos on separate sheets

Asphalt Parking Average Lifespan	Inland	20 years
	Coastal	15 years

Gravel Parking Average Lifespan	Inland	5 years
	Coastal	5 years

Item	Excellent Y/N	Good Y/N	Fair Y/N	Poor Y/N	Maintenance Needed or Item Monitored
Hard Surface Parking					
Slurry Seal					
Crack Sealing					
Chip Seal					
Overlay					
Gravel Parking					
Surface Markings					
Curbs/Islands					
Sidewalks/ Pathways					
Stormwater Features					
Lighting					

Boating Facility Inventory Form Pumpout/Dump Station

Rank	Existing Condition Description
Excellent	Requires routine maintenance. Looks like new.
Good	Requires routine maintenance. Beginning to show age, slight increase in maintenance.
Fair	Requires an increase in maintenance but additional expense is minor.
Poor	Requires frequent increasing maintenance and increased expenses.

Insert Photo – Additional photos on separate sheets

Pumpout Station Average Lifespan	Inland	8-10 years
	Coastal	8-10 years

Dump Station Average Lifespan	Inland	10-15 years
	Coastal	10-15 years

Item	Excellent Y/N	Good Y/N	Fair Y/N	Poor Y/N	Maintenance Needed or Item Monitored
Nozzle Tip					
Ball Valve					
Sight Glass					
Hose					
Pumpout Enclosure					
Rinse Hose					
Overall Appearance					
Hinges/Lid					
Structural Inspection					
Signs/ Instructions					

Boating Facility Inventory Form Floating Restroom

Rank	Existing Condition Description
Excellent	Requires routine maintenance. Looks like new.
Good	Requires routine maintenance. Beginning to show age, slight increase in maintenance.
Fair	Requires an increase in maintenance but additional expense is minor.
Poor	Requires frequent increasing maintenance and increased expenses.

Insert Photo – Additional photos on separate sheets

Floating Restroom	Inland	25 years
Average Lifespan	Coastal	25 years

Item	Excellent Y/N	Good Y/N	Fair Y/N	Poor Y/N	Maintenance Needed or Item Monitored
Inside					
Outside					
Recirculating Toilet					
Freshwater Flush Toilet					
Signs & Reflective Tape					
Holding Tank					
Trailer					
Anchoring System					
Water Ballasting					
Plumbing					
Electrical					
Solar Panels					
Ventilation					

DOUGLAS COUNTY MAINTENANCE STANDARDS AND PLANNING

Maintenance standards and planning within the park department can be classified into three categories: 1) Routine maintenance, 2) Maintenance and Construction projects, 3) Capital Improvement Projects.

- 1) Routine Maintenance Tasks that are performed on a regular or routine basis such as mowing lawns, cleaning restrooms, garbage collection, blowing parking lots and roads etc. These tasks can be done on a daily, weekly, monthly or yearly basis. Staffing, equipment and supplies can be estimated for the budget based on past present and future expectations of these tasks. With such a large diverse park system as Douglas County, it is imperative that a routine maintenance schedule is kept to ensure the maintenance standards are met.
- 2) Maintenance and Construction Projects Small to medium scale projects that are not routine in nature but can be identified through park user complaints, inspections by our crew and Caretakers, police reports, requests by our Commissioners etc. Examples of these are vandalism repair, facility maintenance, and repair, equipment breakdown, and preventive maintenance.
- 3) Capital Improvement Projects Large scale improvement projects which may be performed by our crew, but are generally done by outside contractors. Examples of this might be restroom construction, campground improvements, dock replacements or large scale facility maintenance.

Routine maintenance scheduling must first be done with a seasonal plan. This plan should be done annually and based on such factors as climate variations, growth and dormancy seasons, visitor usage, special events, full or partial park closures and staffing levels.

Maintenance and construction projects should be identified and prioritized annually. Ideally the best time for this would be in the spring at time of budget preparation. Completion of these projects generally depends on money, staffing and urgency such as a safety related repair or a high priority preventive maintenance project.

Capital Improvement Projects are identified annually at time of budget preparation and driven by Commissioner requests and revenue generated needs. These are usually done with grant funding through such agencies as Oregon State Parks, Oregon State-Marine Board, and ATV grant opportunities. They require long range planning to acquire the grant monies and required permits. Keep in mind the dates for grant cycles for upcoming year: State opportunity grants are submitted October/November, ATV Grants are due in December, and Marine Board Grants are submitted in February.

FEATURES COVERED IN MAINTENANCE STANDARDS

Lawns	Parking Lots and Roads
Trees	Benches, tables, BBQ's and Fire rings
Ornamental shrub beds	Open Spaces
Athletic Turf Fields	Trails
Restroom Facilities	Fishing Piers and Floating Docks
Recreational Facilities and Amenities	

Lawns

- Lawns will be inspected daily to be free of litter or organic debris (limbs)
- Irrigated turf areas will be mowed once weekly to a height of 2 inches
- Fertilize irrigated turf areas three times yearly. April, July, September
- Over-seed high use areas in the fall with perennial rye seed blend 8-10 lbs/1,000 sq. ft.
- Apply broad leaf herbicide annually in late spring early summer
- Blow leaves in the fall every two Weeks or as needed basis depending on weather
- Trap or bait Moles and Gophers as needed. Especially in late winter early spring when babies hatch

Trees

- Inspect all trees annually in accordance with established Hazard Tree Inspection Program.
- Maintain a Certified Arborist on contract to access pest and disease management
- Prune trees as necessary to remove dead limbs and safety hazards
- Maintain detailed records of Hazard Tree Inspections and mapping, and tree failure.
- In undeveloped sites, manage the tree stand in accordance with established forest practices to provide a balance between maximizing public safety, and maintaining the sustainability of the resources.

Ornamental Shrub Beds

- Ornamental gardens, shrub beds and ground covers will be maintained free of litter
- Size and shape of species should appropriate for their location, and not impede pathways, line of sight, landmarks or memorials
- Ground cover should be sprayed or grubbed to be kept clean of weeds and grasses
- Plants should be pruned monthly to maintain appropriate size for location
- Planter beds shall be edged and raked for appearance monthly

Athletic Turf Fields

Same maintenance as lawns with more frequent mowing, fertilizing and aerating depending on frequency and type of usage

Restroom Facilities

Restrooms will be cleaned daily to maintain them in a clean sanitary condition

- Daily cleaning will include:
- Toilets and urinals scrubbed inside with a toilet swab brush and disinfectant
- Toilets and urinals wiped down outside hand towels or brush and disinfectant
- Sink basins will be wiped down with hand towels and disinfectant
- Walls and toilet partitions will be wiped down with hand towels and disinfectant
- Floors will be swept free of dirt and mopped with a solution of bleach and water
- Toilet paper and paper towel dispensers will be checked and stocked as needed

- Mirrors and chrome fixtures will be wiped and shined with glass cleaner and hand towels
- Shower stall surfaces will be scrubbed with shower cleaner and a scrub brush
- Lights and exhaust fans will be checked for proper operation
- Exterior of the building will be inspected for cobwebs, bees and wasps and bird nests
- Sweep all sidewalks and surrounding areas to remove litter and pick up cigarette butts

Recreational Facilities and Amenities

Pavilions and Gazebos

- Pavilions shall be kept clean, sanitary and free of graffiti
- Electrical plugs, lights, sinks and water are operational and in good condition and comply with all building codes
- Pavilions shall be structurally sound, cleanly painted with no rotten lumber or rusted metal.
- Pavilions shall be relatively pest and rodent free and regularly treated for wasps and ants
- Water fountains, water faucets and hose bibs are operational
- Signage with reservations and rules information are posted in a noticeable location
- Grounds around pavilions are mowed, trimmed, and free of litter and debris
- Vegetation around pavilions shall be trimmed back to reduce hazards and not impede entry or egress

Parking Areas

- Paved parking areas should be clearly striped and marked bi-annually with traffic flow clearly delineated
- Paved areas should be clean and free of trash and debris
- Parking identification signs are secure, properly installed (level) and placed in a noticeable location and properly worded as to reflect county code
- Concrete curbing and bumper blocks are secure, not crumbling or have any exposed rebar
- Potholes greater than 6" diameter and or depth patched

Tables

- Tables shall be clean, free of rust mildew and graffiti
- Table hardware is tight and intact
- Table seats and tops are properly secured, and are smooth with no protrusions, splits, sharp edges or pointed corners
- Tables shall be painted every two years or on an as needed basis

Grills

- Grills shall be operational and free of rust and metal deterioration
- Grills shall be clean and shoveled out bi-weekly
- Grills shall be properly anchored to reduce hazards and theft.
- Low limbs, underbrush and debris shall be cleared away from the grill to reduce possible fire hazard

Trash Receptacles

- 55 gallon containers are clean; painted and free of rust with dome lids in good condition
- 95 gallon roll carts are inspected when emptied shoveled out with square point shovel if needed. Containers should be power washed annually
- Area around trash receptacle clean and free of trash and debris

Trails

- Trails are free of litter and debris
- Trails are free of obstructions; trees, branches, slides
- Trails will be inspected monthly for hazards and obstructions
- Signage should be clearly mark

Fishing Piers and Floating Docks

- Planks shall be intact, smooth, structurally sound, free of splinters, no cracks greater than X inch, with no excessive warping
- Nails, bolts and screws are flush with surface
- Handrails are structurally sound
- Bumper rails are intact with no screws protruding
- Goose and Duck dropping shall be removed weekly
- Non slip surfaces shall be repainted every three years

RESTROOM MAINTENANCE EQUIPMENT AND SUPPLIES

All restrooms shall be maintained in a clean and sanitary condition. In order to accomplish this objective, each restroom must be equipped with the proper cleaning supplies. The park shop should have bulk quantities of all the supplies needed. When obtaining supplies from the park shop, please signout what supplies you have taken from the storeroom in the book at the office. This assists in maintaining supplies and is helpful for budgeting purposes. On dispenser towels, please check out only the same number of used towels brought in for cleaning.

Your cleaning equipment should include the following:

- Broom and dustpan
- Mop bucket and wringer
- Paper cleaning towels
- Long handled scrub brush
- Bowl mop
- Sanitary gloves
- Spray bottles with triggers
- Can liners
- Sanitary Napkin bags
- Light bulbs

Your cleaning supplies should include:

- H2Orange
- Bleach
- DMQ damp mop
- H2Orange Heavy duty shower cleaner
- Urinal screens or blocks
- Toilet tissue
- Cloth towel

GARBAGE COLLECTION SCHEDULE
 SUMMER SCHEDULE MAY THRU OCTOBER.
 --MajorParks everyweek; Outer Parks. Bi Weekly .

MAJOR PARK RUN Monday and Friday

Shop.	Cleveland Rapids 41 arbage only
Fish Ladder	Pass Creek.
Amacher	Kanipe Cooper
Hestnes -garbage only	Creek Whistler's
Singleton	Bend Stanton
River Forks	

NORTH AREA RUN Tuesday

Hestnes Landing	James Wood
Cleveland Rapids	Yellow Creek Wayside
Umpqua Boat Launch	Yellow Creek Boat Launch
Mack Brown	Madison Wayside

EAST AREA RUN Wednesday

Jackson Wayside	Swiftwater
Smith Springs	Narrows
Baker	Lone Rock
Hill Creek	O.C. Brown
Cable Crossing	

SOUTH AREA RUN Thursday

Green Oaks	Herbert's Pond
Happy Valley	Carl C. Hill
Canyonville	North Myrtle

GARBAGE COLLECTION SCHEDULE

WINTER SCHEDULE

NOVEMBER THRU APRIL Major Parks weekly Outers BiWeekly

NORTH AREA RUN Monday

Shop	River Forks
Fish Ladder	Cleveland Rapids
Amacher	Pass Creek
Hestnes	Kanipe
Singleton	Cooper Creek

EAST AREA RUN Tuesday

SOUTH AREA RUN Wednesday

Green Oaks
Happy Valley
Stanton
Canyonville

Herbert's Pond
Carl C. Hill
North Myrtle

Miwaleta and Ben Irving Caretaker responsible for own Garbage. Miwaleta does Long_fibre, Ben Irving does Iverson

GARBAGE COLLECTION SCHEDULE COASTAL AREA
SUMMER SCHEDULE Mid April thru Mid October

Monday and Fridays

Shop, CVC, Whale Watch
Triangle Road
Staging Area
South Jetty Beach Access
Ork Rock
Bolin Island
Gardner Boat Launch

Riverside Boat Launch
Scottsburg
Hedden Scott
Creek Bunch
Bar Sawyer
Rapids

Wednesdays

CVC, Whale Watch
Triangle Road
Staging Area

South Jetty Beach Access
Scottsburg
Bunch Bar

WINTER SCHEDULE October thru April

Mondays and Fridays

Shop, CVC, Whale Watch
Triangle Road
Staging Area
South Jetty Beach Access
Half Moon Bay
Crab Dock
Windy Cove B
Windy Cove A

Ork Rock
Bolin Island
Gardner Boat Launch
Riverside Boat Launch
Scottsburg
Hedden
Scott Creek
Sawyer Rapid

Wednesdays

CVC, Whale Watch
Triangle Road
Staging Area
South Jetty Beach Access
Crab Dock

Windy Cove B
Windy Cove A
Scottsburg
Bunch Bar

SPRING OPENING PPROCEDURES
CAMPGROUND AND SPORT MARINA REVISED 1-19-
2010

RV SITES B1-B12

DEADLINE: MAY 01, 2010

ALL SITES:

LEVELED AND GRAVELED
PAINTED PICNIC TABLES NUMBERS
CLEANED AND PAINTED TRASH PICKED
UP
BULKHEADS ARE A SECURE
GRASS MOWED AND WEED EATEN
PEDESTAL CLEAN AND WORKING
SEWER CONNECTION CLEAN AND SERVICED
PADS WEEDED AND SPRAYED
CABLE AND WATER CONNECTIONS TIGHT POT
HOLES FILLED

RV SITES 63-80

DEADLINE: MAY 01, 2010

ALL SITES:

LEVELED AND GRAVELED
PAINTED PICNIC TABLES
NUMBERS CLEAN AND PAINTED
TRASH PICKED UP
PEDESTALS CLEAN AND SERVICED
SEWER CONNECTION CLEAN AND SERVICED
PADS WEEDED AND SPRAYED
CABLE AND WATER CONNECTIONS TIGHT POT
HOLES FILLED

RV SITES 1-34

DEADLINE: MAY 01, 2010

LEVELED AND GRAVELED PAINTED
PICNIC TABLES NUMBERS CLEAN
AND PAINTED TRASH PICKED UP
PEDESTALS CLEAN AND SERVICED
SEWER CONNECTION CLEAN AND SERVICED CHECK
ALL HOSE CONNECTIONS AND FAUCETS TRIM LOW
BRANCHES
SPRAY PADS AS NEEDED

RV SITES 35-62

DEADLINE: MAY 01, 2010

PAINTED PICNIC TABLES
NUMBERS CLEAN AND PAINTED
TRASH PICKED UP
PEDESTALS CLEAN AND SERVICED
SEWER CONNECTION CLEAN AND SERVICED CHECK
ALL HOSE CONNECTIONS AND FAUCETS TRIM LOW
BRANCHES
LOW SPOTS FILLED AND LEVELED

SPORT BOAT MARINA

'E' DOCK (BOARDING FLOAT)

REPAIR WALERS, BULL RAILS AND RUB STRIPS
CLEAN AND SERVICE PUMP OUT AND DUMP STATION
REPAINT NON SKID AS NEEDED
PRESSURE WASH AS NEEDED
PRESSURE WASH FISH CLEANING STATION

'F' DOCK

CHECK ALL CHAIN CONNECTIONS
REPAIR FINGER FLOATS
REPAIR CLEATS, WALERS AND RUB STRIPS
REMOVE EXCESS ROPES AND DEBRIS
CHECK WATER LINES AND CONNECTIONS
PRESSURE WASH AS NEEDED
REPAINT NONSKID AS NEEDED

'G' DOCK

PRESSURE WASH ALL FLOATS
CLEAN AND SERVICE PEDESTALS
CHECK CLEATS, WALERS, AND RUB STRIPS
SERVICE ALL HOSE CONNECTIONS
REMOVE ALL ROPES AND DEBRIS

'H' DOCK

PRESSURE WASH ALL FLOATS
REPAIR WALERS AND RUB RAILS
CHECK ALL CHAINS
REPAINT NON SKID AS NEEDED

ADDITIONAL WORK

REFILL HOLES ON BULKHEAD
PRESSURE WASH SIDEWALKS AND CURBSIN PARKING LOT
PRESSURE WASH RV PARK OFFICE
REPAINT RV OFFICE DECK
PRESSURE WASH FUEL TANK
REPAINT LIFT STATION

MAPLETON TRANSIENT FLOAT

REPAIR WALERS, BULL RAILS AND RUB STRIPS
PRESSUREWASH GANGWAY
PRESSURE WASH SIGNS
CLEAN AND SERVICE PUMP OUT AND DUMP STATION
PRESSURE WASH PARKING AREA AND SIDEWALK
REPAINT PARKING AREA
REPAINT INSIDE RESTROOM
PRESSURE WASH OUTSIDE RESTROOM

Sand Island: Composting Toilet Maintenance Record

Restroom#

Initials					
Date					
Door Count					
Clean Restrooms (use rubber gloves)					
Add Toilet Paper					
Check Electric System					
Inspect Tank					
Check Vent					
Mix Tank Contents (Every 1-1.5k door count)					
Add Bulk (Every 200 door count)					
Add Moisture (To About 30%)					
Remove Foreign Material					
Remove Compost					
Building Maintenance				/	

Additional Information:

Marina Mandatory Best Management Practices (BMPs)

Mandatory BMPs – Per the Port of Astoria Moorage License Agreement. The following practices must be followed by boat owners, guests, contractors, and other customers when utilizing the Port of Astoria West Mooring Basin or East Mooring Basin.

ENGINES AND BILGES

- Do not discharge bilge water, if there is a visible sheen. Use absorbent bilge pads to soak up oil and fuel.
- Recycle oil and diesel properly
- Dispose of gasoline properly.
- Do not dispose of any fuels or used oil in the dumpsters.

PAINTING AND VARNISHING

- Limit the amount of open solvents or paints on dock to one gallon.
- Always mix paints and epoxy over a tarp.
- Always use a drip pan and drop cloth.
- Spray painting and sand blasting is not allowed within the marina.
- Do not dispose of paints or solvents in the dumpsters.

SURFACE PREPARATION

- Coating, surface preparation or repair of any portion of a vessel's hull while in-water is prohibited,
- Use biodegradable cleaners and teak cleaners when possible.
- Liberally use tarps to capture all scrapings, debris, and drips.
- Stretch tarps between side of boat and dock when working over the water.
- Vacuum dust and debris every time you move the tarp or every hour;
- Reverse the boat in the slip to work on the far side.

SEWAGE

- Untreated sewage should never be discharged directly overboard.
- Store sewage in holding tanks and dispose of properly at pump-out stations.
- Ensure MSD Type 1 systems work properly and discharge only when underway. Do not discharge a Type 1 while moored in the marina.
- Use shore-side facilities as often as possible.

SOLID WASTE DISPOSAL

- Dispose of all garbage in proper shore receptacles.
- Let empty paint cans dry thoroughly before disposing in the trash.
- Recycle brown and clear glass, newspapers, cardboard and aluminum.

CHEMICAL STORAGE

- Properly store chemicals ensure lids are secure and flammable chemicals are away from ignition sources.
- Do not store more than three gallons total of paints and solvents.

GENERAL GOOD HOUSEKEEPING

- All dogs and cats must be kept on a leash and attended to at all times on the Port property. Owners are responsible to clean up after their pets..
- Dumping in the storm drains or the marina is prohibited.
- No barbecues or open flames without Port's approval.

ALL HAZARDOUS WASTE MUST BE DISPOSED OF PROPERLY CONTACT THE MARINA OFFICE@ 503-325-8279 FOR MORE INFORMATION, OR CALL THE LOCAL HAZARDOUSE WASTE COLLECTION FACILITY 503-861-0578

It's just two dollars. •

but it's important to us

The Port of Siuslaw collects the modest \$2.00 day use fee at the Marina parking lot to offset the costs of operating and maintaining the public boat ramp, boarding float, restroom and paved parking lot. The Oregon Marine Board pays just a fraction of the expense. The Port taxpayers pay the rest. We don't on the cost to help out by paying the small day use fee.

We hope you'll pay your share the next time you use the Florence Public Ramp.

. the Port of Siuslaw

Common Parts, Materials and Suppliers

This is a partial list of common marine parts and material suppliers. A larger list that includes contractors is available at our webpage at <http://www.oregon.gov/OSMB/BoatFac/index.shtml> listed under “Contractor Information”. Many parts and materials can be obtained through your local building supply or marine store. If you are having difficulty locating items please contact us.

Boarding & Self-Adjusting Floats

Floats

Empire Building Products, Coos Bay, OR, 541-269-1904
Pro-Build, Coos Bay, OR, 541-269-5988

Rub Strip-Medium Post and Dock Bumper Mod. #DB3.CU

Taylor Made Products, Gloversville, NY,
<http://www.taylormadeproducts.com/catalog>
Marina Accessories, Bellingham, WA
<http://www.marina-accessories.com/>

Pile Rollers

Henderson Marine, Richmond, CA
<http://www.hendersonmarine.com/>
Marina Accessories, Bellingham, WA
<http://www.marina-accessories.com/>

Traffic Delineators

Traffic Safety Supply, Portland, OR
<http://www.tssco.com/>

Belting

Hoffmeyer Company, Wilsonville, OR, 503-682-3555

Transient Floats

Floats

Bellingham Marine, Bellingham, WA, 360-392-1439
Shoreside, Bellingham, WA, 360-734-0735

Rub Strip

Taylor Made Products, Gloversville, NY

<http://www.taylormadeproducts.com/catalog>

Marina Accessories, Bellingham, WA

<http://www.marina-accessories.com/>

Pile Rollers

Henderson Marine, Richmond, CA

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

Marina Accessories, Bellingham, WA

<http://www.marina-accessories.com/>

Thru-Rods, Timber Connectors, Walers

Marina Accessories, Bellingham, WA

<http://www.marina-accessories.com/>

Concrete Repair

Marina Accessories, Bellingham, WA

<http://www.marina-accessories.com/>

Restroom & Toilet (Pre-Cast)

CXT 800-696-5766

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

Parking Area

Wheel Stops

Utility Vault, Wilsonville, OR, 503-682-2844

Joe Floyd, Prineville, OR, 541-447-4474

Curbing

Utility Vault, Wilsonville, OR, 503-682-2844

Paint

Current version of the ODOT Qualified Products List

Pumpout & Dump Stations

KECO, 800-900-7867

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

EMP/Sanisailor, 800-355-7867

<http://www.bestmarinepumps.com/default.html>

Edson, 508-995-9711
<http://www.edsonpumps.com/>

Electronic Monitoring
Marine Sync, San Diego, Ca
<http://www.marinesync.com/>

Floating Restroom

Door Hinges: Pacific Model Number W160-20
Sierra Pacific, 800-433-5554
www.spep.com

Dead Bolt: Best Model Number 83T-7-L-S1626
Best Access Systems, 317-849-2250
www.bestaccess.com

Lever Latch: Best Model Number 93K-OK-15D-STK626
Best Access Systems, 317-849-2250
www.bestlock.com

Door Closer: Norton Model Number P7500SS
Norton Door Controls, 877-974-2255
www.nortondoорcontrols.com

Pushplate: Model Number 8200 Series, 4-inch by 16-ince, US32D
H.B. Ives 877-671-7011
www.ives.ingersollrand.com

Door Pull: Model Number 8302-0, 4-inch by 16-inch push with 10-inch pull
H.B. Ives 877-671-7011
www.ives.ingersollrand.com

Door Holder: Model Number 452, 4-inch, PA28 finish
H.B. Ives 877-671-7011
www.ives.ingersollrand.com

Urinals: Microphor #LF-320 or equal.
Microphor 800-358-8280
www.microphor.com

Toilet Paper Holders: Model # TPD-0300-NB-SS
Aslin Industries, 541-888-2541
www.aslinindustries.com

Sanitary Napkin Disposal: Bobrick Model B-270 or equal.
Bobrick 503-640-1866
www.bobrick.com

Holding Tank Fluid Level Monitor: Model # AMC-5029 or equal.
Armstrong Monitoring Corp. 800-465-5777
www.armstrongmonitoring.com/liquid

Flush Counter: Red Lion Controls Model CUB 5 or equal.
www.redlion.net

Valves:

Paramount Supply, Portland OR 503-232-4137
Drain Valve: # CDVA1MTWBMJWUPJ
Multi-Port Valve: #7766MT6A11

Water Supply Pump: Johnson Pump Aqua Jet WD 3.5
Englund Marine Supply 800-452-6746
www.johnson-pump.com

Hose Reel: Model RHR-35 or equal
Fabwright Inc. 800-854-6464
www.fabwrightinc.com

Water Tank:
Ace Hardware Model Ht14h or equal

Solar Panel/Controller:
www.moringstarcorp.com 215-321-4457

Mooring Lights:
US Distributing 800-452-9382
www.usdistributinginc.com/catalog.html

Anchoring Plates:

US Distributing 800-452-9382

www.usdistributinginc.com/catalog.html

Winch Plates:

US Distributing 800-452-9382

www.usdistributinginc.com/catalog.html

Winch:

West Coast Wire Rope, 800-275-0482

www.wcwr.com

Pile Hoops:

Henderson Marine Supply 800-523-1586

www.hendersonmarine.com

Misc.

Signs & Reflective Tape

Oregon Corrections Enterprises, 541-881-5466