2024 COMPREHENSIVE

Des Moines Marina Master Plan

City of Des Moines

Figure 1. City of Des Moines Marina

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ACKNOWLEDGEMENTS

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The 2024 Comprehensive Marina Master Plan
was adopted by City Council in open public meeting on
_____, 2024

Thank You!
Special thanks goes out to many of our tenants who provided invaluable insight in various settings into the development of this 2024 Comprehensive Master Plan.

For any questions, comments, or feedback concerning this draft.
Please email: marinamasterplan@desmoineswa.gov.

EXECUTIVE SUMMARY

The Des Moines Marina - owned and operated by the City of Des Moines - has served the community well since its construction in 1970. Now, due to the corrosive saltwater environment, economic conditions, changing public interest, and age, many Marina facilities, and various infrastructure within the Waterfront and Redondo Zones, are in dire need of repair and replacement. The seawall, for example, will need to be reconstructed entirely from the south parking lot by A-dock to in front of CSR. The seawall in front of CSR (by approx. M-dock) to the Southeast corner of the north lot was repaired in 2009 and completion of the remainder of the seawall from the South east corner of the north lot to the north east corner of the north lot was completed by the end of 2022. The completion of the southern portion of the seawall will need to be addressed as a future capital improvement project.

Meanwhile, boating activities and trends have changed drastically since the Marina's inception and even more so since the worldwide Coronavirus pandemic. Salmon fishing and recreational crabbing seasons are now severely restricted and pleasure boating has become increasingly popular. Studies have found that boaters are "trading up" to larger boats, and family boating has replaced fishing as the dominant activity on the water. Fortunately, the Marina's 2007 bonds were paid off in 2022 allowing the opportunity to issue new bonds for Marina improvements and re-development.

Over the last few years, the Des Moines City Council, the Municipal Facilities Committee, Marina Tenants, and other interested stakeholders have studied existing conditions at the Marina, assessed repair needs, evaluated current and projected boating trends, and discussed numerous options for facility upgrades. Changes in boating trends due to the global COVID-19 pandemic preventing normal domestic and international travel, have been taken into consideration as consumers are looking for alternate means of activity such as recreational boating. Statistical, financial, and policy analysis has been provided by City Administration, consultants from the Waggoner Group, and from Paul Sorensen Principal for BST Associates. This 2024 Comprehensive Marina Master Plan summarizes and synthesizes the conclusions and recommendations for redevelopment of the Marina.

The 2024 Comprehensive Marina Master Plan also provides guidance regarding the services to be offered by the Marina in the future. Proposed changes in service may require the construction of new improvements, the removal of existing facilities, or only a minor change in daily operations. In general terms, in-water projects are intended to help the Marina maintain a competitive advantage in attracting moorage tenants and guests. Upland improvements and development will support in-water activities and make the Marina more attractive and pedestrian friendly. The 2024 Comprehensive Marina Master Plan responds to the Marina's primary purpose and function as a boating facility while simultaneously promoting the Marina as a premier destination for those arriving by alternative methods other than the boating community.

Projects identified in the 2024 Comprehensive Marina Master Plan would be implemented over the next 20 years, or more. **This document and these projects are designed to be a guideline and not an exact prediction.** All information and projects are subject to change as we move forward pending funding, permitting, etc. The below listed projects have been categorized into three tiers of relative priority.

Tier 1 projects are those that ideally would be completed in the "near term", within the next 5 to 10 years. Environmental analysis, engineering, and permitting for some of the near-term projects began in early 2021.

Tier 2 projects are those that would be completed within the next 10 to 15 years.

Tier 3 projects are those that are "long term", and ideally would be completed in the next 20+ years. The timing of Tier 2 and Tier 3 projects are subject to the availability of resources and funding.

Master Plan Recommendations Include:

Tier 1 (Near-Term) Capital Improvements

1. Tenant Restroom Replacement in south Marina lot.
2. Replacing L, M, and N docks and associated infrastructure.
3. Continued upgrades to the Marina infrastructure, specifically power and water systems.
4. Upgrade of electrical services on the guest dock, including infrastructure for charging stations for electrical vessels.
5. Planning and design for the Adaptive Purpose Building (APB) with dry stack boat storage.
6. Planning and design for a new Small Sling Hoist. (10 Ton) or alternative method of launching boats.
7. Construction of Adaptive Purpose Building with dry stack boat storage.

Tier 2 (Mid-Term) Capital Improvements

1. Replacement of the Electrical backbone from CSR South.
2. Replacement of the remaining portion of the original seawall south of CSR, to the southeast corner near the Des Moines Yacht Club.
3. Extension of the pedestrian walkway south of CSR to A dock, including construction of pedestrian amenities, such as benches, landscaping and raised concrete sidewalks.
4. Replacement/reconfiguration of D, E, F, G docks.
5. Fuel Tank upgrade.

Tier 3 (Long-Term) Capital Improvements

1. Replacing H, I, J, K docks and necessary infrastructure.
2. Improve pedestrian connections/pathways between Beach Park, Des Moines Creek trail and the Marina (Water Front Zone Project).
3. Replacement/upgrade of guest moorage restrooms and Marina office.
4. Travel lift replacement.

Completed Capital Improvements from the 2007 Master Plan

1. Replacement of the seawall between CSR & northeast wall located in the north lot.
2. Along the seawall, construction of pedestrian amenities, such as benches, landscaping and raised concrete sidewalks.
3. Improved pedestrian connections/pathways between Beach Park, Des Moines Creek Trail, and the Marina.
4. Reconfiguration of vehicular circulation areas to improve safety and efficiency.
5. Construction of new travel lift pier.
6. Dredging the entrance channel to the boat basin.
7. Reconstruction of a portion of J Dock.
8. New Electrical service from CSR North.
9. Creation of the Container Village (a community of small businesses).
10. Facilitation of SR3 Marine Mammal Rescue.
11. Secured paid parking implemented.

Project Tiers: The below spreadsheet identifies the list of Capital Improvement Projects identified for inclusion as part of this master planning effort. These projects are divided into their described tiers. The time frames and costs are not specific since implementation will likely not occur on a strict timeline and other factors likely will come to play. You will find the majority of these projects in Chapter 6 with additional information.

Proposed Priority No.	City of Des Moines, WA Project Identification	From: 2023 To: 2040+ 2023	2024	2025	2026-'28	Estimated Replacement Costs for CIP (@ 2023 Prices)
	Tier 1 Projects	*Numbers in the thousands*				
1	**Upgrade of Guest Dock Electrical** Including infrastructure for Charging stations for electrical vessels.	300 300	0	0	0	250,000.00
2	**Dock Replacement (L,M,N) (Marina)** Replace L, M, N dock with 36' - 55' slips. Upgrade waterside utilities.	0	1000 1000	14000 14000	0	14,000,000.00
3	**Tenant Restrooms (Marina)** Replace existing tenant restroom. Construct new building with four uni-sex restrooms/showers. Facility will also include at minimum 1 public restroom.	0	950 950	0	0	950,500.00
4	**Planning for Small Sling Hoist Replacement (Marina)** Planning & design process for replacement of Small Sling Hoist.	0	0	170 170	0	170,000.00
5	**Adaptive Purpose Building Planning (Marina Redevelopment - Phase 1) (Marina)** Planning and design of ADP.	0	500 500	0	0	500,000.00
6	**Marina infrastructure Upgrade to power & water** Replacement of power and water systems to docks	0	60 60	60 60	60 60	1,200,000.00
7	**Construction of APB** Replace existing dry shed facilities by incorporating them into a new structure. New structure to facilitate waterside year round farmers market and other leasable areas for retail, office, restaurants, and marine manufacturing.	0	0	4000 4000	0	4,000,000.00
	Tier 2 Projects					
8	**Electrical System Upgrades South of CSR (Marina S. Lot)** from: "A" Dock to: "L" Dock Replacement of electrical systems through the south lot of the Marina. Coordinate with South Bulkhead Replacement and parking lot lighting.	0	0	0	600 600	600,000.00
9	**Des Moines South Marina Seawall Replacement** from: "A" Dock to: "L" Dock Replace the un-finished portion of the Seawall L Dock to A dock.	0	0	0	12600 12600	12,600,000.00
10	**Extension of the Pedestrian Walkway** from: "A" Dock to: "L" Dock Including construction of pedestrian amenities such as benches landscaping and raised concrete sidewalks.	0	0	0	1500 1500	1,500,000.00

11	**Storage Lot (Waterfront Zone Redevelopment)** Marina (Property) / Waterfront Zone(Development) Coordinate with City's Redevelopment project and marina steps.	0	0	0	0	N|A
12	**Dock Replacement/Removal (F)** *(2035-2045)* Coordinate the removal/replacement of E, F, and/or G Docks as necessary. Upgrade waterside utilities.	0	0	0	0	5,000,000.00
13	**Dock Replacement/Removal (G)** *(2035-2045)* Coordinate the removal/replacement of E, F, and/or G Docks as necessary. Upgrade waterside utilities.	0	0	0	0	5,000,000.00
14	**Dock Replacement/Removal (H)** *(2035-2045)* Replace H dock with 30' slips. Upgrade waterside utilities.	0	0	0	0	5,000,000.00
15	**Dock Replacement/Removal (I)** *(2035-2045)* Replace I dock with 30' slips. Upgrade waterside utilities.	0	0	0	0	5,000,000.00
16	**Dock Replacement/Removal (J)** *(2035-2045)* Replace J dock with 30' slips. Upgrade waterside utilities.	0	0	0	0	5,000,000.00
17	**Dock Replacement/Removal (K)** *(2035-2045)* Replace K dock with 32' slips. Upgrade waterside utilities.	0	0	0	0	5,000,000.00
18	**Fuel Tank Upgrade (Marina)** *(2035-2045)* Due to the age of the fuel tanks insurance is extremely expensive and a new upgraded fuel system is required to lower those long term costs.	0	0	0	0	750,000.00
19	**Marina Master Plan "Tune up"** Tune up master Plan assumptions. Update and revise as necessary.	0	0	0	0	100,000.00
	Tier 3 Projects					
20	**Travel Lift Replacement (Marina)** *(15-20+Yrs)* Replace current Travel-lift with new, Possibly a larger machine.	0	0	0	0	700,000.00
21	**Dock Replacement/Removal (A) (Marina)** *(15-20+Yrs)* Replace existing dock.	0	0	0	0	5,000,000.00
22	**Dock Replacement/Removal (B) (Marina)** *(15-20+Yrs)* Replace existing dock.	0	0	0	0	5,000,000.00
23	**Dock Replacement/Removal (C) (Marina)** *(15-20+Yrs)* Replace existing dock.	0	0	0	0	5,000,000.00
24	**Dock Replacement/Removal (D) (Marina)** *(15-20+Yrs)* Replace existing dock.	0	0	0	0	5,000,000.00
25	**Dock Replacement/Removal (E) (Marina)** *(15-20+Yrs)* Coordinate the removal/replacement of E, F, and/or G Docks as necessary. Provide covered moorage as permitted, and upgrade waterside utilities.	0	0	0	0	13,100,000.00

26	**Guest Moorage Restrooms** *(15-20+Yrs)* Rebuild current Restroom. Rebuild Guest moorage restrooms and separate public from Tenants.	0	0	0	0	1,000,000.00
27	**Marina Office Replacement** Replacement may be incorporated with the APB development.	0	0	0	0	2,300,000.00
28		0	0	0	0	
29		0	0	0	0	
	TOTAL	$0	$0	$0	$0	103,720,500.00

Last column reflects an **estimated cost for each Capital Improvement Project listed. These are very rough estimates and also reflect 2023 estimated prices. Inflation is expected.*

TABLE OF CONTENTS

1. INTRODUCTION

Background

The previous *2007 Comprehensive Marina Master Plan* was adopted by the Des Moines City Council in late 2008. The general purpose of that plan was to determine what major repairs and capital replacements would be needed to keep the facility operating in its current configuration. Although the plan identified some long-term needs, its intent was to focus on needs through 2020. At the same time, the City Council also adopted a rate plan that included a capital component to help fund the improvements. Major projects completed under that plan include replacement of the underground fuel tanks and fuel delivery system, the repair of 800 hundred feet of the seawall, the purchase of the quartermaster property, and various maintenance project Marina wide. The rate plan also produced capital savings of approximately $1.4 million dollars by the end of the planning horizon, resources that will be used to fund dock replacements as part of the 2024 Comprehensive Marina Master Plan.

In 2007, the Council directed the Marina staff to look at longer-term capital needs. Since the recreational boating industry had changed significantly since the Marina began operation in 1970, staff analyzed the services and facilities offered to see if they matched both current and future boater needs. The result of that analysis was the *2007 Comprehensive Marina Master Plan*, which included elements of a long-term business plan for the Marina as well as a plan for replacing major capital assets. A significant element of the Plan included expanding the in-water guest moorage facilities at the Marina's north end and reconfiguration of the permanent moorage to accommodate larger boats.

The 2024 Comprehensive Marina Master Plan represents an update to the *2007 Comprehensive Marina Master Plan*. It includes a preferred commercial development option based on continued changing conditions within the boating community and newly emerging opportunities to improve upland facilities that will provide additional much needed revenue streams, as well as further refinement of the permanent moorage reconfiguration options. This document will also identify the three separate revenue/expenditure zones that have been developed; the Enterprise Funded Marina Zone, the City's General funded Waterfront Zone and the Redondo Zone.

Marina Vision: The Des Moines Marina is the Crown Jewel of Des Moines. It is a significant asset that serves a dual purpose. It provides the boating community – locally, regionally, and internationally – the opportunity to enjoy the unique qualities and characteristics of the Des Moines community, and, it allows the Des Moines community to interface with the ambiance of a functional waterfront Marina with breathtaking views of the Puget Sound.

Goals

From the outset, the primary goal for this planning process was to focus on the Marina's core business activities and develop a plan to keep the facilities and services in high demand with recreational boaters. In keeping with the Marina vision as a place for the general public, a second goal is to develop long-range plans for improving facilities used by non-boating visitors. Four tasks have been identified to accomplish these goals:

- Review current conditions of the marina and its assets as well as identify future needs.
- Develop a strategic investment and financial plan for the long term sustainability of the water side of the Marina.
- Determine when and how each of the Marina's major assets will be managed, maintained, and upgraded or replaced.
- Develop a plan for the Marina uplands that creates safe and inviting pedestrian areas, and identifies facilities and amenities that serve the general public, the boating community, and at the same time, generate additional revenue streams for the Marina.

Planning and Analysis Process

This update draws heavily on the work completed under the *2007 Comprehensive Marina Master Plan*, and more recent efforts including public outreach, meetings with the City Council, the Municipal Facilities Committee, interested stakeholders, as well as interviews with Marina staff, and a variety of special studies. All background reports and studies are available at the Marina office or on the Marina's website.

Several new studies have also been completed since 2007 and have been incorporated with this update.

New studies and reports include the following:

- *Des Moines Marina Service Life Report.* The Service Life Report provides a detailed analysis of the condition of the Marina docks and boat use areas. The draft report was completed in December 2020 by Reid Middleton.
- *Limited Tax General Obligation Bonds, 2022 option.* This is a summary of the current Debt profile and debt capacity completed January 2021 by Key Bank for new bond scenarios.
- *Waggoner Marina Survey.* This report summarizes the results of the Waggoner Marine Consulting project to evaluate the Marina. Completed in March 2019 by Waggoner Marine Services.
- *Waggoner Marina Phase 2 Study.* This report summarizes the results of the Waggoner Marine Consulting project to evaluate the Marina. Completed in March 2021 by Waggoner Marine Services.
- *Passenger Only Ferry Service Study*, by Diedrich*RPM, along with participation in PSRC – kpff study.
- *Marina Redevelopment Studies*, prepared by the Holmes Group
- *Marina Redevelopment RFQ (Land Side)*

- *Des Moines Marina Electrical Upgrade Study,* by Wood/Harbinger Inc. Provided engineering and design services for the Marina's Upgrades to the Power Distribution System Project (Phase1), *Phase 1 was the northern upgrades.*
- *2022 BST Associates Demand and Analysis Study*
- *2022 Moffat & Nichol Financial Feasibility Study*
- *2022 Moffatt & Nichol Marina Replacement Plan/Conceptual Design Report*
- *2022 Des Moines Marina Boat Launch Technical Memorandum by Exeltech*

Community Outreach

Municipal Facilities Committee

The Marina staff meets with the City Council's Municipal Facilities Committee to keep the group informed and updated on all projects within the Marina, along with receiving feedback and direction before presentations are made to the entire Council.

Argosy Boat Community Meeting

In September 2017 City Staff and City Council members met with the Des Moines Community regarding future options for Marina development. Argosy Boats graciously donated and docked a vessel at the Marina. The boating community and surrounding Des Moines residents were invited to join, thus having the opportunity to voice their opinions and make choices on what their hopes for future Marina upland development may be considered. Ranking high on the lists were a year round Farmers Market, Boutique Hotel, Restaurants and a Brewery.

Des Moines Yacht Club Community Meeting

In October 2017, the Marina and City Staff along with City Council met with the Boating community along with residents of the Marina district to highlight the thoughts and suggestions from the Argosy meeting, and encouraged those that attended or those that missed the Argosy, an opportunity to voice their thoughts and concerns.

Des Moines Marina Association (DMMA) Meetings

The Marina staff met, with the DMMA, pending staff availability, to help keep the lines of communication open by updating them with information on current Marina operations as well as future visions. The Harbormaster also provided this update to the DMMA and all Marina tenants as a monthly report. These monthly reports are available on the Marina's website.

Harbormasters Monthly Report

A monthly report is emailed to all current tenants and posted to the Marina's website. This report includes project updates and happenings around the Marina. Along with this report, the email address marinamasterplan@desmoineswa.gov was created for the purpose to funnel specific questions related to the Marina Master Plan. While severely underutilized by our boating community and tenants this continues to remain an option for customers to send in questions related to the marina redevelopment.

Harbormasters Working Group

Marina and City Staff met monthly with the Harbormasters working group in the early part of 2022. This group was formed as a tool to help communicate directly to the boating community concerning projects being considered for both the waterside and the supporting uplands. Since then, the publication and email distribution of the monthly Harbormaster's Report to all current tenants has allowed us to share information more directly to our boating community.

Tenant Meeting with L, M, N Dock Tenants

September 7, 2022, the Marina along with City staff met with the current tenants of L, M, and N dock to update these users on Phase 1 of dock replacement as it directly impacts their spaces.

All Tenant Meeting(s)

The Harbormaster has held a couple all tenant meeting to go over generic Marina updates which included updates on the Dock Replacement project.

- April 25, 2023 in the Des Moines Activity Center
- November 21, 2023 in the Marina Pavilion on the Activity Float

Des Moines Activity Center Community Meeting – Landside Marina Redevelopment

September 27, 2022, City Staff along with City Council met with the with residents of Des Moines to update the community on the current plans related to the Marina Steps and landside redevelopment at the Marina.

2. EXISTING CONDITIONS

The existing Marina is over 50 years old and many of its facilities are at or near the end of their design life. This section summarizes the condition and operational considerations of existing Marina facilities and assets.

Figure 2-1. Existing Marina Configuration

In-Water Facilities

The City of Des Moines Marina consists of an assortment of in-water assets, including both permanent and guest moorage, a fuel dock, and a breakwater. The in-water assets consists of a combination of open and covered moorage. In the areas of open moorage, the floating docks are modular concrete floats, anchored in place by creosote treated timber pile. For the covered moorage, the timber/steel roof structures are supported by timber float systems, anchored by creosote treated timber pile. A condition assessment was completed in 2020 (Reid Middleton 2020) to evaluate the overall condition of the in-water marina structures visible above the water line. Findings indicated that although the concrete floating docks and timber pile may have approximately 15 to 25 years of useful service life remaining with routine maintenance, the timber floats with the covered roof structures are nearing the end of their service life.

The following section provides a summary of their capacities, condition, and other operational considerations.

General Dock Infrastructure

A general description of the infrastructure and its history that supports in-water operations is provided below.

Pilings

In 1988, only 11 of the Marina's pilings (out of 902) were found to be beyond repair. Another 116 were classified as having "some damage." In 1995-96, a re-inspection of a sample of the pilings that had been classified as having some damage found that they had not deteriorated significantly [Facility Master Plan, July 1996]. A service of life report was performed in 2020 finding that overall, the timber piling within the Marina today remain in fair condition given their age of approximately 50 years [Service Life Report, 2020].

A small percentage of the pilings have deteriorated and have either been cut down to the mudline or removed. Some have been replaced with steel piling. The floating docks were designed with 33 percent more pilings than they actually need to withstand normal loading. Because the pilings in the timber breakwater were driven much closer together they are not as critical, although that structure has to withstand a much greater load than the rest of the seawall.

Past experience with treated timber pilings shows that deterioration will accelerate with time. It is probable that the percentage of unserviceable pilings will increase in the next five years.

The existing pile hoops are in varying condition. The pile hoops are continued to be repaired as necessary but similar to the piling are not the critical element in estimating the remaining life of the overall system.

Floatation Systems

Timber Float System

The timber float systems within the Marina are poor condition between E dock and N dock. Evidence of saturation and areas of loss of adhesion and separation of the floatation materials can be seen throughout the deck.

- *Open Moorage.* The uncovered timber docks are rated as poor. Most of the open moorage float systems are concrete and in fair-good condition. The open moorages on M dock (40 ft. slips) and N Dock (mostly 50 ft. slips) are the original wood floats and there are some isolated areas with deteriorating decks and pressure-treated whalers. The wood open moorage floats on M and N Docks require more maintenance due to their exposure.

- *Covered Moorage.* Most of the covered timber float system have been protected from extreme weather and appear to be in fair condition given the age. Random measurements of foam floatation blocks show some loss of floatation. Areas of concern are where otters have removed the foam to make nests or the foam has deteriorated due to contact with chemicals in the water. There are approximately 2,250 exposed foam floatation blocks under the covered moorage docks. The staff has developed a system for replacing the original foam blocks with encapsulated blocks that will be less vulnerable to physical and chemical deterioration. As the docks are refurbished, the blocks will be replaced with encapsulated floats.

Concrete Float System

The concrete float systems within the Marina are in fair to good condition. The decks of the concrete pontoons are in overall good condition. However, the concrete floats are starting to show within some locations evidence of delamination, spalling, and corroded and exposed reinforcement.

Decking

Replacing the original untreated decking with treated boards is part of regular maintenance. Overall, decking remains in fair to good condition on most docks.

Utilities

Following adoption of the 2001 Marina Master Plan, Marina staff began a program of upgrading the Marina's utility infrastructure. In the first phase, A, B, C and D Docks were reconditioned and all utilities were replaced, including the shore power boxes and the main distribution panels. In early 2003, the City hired Wood/ Harbinger Inc., an electrical engineering firm, to design a new medium voltage distribution system. As part of that project, the firm conducted an assessment of the Marina's entire electrical system and developed alternatives and cost estimates for replacing the system. This report, titled "City of Des Moines Marina Electrical Upgrade Study", is described in the Studies and Document List – Chapter 8.

After the Reid Middleton review of the upgrades that were made in the early 2000's the utilities across all docks at this time are now rated between Fair to Good.

Covered Moorage System

The covered moorage roof system is in poor condition with the exception of the roof replacement of part of J dock due to the 2013 fire. Majority of the vertical timber support posts show some camber from previous snow-load.

Steel Truss Joists

The roof structure's trusses are generally in decent condition, however they show signs of corrosion across all covered docks. Cleaning and painting trusses is an ongoing maintenance effort.

Metal Roofing

The metal roofing does not show signs of significant deterioration. In 2003, all of the fasteners on the roofs were checked and resealed. This continues to be an ongoing maintenance process.

Mechanical & Electrical Systems

Mechanical

Potable water is provided on all docks. Potable water is connected to the upland potable water system, utilizing reduced pressure backflow prevention with flexible hoses on the gangway. Some hoses are routed in a traveling link cable/hose carrier assembly, known as Kabel Schlepp. Each slip is provided with a hose connection. The existing potable water system on the floats must be drained prior to anticipate temperatures below freezing to avoid damage to the system. Only Docks J, M, N and Guest Moorage have the Kabel Schlepp at the gangways.

Permanent moorage areas do not have sewer pump-out. There are two free sewer pump-out stations; one at the fueling dock, and on the North Guest moorage dock.

Fire protection on the floating dock is provided by a manual dry standpipe system on a majority of covered docks. Nominal spacing for hose connections along the main walkways is approximately 250-300 feet apart, to provide coverage of 150 feet to any point from a hose connection. The standpipe system extends to a fire department connection on the main walk float at the bottom of the gangway. The covered moorage areas do not have a fire sprinkler system for protection.

Electrical

The incoming service for the Marina is a, 470 volt, 3 phase service that is provided by Puget Sound Energy from the Des Moines Substation. The utility service is supplied by a 15kV pole located on 6th Avenue South above the central stairwell to 6th Avenue. The service travels down the pole to an underground duct. From the pole, the conductors travel underground and down the hillside to the 15kV sectionalizer switch.

The 15kV switch connects two loop feed conductor systems, north and south. This loop allows for more flexibility and redundancy to the medium voltage system. The conductors are routed through a series of manholes connected by a ductbank along the street on the east side of the property next

to the hillside. This design allows for easier installation of future loads and connections to the 12.47kV distribution within the manhole without restriction to capacity.

From the manholes, another loop system feeds each distribution transformer. The transformers are liquid filled, loop feed, pad-mounted, 12.47kV:480/277 volt, 3 phase transformers protected by fuses. Each transformer feeds a 480/277 volt, 3 phase, distribution switchgear with a main circuit breaker. Each load is protected by circuit breakers. Distribution Switchboard 3 (DSB3) is rated for 1500 amperes provides power for Docks M, N, Guest #1 and #2. DSB3 has ground fault protection. Distribution Switchboard 4 (DSB4) provides power for the office, new office building addition, existing restroom and pier building and the power pedestals for miscellaneous events, such as the carnival. In 2016, the remainder of the 15kV feeders from the repair yard down to Dock A was replaced with new and the existing Switchboards KL, IJ, GH, FE, and ABCD were reconnected to the new feeder. The original upland transformers in the vaults, switchboards, and feeders onto the docks are beyond their service life and needs to be replaced as soon as possible.

From each switchboard, the dock feeders are routed underground, under the gangway, and routed into the end of the dock and into the branch panel-board. From each panel-board, the shore power boxes are fed from below. Each slip has a shore power box with a local disconnect, plug and revenue meter. Most of the existing shore power boxes on the smaller slips are 20 amp, 1 phase, 20 volt type. On the larger slips, they are 30 amp, 1 phase, 120 volt type.

Docks A, B, C and D panel-boards and shore power boxes have been replaced with newer equipment since 2000. In 2013, a fire occurred on Dock J, which resulted in replacement of the incoming power from the switchboard, one of the two dock panel-boards and replacement of the first half of the shore power boxes and connections to the 2nd half of the dock.

For some of the slips on the other docks, the shore boxes were replaced due to normal wear and tear, such as the end of Docks E and K. Those units were replaced with local boxes with meters and circuit breakers at those specific individual slips. Otherwise, there is no existing ground fault protection for each dock panel-board or for the overall dock per today's current Electrical Code requirements.

Breakwater and Bulkhead Protection

Rock Breakwater

The existing rubble rock breakwater that provides wave protection for the Marina is in good condition. The rock breakwater is located on property owned by the DNR, and the Marina pays an annual lease payment for use of this area.

Timber Breakwater

The timber breakwater (Wing Wall) near the Marina entrance shows signs of deterioration and has been replaced as a part of the North Bulkhead Project (2021-2022).

Bulkhead

The bulkhead surrounding the upland area has undergone several stabilization programs over the last decade. The last stabilization occurred in 2009 when the bulkhead from the northeast corner of the guest moorage basin to M dock was replaced with a steel sheet pile wall with a concrete cap. The south timber bulkhead will need to be replaced in the coming years.

The portion of the Bulkhead surrounding the North Parking lot is defined as the Waterfront Zone's.The portion of the Bulkhead South, from the "N" dock to Anthony's is within the Marina's enterprise fund, and its future replacement will be funded with Marina revenues.

Permanent Moorage

The majority of revenue generated by Marina operations derives primarily from permanent moorage. In 2022, permanent moorage revenues were $3.2 million, or about 50 percent of total Marina revenues. The Marina has approximately 729 permanent in-water moorage slips, including 466 (64%) covered and 263 (36%) uncovered. Slips range in size from 20 feet to 62 feet, with 66% of the slips less than 30 feet long. Table 2-1 provides a summary of the current permanent wet moorage asset.

Table 2-1. Permanent Moorage Assets

	Number of Slips			
Length (ft.)	Covered	Uncovered	Total	Percent
20	29	8	37	5.1%
24	141	47	188	25.8%
28	159	98	257	35.2%
30	8	0	8	1.0%
32	52	19	71	9.8%
36	40	30	70	9.6%
40	26	39	65	8.9%
50	11	17	28	3.8%
54	0	2	2	0.3%
62	0	3	3	0.4%
Total	466	263	729	
Percent	64%	36%		

Permanent Moorage Utilization

Overall, slip utilization at the Marina over the past several years has declined with vacancies going from an average of 4 percent per year in 2007 for covered slips and 2 percent for open slips to a combined 11 percent vacancy rate in 2020. There is a general trend that indicates growth in the vacancy rate, particularly among smaller slip sizes. However, that trend is much less than at other marinas currently on Puget Sound.

As of late 2023, there are approximately 140 people on the various waiting lists. When the *2001 Master Plan* was adopted, there were approximately 650 people on the lists. This significant decrease is mainly due to the changing boating trends over the past 20 to 30 years. Waiting times for 20 – 28 foot open and covered slips range from 0 to 4 months, depending on the time of the year. The waiting list in the larger slips (30 – 62 foot) range from 1 to 9 years.

Figure 2-2. Covered and Uncovered Permanent Moorage

Guest Moorage

The City of Des Moines Marina has 1,800 lineal feet of guest moorage docks. The guest moorage area has, five 32-foot slips, eight 40-foot slips, and eight 50 foot slips. The remaining 800 feet are side-tie spaces, where 400 feet is currently leased by Ranger Tugs.

During the summer season (May 1 – October 31) guest moorage slips are rented based on a daily rate. The Marina will accept reservations for individual boats 32 feet or larger or for groups of five or more vessels. During the winter season (November 1 – April 30) a limited number of guest moorage space is available for rent on a monthly basis. Summer and winter guest moorage rates are summarized in Table 2-2.

Table 2-2. Guest Moorage Rates - 2022

Summer Moorage		Winter Moorage	
Length of Vessel	Price per Day	Length of Vessel	Price per Month*
0’ - 20’	$20.00	0’ - 20’	N|A
21’ - over	$1.00/ foot	32’ - 35’	$15.33 per foot
		36’ - 39’	$16.25 per foot
		40’ - 44’	$17.36 per foot
		45’ - 49’	$17.36 per foot
		50’ - 59’	$19.62 per foot
		60’ - over	$20.35 per foot

** Monthly winter moorage rates include a 12.84% leasehold tax on top of the per foot rate. The per foot rate included utilities less electricity which is metered.*

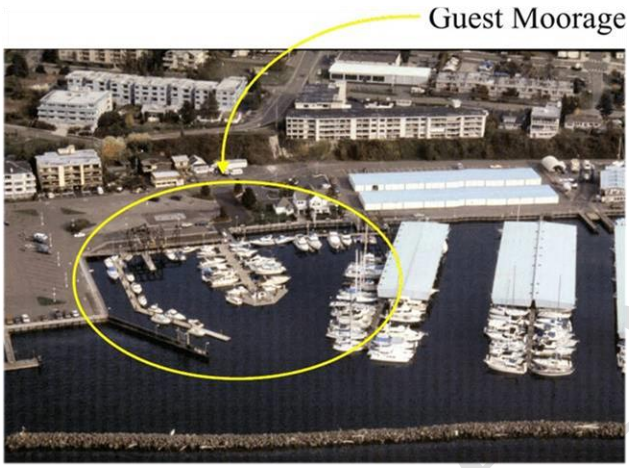


Figure 2-3. Guest Overview

Figure 2-4. Guest Moorage

Guest Moorage Utilization

Historically, boaters using guest moorage have been recreational salmon fishermen who also utilized the public sling launch before its removal in 2009. As fishing opportunities in the Puget Sound have decreased over the last several years, the number of public launches declined, resulting in a decrease in guest moorage utilization as well. Between 2001 and 2005 the number of boats using overnight moorage fell from a high of 9,367 boat nights in 2001 to 5,789 boat nights in 2005. This represents a decline of 38 percent. Over the last few years up through 2021, utilization trends show a continued decrease in overnight guest moorage by falling to 2,147 boat nights of overnight moorage and an increase in demand for temporary monthly moorage.

Future utilization of the guest moorage docks will depend heavily on successfully marketing of the Marina to alternate users and integration with land side amenities and attractions. With the continued decline in recreational salmon fishing, the Marina will look to target organizations/clubs, individual or family cruisers, and other similar groups to keep the guest moorage viable.

Activity Float/Pavilion

In 2009 with the removal of the public sling launch, that area was converted to include a 115 foot by 50 foot activity float. Shortly after that installation a covered structure was installed which included lighting, heating, and tables & chairs for the purpose of group rentals primarily for visiting yacht club groups. In 2020 this area underwent additional upgrades to double the indoor space and is now available to be used to host Yacht Clubs, and additionally as a Marina facility rental for general public use.

Fuel System

Fuel Dock

The fuel dock sells gasoline, diesel, propane (located upland), marine engine products, drinking water, and snacks and soda. In an effort to promote compliance with State Regulations regarding Clean Water Standards, the Marina also offers two free service pump-out stations for vessel holding tanks located on the fuel dock and the end of the guest moorage areas north pier. To stay competitive, the Marina staff actively surveys marine fuel prices around Puget Sound.

Figure 2-5. Fuel Dock

The original wood fuel dock float was replaced with a concrete float in 1988 when the guest moorage area was rebuilt. The fuel dock has three fueling stations that can dispense gasoline or diesel. Two of the stations can easily accommodate boats up to 75 feet in length, while the other station is usually used by smaller boats up to 26 feet long. The fuel float and staff building require very little maintenance.

The Fuel Dock has one high flow diesel and unleaded pump on the north side of the dock. Additional upgrades to all fuel pumps were completed in early 2022.

Fuel Tanks and Delivery System

The existing fuel delivery system requires a significant amount or repairs and/or maintenance each year. In 1998, the Marinas entire fuel system was completely rebuilt. New Fuel dispensers, Electronic inventory/delivery systems, along with three 10,000 gallon double wall fiberglass tanks were installed capable of holding 20K Diesel and 10K Gas . Now that the fuel delivery system is 23 years old and has being exposed to the harsh Marine environment along with changing environmental regulations, repairs and upgrades were necessary and completed in early 2022.

Bathymetry & Eelgrass Survey

Bathymetry

As provided by Moffat and Nichol's reporting, a multibeam survey of the Marina basin was completed in September 2021 (Figure 2-6). Water depths in the Guest Moorage (north section of the marina basin) and in the area of M and N Docks, average about -15 feet Mean Lower Low Water (MLLW). The remaining Marina basin has water depths of -13 to -14 feet MLLW.

Eelgrass and Macroalgae

On September 30, 2021, Anchor QEA and Solmar Hydro conducted a boat-based video survey along L, M, and N Docks to confirm the bathymetric survey results at the request of the WDFW. Per WAC 220 660-350, eelgrass and macroalgae beds are saltwater habitats of special concern. WDFW requested that a video survey be conducted to confirm the bathymetric survey results and provide photographic evidence demonstrating presence or absence of eelgrass or macroalgae beds within the Project area (Arber 2021). The eelgrass and macroalgae survey was completed consistent with the requirements per WAC 220-660-350(3).

Isolated shoots of eelgrass and sparse patches of other aquatic vegetation documented during the survey provide limited habitat functions because they are isolated and separate from the surrounding nearshore environment. Divers were not present to confirm whether the eelgrass shoots were rooted, so it is possible that some of the shoots were not rooted. The isolated shoots of eelgrass documented during the survey do not provide habitat functions or values such as sediment stabilization, support of a diverse nearshore epibenthic community, or food or refuge for crabs or juvenile fish, including salmonids. A dense, well-established eelgrass bed exists approximately 500 feet north of the Marina and observed during the 2008 survey (Anchor Environmental 2008). This established eelgrass bed is the likely source of the eelgrass shoots found inside the Marina. It should also be noted that there is no herring spawning for several miles on either side of the marina; the nearest spawning area is in Quartermaster Harbor, across the water between Maury and Vashon islands.

Previous eelgrass surveys that were completed at the marina found similar results. A survey completed in 2008 found a small number of rooted shoots on the slope at the southern edge of the marina, but all other eelgrass observed inside the marina was unrooted and drifting (Anchor Environmental 2008). Similarly, the September 2021 bathymetric survey indicated that there are no eelgrass beds present within the marina.

Because of the negligible amount of eelgrass and macroalgae documented within the survey area, the lack of high ecological value it provides, and the likelihood that it will not survive or colonize within the Marina, no mitigation for potential project impacts is proposed.

Subsequent coordination with WDFW indicated that if any patches of eelgrass containing 3 or more shoots will be impacted by the project, they may require additional surveys and documentation and may also consider mitigation depending on the final project alignment and conservation measures.

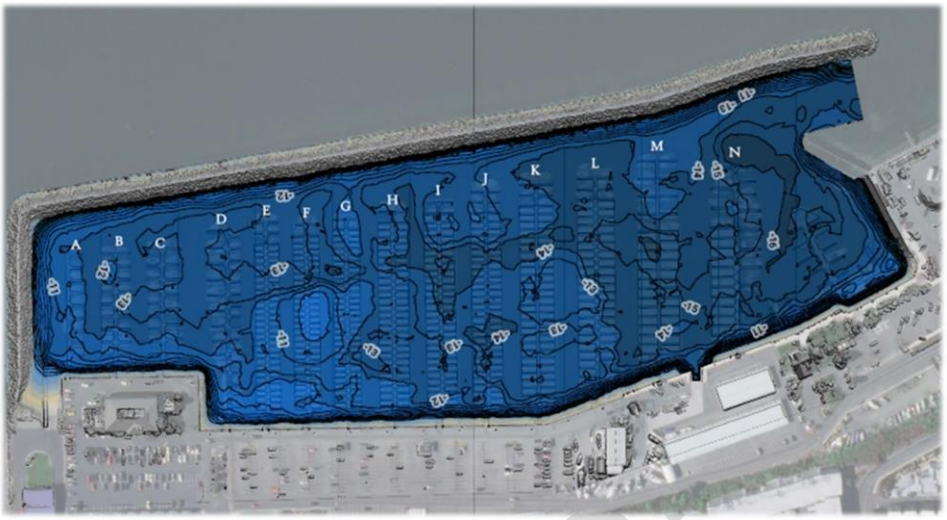


Figure 2-6. 2021 Bathymetric Survey (Image provided by Moffatt and Nichol)

Landside Facilities

Several landside facilities support various Marina activities and operations. These facilities are described below.

Harbormaster Building

The 2,500 square foot Harbormaster Building is a two-story wood frame building constructed in the early 1990's. The ground floor is 1,300 square feet and is currently occupied by the Marina maintenance and service staff. Utilization by the maintenance shop may not represent the highest and best use for this facility given its valuable location on the central waterfront. The Harbormaster offices are located on the second floor, and occupy a total of 1,200 square feet and is currently occupied by the Marina office staff as well as the Beach Park Event Center staff.

Figure 2-6. Harbormaster Building

Restrooms

There are two restrooms within the Marina Zone and one in the Waterfront Zone. The restroom located by the Fishing pier is within the Waterfront Zone and is open to the general public. The central restroom by the Harbormaster office is open to Marina moorage customers and Quarterdeck customers, while the southern restroom is reserved for Marina tenants only. Both the central restroom and southern restrooms are within the Marina Zone. Shower facilities are provided for tenants in the southern restroom and for overnight moorage guests in the restroom near the Harbormaster office.

The Marina's public restrooms are outdated and should be improved. When making decisions about travel itineraries and moorage, boaters place high importance upon marina amenities such as restrooms and laundry facilities. There are currently no laundry facilities at the Marina for tenants or guest moorage. The restrooms adjacent to the Harbormaster's office are in poor condition and in need of significant repairs. Considering the structure's state of deterioration, complete demolition and replacement is considered the most economically viable alternative.

Dry Sheds

The Marina has 79 dry sheds that house boats up to 20 feet long. These sheds were originally built in 1969. Each space in the one-story building is 25 feet long by 8 feet 11 inches wide and opens onto the parking lot via a manual garage door. Some southern facing doors were replaced in 2018 but many of the remaining shed doors require replacement, with an estimated cost of approximately $1,500 per door. Dry shed tenants would launch their boats with the small sling hoist located at the north end of the shed area (the small sling hoist was decommissioned due to severe deterioration in June of 2022). Based on current conditions, the estimated remaining useful life of the dry sheds is between 3 and 5 years.

Dry Shed Utilization

Like the small slips, the sheds have seasonal vacancies and very short waiting lists. A survey of the sheds in the winter of 2020 showed that they are used for a variety of storage purposes. The Marina noticed a continued decline in boat use for dry shed use from a 2020 survey and a continued decline when the small sling hoist was decommissioned for safety reasons related to piling deterioration, in June of 2022. The results from this survey are summarized in Table 2-3 below. This data was collected by access device usage.

Table 2-3. Dry Storage Utilization

Use of Dry Shed	2020 Numbers	2020 Percentage	2022 Numbers	2022 Percentage
Vacant	0	0%	11	13.9%
Marina Use	4	5.1%	6	7.6%
Kayak Storage Program	2	2.5%	3	3.8%
Boats used on regular basis (1-2x/wk)	31	39.2%	21	26.6%
Boats not used regularly (1-2x/mo)	20	25.3%	20	25.3%
Boats not being used at all	15	19.0%	14	17.7%
Sheds used for general storage	7	8.9%	4	5.1%
Total Sheds	79	100%	79	100%

Figure 2-7. Dry Sheds

Boat Yard

The City of Des Moines leases approximately 33,000 square feet of centrally located uplands to CSR Marine. CSR has operated in the Marina for over 20 years and is the only provider located on property for marine repair services and performs all types of recreational boat repairs. The lease includes a 3,200 square foot building used for office, retail and repair and a 16,500 square foot paved yard area. CSR operates a 25-ton travel-lift with a beam capacity of 14 feet 6 inches.

Figure 2-8. Boat Yard

Figure 2-9. Travel Lift Pier

Travel Lift Pier

The travel-lift pier located between Docks M and N is primarily utilized by CSR Marine. This structure was rebuilt in 2009 with the new seawall in this area.

Small Sling Launcher

When it was operational, Marina dry shed tenants utilized the small sling hoist to launch their boats at the north end of the boat-shed area, just south of the Harbormaster Building. Marina personnel also utilized the launch for Marina maintenance purposes as well as in-water tenant launch/hauling appointments.

Figure 2-10. Small Sling Launcher

The small sling launcher pier is a timber piling-supported structure. The launch deck/ hoist pilings have been evaluated by staff annually, as well as inspected by licensed and bonded third party engineers bi-annually since 2018. After the inspection by engineers in August of 2018 it was discovered that there was severe deterioration in the super structure restricting operations down to one hoist with limited weight capacities. Since that inspection we saw continued deterioration of piles and a growing concern from several users therefore, another thorough inspection was performed in May of 2022 by licensed and bonded engineers. As suspected, this inspection noted multiple safety concerns within the super structure support system that required the closure of the hoist indefinitely.

Storage Yard

Located along the East bank behind the Harbormasters office is a 33,000 sq. ft. piece of the Marina's Waterfront property. Currently, this property is being considered for future Marina development. Some of the considerations for the use of the space are commercial purposes, retail and offices, a parking structure, and/or other.

Just south of this property a stairwell and walking path are being developed to provide a direct connection from the Marina's floor to the City's downtown.

Parking

The number of parking spaces within the Marina generally accommodates present demand, excluding special events. Existing on-site parking includes the following:

North Parking Lot	130 single vehicle spaces
Central Parking Lot	57 single vehicle spaces
Office Parking Lot	7 single vehicle spaces
Dry Shed – East Side	24 single vehicle spaces
South of Boat Yard & M Dock	307 single vehicle spaces 22 vehicle-trailer spaces
Total Existing Parking	590 spaces

Figure 2-11. Des Moines Marina Today

Waterfront Zone

The image below identifies the difference between the Waterfront Zone and the Marina Zone; both of which are located on the Marina floor. Revenues and expenses from the Waterfront Zone are part of the City's General Fund, and not part of the Marina Enterprise Fund. While Maria staff provide operation and maintenace services in the Waterfront Zone, those expenses are accounted for as a City general fund function, and reimbursement is made to the Marina for staff time and materials in this zone.

Figure 2-12. Waterfront Zone vs. Marina Zone

Waterfront Zone Facilities

Timber Pile Bulkhead

The timber-pile bulkhead surrounding the upland area of the north parking lot has undergone several stabilization programs over the last decade. Beginning in September 2021, the City began the replacement project of the remaining north parking lot bulkhead with a steel sheet pile wall with a concrete cap, which encompasses the entire north parking lot from the south-east corner to the north-east corner. This Capital Improvement Project was completed in 2023.

Figure 2-13. Old North & West Timber Pile Bulkhead

Figure 2-14. New Bulkhead

Fishing Pier

The fishing pier was constructed in 1980 with funding from the Interagency Committee for Outdoor Recreation and Community Development Block Grant Funding for King County and is an ideal complement to the Des Moines Waterfront area and Marina. The pier has an artificial reef to encourage diverse sea life, which was designed with the help of several consultants, including oceanographer Jacque Cousteau's eldest son. The pier provides excellent opportunities for fishing, walking, and sightseeing.

The concrete piling and pile caps that support the pier were damaged during the Nisqually earthquake in 2001. The pier experienced significant motion during the event and the pilings and pile caps were cracked in several places. During the summer of 2002, the pier was repaired by removing the concrete in the damaged areas and filing in the damaged areas with epoxy/concrete patching compound.

Figure 2-15. Fishing Pier

Some of the support pilings that were more seriously damaged were fitted with steel reinforcing jackets and some sections of the railing were removed and refitted with stronger connection plates. At this time, the pier is in good condition and remains a popular facility.

North Parking Lot

The Waterfront Zones north parking lot of the Marina is the parking area north of the Harbormaster office to the north bulkhead of the Marina. This parking lot currently can hold approximately 130 single vehicles. It is also available to rent for event purposes and regularly hold annual community events such as the Farmers Market, Fourth of July Show, and the Classic Car & Wooden Boat show.

North Parking Lot Restroom

As described in the Landside Facilities section. There is one restroom in the Waterfront Zone located by the public fishing pier. The restroom previously there was designed as a designated men's and women's brick block restroom. That facility was dedicated in 1980. It had stainless fixtures, no hot water and open to the public 24 hours a day 7 days per week.

That facility was past its useful service life and in coordination with the North Bulkhead replacement project the restroom was demolished and replaced (Figure 2-16). The rebuild was completed by the end of 2022. The new restroom was constructed in the southwest corner of the north parking lot. It has four single uni-sex restroom stalls, and a small concession area..

Figure 2-16. New Public Restroom in the Waterfront Zone

Redondo Zone

Similar to the Waterfront Zone, the Redondo Zone was created to differentiate and distinguish this area as separate from the Marina. Revenues and expenses from the Redondo Zone are part of the City's General Fund, and not part of the Marina Enterprise Fund. While Maria staff may provide operation and maintenace services in the Redondo Zone, those expenses are accounted for as a City general fund function, and are reimbursed to the Marina for staff time and materials used in this zone.

This zone will go under redevelopment beginning in 2024. Details on this redevelopment can be found by contacting Des Moines City Hall.

Figure 2-17. Redondo Zone

Redondo Zone Facilities

Redondo Boat Ramp

The City of Des Moines assumed responsibility for the ramp at Redondo when that area was annexed in 1997. This area is classified and funded by the Redondo Zone revenues and expenditures. The Marina Master Plan adopted in 2001 recognized the need for extensive renovations at the Redondo facility with projects to increase capacity and make the launching ramp safer for boaters. Those projects were the first to be funded with the initial bond issue, along with grant funding from the Washington State Recreation and Conservation Office (RCO).

- The parking lot was completely demolished and rebuilt with a new ramp entrance and queuing lane. A separate area was provided for single-vehicle parking. New landscaping and a new irrigation system were also installed.
- The storm drainage system was completely rebuilt and an oil-water separator was installed to bring the facility into compliance with the City's surface water codes.
- A new pay-station and the software for a parking management system were installed.
- New raised sidewalks were installed along with a concrete surfaced crosswalk area.
- A new 5 ft. wide by 180 ft. long heavy-duty timber boarding float string was installed on the south side of the ramp. It is held in place by six new galvanized steel pilings and a new concrete approach wedge.
- A 5 ft. wide by 72 ft. long extension was added to the existing timber boarding float string on the north side of the ramp.
- The existing concrete plank ramp extensions were removed and replaced by a concrete matt.

Current plans for the Redondo facility include upgrading the restrooms, rebuilding of the Fishing Pier and providing for more staffing by Marina personnel during the June through September boating season.

New boarding floats were constructed in late 2023 provided by a collaboration between RCO Grant funding and the City of Des Moines.

Figure 2-18. Redondo Boat Launch

Redondo Fishing Pier

The pier at Redondo serves as a popular gathering spot for experienced anglers, divers, and families. Many "southsiders" have tall tales about their very first fishing pole being dipped into the waters at Redondo Beach, where salmon, sole and perch are known to inhabit the waters. Recreational crabbing is also prevalent here during crab season in the summer and autumn season. This area is extremely popular for winter "Squid" fishing. The pier was closed in 2020 for safety reasons due to sever deterioration of the support pilings. The Redondo Zones Fishing Pier and Public restroom are slated to be rebuilt in 2024.

Figure 2-19. Redondo Fishing Pier

Redondo Boardwalk

Figure 2-20. Redondo Board Walk

The Redondo boardwalk was reconstructed in 2017 after a severe weather storm destroyed large portions of it. Similar to the Redondo Fishing Pier, this boardwalk is heavily used by the local residents and outside visitors regularly.

Redondo Parking Lot

Managed by the Des Moines Marina. This parking lot has 31 truck and trailer spaces and 32 single vehicle spaces. This will also be a part of the relocation of the Redondo Restroom replacement, as depicted in the picture to the right. Some single cars spaces will be reduced to allow space for the new restroom.

Figure 2-21. Redondo Parking Lot

Existing Marina Operations & Services

Marina Operations

The Des Moines Marina is a full service marina. Even throughout the many difficulties related to the Covid-19 pandemic, Marina staff continued to offer superior customer service to visitors and long-term tenants. Our fuel dock offers gasoline, diesel, propane, marine engine products, potable water, pump-out station and snacks. Staff maintains the entire Marina floor into the beach park to include the parking lots, restrooms, beach park trail and docks.

The Marina Office staff manages and maintains moorage agreements and customer records with permanent and temporary tenants. As well as maintains multiple lease agreements with several private businesses. Marina office staff are primarily the first point of contact for questions and comments from tenants and the general public.

The Marina Service and Maintenance staff maintain the Marina Zone, Waterfront Zone, and Redondo Zone. These staff members perform a variety of duties such as, but not limited to, general building/ dock maintenance and repairs, electrical & plumbing work, along with janitorial & grounds keeping. They also provide as backup services to our City's Parks and Maintenance departments when requested during severe weather events.

Existing Lease Agreements within Marina

- Classic Yacht Sales
- CSR Marine
- Des Moines Yacht Club
- Puget Sound Sailing Institute
- Quarterdeck Coffee, Beer & Wine Bar
- Ranger Tugs
- SR-3 Marine Sea Life Rescue and Rehabilitation

Redondo Operations

Marina staff have also managed and maintained the Redondo location since 1997. Staff perform daily operations: cleaning restrooms, garbage parking lot, boardwalk and launching areas.

Existing Lease Agreements at Redondo

- B&R Snack Shack

3. FUTURE CONSIDERATIONS

The following section provides an overview of the boating trends currently affecting operations at the Des Moines Marina, as well as a demand forecast for in-water and upland facilities. The information was taken from the Des Moines Marina Master Plan Update Assessment, which was prepared by the Waggoner Group consultants. As well as BST Associates, who is working closely with our Marina Dock Replacement consultants Moffatt & Nichol, to provide up to date statistical data on marina and boating trends. A complete copy of these reports are available online at www.desmoinesmarina.com.

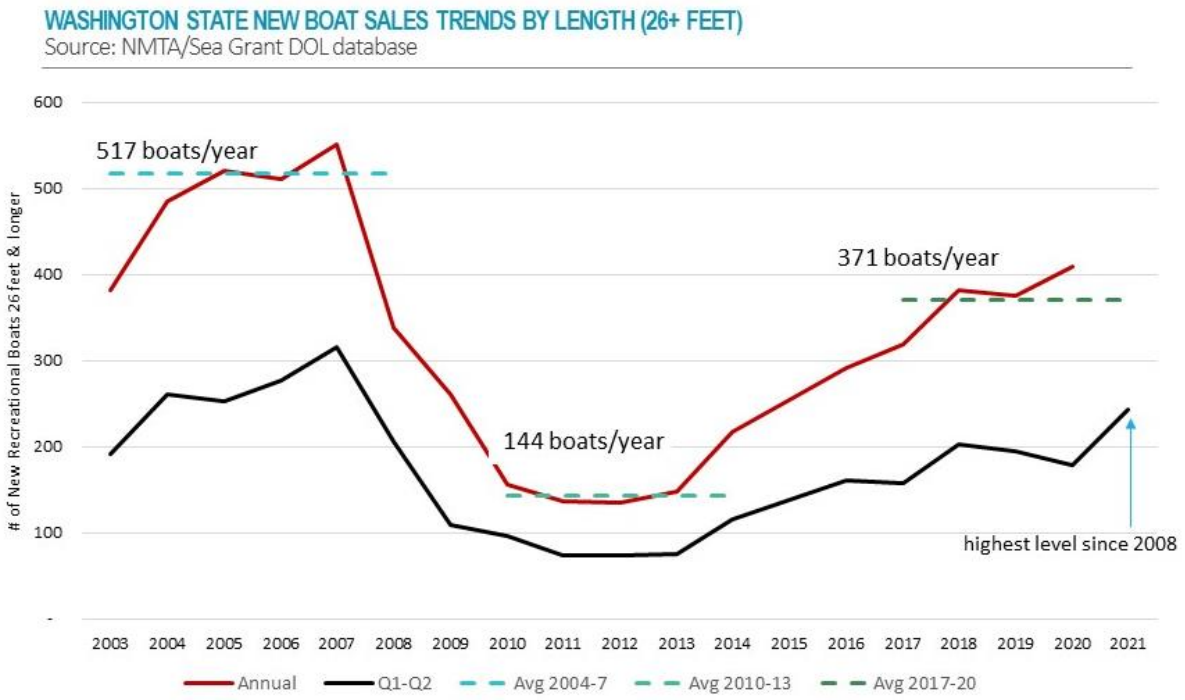
Trends in Recreational Boating

The City of Des Moines Marina serves a regional market that includes primarily King County and Pierce County customers. Approximately 94% of current permanent moorage tenants are residents of these two counties, and approximately 18% of moorage tenants are residents of Des Moines. Future layouts of the Marina should reflect the needs of the regional market. The boating market trends summarized in this section are having a significant impact on operations at the Des Moines Marina, as well as other marinas throughout the region. Responding to these trends will play a major role in the future success of the Marina. BST Associates prepared a detailed analysis of marina market trends for the City of Des Moines Marina; this analysis was used to recommend the appropriate mix of moorage slips at the City of Des Moines Marina.

Boating Market Trends

New boat sales in Washington have been volatile over the past 18 years, as consumers have responded to economic conditions. The annual number of registered boat sales in Washington State grew from an average of 144 boats per year from 2010-2013 to 371 boats per year between 2017 and 2020 (boats 26+ feet). Sales have increased relatively steadily since 2013, the Covid-19 pandemic actually boosted boat sales in 2021 and continued into 2022.

Table 3-1. Washington State New Boat Sales Trends by Length (26+ feet)
(Provided by BST Associates)



Pierce-King County Region

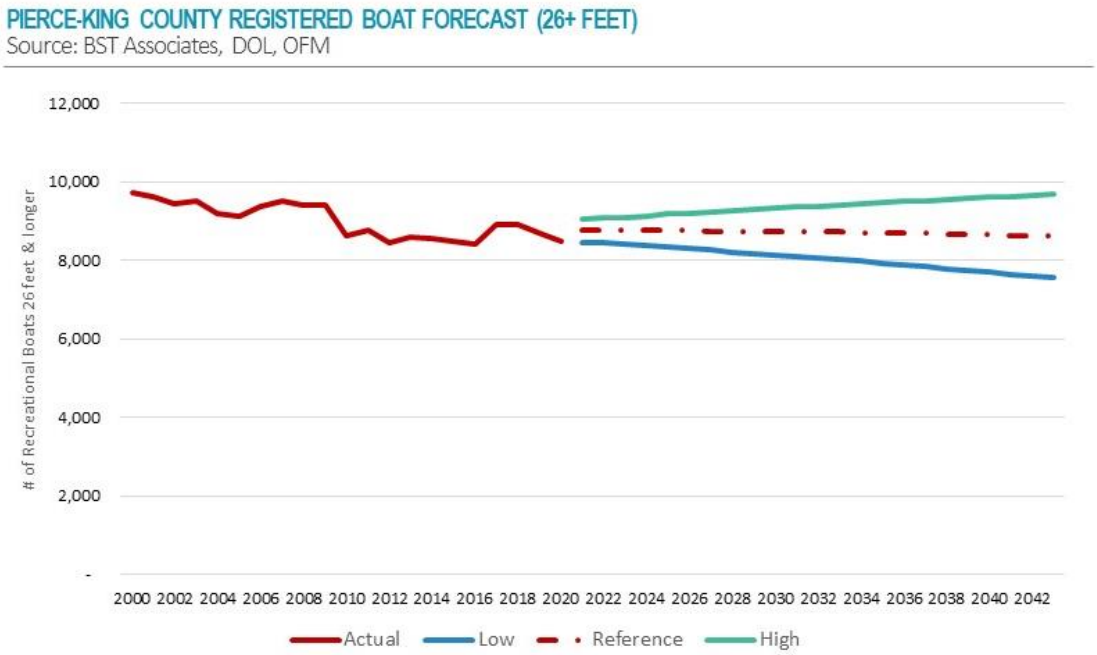
Pierce-King County trends lagged behind those in Washington State, and as a result, the Pierce-King County region lost market share:

- Number of 26 to 30 foot boats declined slightly (-0.9% per year), and market share of Washington State declined by 6.1%
- Number of 31 to 40 foot boats also declined slightly (-0.7% per year), and market share of Washington State declined by 6.8%
- 41 to 50 foot boat registrations increased 0.2% per year, and market share of Washington State declined by 7.7%
- Registrations for boats over 50 feet increased 2.6% per year, and market share of Washington State declined by 1.4%

The forecast for Pierce-King County in 2043 ranges from:

- Low forecast - 7,500 boats, representing a decrease from 2020 of 938 boats,
- Reference forecast – 8,600 boats, representing an increase of 120 boats,
- High forecast – 9,700 boats, representing an increase of 1,200 boats.

Table 3-2. Pierce-King County Registered Boat Forecast (26+ Feet)
(Provided by BST Associates)



Two additional factors that will likely impact future boat ownership are 1) age of boaters and 2) changing patterns of ownership.

- Age - Boaters have begun aging out and are not being replaced by new boaters. Continued loss is expected if this trend continues, or core boaters (baby boomers) may become a larger share of the market. Participation by Millennials and GenZ is relatively low.
- Ownership - The average boater uses the boat around 15 days per year, making it a perfect candidate for shared ownership. This market has been growing, including in such services as boat rentals, charters, boat clubs, and fractional ownership. This trend could attract more non-boaters to boating, but shared ownership could also reduce the demand for moorage slips.

Boater Use Characteristics

Most of the major marinas on Puget Sound were built between the 1960's - 1970's when salmon returns were strong and fishing was a popular recreational activity. Since that time the number of salmon returning to Puget Sound has fallen, leading to harvest restrictions, limited catch opportunities, and an overall decline in the popularity of fishing.

The marinas (and launch facilities) that catered to the recreational fishing fleet, such as the Des Moines Marina, were all designed with a large number of slips in the smaller 20-foot range since this was the typical size for recreational fishing boats. With the decline of fishing, the primary boating activity has shifted toward cruising, and with this shift the average boat has grown longer and wider. This fact, along with the declining number of saltwater-only fishing licenses, indicates that fishing boats are no longer a strong market for the Des Moines Marina.

Marina Facilities – What the Future Boater Wants

Boat owners are changing the way they use their boats and are demanding new services from marinas. The desire for safety, security, and a clean facility— the primary items desired by boaters—will increase in significance as the age of boat owners increases. Marinas must anticipate the needs of "active seniors" and provide assistance with the routine chores of boat ownership, such as dismounting and storing dinghies. Marinas must also accommodate vendors hired by boaters to perform maintenance, and other services. Although transient moorage customers will have many of the same needs, they will also desire services such as transportation to shopping and having assistance with groceries and gear being loaded onto their boats.

Trends in Marina Facilities

Many marinas in the Northwest are filling the void left by declining fishing opportunities by changing to meet the needs of the new "typical boater." The most significant trends are the following:

- *Marinas are retrofitting existing slips to accommodate wider and longer boats.* The demand for moorage for small boats (less than 20 feet) will decrease. Small boat owners will store their boats out of the water. Dry sheds, stack storage, and boathouses may see increases in demand but will be impacted by increasing waterfront land values.
- *Marinas are upgrading utilities, especially electricity.* Some larger vessels will require 50 amp services or larger, but the norm will be 30 amp services, even for the smaller boats. The demand for "landline" telephone service has become primarily non-existent with the development of cell phones. While the demand for cable television has not materialized as expected, many marinas are installing wireless internet to serve their permanent tenants and guest moorage customers. The Des Moines Marina was fortunate to receive a Boating Infrastructure Grant (BIG) allowing the Marina to start rebuilding all the Guest Moorage electrical service, including adding infrastructure for future charging stations for electric boats.
- *Marinas are expanding and retrofitting their facilities to meet the needs of the destination boater.* Fuel, clean and modern restrooms, a store for groceries and basic supplies, restaurants, and laundry facilities are common upgrades that many marinas are providing to their clients.

Comparisons with Leading Puget Sound Marinas

The slip characteristics at the City of Des Moines Marina were compared with four of the largest public marinas on Puget Sound, including Shilshole Bay Marina, Elliott Bay Marina, Port of Everett Marina, and Port of Edmonds Marina.

- **Shilshole Bay Marina**
  - The Port of Seattle's Shilshole Bay Marina has around 1,400 open moorage slips. The marina was rebuilt in 2009. The reconfiguration resulted in a reduction in the number of 30-foot, 40-foot and 60-foot slips, with additions of slips between 30 and 40 feet (34 and 38-foot slips), between 40 and 50 feet (42 and 46-foot slips), and slips over 60 feet.
  - The reconfiguration gave port staff the ability to shift a boat from a shorter slip to the next longer size to curtail overhangs.
  - The marina has strong occupancy in all lengths and a growing waitlist.

- **Elliott Bay Marina.**
  - Elliott Bay Marina, which was built in 1989, has around 1,200 open moorage slips. The slip mix focuses on 30 to 39-foot (35% of slips) and 40 to 49-foot slips (47% of slips) with a significant base of 50+ foot slips (17%).
  - Elliott Bay occupancy remains full year around.

- **Port of Everett Marina**
  - The Port of Everett Marina has around 1,800 moorage slips. The older portion of the marina (Central and South sections) have approximately 1,300 open slips and 338 covered slips, which mainly consist of 20-29 foot and 30-39-foot slips. See Figure 5.
  - The newer portion of the marina (North), which was completed in 2005, has 170 slips that range from 40-feet to 70-feet, as well as some longer end-ties.
  - Occupancy at the marina has improved during the past 5 years. Longer slips are nearly always full while some of the shorter slips are vacant during the off-peak months.

- **Port of Edmonds Marina**
  - The Port of Edmonds Marina is very similar to the Des Moines Marina, with 303 open slips and 363 covered slips. Most of the slips are 20-29 feet and 30-39 feet but there a larger share of longer slips than at Des Moines. The Edmonds marina was damaged by a storm and rebuilt in 1988/1989.
  - Occupancy patterns are similar to Everett, with smaller slips (under 30 feet) experiencing seasonal vacancies and longer slips (30 feet and up) generally full all year round.

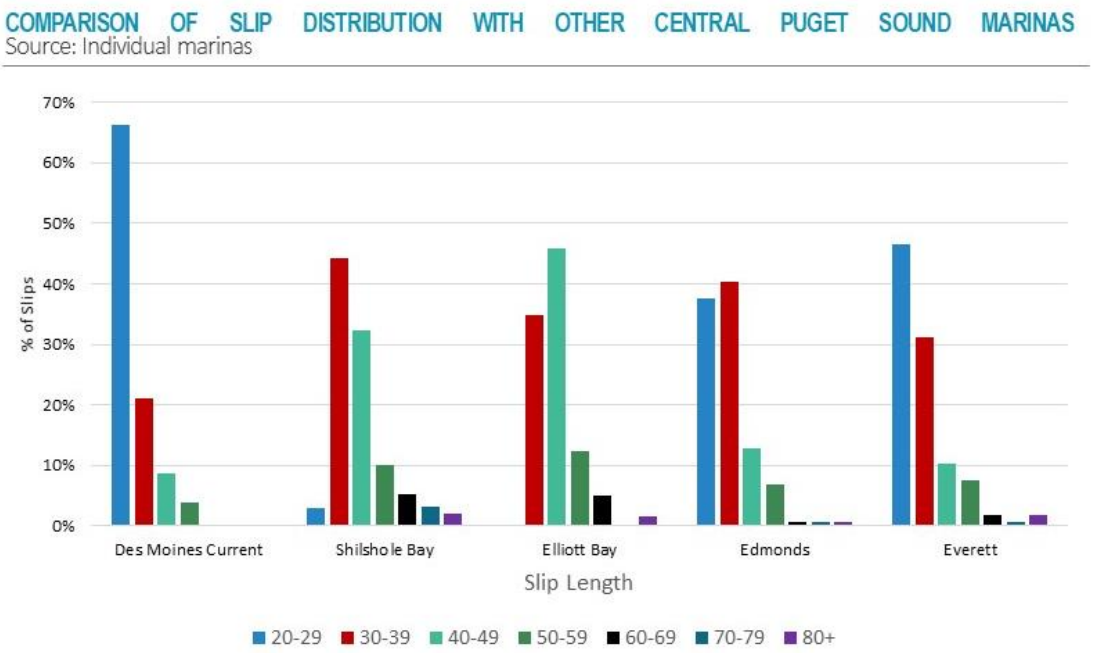


Table 3-3. Comparison of Slip Distribution with other Central Puget Sound Marina's (Provided by BST Associates)

There have been very few new marinas in Puget Sound built during the past 20 to 30 years. Most of the additional moorage capacity in Puget Sound has come from:

- Dry stack storage (i.e., Foss Landing, Twin Bridges, Bayside et al.) serving boats from 20 feet up to 36 or so feet long. The average boat length at these facilities is approximately 29 feet (LOA).
- Large slip marinas serving boats over 60 feet (Ward Cove and Salmon Bay Marine Center, among others).

Some reconfigurations have also occurred at other Puget Sound marinas but the supply has not changed significantly. Shilshole Bay Marina and Elliott Bay marinas represent successful models for the proposed reconfiguration at Des Moines Marina.

Demand Forecasts

This section will provide demand forecasts for both in-water and upland facilities at the Marina. The Marina received demand study data from both the Waggoner Group and BST Associates. Both these agencies came to similar conclusions.

Waterside Facilities

Permanent Moorage

As noted in the "Trends in Recreational Boating" section, the boating market trend at the Des Moines Marina fall primarily in Pierce and King Counties. Growth is expected to be fastest for larger boats (30'+), as is the case with current market trends.

Determining the optimal slip mix takes into consideration existing structures that affect the length of new slips as well as the market conditions. Based on existing data, the optimal slip mix would provide more 32 foot and larger slips, and fewer slips under 28 feet. Table 3-4 on *page 46* summarizes the Waggoner Group's, BST Associates, and Moffat and Nichol recommendations for the future slip mix at Des Moines Marina. We will discuss the Moffatt and Nichol financial analysis in Chapter 6.

The existing layout of the Marina and phasing requirements constrain the slip distribution of the proposed layouts. Phase 1 is designed to mitigate impacts to slips/activities that are located north and south of the Phase 1 area (transient moorage, and L, M, N Dock, among other items). In addition, it is assumed that two other structures are in place prior to development of Phase 2 (the seawall adjacent to slips K through A needs to be replaced and the dry stack/All Purpose Building storage facility is constructed).

The recommended slip mix for the reconfigured marina was determined based on several factors:

- Recreational boat fleet in Pierce and King Counties (i.e., relative size in 2020 and projected growth from 2020 to 2040).
- Des Moines Marina existing tenant base in 2021 (i.e., required slip sizes based on the existing fleet without overhang).
- Slip mix in the other large salt-water marinas in King County (i.e., Shilshole Bay Marina, and Elliott Bay Marina).

These factors were ranked for each slip length from 30-feet to 59-feet, as shown in the following three Tables on a scale of 1 to 10 (where 1 is the highest and 10 is the lowest). This process indicates the optimal slips by length range with a slip choice ranging from 1 to 3 in the right-hand column (shaded orange):

- 30-39 foot slips – optimal slip lengths are 30-, 36-, 32- and 38-foot,
- 40-49 foot slips – optimal slip lengths are 40-, 42-, and 48-foot, and,
- 50-59 foot slips – optimal slip lengths are 52-, 53-, 50- and 51-foot.

Optimal Slips (30-39 feet)

Rank	2040	CAGR	Existing	Puget Sound Leaders		Slip Choice	
30-39 foot slips	# Boats	2020-40	Tenants	Shilshole Bay	Elliott Bay	Average Ranking	Recom-dation
30	1	5	2	1	10	3.8	**1**
31	2	7	1	10	10	6.0	5
32	5	3	8	10	2	5.6	**3**
33	3	9	4	10	10	7.2	7
34	10	10	6	4	10	8.0	10
35	9	2	5	10	10	7.2	7
36	4	8	9	2	1	4.8	**2**
37	6	1	3	10	10	6.0	5
38	7	6	9	3	3	5.6	**3**
39	8	4	7	10	10	7.8	9

Optimal Slips (40-49 feet)

Rank	2040	CAhR	Existing	Puget Sound Leaders		Slip Choice	
40-49 foot slips	# Boats	2020-40	Tenants	Shilshole Bay	Elliott Bay	Average Ranking	Recom-dation
40	2	9	2	1	1	3.0	**1**
41	3	4	1	10	10	5.6	6
42	5	8	3	2	4	4.4	**2**
43	6	2	3	10	5	5.2	4
44	1	6	6	10	10	6.6	8
45	10	10	5	10	10	9.0	10
46	8	3	10	3	2	5.2	4
47	4	7	8	10	3	6.4	7
48	7	1	6	4	5	4.6	**3**
49	9	5	8	10	5	7.4	9

Optimal Slips (50-59 feet)

Rank	2040	CAhR	Existing	Puget Sound Leaders		Slip Choice	
50-59 foot slips	# Boats	2020-40	Tenants	Shilshole Bay	Elliott Bay	Average Ranking	Recom-dation
50	2	8	5	1	10	5.2	**3**
51	4	6	3	10	3	5.2	**3**
52	1	5	6	10	1	4.6	**1**
53	3	7	3	10	2	5.0	**2**
54	8	1	6	10	10	7.0	6
55	7	9	1	10	10	7.4	7
56	10	10	1	10	10	8.2	10
57	9	2	9	10	10	8.0	9
58	6	3	6	10	4	5.8	5
59	5	4	9	10	10	7.6	8

BST Associate's Assessment of Marina Reconfiguration

BST Associates BIO:

> "BST Associates is a strategic planning group that specializes in preparing economic and financial analyses of marinas and waterfront development projects. Since 1986 we have worked extensively with cities and ports throughout the Pacific Northwest and California, as well as Alaska, Pacific Islands, and Gulf Coast.
>
> BST Associates was founded in 1986 by Paul C. Sorensen. Brian Winningham joined BST Associates in 1988, and since that time these two have formed the core of a team that has completed a diverse array of projects, including:
>
> - Analyzing markets for marinas and related waterfront services
> - Developing moorage rate plans for small harbors and marinas
> - Analyzing economic impacts of existing and proposed facilities
> - Completing bond feasibility studies, and developing comprehensive plans.
>
> Our clients trust us and know that we will do everything to make a project successful, and most of BST's consulting work is repeat business from satisfied clients.
>
> Of particular importance for this project, we have extensive experience in preparing market analyses for boating facilities in the Pacific Northwest."

BST Associates prepared an initial layout assessment of the reconfiguration, using a fairway width of 1.5 and floats in similar east-west lengths as under existing conditions. As you will see from Table 3-4, their analysis resulted in 511 slips with 19,910 lineal feet of moorage.

The typical process in these studies is to develop an estimate of moorage at a planning level and then refine the initial analysis to take into account the impacts from phasing and slip type (covered versus open slips). Moffatt & Nichol prepared four alternative layouts based upon the recommended BST Associates slip mix. These improved layouts took into account phasing as well as ensuring overall compatibility of the layouts that ensured proper spacing between the slips, the fairway and the seawall.

Table 3-4 (*on page 44*) shows the detailed slip mix and associated lineal feet comparing the layouts by BST Associates and Moffatt & Nichol with the existing slip mix and the Waggoner layout. Each layout was developed with the goal of best matching the slip mix identified by BST. *See Chapter 5 "Permanent Moorage Design Guidelines" for a discussion of the basis of design for the Marina and presentation of the four layouts.*

When marinas are reconfigured, the resulting layouts typically reduce the number of slips and linear feet, when compared with the existing layout. Since there is a reduction in the number of slips, the reduction of slips is greater than the reduction of linear feet. This is the case at Des Moines:

- Slip reduction ranges from -198 slips to -235 slips depending on the layout alternative ranging from 1A (-30.4% loss) to 2A (-32.3% loss)
- Lineal footage reduction ranges from -646 lineal feet to -2,944 lineal feet depending on the layout alternative ranging from 1A (-10.9% loss) to 2A (-13.4% loss).

Table 3-4. Wet Moorage Slip Mix Demand Forecast

**This table references a comparison of the recommendations by the Waggoner Report, BST and Moffatt and Nichol.*

Slip Length	Existing Slips	Existing Ratio	Waggoner Recommendation	BST Recommendation	M&N Recommendation
20’	37	5%	0	0	0
24’	191	27%	0	0	0
26'	0	0%	0	0	8
28’	253	35%	0	0	0
30’	8	1%	69	68	63
32’	69	10%	0	126	123
34’	0	0%	78	0	0
36’	70	10%	0	80	96
38’	0	0%	92	0	3
40’	54	8%	0	52	54
42’	0	0%	119	27	21
46’	0	0%	102	0	0
48’	0	0%	0	78	64
50’	26	4%	56	80	44
52'	0	0%	0	0	21
54’ and Over	6	1%	0	0	0
Total	**714**	**100%**	**532**	**511**	**497**

As described by BST Associates, and along with the Waggoner Group, a better mix of slip sizes and configurations is required to meet the needs of current tenants, waitlist tenants, and future customers. Customers should be offered a range of different moorage and storage options for their boating needs, ideally creating a marina facility with sufficient appeal and demand to command self-sustaining operations and future replacement reserves.

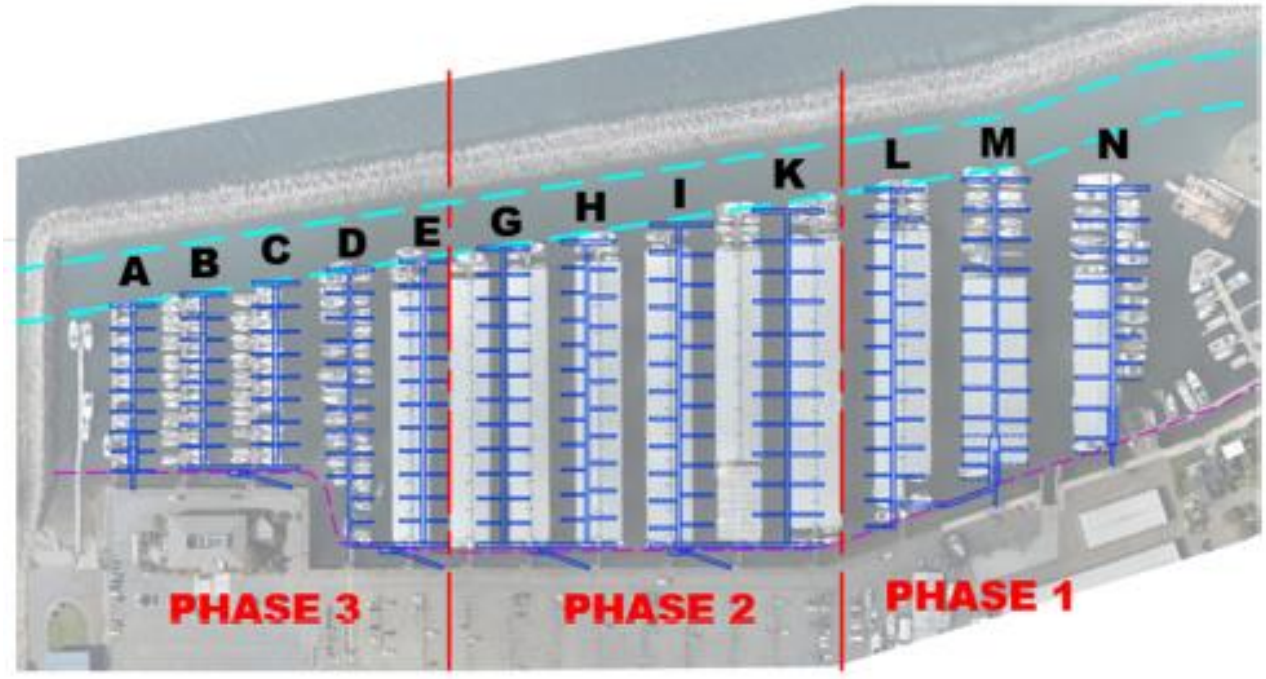
Doing this will create a destination with appeal that brings water and land-transport visitors to the Marina and to the Des Moines business district. It will also address environmental pollution and contamination issues inherent with an aging in-water and foreshore facility.

Reconfiguring Marina docks for larger slips and wider fairways in the same breakwater protected space requires eliminating two or three docks and their finger floats. Table 3-5, as provided by Moffat and Nichol, shows a proposed reconfiguration with twelve docks replacing the existing fourteen docks.

To summarize, boat ownership in the Marina’s total market area has increased. This can be seen as a positive trend because a growing group of boat owners views the Des Moines Marina as an attractive moorage option. Further, the length distribution of the boats in the Marina’s primary and secondary market areas (King & Pierce County) is very similar to the length distribution of the slips in the Marina, illustrating that there is still a significant “small boat” component to the market area. In other words, most boats are currently less than 36 feet in length.

In the Marina staff’s opinion, the updated market data and the demographics of the Marina’s market areas still supports a moderate shift to larger slips.

Table 3-5. Reconfigured Docks with Phasing as provided by Moffatt & Nichol



Guest Moorage

Among other factors, the forecast for guest moorage depends upon overall boating activity on Puget Sound, fishing opportunities for local boaters, and the perceived attractiveness of the Des Moines Marina relative to competing facilities. As noted previously, the prospects for growth in fishing appear to be relatively limited and will likely limit Marina use by local boats. However, the increase in cruising is encouraging more marinas to become destination stopovers for non-local boats. Opportunities for attracting non-local boats appear favorable since Des Moines Marina is considered an attractive marina by boaters.

Although boating activity on Puget Sound is expected to remain steady, Des Moines will face strong competition from surrounding marinas, particularly those in Tacoma, Gig Harbor, and Seattle. To remain competitive, marina operators throughout the region are providing more guest services, supplies, dining, and other amenities. Fortunately, the Des Moines Marina has some advantages for attracting local and non-local boaters. These include:

- Fuel prices are favorable at Des Moines, which continues to attract boaters.
- Efforts to improve economic development in the downtown retail core along with the potential for additional marine retail on the Marina floor would help increase guest moorage.

The market opportunity for guest moorage has two distinct elements: the individual/family cruiser and organizations/clubs. Attracting these segments of the recreational boating industry presents the best opportunity for future revenue growth. Individual or family cruisers are looking for an available slip, fuel, restrooms with showers, laundry facilities, nearby supplies, restaurants, and activities. Clubs and

organizations offer a second opportunity and tend to look for the same amenities the individual or family cruiser wants, but they also want a guaranteed group moorage. Occasionally they will need extra tables, chairs, or the use of a picnic/barbecue facility or dining hall. Even though they need more services, they are willing to make reservations well in advance. There are about 130 active boating organizations on Puget Sound.

Any marina that provides more than the basic level of services will get some individual or family cruise business. Getting the club business requires marketing and facility management. Clubs need to be contacted regularly so they know the marina wants their business. Marinas in Port Orchard, Oak Harbor, and Poulsbo are very successful at attracting and serving boating clubs, due largely to their successful marking programs.

Landside Facilities

Dry Shed Storage

Utilization of the dry sheds is driven by small vessel use, rental rates, and the availability of launch facilities. In 2019, the dry sheds were relatively occupied (4% vacancy rate including non-boat usage in 2019) even though the current rate structure is low compared to other area storage facilities. As of the Fall of 2022, their demand has slightly decreased due to the decommission of the small sling hoist.

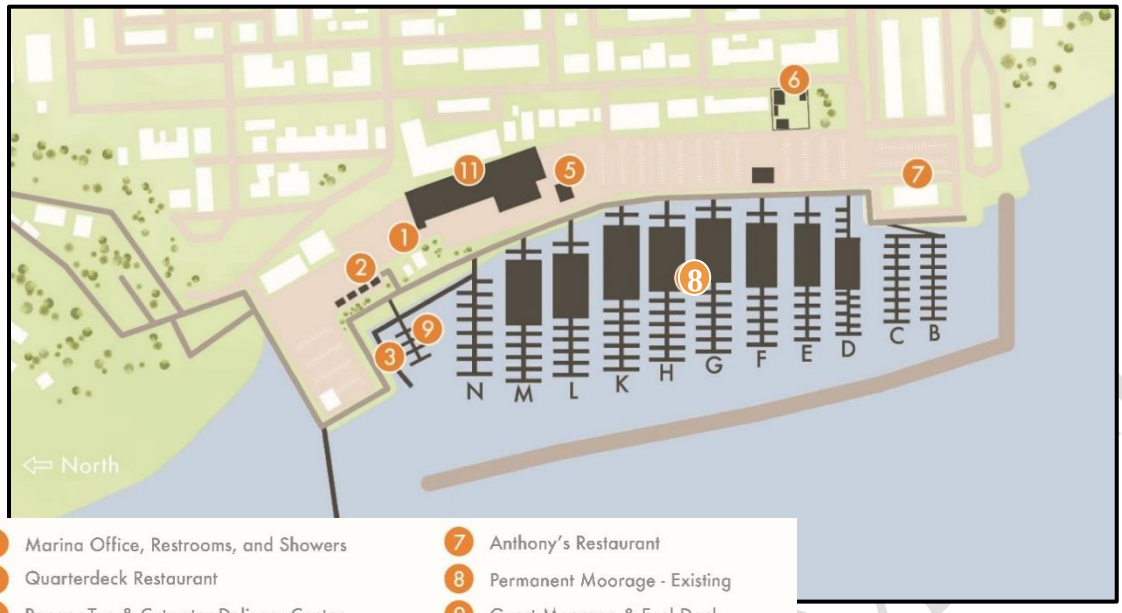
The sheds have an expected life of 3 to 5 more years. It is therefore recommended that reevaluating the performance of the dry sheds within the next few years to determine if replacement of the dry storage as is, is optimal use for this location or modifying its use to better serve the boating and land use community.

Boat Yard

CSR Marine, the boat service yard, continues to be constrained by the size of the yard and launch pier they lease from the City. CSR has recently expanded their lease space; however they continue to request additional space due to the increased demand for marine repair services.

The boatbuilding and repair business is a target industry for economic development, generating approximately $800 million in sales and 4,000 employees in King County and $80 million in sales and 400 employees in Pierce County in 2015. CSR is currently the only boat yard between south Seattle and Tacoma located on the waterfront.

Figure 3-1. Des Moines Marina Site Plan (Long-Range Master Plan)



1. Marina Office, Restrooms, and Showers
2. Quarterdeck Restaurant
3. Ranger Tug & Cutwater Delivery Center
4. Shed Storage Units - Existing
5. CSR Marine
6. SR3 - Sealife Response, Rehabilitation, & Research
7. Anthony's Restaurant
8. Permanent Moorage - Existing
9. Guest Moorage & Fuel Dock
10. Permanent Moorage - Reconfigured
11. Adaptive Purpose Building

Passenger Only Ferry Service

The City of Des Moines has been working for years on the study and possibility of a Passenger Ferry service option for the Marina. It was in the Fall of 2019 that the City engaged Diedrich RPM to generate a demand study to learn about community response to proposed fast ferry service from the Des Moines Marina to the downtown Seattle waterfront and from Des Moines to Downtown Tacoma and/or Point Ruston.

Concurrent to the demand study, the Puget Sound Regional Council delivered a regional study that looked at expanded passenger-only service around Puget Sound. Seattle to Tacoma ranked highest among the dozen routes studied, and Des Moines earned special mention as a desirable stop along the larger route—thanks in large part to our proximity to the airport and our large commuter population.

As a result of the demand study, the City of Des Moines implemented a 2-month trial Passenger Ferry service from Des Moines to downtown Seattle (Pier 66). This program operated 5 days a week (Wednesdays – Sundays) from August 10, 2022 to October 9, 2022 with 4 scheduled departures from either location. That program proved to be a huge success and a desired operation by the public. Here in Des Moines, we are among the best suited of all these communities for our own fast ferry service. Located almost equidistant between Seattle and Tacoma, the Des Moines Marina is the only flat parcel of land between those two cities on the waterfront.

A Passenger Ferry service would provide a welcome boom to our local retail business community. Coffee shops and restaurants will cater to passengers waiting to board the vessels or returning from Seattle and Tacoma. The short walk to our central downtown means opportunities for those businesses as well, especially when the Marina Steps have been constructed.

4. MASTER PLAN

Since completion of the previous Master Plan in 2007, economic conditions in the Des Moines Marina and Puget Sound boating communities have changed, creating new opportunities for in-water and upland facilities at the Marina. In response to market projections, a series of recommendations have been developed as a means for the Marina to capitalize on these new opportunities. The sections that follow describe the Master Plan recommendations for the Marina's individual elements. Cost estimates for all recommended actions can be found in Chapter 5.

In-Water Recommendations

Bulkhead

The bulkhead is an essential part of the Marina infrastructure. Although the bulkhead's condition is moderate [Reid Middleton, Inc. Feb 2000 & 2020], its rate of deterioration is a point of concern and it requires replacement.

Recommendation

The Master Plan recommends that the existing bulkhead be replaced in six phases. The bulkhead will be replaced in its current alignment (see Figure 4-1).

- **Phase I (Completed):** Replace approximately 800 feet of the bulkhead from in front of M dock to the north end of where the old public launch structure was. Work included providing new ADA gangway access to the guest moorage basin. Work included removal of some dry sheds and reconfiguration of the bulkhead for a new travel lift pier. This phase was completed in 2010.
- **Phase II & Phase III (Completed):** Replace approximately 420 linear feet of seawall along the north end of the Marina. Replace approximately 350 linear feet of wall in front of Guest Moorage side-tie dock around the west wing wall towards the north end, replace the timber inner breakwater structure, and remove the tide grid. This phase was originally set up as two phases but was completed in 2021-23 as one phase.
- **Phase IV:** Replace approximately 625 feet of bulkhead from L to G Dock.
- **Phase V:** Replace approximately 270 linear feet of wall between Docks G thru D.
- **Phase VI:** Replace approximately 560 linear feet of wall fronting docks D thru A.

Figure 4-1. Bulkhead Replacement Phasing

Permanent Moorage

The future of the fourteen floating docks is an important question since in 2020 they generated $3.1 million. The costs involved in their replacement will be a substantial investment. It appears that the floating docks can be kept in serviceable condition until about 2025 or beyond, but with the 2019 Reid Middleton Condition report the anticipated future expenses and impacts are so significant that a discussion of the long-range replacement alternatives has been incorporated to be part of this process.

For their age, the floating docks and roof structures are in poor to fair condition. The major problems are loss of floatation in some areas and loss of structural integrity in a number of the guide pilings. Also, the electrical distribution system on the larger docks is not adequate to supply the service demand of newer boat designs.

Current environmental regulations and permitting agencies strongly discourage the construction of new covered moorage on Puget Sound. The primary difficulties to rebuilding covered moorage involve permitting, mitigation, fire codes and cost. In order to minimize shadow impacts upon the water, environmental regulations and future mitigation will be required.

Reconfigured Marina Revenue Projections

Breakwater protected mooring space is a precious commodity. The Marina has a fixed amount of in-water boat moorage space protected by the fixed and permanent breakwater. One of the key elements in redeveloping the Marina with larger slips is ensuring that the Marina maintains or increases revenue and boat storage capacity.

The below calculations provided by BST Associates are based upon Marina in-water redesign guidelines and the configuration noted above show that a rebuilt Marina consisting of fewer small slips, and additional larger slips, along with more dry land storage of boats can produce more revenue and storage capacity for nearly as many boats. The following table shows recent past revenue and capacities, along with projected revenue and capacities when rebuilt as fully uncovered moorage. Revenue projections are based upon the 2020 rates for in-water storage and the 2020 market rates for dry-storage.

Table 4-1. Marina Moorage & Storage Revenue Capacity

	2019	2020	2021	2022	Rebuild Configuration
In-Water Permanent Moorage	$2.291M	$2.520M	$2.652M	$2.792M	**$3.089M**
Number of In-Water Slips	730	730	730	730	**532**
Covered/Open Percentage	63%/37%	63%/37%	63%/37%	63%/37%	**0%/100%**
Dry Storage	$183K	$190K	$195K	$181K	**$1.205M**
Number of Dry Storage Spaces	72	72	72	72	**150**
Guest Moorage Slips & Side-tie	$120K	$120K	$142K	$144K	**$146K**
Number of Guest Slips & Side-tie	38	38	38	38	**38**
Total Slips & Storage Spaces	840	840	840	840	**810**
Total Revenue	**$2.594M**	**$2.830MM**	**$2.989M**	**$3.117M**	**$4.440M**

Covered vs. Open Moorage

Stated in the Waggoner Phase 2 report, deciding on the amount of covered moorage vs uncovered moorage will affect the cost of construction as well as returned revenue and ongoing maintenance expenses. The more recent financial analysis study by BST Associates and the cost estimates for rebuild for dock construction by Moffatt and Nichol noted that covered moorage was not financially feasible. The Marina, along with Moffatt and Nichol consultants presented these findings to council in February of 2022. City Council concurred to move forward with uncovered moorage for Phase 1 of dock replacement (L, M, and N). The remaining of the docks and breakwater fall under Phase 2 and Phase 3. In approximately 10-15 years, the City will need to re-evaluate costs and demand and make a determination regarding what percentage of moorage slips for the remaining docks in those phases are configured with open vs covered moorage. Given today's tight governance and control of construction on or near water along with financial, and environmental impacts, there is not a cost efficient option for covered moorage.

While the decision has been made to move forward with uncovered docks, the following are the initial Pros and Cons of covered vs. open moorage that the City, the Marina, and consultants considered.

Covered Moorage Pros

- It may be possible to receive mitigation credits for the use of light-penetrating materials.
- Additionally, the removal of some existing covered moorage could earn mitigation credits towards the installation of new covered areas.
- Covered moorage is highly desirable by many boaters who want to protect the fit and finish of their boat from harsh weather conditions.
- Covered moorage can save the boat owners additional maintenance costs in the long-run.
- Marinas charge more for covered moorage than open moorage, providing needed revenue for ongoing maintenance and replacement reserves.

Figure 4-2. Covered Moorage on J-Dock

Covered Moorage Cons

- Construction costs are far greater for covered moorage due to the additional fingers, materials, labor and the need for additional floatation on the docks to support the overhead structure and any environmental impacts (i.e: snow load).
- Existing environmental policies for marine wildlife will require overhead light-penetrating panels in order to meet permitting requirements.
- Covered moorage slips also limit the type of boats that can be accommodated due to air-draft, and width limitations.

Figure 4-3. Light-Penetrating Covered Moorage

- Sailboats with masts, and large power boats with tall superstructures, are not able to fit under a covered moorage facility.
- Covered moorage thus limits the Marina's tenants in those spaces to boaters with smaller and medium-sized power vessels.
- Higher rates to re-coup investment and future costs.
- Covered moorage slips are normally configured with finger-floats on both sides of the slip, referred to as double-finger slips. The additional or second finger float is needed to provide the floatation support for the roof/covering. Double-finger slips cannot accommodate wide-beam boats, such as power, sail, and catamarans.

Open Moorage Pros

- Open moorage slips are normally more financially, and environmentally feasible to construct and install.
- The advantage is that open slips can accommodate all varieties of vessels, thus drawing in more tenants.
- Open slips are normally single-finger slips with no finger-float between two neighboring slips, allowing wide-beam boats to share two adjoining slips.

Figure 4-4. Open Moorage

Open Moorage Cons

- Dock decking material in open slips tend to wear and age sooner than docks that are covered.
- A larger maintenance expense for the boat owner.

Recommendations

The Marina's current configuration has 63% of the permanent moorage slips covered and 37% are open. The Waggoner Group consultants recommended targeting a rebuild configuration with 40% of the slips covered and 60% open. However, after a more detailed analysis was performed by Moffatt & Nichol, along with BST Associates, the conclusion was that current permitting and mitigation requirements as well as the Marina's financial capabilities do not allow for covered moorage.

As noted previously both consulting agencies recommended that the reconfigured Marina should have fewer small slips and more medium to large-size slips. Slip sizes between 30 feet and 50 feet, with a few end-tie spaces for wider and longer boats up to 64 feet in length.

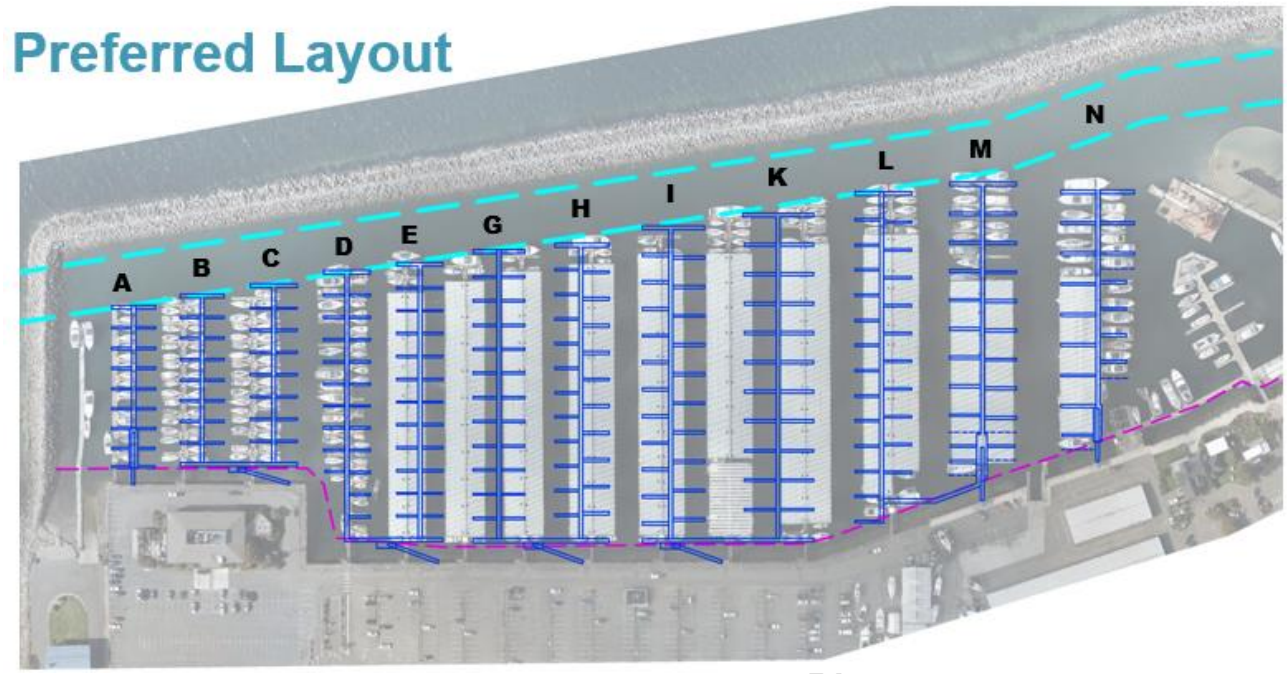
Access ramps that are at a parallel or shallow angle with shoreline will provide access to more than one dock/float, thereby reducing the number of ramps, minimizing low-tide ramp incline with longer ramps, and maximizing the number of slips on each dock. ADA access where practical.

Larger fairways should also be included in the planning. Having dock spacing will provide adequate and industry standard fairways for boats to safely and conveniently maneuver in and out of moorage slips. A minimum fairway width that is 1.5 times the length of the largest slip on either side of the fairway would be required. Fairway widths in the current configuration average 1.3 times the largest slip, with several barely more than 1.0 times. Due to boat overhang allowances up to 10%, the fairway can be even smaller/narrower than 1.0 times the slip size.

To move the docks, the existing creosote treated piling would be removed and new steel piling would be installed to keep the floating docks in their new locations. Also, the ramps would need to be moved or combined with "head docks" to provide access to the docks in their new locations.

To get to the final configuration called for in the Master Plan, F and J dock would have to be removed to allow the docks to be spaced more efficiently. *(See Figure 4-5*).

Figure 4-5. Permanent Moorage Reconfiguration



Further detail for the design discussed in Chapter 5.

Guest Moorage Facility

The 2007 Master Plan explored options for expanding the guest moorage program by converting existing uplands at the north end of the Marina into new in-water moorage space. Since that time guest moorage activity has declined drastically, falling from a high of 9,367 boat nights in 2001 to 5,789 boat nights in 2005 as reported in the 2007 Master Plan. We have seen these numbers drop even further by an additional 42 percent to approximately 2,147 boat nights in 2021. This is over a 60 percent decline in boat nights since 2001. Expansion options therefore would require additional analysis to validate the economic benefits.

Boating trends in 2007 indicated that there would be increasing demand among boaters for larger and more comfortable guest moorage facilities, we have seen that trend come to fruition thru 2019, and even more prevalent in the 2021, and 2022 season By adjusting internal operations and by expanding marketing efforts, the Marina found that it could attract more families and boating clubs to the guest moorage. To better take advantage of boating trends, the guest moorage area could be marketed to increase its capacity, convenience, and desirability.

Partial funding for guest moorage improvements may be available from the Interagency Committee for Outdoor Recreation (IAC) Boating Facilities Program. In addition, the expanded guest moorage project may be eligible for funds from the U.S. Department of Fish and Wildlife's Boating Infrastructure Grant Program. Marina staff would aggressively pursue all grant opportunities available as a way to effectively leverage Marina funds.

In addition to the annual revenues offered by an expanded guest moorage, popular boating destinations generate positive financial impacts for the community as a whole. Local shops, restaurants, service stations, and other businesses benefit from being close to a busy marina. Des Moines residents benefit from having local businesses that are successful.

Recommendations

Since completion of the 2007 Master Plan the guest moorage program has experienced a significant decrease in utilization and revenue due to the continued decline in recreational salmon fishing in the Puget Sound. Improving future utilization of the guest moorage will require the Marina to more aggressively target organizations/clubs, individual or family cruisers, and other similar groups, all of which have the potential to keep the guest moorage viable. Expansion of guest moorage into the north lot is no longer a viable option. As demand for guest moorage increases with the redevelopment of the Marina uplands, any expansion of guest moorage would need to be south of its current location.

Landside Facility Recommendations

Launching Facilities

There is currently one boat launching operation maintained by the Marina, the 25 ton travel lift launch. The travel lift launch was replaced in 2010 and primarily used by CSR Marine via their lease agreement; with occasional Marina use on weekends. The stationary sling launcher has reached the end of its useful life due to an inspection in May 2022 and requires a full replacement of the launching deck and mechanical system in order to be operation again.

Recommendations

The Master Plan recommends the following actions concerning launch facilities at the Marina:

- **Dry Shed Sling Launcher.** The dual dry shed sling launcher is no longer operational. Our recommendation to replace it completely with either a single lane 10 ton launch to meet the needs of the Adaptive Purpose Building (APB) or a launch deck with a negative fork lift. Moffat & Nichol is pursuing these options.
- **Travel Lift Sling Launcher.** No recommendations at this time.

Harbormaster Building

The Harbormaster Building currently houses the Harbormaster offices, the Marina Maintenance Shop, and the Beach Park Event Center office. Given the building's location on the central waterfront it is an extremely valuable asset for the Marina.

Recommendation

The Master Plan recommends relocation of the Marina Office and Maintenance Shop to an alternate location, utilizing the Harbormaster offices for new development. Rebuilding and relocating the public restroom facilities, additionally adding a laundry / shower facilities.

Boat Yard

CSR Marine is constrained by the size of their boat yard and travel lift pier. They expanded their operation into the south lot to accommodate larger boats.

Recommendation

The Master Plan does not have any recommendations at this time for the boat yard as the current building and added lease space has already been adopted. As well as a 25 ton travel lift that was purchased in 2009. However, as plans for the APB continue to develop, the foot print of the boat yard could be adjusted to make more efficient use of the limited space on the Marina floor.

Marina Parking

The number of parking spaces within the Marina generally accommodates present demand. Existing on-site parking includes the following:

North Parking Lot	130 single vehicle spaces
Central Parking Lot	57 single vehicle spaces
Office Parking Lot	7 single vehicle spaces
Dry Shed – East Side	24 single vehicle spaces
South of Boat Yard & M Dock	307 single vehicle spaces 22 vehicle-trailer spaces
Total Existing Parking	590 spaces

Recommendation

The Master Plan does not have any recommendations for parking changes at this time.

Restrooms

When making decisions about travel itineraries and moorage, boaters place high importance upon marina amenities such as restrooms and laundry facilities.

Recommendations

The Waterfront Zone north restrooms have been demolished and reconstruction of this facility was completed in early 2023.

Additionally, there are plans to replace the south lot private tenant restrooms located in the Marina Zone that include a unisex restroom for use by the general public as well as restroom and shower facilities reserved for Marina tenants. These plans will be refined as construction nears.

Renovation of the existing restrooms adjacent to the Harbormaster building is not an economically viable alternative due to the facility's age and condition.

Figure 4-6. Proposed Site Plan for North Lot

Figure 4-7. Artist Rendering of Marina Steps

Development Site: Marina Steps

A critical piece to the City's vision of the Marina as a vibrant, mixed-use area. As part of this vision, the City is committed to investing in significant public space and connections to Downtown Des Moines, including a dramatic series of steps ("Marina Steps") adjacent to the development parcel.

Allowed uses include office, parking structure, retail/ restaurants, and market spaces.

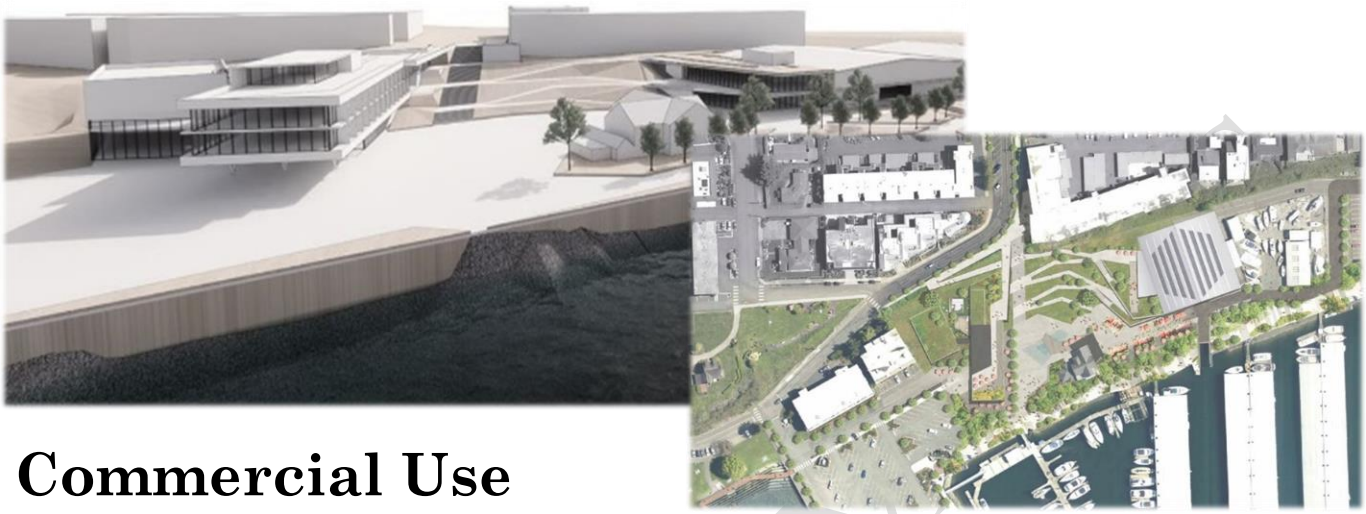
The Marina Steps will be located at the foot of 223rd Street, which will be turned into an urban creek with bio swales, still providing vehicular access but also enhancing water quality from watershed that transports a significant amount of runoff from Sea-Tac Airport.

Recommendation

This development opportunity is a part of the Waterfront Zone and is currently at the early stages of planning by the City Manager's executive staff.

Adaptive Purpose Building

Figure 4-8. Adaptive Purpose Building Renderings (for Example Purposes only).



Commercial Use

The approximately 1.5 acres of Marina grounds located between the existing Marina office and the CSR Marine boatyard is an important element of the Marina. This area should provide a key connection between the Marina tenant centric area to the south and the guest, visitor centric area to the north. This 1.5-acre property fronts onto the bulkhead seawall and backs to an embankment, and currently houses shed storage buildings and the associated access driveways.

Recommendation

A better use of this key location on the Marina grounds would be a new building designed to accommodate a number of yet-to-be-determined purposes, defined in this report as the Adaptive Purpose Building (APB). The building would extend parallel along the embankment and to a large pedestrian area and promenade. Design of the building is envisioned to have a third-level story against the embankment, stepping down to a second level, and finally stepping down to a first floor that opens to the pedestrian area.

The single-story level fronting on the pedestrian area could include space for specialty retail shops, food service, a convenience store, and yacht brokerage. This space is also a logical venue for a Farmers Market that could spill out into the pedestrian gathering outdoor spaces. The building could also provide space for group gatherings and special events. The second-story level could house light manufacturing businesses, and offices, while the three-story area would house a boat stacked storage facility.

The entire building would be designed for flexible and adaptive future use to generate ongoing revenue for the Marina. This APB will provide better access and connection between the north and south ends of the Marina grounds.

- This building is titled *Adaptive* to underscore the flexibility of the structure to meet future needs. It is likely that the building's functional uses will change over time.
- Design and construction of the building, with large open spaces, will allow for different usage and configurations.
- Possible initial uses and future tenants for the building may include:
    - Stacked boat and boat trailer storage; marina workshop
    - Marina office, restrooms, showers, and laundry
    - Farmers markets, craft and art fairs
    - Offices for boat insurance, boat brokers, boat detailing
    - Restaurant(s), food courts, retail spaces, specialty shops
- The Adaptive building should be marketplace driven with spaces that can be configured for tenants as needed.
- A tenanted Adaptive building would be a potential source of taxable sales revenue.

Marine Retail

Opportunities exist to open a small scale marine retail store to support Marina's boating community within the Adaptive Purpose Building.

Recommendation

Locating a marine retail business along the Marina waterfront would be a positive addition. The project includes parking lot improvements and landscaping.

Financing options for the new marine retail location require additional analysis to identify the best option for the City.

Marina Maintenance Shops

Marina maintenance shops are currently located on the ground floor of the Harbormaster building. This function does not need to be located on the central waterfront and is a poor use of this space.

Recommendation

The Master Plan recommends constructing a new Marina maintenance shop within the Adaptive Purpose Building. Relocation of the maintenance function will allow a more appropriate use to occupy the first floor of the Harbormaster building.

Dry Stack Storage

The Marina needs to reconfigure in-water moorage with fewer small slips and additional large slips. To accommodate the smaller boats, a dry stack storage building for 20- to 30-foot boats could be constructed or be housed in a portion of the Adaptive Purpose Building. An increasingly popular storage option for boats up to 30 feet in length has been shown to be dry stacked storage. Boats are stored in enclosed and heated buildings on racks stacked 2 or 3 boats high. The addition of a dry stacked storage facility at Des Moines will provide boat storage options for smaller boats that otherwise would occupy an in-water slip. Providing dry stacked storage spaces would allow smaller boats an option in providing boat storage within the greater marina area.

Recommendation

The dry stack boat storage building could be located at the east side of the Marina grounds backed up to the hillside. The building code currently restricts the height to approximately 35 feet, which would allow a structure that accommodates racks for 2 to 3 boats high. A 145-foot-wide x 331-foot-long building, with two stacks and a central aisle, would allow for indoor storage of approximately 150 boats from 20 to 30 feet.

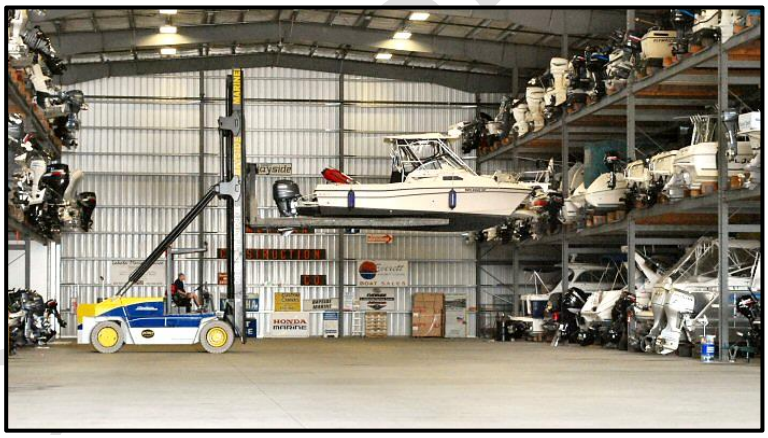


Figure 4-9. Dry Stacked Storage Example

Given the desirable option and interest in an Adaptive Purpose Building, this stacked-storage unit could be incorporated into this building space. A separate, adjacent storage building may be another viable option. This provides an alternative to the single-story sheds and in-water storage of smaller boats and allows the Marina to reduce the number of smaller in-water slips. With dry stacked storage, customers would make advance arrangements to have their boat removed from the storage building by forklift and lowered to the water and placed at a staging dock for the customer's use when they arrive. Dry storage services add value by including such services as post-use wash-down, engine flush, and waste pump-out. The storage building(s) can be heated so boats do not need to be winterized. The new storage building revenue generating potential is about $1.2 million per year and would replace the approximate $250,000 annual revenue from dry shed storage buildings that currently house small boats.

A second proposed uncovered dry stack storage facility, phased in at a later point along the east side of the Marina grounds, could accommodate several additional boats and would provide additional storage space to replace the reduced number of in-water small slips in the redeveloped Marina. If implemented, the additional space of both the APB and outdoor dry stack could hold up an estimated 200-250 boats.

Dry Storage Building Estimated Budget

Base building construction	$2,900K
Project Planning & Permits	225K
Water, Electrical, and Fire	300K
Boat Lift (1)	700K
Miscellaneous	250K
Total	**$4,075K**

Thousands of dollars

Comparable Dry Stack Rental Rates

Foss Landing, Tacoma	$340.20
Bayside, Everett	$425.00
Twin Bridges, Anacortes	$356.69

Rate per month, for a 24 ft. boat

Redondo Zone Recommendations

As previously described in the Existing Conditions (Chapter 2), the Redondo facilities consist of a parking lot, launch ramp, boardwalk and one public restroom facility. At this time the only recommendation is for the Restroom Facility and Parking lot.

Restroom Facility

There is one restroom located in the Redondo Zone. This restroom is over 30 year old structure currently exceeding its expected services of life. It is used by 300+ users per hour on the waterfront during peak summer use. Users include but are not limited to: recreational fishing and crabbing users, diving groups, boat launch users, and the general public.

Recommendation

These restrooms are currently undergoing the process of update by the City therefore at this time the Marina has no further recommendations.

Parking Lot

The Redondo parking lot is a paid lot that allows for single vehicle and truck/trailer combinations to park during the day time.

Recommendation

The recommendation for the parking lot will coincide with the Redondo restroom update to incorporate a similar pay parking system as the Marina's.

5. DESIGN GUIDELINES

Figure 5-1. Marina Office Building July 2021

Visual Image

Waterfront Theme

The City of Des Moines has expressed a desire to develop a design theme connecting both the planned Marina improvements and the downtown business areas. The idea of creating a unified, thematic identity for the total community is a potentially valuable opportunity that is promoted by this plan.

There is limited original architectural character at the Marina to form the basis upon which a design theme may be developed. It is recommended that a contemporary interpretation of traditional waterfront building forms and nautical themes be used to guide new construction and for the renovation of existing structures. The existing Marina office building is a good example of the desired architectural theme.

Building Siting (General)

All buildings are to be developed in accordance with the use, size, and height requirements as created by the City of Des Moines' shoreline master program zoning regulations and similar controls. These guidelines are intended to support and augment established codes and building standards required by the City.

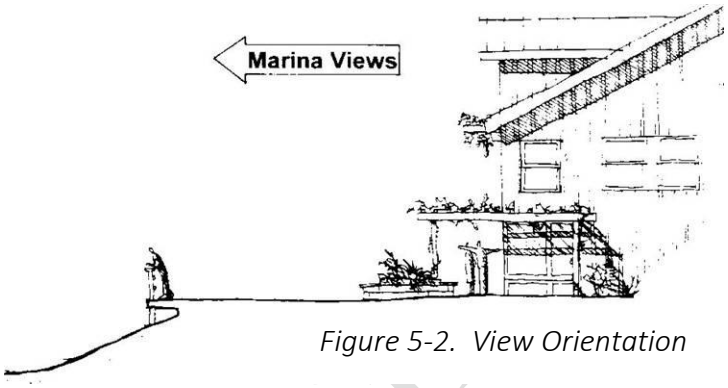


Figure 5-2. View Orientation

Commercial and recreational buildings should be sited to promote public accessibility and to enhance their view orientation. Where practical, new buildings, structures, and landscaping should be sited and designed in a manner that minimizes view impacts on properties to the east. These buildings should also be set back from the shore a sufficient distance to allow the development of a landscaped, publicly accessible pathway, pedestrian promenade, or boardwalk at the water's edge.

Permanent Moorage Design Guidelines

The purpose of these design guidelines is to indicate the type and character of design solutions desired at the Marina. Their function is to suggest design solutions that promote a consistent design image for the Marina. Consistent use of selected design features for Marina components—such as buildings, pathways, lighting, and landscaping—will establish a positive and recognizable visual image for the Marina. This plan's major guideline recommendations are outlined as follows:

Dock Design

1. **Slip Size Distribution:**
   The Marina layouts are based on a slip mix distribution described earlier. The slip distribution considered the trends of boating in the region and analyzed the financial and economic feasibility of the slip mix.

2. **Slip Widths:**
   The trends of larger, wider boats were considered as part of the planning level study. Marina layouts consider the water area (slip) provided for an individual boat and adjacent finger docks to be provided for access. Single-loaded slips have a finger dock on both sides of the open water area versus a double-loaded slip that has a finger only along one side of the slip. For the planning study, the marina layouts were based on providing double loaded slips for open moorage, and single-loaded slips for covered. Single loaded slips in the covered moorage areas are assumed to be needed in order to support both the dead loads and live loads (snow loads) on the roof structures. Floatation provided by the floating dock system must be adequate to support the loading cases that will be used in final design.

3. **Finger and Main Walkway Widths:**
   For the planning level layout of the Marina slips, a nominal width of 4 feet was used for most fingers, with slips 32 feet or shorter using 3 feet wide. For end tie slips (slips located at the offshore end of main walkways), the finger widths were increased to 6 feet wide to allow boats longer than 60 feet to tie up. Main walkways and marginal walkways are 6 feet wide, with localized widening where gangway landings need to occur.

4. **Gangways:**
   Improvements to the Marina will include providing access to slips that will comply with the Americans with Disabilities Act Accessibility Guidelines (ADAAG). Gangways that are part of the accessible route to floating docks are not required to be longer than 80 feet.

   For M and N Docks, the gangways would be located at the same location as the existing gangways in order to minimize impacts to the Travel Lift Pier. Gangway locations for the remainder of docks in the layout alternatives would utilize marginal walkways to allow access to two docks from one gangway. Access to L Dock in Layouts 1B and 2B would be a shared gangway with M Dock, and a marginal walkway to connect the two docks.

5. **Overall Marina Layout:**
   Planning level layouts were developed based on consideration of existing slip sizes on each dock, and strategic locations of slip sizes with respect to the fairway widths, and existing water depths of the marina basin. The general trend of the existing marina layout was to provide larger sized slips closer to the marina entrance, and smaller slips located to the south portion of the marina basin. Planning also considered phasing of replacement and minimizing loss of moorage and associated revenue between phases. Length of main walkways were based on the offshore extent of the existing docks in order to minimize impacts to the main access channel that is parallel to the breakwater structures.

6. **Guide Pile:**
   For the planning study, guide piles are located at the ends of finger and additional guide piles along the main walkway as needed.

7. **Fairways:**
   Fairway widths are typically based on a factor applied to the larger slip located along the fairway for access to/from the slip. These factors typically range from 1.1 to 1.5 or greater. At the Des Moines Marina, most of the existing fairways are about 1.25 times the longer slip length facing into the fairway. In order to maximize the number of slips provided and optimize the marina layout for the existing marina basin, the fairway widths for the marina layouts used in the economic analysis were also based on a factor of 1.25. It is assumed that no overhang of boats in slips would be allowed.

Float Structure Types

A consistent float system throughout the Marina for both open and covered moorage options was considered a factor in the evaluation report by Moffatt & Nichol. The floats used to support roof structures would require more floatation compared to the same floats as open moorage areas. Connection of supports for the roof structures to the float and guide pile locations can influence the float configuration depending on the design of the roof structure.

Timber docks can be constructed using material that is usually readily available. Structural capacity of wood can be increased using glu-lam members that have desirable structural properties. Wood is durable when treated for saltwater exposure, however the types of treatment that are acceptable to use are influenced by the local environmental regulations. Repairs can be accomplished relatively easily. Longer fingers can be engineered/designed so that guide pile are only needed at ends of finger (similar to the other dock systems).

Steel docks are constructed using readily available material and offer flexibility in design and structural competency. Steel is subject to corrosion so protective coatings such as galvanizing is required in saltwater exposure.

Aluminum docks are used in marina installations for its resistance to marine corrosion. Aluminum has a high strength to weight ratio. However, aluminum can be subject to fatigue and stress cracking.
Concrete docks are a desirable float system as its mass provides stability and the concrete deck surface provides a suitable walking surface. Durability of concrete docks relies on the concrete mix design and placement. Concrete patching of damaged areas can be accomplished, but repairs may not be long-lasting.

Connection of concrete float units must be properly designed to avoid stress concentrations and concrete failures.

Table 5-1: Float Structure Types

Float Structure Type	PROS	CONS	Capital Costs	Estimated Service Life
TIMBER	• Flexible and lightweight • Range of floatation can be used (HDPE, polyethylene tubs) • Repair to damaged members can be relatively easy • Grating can be incorporated into system easily	• Connection points can work loose over time; requiring dock maintenance.	$155 / SF	30+ years

STEEL	• Durable and strong • Range of floatation can be used • Grating can be incorporated into system	• May require more maintenance due to corrosion • Field adjustments may be difficult • Repair of damaged sections can be difficult	$170 / SF	30+ years
ALUMINUM	• Lightweight compared to steel and concrete. • Better resistance to corrosion than steel • Grating can be incorporated into system	• Field adjustments may be difficult • Repair of damaged sections can be difficult	$175 / SF	30+ years
CONCRETE	• Solid feeling underfoot • Long service life • Difficult to incorporate grating into system	• Difficult to meet grating requirements • Repairs can be difficult	$ 180 / SF	40+ years

Figure 5-3. Roof Color Examples

Building Elements Land Side

1. Roofs (Derived from traditional waterfront building prototypes)

Preferred Forms. The preferred roof forms for the various building types are as follows:

- *Commercial.* Gabled roof with a metal standing seam or composition shingle (heavy-weight Class A) roof. The recommended minimum slope is 3 in 12. Flat roofs are recommended only where rooftop decks are provided.
- *Recreational.* (1) Gabled metal roof with standing seam, or (2) hipped metal roof with standing seam, as approved for special structures. The recommended minimum slope is 3 in 12. Flat roofs are recommended only where rooftop decks are provided.
- *Discouraged Roof Forms.* Low-slope metal, built-up, and mansard roofs are discouraged. Flat roofs are recommended only where rooftop decks are provided.
- *Color.* The preferred color for metal roofs is blue (similar to Tahoe Blue [ASC Pacific]); composition roofs, dark gray (similar to Charcoal or Granite Gray [GAF Materials Corp.]).

2. Encouraged Roof Features

- *Dormers.* Gabled dormers are encouraged to lend variety to the dominant roof type and to provide potentially usable space in the buildings' attic spaces.
- *Decks.* Rooftop decks are encouraged where functional and inviting public open space can be provided. Rooftop decks should be no larger than necessary and may occupy only a portion of the building footprint. In such cases, the remaining roof area should be gabled.
- *Vents and Louvers.* The preferred vents and louvers are as follows:
  - Gabled roof ridge vents.
  - Turbine louvers on commercial buildings.
  - Gabled end vents at the point of the gable.
- *Roof Overhangs.* Eave overhangs are recommended for all roofs on recreational and commercial structures. The recommended minimum overhang is 6 inches, although a larger overhang would be appropriate for commercial structures and where weather protection is desired.

3. Exterior Walls and Enclosures

- *Commercial and Recreational.* The recommended materials for commercial and recreational buildings are the following:
  - *Painted Wood.* Bevel siding or board-and-batten pattern.
  - *Prefinished Metal Siding.* Bevel siding or board-and-batten pattern.


Metal Roof


Composition Roof

- *Other.* Concrete unit masonry with a split face or ground-face block are acceptable for smaller support buildings, such as pump stations and public restrooms, with floor areas of less than 1,500 square feet, and for the base of support structures, such as storage sheds and dry boat storage facilities.

4. Building Color

- *Commercial.* For commercial structures, the recommended color scheme is medium gray with white trim.
- *Recreational.* For recreational structures, the following color schemes are recommended: (1) medium gray with white trim, or (2) natural stain on wood with dark gray and/or white trim.

5. Windows and Window Openings

- *Commercial and Recreational.* For commercial and recreational buildings, vinyl or vinyl-clad wood windows are recommended, either double-hinged, casement, or awning style. Projected and bay windows of similar construction type are also acceptable options.

Site Elements

1. Walkways

- *Sidewalks at Street Edge.* Broom-finished concrete with a standard 3'0" screed pattern is the preferred option.
- *Interpretative Pathways and Informal Walkways.* An asphalt walkway is acceptable for these areas.
- *Special Paving Areas, Waterfront Pedestrian Promenade, Accent Paving, and Plazas.* For these special use areas, interlocking modular concrete pavers in a light brick red color are recommended.

2. Lighting

- *Street Lights.* A metal light standard with a color motif similar to that currently used in downtown Des Moines is the preferred option. Poles and fixtures similar to other city street fixtures in the downtown will reduce maintenance and operating costs and maintain visual consistency. Color: Deep blue. Light type: City standard.
- *Pathway Lighting.* For boardwalks, pedestrian promenades, and shoreline edge walkways, a simple single-globe fixture with a nautical thematic character is recommended. Color: Deep navy blue. Light type: LED.

3. Site Furniture and Fixtures

- *Clearance Bollards.* For clearance bollards and special separation or vehicular delineation bollards, use concrete or concrete-filled steel pipe, either embedded in concrete or with a bolt-down base. Color: Deep navy blue or clearance yellow, depending on use or location.
- *Benches and Sitting Areas.* Heavy-duty wood benches with concrete or heavy metal supports to promote durability are recommended. New designs using recycled plastic (HDPE) or other similar simulated wood product for seating material are also recommended. Simplicity of design and durability are desired characteristics.
- *Trash Receptacles and Support Features.* Use trash receptacles similar to the standard selected by the City of Des Moines for use in the park and downtown areas.

- *Railings and Handrails.* Although metal and pipe handrails are considered prototypical railing types for marine- and ship-related settings, the original handrails at Des Moines also included some wood designs. The recommended handrail type for such features as brow ramps, bridges, and building stairs is a galvanized metal pipe handrail. Metal handrails with metal mesh or closely spaced (about four-inch) vertically-oriented infill panels are recommended for boardwalks, walkways, and piers.
- Railings should create a safe environment while also maintaining a high level of visual transparency. Railings should not unnecessarily block views of boats and the water.

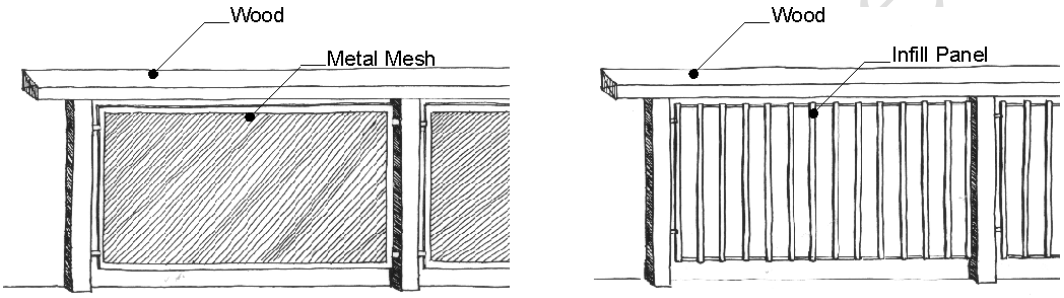


Figure 5-4. Examples of Panels with Wood Railing

4. Signage

- *Private Business Signs.* These guidelines do not define a specific signing program for the Marina. When private business signs are installed, they should reflect the Marina's waterfront theme in style and size. These signs should also be designed to limit any impact or glare intrusion on views from the adjacent residential areas. In terms of specific design requirements for size, placement, or other regulatory requirements, all private business signs shall be consistent with City of Des Moines policies.
- *Informational Signs.* The Marina Master Plan does not define an information signing program for the Marina. The public informational signing at the Marina should be part of a uniform signing program that includes the Marina, downtown Des Moines, and the adjacent park areas. The City of Des Moines should develop a palette of sign types, including colors, size, placement, and logo image, that will guide the installation of public informational signs for all three areas.

5. Landscape Plantings

The Marina Plant List lists specific recommendations for landscape materials at the Marina. This plan's major planting concepts include:

- Vehicular Streets.
  - *Street Trees.* Landscape street edges and median areas with deciduous trees with a round, branching pattern to promote visual appeal and allow views under the tree canopy.
  - *Ground Cover Plantings.* Use low-maintenance ground covers at street edges and medians. (Lawns are not recommended.)
- *Parking Areas.* Trees and ground cover plantings similar to those used for the vehicular streets are recommended. Care should be taken to select small to medium-sized trees for use throughout the Marina to avoid unnecessary view blockage.
- *Pedestrian Pathway at the Water's Edge.* Landscaping in these areas should be primarily shrubs, groundcovers, and flowers. Planting areas may include planting beds at grade and those in pots, planters, and hanging baskets.

Landscaping

The predominant visual images within the Marina are large expanses of asphalt and dissimilar building types and styles. Upland areas not protected by the jetty from wave action are subjected to saltwater spray and a limited number of plant species can thrive in the environment.

Master Plan Recommendations

Appropriate landscaping can improve the visual appearance of the Marina, identify and delineate pedestrian areas, enhance views, and minimize the visual impact of the automobile. The Master Plan calls for additional landscaped islands within the parking areas, along the pedestrian paths, and along the east property line. All landscaping recommendations reflect the intent to beautify the Marina.

6. SCHEDULE AND FINANCING

The primary goal of this planning process is to focus on the core business activities of the Marina and develop strategies that will maintain Marina facilities and keep services in high demand.

Proposed MIP Work Schedule

The following project list reflects the tiered priority of capital projects. **The following schedule is an estimated guideline that is subject to change pending permitting, mitigation, funding and approval**.

Tier 1 (Near-Term) Capital Improvements

The following two Capital Improvement projects are a part of the Waterfront Zone and were completed in early 2023. These two projects totaled approximately $12,500,000 and were funded by a combination of grants and the City of Des Moines general fund.

1. Replacement of bulkhead from the northeast corner of the north parking lot to the fishing pier and around to the southeast corner of the north parking lot (Waterfront Zone Project).
2. North lot restroom replacement (Waterfront Zone Project).

The following two Capital Improvement projects are a part of the Marina Zone and were completed in early 2023. These two projects totaled approximately $270,000 and were funded by a combination of grants and the Marina fund.

1. Upgrade of electrical services on the guest dock, including infrastructure for charging stations for electrical vessels (*Completed 2023*) | Cost Approximate: $250,000
2. South Parking Lot Lighting (*Completed 2023*) Replacement of the parking lighting and upgrade to energy efficient LEDs. | Cost Approximate: $20,000

Capital Improvement Projects that are currently in the planning phase:

(Timeline reflects the start of design planning to estimated completion of project. Costs reflect 2022 rates and fee scales.)

- **Replacing L, M, and N docks and associated infrastructure.**
  In 2021 the City awarded Moffat and Nichol as the consultants for this project. Since then, they have provided the financial analysis study and their 90% design. Permitting and mitigation applications have been submitted to State agencies. Due to permitting delays with the State agencies in water work is expected to begin in the fall of 2025 at the soonest.
  - Timeline: 2022-2026
  - Cost Estimate: $14,000,000

- **Tenant Restroom Replacement in south Marina lot.**
  Replace existing tenant restroom. Construct new building with four unisex restrooms/showers. Facility will also include a tenant portta-potty dump station and a laundry facility.
  - Timeline: 2022-2026
  - Cost Estimate: $950,500

- **Planning and design for the Adaptive Purpose Building (APB) with dry stack boat storage.**
  The Marina intends to replace the existing dry shed facilities, that are severely deteriorating due to their age, by incorporating them into a new structure. A new structure to facilitate a water-side year round farmers market, other leasable areas for retail, office, restaurants, and possible marine manufacturing. Building to incorporate a ramp from Overlook Park to marina floor.
  - Timeline: 2025-2028
  - Cost Estimate: $500,000

- **Planning and design for a new Small Sling Hoist. (10 Ton) or alternative method of launching boats.**
  Marina staff were able to incorporate the permitting for this project into the L, M, & N dock replacement project.
  - Timeline: 2024-2028
  - Cost Estimate: $170,000

- **Continued upgrades to the Marina infrastructure, specifically power and water systems.**
  - Timeline: 2024-2028
  - Cost Estimate: $1,200,000

- **Construction of Adaptive Purpose Building with dry stack boat storage.**
  - Timeline: 2024-2030
  - Cost Estimate: $4,000,000

Tier 2 (Mid-Term) Capital Improvements

Capital Improvement Projects that are 10-15 Years out:

- **Replacement of the Electrical backbone from CSR South.**
  - Timeline: 2032-2037
  - Cost Estimate: $600,000

- **Replacement of the remaining portion of the original seawall south of CSR, to the southeast corner near the Des Moines Yacht Club.**
  - Timeline: 2032-2037
  - Cost Estimate: $12,600,000

- **Extension of the pedestrian walkway south of CSR to A dock, including construction of** pedestrian amenities, such as benches, landscaping and raised concrete sidewalks.
  - Timeline: 2032-2040
  - Cost Estimate: $1,500,000

- **Replacement/reconfiguration of F, G, H, I, J and K docks.**
  - Timeline: 2035-2045
  - Cost Estimate: $30,000,000

- **Fuel Tank upgrade.**
  Due to the age of the fuel tanks insurance is extremely expensive and a new upgraded fuel system is required to lower those long term costs.
  - Timeline: 2032-2040
  - Cost Estimate: $750,000

Tier 3 (Long-Term) Capital Improvements

Capital Improvement Projects that are 20+ Years out:

(While these projects are in Tier 3 time frame, they are subject to change pending costs, need, and combining with other projects.)

- **Replacement/reconfiguration A, B, C, D, and E docks and necessary infrastructure.**
  - Timeline: 2035-2040
  - Cost Estimate: $25,000,000

- **Replacement/upgrade of guest moorage restrooms and Marina office.**
  - Timeline: 2035-2040
  - Cost Estimate: $3,300,000

- **Travel lift replacement.**
  - Timeline: 2035-2040
  - Cost Estimate: $700,000

Total estimated cost for CIP listed above comes to approximately $103 Million.

Dock Design and Elements Included in Cost Analysis

Basis of Costs

(As Identified by Moffatt and Nichol)

For the financial analysis of the four alternatives, concept level estimates of construction costs were developed for the in-water marina improvements. Each major cost item is described below, with cost estimate breakdown tables provided in Appendix B. (*Cost estimates based off 2022 prices*)

1. **Demolition**
   Work would include the demolition of the existing floating docks including creosote treated timber guide pile and timber covered roof structures. Treated timber pile and polystyrene floatation in the timber and concrete floats require special disposal at appropriate facilities. It is assumed that the covered roof structures would be reduced to pieces that can be transported from the site by barges for disposal.

2. **Floating Docks**
   A timber dock system with recycled plastic composite lumber (RPL) decking is the basis for the construction costs of the new marina docks. It is a similar system to the floats that were installed on J Dock (as part of repairs due to a fire in 2014), however grating would be included in the dock system where applicable for light penetration in order to address resource agency concerns of overwater coverage for the open moorage system.

3. **Guide Pile**
   Galvanized steel guide pile would be used to anchor the floating dock system. For the conceptual design, the pile are assumed to be 12 inch diameter, 50 feet long. Pile plans are typically based on review of load cases on the floating dock system – environmental loading such as wind, wave and current loads, and berthing loads. For the conceptual design, the pile plan was based on review of the existing marina float system for piles located along the main walkways, and lengths of fingers.

4. **Gangway**
   Each gangway would be 80 feet long and nominally 4 feet wide. These structures are typically aluminum construction. The cost used in estimates of construction are for the gangway structure only. For M and N docks, the existing abutment would be used and are considered adequate. For

the remaining docks, it is assumed that the abutment structure (point of connection of the gangway at the top of ramp slope) would be provided as part of other infrastructure improvements.

5. **Covered Structure**
   For layouts that include covered moorage, roof structures are assumed to be metal frame construction with a vinyl roof. The system could be similar to the covered moorage that was replaced at J Dock in 2014. It is assumed that covered moorage would require single loaded slips in order to provide the needed floatation for the roof under snow load conditions. Costs for fire protection systems required in the covered moorage areas are accounted in utility improvements for each dock.
   Note: Due to permitting, mitigation, and cost estimates related to covered moorage the Marina will not be moving forward with this as an option for L, M, and N docks.

6. **Mechanical**
   For the potable water system, linear foot lengths were used to estimate costs. Lengths were taken from a typical dock to create a unit cost per float, modified by the particular length for each float.

   A square foot cost method was used to estimate costs of fire protection systems. Square foot values are based off areas taken from the submitted drawings. Cost estimates are done using Excel spreadsheets that roll up costs for material and labor into a subtotal for mechanical costs.

7. **Electrical**
   For the electrical power system, shore power quantities and associated circuit breakers, based upon number of slips, and linear foot lengths were used to estimate costs. Lengths were taken from a typical dock to create a unit cost per float, modified by the particular length for each float. For small quantity items, actual quantities were used, such as panel board or cable carrier modifications.

Note: Cost estimates are done using Excel spreadsheets that roll up costs for material and labor into a subtotal for mechanical costs. Prices were taken from RS Means Cost Estimate, Costs from Platt Electric and Grainger website (www.platt.com and www.grainger.com) and prices directly from the manufacturer or manufacturer's representative between 2021 and 2023.

Environmental Compliance Approach

Permitting

The permitting approach anticipated for the dock replacement is to apply for programmatic permits and exemptions as applicable to streamline the environmental review process. These types of permits and approvals require less documentation to be submitted and typically result in a shorter permit review duration. Early agency outreach is encouraged to confirm the permitting approach and documentation requirements. Figure 6-1 includes a summary of anticipated environmental permits and approvals.

Figure 6-1. Environmental Permits and Approvals as provided by Moffat and Nichol

Approvals	Agency	Trigger	Notes
Federal			
Nationwide Permit (NWP) 3	U.S. Army Corps of Engineers (USACE)	Maintenance activities	A Joint Aquatic Resources Permit Application (JARPA) form will be prepared for an NWP 3. If any new or expanded in-water or overwater structures are proposed, an individual permit will be required.
Endangered Species Act (ESA) Concurrence	National Marine Fisheries Service and U.S. Fish and Wildlife Service	Potential impacts to ESA-listed species and/or habitat	A Short-Form Biological Evaluation (BE) will be required to assess potential impacts from in-water activities. This will also include an assessment of potential mitigation requirements based on the Puget Sound Nearshore Habitat Conservation Calculator.
National Historic Preservation Act Section 106 Compliance	Washington Department of Archaeology and Historic Preservation	Potential impacts to archaeological, cultural, or historic resources	Preliminary archaeological review indicates that a Cultural Resources Assessment memorandum may not be required for the project. Documentation of limited potential for encountering artifacts will be included in the JARPA and State Environmental Policy Act (SEPA) Checklist.
State			
Hydraulic Project Approval (HPA)	Washington Department of Fish and Wildlife (WDFW)	Work within waters of the state	Application materials will be submitted via the WDFW Aquatic Protection Permitting System (APPS) online project portal upon issuance of the SEPA determination.
Clean Water Act Section 401 Water Quality Certification (WQC)	Ecology	Potential water quality impacts to waters of the state	A pre-filing notice will be submitted to Ecology to support Coastal Zone Management Act (CZMA) and Section 401 review. Section 401 compliance will be covered under the NWP 3; an individual WQC is not required due to limited in-water work and impacts.
CZMA Consistency Determination	Ecology	USACE permit requirement	CZMA compliance will be covered under the NWP 3.
Aquatic Use Authorization	Washington Department of Natural Resources (DNR)	Work occurring on or over state-owned aquatic lands	JARPA Attachment E will be completed and submitted to DNR with the JARPA. The City will be responsible for aquatic lease terms negotiations.
Local			
SEPA Categorical Exemption	City of Des Moines (City)	Projects requiring SEPA review per WAC 197-11 or qualify as exempt per WAC 197-11-800 and chapter 16.05 DMMC	A SEPA Categorical Exemption will be requested for repair, remodeling, and maintenance per Washington Administrative Code 197-11-800(3) and Title 16 of the Des Moines Municipal Code. If the City requires full SEPA review, a SEPA Checklist will be prepared and submitted to the City.
Shoreline Substantial Development Permit (SSDP) Exemption	City	Repair and maintenance activities located within the shoreline buffer	An SSDP exemption request letter will be submitted to the City for normal maintenance activities occurring within the shoreline buffer that are exempt per the City's Shoreline Master Plan Chapter 7.2(2).
Floodplain Code Compliance	City	In-water structures within floodplain	A Floodplain Code Consistency Memorandum will be submitted to the City.

Note: Local Building, Demolition, and Grading Permits and other miscellaneous trade permits will be obtained by the project engineer.

7. GLOSSARY OF TERMS

Adaptive Purpose Building (APB): A structure located on the Marina floor intended for a mixture of potential uses including but not limited to office, boat storage, retail, year-round farmers market, and other businesses associated with complimenting the Marina activities and waterfront experience. The APB will be integrated into the Marina steps and facilitate pedestrian access from Overlook Park to the promenade.

Breakwater: The large rock barrier built to shelter and protect the Marina from the force of waves. The breakwater is partially located on property owned by the Department of Natural Resources.

Bulkhead: A bulkhead, or seawall, is a vertical structure or embankment to protect and retain land from the erosion effects of the ocean. Also see north bulkhead and south bulkhead.

Covered Moorage: In water docks and/or slips with a roof structure.

CSR Marine: A private full service boat yard located south of the Marina office. CSR Marine leases property from the Des Moines Marina. CSR website is www.csrmarine.com.

Des Moines Marina Association (DMMA): Is a non-profit organization serving a small group of Marina moorage tenants and other stakeholder who worked to preserve the health and welfare of the Des Moines Marina and promote the value of the Marina to City residents. The DMMA was established to help distribute Marina information to tenants. Since the Harbormaster's report became published on a monthly basis and their memberships declined, they dissolved the organization in late 2023.

Des Moines Yacht Club (DMYC): Is a boating club established in 1957, and promotes boating in the Puget Sound. The DMYC web site address is: https://desmoinesyachtclub.com/

Dock: Is typically a floating structure in a protected area for boats to moor, or provide access to waterfront activities.

Dry Sheds: There are currently 2 dry sheds structures located on the Marina floor. These buildings consist of 77 individual storage garages that are approximately 25' x 8'11" x 8'5" and about 40 lockers that are approximately 4' x 2'10" x 8'5". The existing dry sheds are envisioned to be replaced by the APB.

Dry Stack Storage: A method for storing boats that involves the vertical storage of boats in rack systems with the same density-storage philosophy used in the warehouse industry. Boats are moved to and from the dry stack storage area to the water via a fork lift or trailer system.

Dry Storage: Storage for a vessel and/or related items on land.

Enterprise Fund: The Marina is an enterprise fund in the City's accounting system, meaning that all Marina revenues and expenses are supported by its direct use customers and not the general public. No general fund tax revenues of the City directly support the Marina, and no Marina revenues directly support the City. (See also Indirect Cost Allocation and Inter-fund General Fund Charge Back.)

Finger Pier: The gangway/walkway extending from a dock, that facilitates access to vessels moored on either side of the pier.

Frequent User Card: These are the access devices that residents and non-residents can purchase for day use (5am-10pm) to access to the 3 parking lots surrounding the Marina floor (beach park lot, north lot, and south lot). These passes operate on an annual basis from January 1st thru December 31st.

Guest/Transient Moorage: An area of the Marina set aside for visiting or traveling boaters. Vessels may be moored on our guest docks for up to 14 day maximum unless otherwise authorized by the Harbormaster.

General Fund: The General Fund (or current expense) is the City's operating fund. It accounts for all financial resources of the general government, except those required or elected to be accounted for in another fund. (See also Enterprise Fund)

Harbor: A manmade or naturally occurring place in the sea near land that is generally protected from the effects of the weather on the open water.

Harbormaster: The Department Director for the Marina who reports to the City Manager or his designee. The Harbormaster is responsible for all of the operations of the Marina.

Hot-Berthing: When a permanent tenant authorizes the Marina to utilize their slip space for a short period of time (less than a month) while it is vacant. Provided that the Marina was able to lease the slip to a guest, the tenant would receive a credit against their normal daily rate. The guest pays the normal guest moorage daily rate.

Indirect Cost Allocation: The Marina pays its proportional share of the City's overhead, including departments as finance, legal, and administration. (See also Enterprise Fund and Inter-fund General Fund Charge Back)

Inter-Fund General Fund Charge Back: This is when the Marina is reimbursed by the general fund for direct costs related to Marina staff operating outside normal Marina functions. (See also Enterprise Fund and Indirect Cost Allocation)

Liveaboard: Tenants who have signed a lease agreement with the Marina to stay aboard their boat more than 7 nights/day per month. A maximum of 8 liveaboards are permitted in the Des Moines Marina.

Marina: A port located on a body of water that provides amenities such as dockage, moorings, storage, fuel docks, supplies and maintenance services for boats. The Des Moines Marina include both water side and land side functions.

Marina Staff: Consists of office, service, maintenance, and security personnel as employed by the City of Des Moines. These employees are paid from the Marina's enterprise fund for all services related to the Marina.

Marina Redevelopment: The construction and reconstruction of Marina assets, both water side and land side. Waterside redevelopment includes reconstruction of docks and bulkheads. Landside redevelopment includes construction of facilities that integrate the Marina to the downtown core, including the Marina steps, possibly including a small boutique hotel with other amenities, and the adaptive purpose building.

Marina Zone: An enterprise funded zone where revenue and expenses are retained for Marina operations. The Marina Zone is separate and distinct from the City's Waterfront and Redondo Zones, which are supported by the City's general fund.

Mitigation: The action required by various regulatory agencies charged with oversight of the Puget Sound and our marine habitat, to offset the impacts of a project on the marine environment.

Municipal Facilities Committee: A Committee comprised of three City Council Members. City staff presents and receives feedback from the committee members on various capital projects and other operational issues. The Committee members provide consensus direction on information, which staff brings forward to the full City Council for further policy decisions.

Open Moorage: In water docks and/or slips without a roof structure.

Pile/Piling: These are heavy stakes, posts, or columns installed into the ground or seafloor to support the foundations of a superstructure, like the Marina, holding the docks in place.

Public Access: The public is generally permitted to access the Marina, within the designated operating hours. The general public is not permitted to access docks leased by permanent tenants. The Marina facilitates public access and enjoyment of the marine environment via the promenade, access to small businesses (like the Quarterdeck), parking in the north lot, and the public fishing pier.

Pump Out Station: A sanitation facility used for draining holding tanks on a boat. The Marina has two pump out stations. One is located on the fuel dock and the second is located on the north pier dock.

Redondo Zone: Is a City of Des Moines General fund operation. Revenues and expenditures from the Redondo Zone are part of the City's general fund. Marina staff time for the support of the Redondo Zone is compensated from the General fund.

Resident (*vs. Tenant*): A resident is a person who lives within City of Des Moines boundaries. A resident may or may not be a Marina tenant. Approximately 25% of the marina tenants are Des Moines residents. The vast majority of marina tenants are not residents of Des Moines.

Seasonality (*as it relates to boating, fishing, etc.*): Washington weather and fishing opportunities/regulations dictate the boating season and its uses. History reflects the high use boating months as late spring to early fall.

Slip: A docking space or berth for the accommodation of a marine craft.

Slip Mix: The range of sizes of slips in the Marina to accommodate various sizes of boats moored in the Marina.

Small Boat: Vessels that are generally 30 feet and under and more frequently trailer-able. Can be either a power boat or a sail boat.

Subleasing: Similar to "hot-berthing" only for period of a minimum 1 month. Tenants are able to sublease their slip up to 6 months in a 12 month period. Unless they have sold their boat, they have the option to allow the new buyer to sublease the slip for a maximum 4 months.

Tenant (*vs Resident*): A Marina customer who has a signed a lease agreement with the Marina to store a vessel or related item (trailer/kayak) on Marina property. A tenant with a lease agreement may or may not be a Des Moines resident. Approximately 25% of the marina tenants are Des Moines residents. The vast majority of marina tenants are not residents of Des Moines.

Tenant Access: Tenants are granted access to all parking gates in the south lot and their individual docks, as well as the dedicated restrooms in the south lot. Tenants are not granted free access to the Beach Park or North Parking lot unless they purchase a Frequent User card. See Frequent User Card defined above.

Small Sling Hoist: This is the stationary 2 sling hoist for specialized lifting small boats (less than 21') out of the water and placed to a trailer. It is located just north of N-dock. The small sling was decommissioned for use beginning June 1, 2022 due to sever piling deterioration and mechanical failure.

Tenant Parking: Current customers paying for monthly moorage/storage for a vessel are provided special parking permits to park a vehicle in tenant restricted parking areas and afterhours up to a 7 consecutive day max per month. It is provided as a part of the moorage fee for their vessel storage. Tenant parking is generally provided in the south lot.

Travel Lift: Also called a boat hoist or boat crane, is a specialized type of crane used for lifting boats out of the water and transporting them around the Marina or to a trailer. The Marina owns a 25 ton travel lift which is a mobile sling hoist that can hoist up to about 50' boats. This hoist is leased to CSR primarily Monday thru Friday and Marina staff have the ability to schedule launches and haul outs for tenants with boats up to 27', at the date of this publishing, on Saturday's and Sunday's only.

Waterfront Zone: Is a City of Des Moines General fund operation. Revenues and expenditures from the Waterfront Zone are part of the City's general fund. Marina staff time for the support of the Waterfront Zone is compensated from the General fund.

Winter Moorage Program (*guest dock*): a monthly moorage program provided on our guest moorage dock for vessels 32' and larger between the months of November and April.

Working Marina: An active marina with waterfront amenities and activities for the general public and for boaters. This can include boat repair and marine services.

8. STUDIES & DOCUMENT LIST

The following documents and studies mentioned throughout the 2024 Comprehensive Marina Master Plan, along with this document, are available on the Marina's website under the Master Plan section. Visit our website www.desmoinesmarina.com.

Current Marina Project List (3 Tiers)

Describe in Chapter 6. A full list will be available on the Marina's website.

Des Moines Marina Service Life Report.

The Service Life Report provides a detailed analysis of the condition of the Marina docks and boat use areas. The draft report was completed in December 2020 by Reid Middleton.

City of Des Moines Marina Electrical Upgrade Study

Wood/Harbinger, Inc. provided engineering and design services for the Marina's Upgrades to the Power Distribution System Project (Phase 1). Phase 1 was the Northern upgrades.

2007 Des Moines Marina Master Plan

Waggoner Marina Survey

This report summarizes the results of the Waggoner Marine Consulting project to evaluate the Marina. Completed in March 2019 by Waggoner Marine Services.

Waggoner Marina Phase 2 Study

This report summarizes the results of the Waggoner Marine Consulting project to evaluate the Marina. Completed in March 2021 by Waggoner Marine Services.

Passenger Ferry Study Conducted by Diedrich rpm

The City of Des Moines has been working for years on the possibility of Passenger Ferry service. The route considered would be a mid-stop between Tacoma and Seattle. The City collaborated with Diedrich*rpm on a demand study, along with participating in the PSRC-kpff study.

The City implemented a 2 month pilot program the summer of 2022 which proved to be widely successful. The City continues to stay closely involved with personnel within the Ferry industry for a continued ferry program.

BST Associates Report

This report was completed in December of 2021 by our consultant team Moffatt and Nichol.

Tenant Q & A Document

This document was created to help streamline communications between the Marina and the Marina tenants. The goal is to have questions answered that many people may have on their minds and having the answers, may spark other pertinent questions.

Small Hoist Technical Memorandum

This was the final survey completed by Exceltech regarding the condition of the small sling hoist. Multiple surveys were performed between 2021 and 2022 however the final survey in May of 2022 is what decommissioned the hoist until a replacement is able to be made.

Marina Master Plant List

List of plants used within the Marina.