

DRAFT MARINA MODERNIZATION REPORT

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moffatt & nichol

DRAFT MARINA MODERNIZATION REPORT

Westport Marina



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1. Introduction

The Port of Grays Harbor (Port) owns and operates the Westport Marina. The Westport Marina requires modernization (replacement and upgrades) to fulfill its missions and continue to provide critical infrastructure for the economy of Grays Harbor County. Moffatt & Nichol (M&N) was contracted by the Port to develop a phased marina modernization strategy and redevelopment plan for the Westport Marina docks. The work builds upon previous work to provide a “roadmap” for the near-term through long-term phased marina modernization, allowing the Port to allocate resources towards reinvestment and apply for funding assistance from State and Federal sources.

M&N's primary tasks were to work with the Port team to define goals and targets for the modernization and develop conceptual layouts for evaluation of modernization strategy. An approved phased redevelopment plan has been developed, broken into three layouts for South Marina, Mid Marina, and North Marina that function both independently and conjointly to modernize the marina in strategic 1-5 year, 5-12 year, and 12+ year projects.



2. Background

2.1. Site Overview

The Port of Grays Harbor owns and operates the Westport Marina, located at 400 E Dock St, Westport, WA 98595. The marina maintains moorage for over 520 vessels ranging from less than 30 ft to 100+ ft in length and is protected from environmental conditions by a series of breakwaters to the east. The marina consists of three general areas of docks (basins) which are the subject of this modernization strategy and redevelopment plan. As shown in Figure 1, this modernization strategy will focus on South Marina (Floats 15, 17, 19, 21), Mid Marina (Floats 3, 5, 7, 9, 11) and North Marina (Floats 4, 6, 8, 10, 12, 14, 16). Float 20, the fish pens, the fuel pier, the boat launch, and fixed piers are excluded from this modernization strategy – these elements are further described in Section 2.2 below.



FIGURE 1: MARINA REDEVELOPMENT SITE MAP

2.2. Existing Conditions

Westport Marina serves a variety of user groups including commercial fishing (both resident and transient), tribal fishing, recreational boaters (both resident and transient), and private charter. Existing upland amenities include a restaurant, a marina store, a marina office, maritime museum, parking areas, and unloading areas. Existing marina amenities include power, potable water, fire protection, unloading piers, a fuel pier, and a boat launch ramp.

The existing marina docks are concrete floating docks with timber structural whalers. Docks are held in place primarily with timber piles with some steel piles in locations of past dock repair work. Each dock is accessed from the shoreside parking and access areas by a timber abutment supported on timber pile and a steel gangway.

Many of the floats in the marina were constructed 50± ago and are nearing the end of their useful life. In general many floats are in poor shape due to aged floats and dock components, vessel impacts and improper mooring techniques, oversize vessels in undersize slips, deteriorated/rotten timber members failing due to reduced strength, and deferred maintenance.

The existing dock configuration provides an insufficient slip mix for the existing marina market, including an insufficient number of slips with appropriate length and width to meet the demands of the commercial and tribal fishing fleet, oversized slip mix for the recreational fleet, and undersized slips in the appropriate location for the larger recreational and charter fleet. Replacement/reconfiguration of aging dock systems will allow for strategic slip mix modifications.

2.2.1. Three Marina Areas

South Marina is comprised of Floats 15, 17, 19, and 21. To the south of the marina is an active boat launch and USCG launch facility and to the north are fixed piers used by a commercial seafood company and a commercial boat manufacturer. The existing marina docks are concrete floating docks with timber whalers and piles. The slip mix is primarily 30 ft to 50 ft slips with some slips 60 ft and larger. Slip lengths and widths are not adequate for the larger commercial vessels demand and a portion of larger commercial vessels are forced to moor in undersized slips in Mid Marina. Fairways between Float 17, 19, and 21 are restrictive and undersized for the commercial vessels. The existing marina docks are concrete floating docks with timber whalers. The four floats are accessed from the upland parking area by four abutments to four gangways.

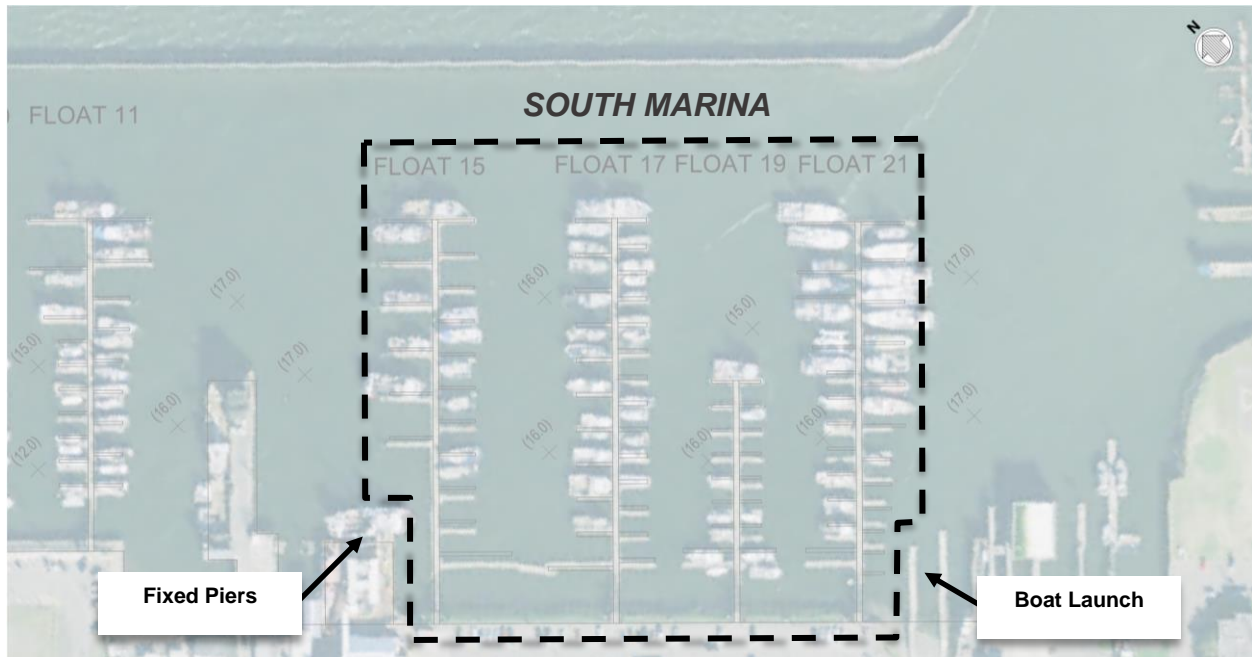


FIGURE 2: SOUTH MARINA SITE MAP

Mid Marina is comprised of Floats 3, 5, 7, 9, and 11. To the south of the marina are the several fixed piers operated by the commercial seafood company and commercial boat manufacturer and to the north is the fuel pier and fuel pier turning radius and fairway. The existing marina docks are concrete floating docks with timber whalers. The five floats are accessed from the upland parking area by five abutments to five gangways.

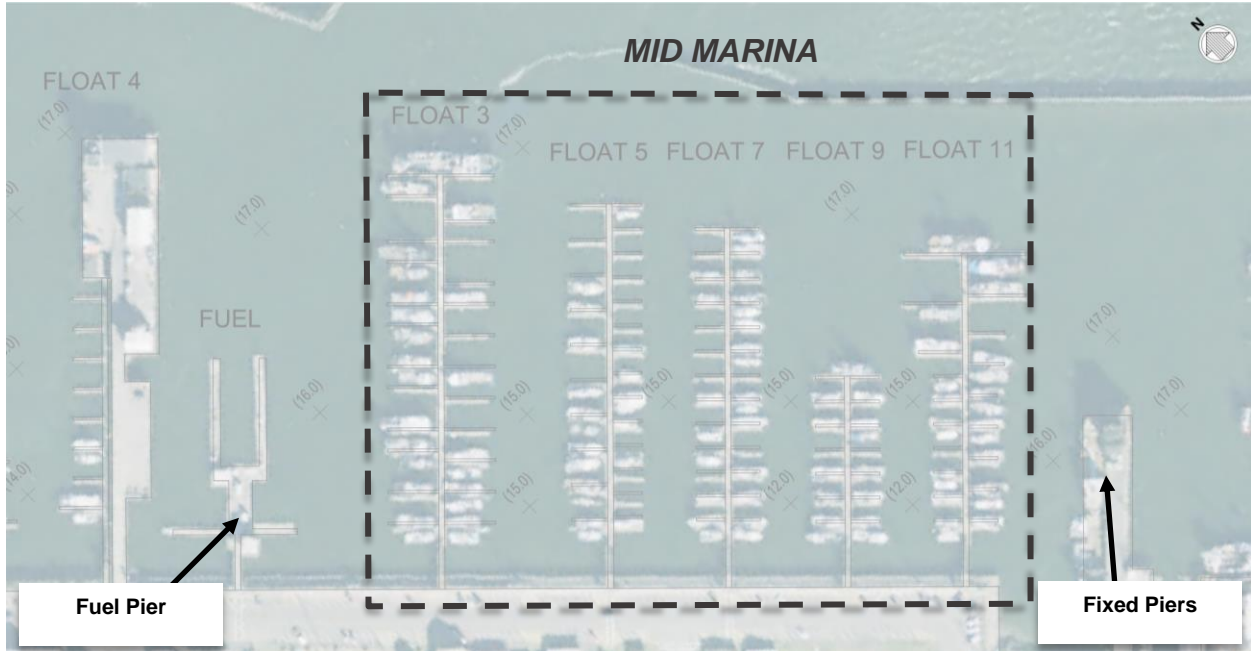


FIGURE 3: MID MARINA SITE MAP

North Marina is comprised of Floats 4, 6, 8, 10, 12, 14, and 16. To the south of the marina is fixed Pier 4 used for vessel loading and unloading operations, to the north is a shallow draft area, and to the north-east are the commercial fish pens requiring adequate fairway width for access, and Float 20 which is not included in this redevelopment plan. Float 4 and Float 6 were the most recent major construction projects and are the newest docks of the three marinas. Float 14 has capacity for fire boats. The existing marina docks are concrete floating docks with timber whalers. The seven floats are accessed from the upland parking area by six abutments to six gangways.

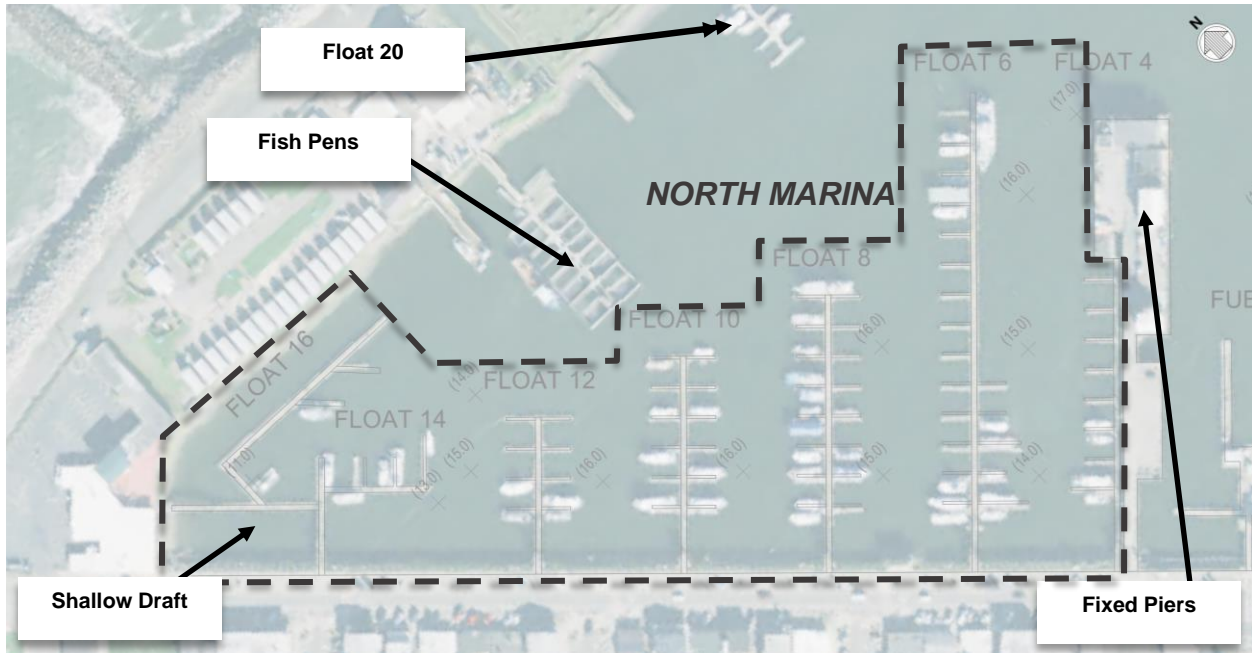


FIGURE 4: NORTH MARINA SITE MAP

2.2.2. Mechanical

Potable water is provided on all docks with 1-inch hose connections at each slip. Potable water is connected to the upland potable water system via 2-inch water line, using reduced pressure backflow prevention with flexible hose on the gangways.

South Marina, Mid Marina, and North Marina do not have sewer pump-out. There is an existing sewer pump-out station at Float 20 which is reaching the end of its service life. Currently, the Port is applying for a maintenance grant to repair/replace the pump-out.

Per discussion with Port maintenance, the existing fire protection manual dry standpipes are not in use and the Port has a waiver from the Westport Fire Department. A manual dry standpipe hose connection was observed on Float 6 that does not appear to be functional. Per the waiver, the responding fire department does not plan on using it and they do not know the current condition of the system. On the other docks, standpipes were not visible.

2.2.3. Electrical

The incoming service for the marina is an underground, 12,470 volt service provided by the local utility. Each float is serviced by a utility transformer and panelboard, located at the top of each gangway. Feeders are routed from each panelboard, down the gangway and onto the docks where electrical service at each shore power pedestal is fed from below. Most of the electrical service is 240 volt, single phase. However, Floats 3, 11 and 15 are 208 volt, 3 phase service, with largest electrical service capacity being Floats 3 and 15 with a 600 amp, 208 volt, 3 phase service.

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 or 30 amp, single phase, 120 volt type. On the larger slips, they are installed with larger receptacles, such as 30 or 50 amp, single phase, 240 volt type. However, in the South and Mid Marinas, there are a number of 50 and 60 amp, 3 phase service to the larger demand commercial vessels. A number of the shore power pedestals are old and damaged.

Currently, there is no bonding of metallic parts, such as ladders, cleats, etc. per the 2020 National Electrical Code (the Code). Any modifications to the floats in the future would require this upgrade.

There are no lights or low voltage communications on the floats.

2.3. Previous Studies

M&N reviewed and considered previous information and studies provided by the Port to evaluate current conditions and moorage demand as well as provide context for development of the phased redevelopment plan. Studies and information included but was not limited to:

- Port of Grays Harbor Westport Marina Demand Analysis Revised Final Report, January 8, 2020, prepared by BST Associates.
- Westport Marina Boat Basin Master Plan, November 2009, prepared by Reid Middleton and BST Associates.
- Westport Marina current moorage data base including vessel type, dimensions for vessels and slips
- Plans and bid results from prior repair projects.
- Correspondence with Port staff.



3. Marina Market/Moorage Overview

The Westport Marina serves three primary markets; commercial and tribal fishing, recreational boating, and charter fishing. Existing moorage/market data was provided to M&N by way of the Westport Marina current moorage database which includes vessel type, dimensions of vessels and slips they are moored in; the Westport Marina Demand Analysis Revised Final Report; and through correspondence with Port staff. The existing marina markets moorage are summarized below.

3.1. Commercial/Tribal Fishing

Fishing is a key driver of the Westport economy. Based on the Westport Marina Demand Analysis Revised Final Report, Westport is the largest fishing port in Washington, accounting for approximately 28% of landed value and approximately 72% of landed weight. Westport has the highest value of fish landing in the Pacific Northwest.

There are approximately 161 annual commercial fishing vessels and 26 annual tribal fishing vessels in the marina (approximately 36% of total slips). Additionally, approximately 16 ft to 80+ ft commercial transient vessels arrive for the summer season (May-October) and approximately 40 ft to 50+ ft commercial transient vessels arrive for the winter season (December-May). Of the annual fleet, approximately 77 vessels (40%) are in undersized slips, where either the vessel is longer than the slip and/or a single vessel is moored in a double slip due to spatial constraints with vessel beams. There is a need for additional larger moorage slips to adequately accommodate the commercial and tribal fishing fleets. Currently commercial fishing vessels are moored predominantly in the South and Mid Marina.

There has been significant fluctuation in the regional commercial fishing market in the past. Based on conversations with Port staff the demand for commercial fishing vessel moorage going forward is anticipated to be stable to marginally increasing.

3.2. Recreational

Recreational boats (excluding charter vessels) are the second-largest user group/market for the Westport Marina. There are approximately 123 annual recreational vessels in the marina (24% of total slips). The number of transient recreational vessels in the marina fluctuates widely throughout the year, with the highest use during the summer season, and has been as high as approximately 150 vessels. Currently recreational vessels are located predominantly in the North Marina and Mid Marina areas. The majority of the recreational vessels are less than 30 ft in length resulting in a large number of vessels in slips that are oversized, with a 10+ ft dock overhang.

3.3. Charter Fishing

There are approximately 40 annual charter vessels in the marina, varying in size from 29 ft to 50+ ft. Based on conversations with Port staff, the charter vessel fleet at the marina has been evolving towards operators drawing business completely on-line. Currently the charter vessels are located predominantly in North Marina area where the largest slips are 40 ft in length, resulting in some charter vessels being moored in undersize slips.



4. Goals and Priorities

4.1. Fleet Demand

The existing marina has an inadequate slip mix and distribution for current/future demand. This includes insufficient slip lengths and widths to meet the commercial fishing vessel fleets greater lengths and wider beams. oversized slips for much of the recreational vessel market demand, and some undersized slips in the desired charter moorage location to meet charter vessel demand. Adjustments to the existing slip mix, dock layouts/slip sizing, and fairway widths will allow the marina to serve existing customers and better support future customers.

4.2. User Redistribution

Existing users are moored at slips throughout the marina based on slip availability, dock condition, and slip length and width rather than proximity to similar user groups, function, needs, and amenities. A primary (early project) goal is to consolidate the larger commercial fishing fleet vessels in a defined area, optimize slip sizes and fairway width for navigability, and design performance of dockage and utilities to meet commercial needs. This will allow the marina to separate the large commercial vessel space and recreational space to optimize design and reduce conflict between user groups and conflict between resources (space, working area, storage, and operational use).

4.3. Dock Upgrades

Many of the docks are reaching the end of their service life leading to increasing maintenance and repair cost, and loss of leasable linear foot of dock. Dock upgrades will be based on optimizing float types and amenities for the intended design vessel. Based on inspection, and where feasible, existing concrete float modules could be reused as an interim float rehabilitation measure when replacement with a new float system is not considered necessary. This rehabilitation would include new walers, thru-bolts, and pile.

4.4. Feasible Affordable Phased Redevelopment

The redevelopment plan for marina modernization must be divided into smaller, manageable phases with individual projects (particularly early priority work) which fall into fundable categories. Smaller, readily implemented projects allow for more rapid approvals, and ease of funding allocation – if it cannot be paid for, it will not be built.



5. Redevelopment Strategy

The redevelopment strategy was developed to address existing issues with the large commercial fleet, the underserved recreational and charter fleet, and to consolidate these users in focused areas of the marina laid out for their specific needs. Priorities were to increase fairway width for access, increase slip width, and analyse slip mix for optimization based on conversations and prior studies.

5.1. Three Marina Areas

The marina consists of three general areas of docks which are the subject of this modernization strategy and redevelopment plan; South Marina, Mid Marina, and North Marina.

5.1.1. South Marina

The highest priority area, South Marina docks are failing and have reached the end of their service life. Slip widths are inadequate for the target commercial fleet and many double slips at Float 15 and Float 21 are only able to berth a single vessel. Slips will be widened and upsized for the commercial fleet, and South Marina will be able to relieve the existing shortcomings of existing South Marina and Mid Marina.

South Marina is constrained to the south by an existing boat launch, which must remain open to access. To the north, existing fixed piers separate South Marina from Mid Marina. Based on water depth, the docks should not be shifted shoreward and lose the existing depth that is adequate for existing and future design vessels.

5.1.2. Mid Marina

The second priority area, Mid Marina slips are inadequate for serving the existing commercial boaters and many double slips at Float 3 are only able to berth a single vessel. As South Marina projects are completed, vessels from Mid Marina may be shifted to the new docks to allow for evaluation and development of this basin.

Mid Marina is constrained to the south by several fixed piers and to the north by the fuel pier and fairway. Based on water depth, the docks should not be shifted shoreward and lose the existing depth that is adequate for existing and future design vessels. Based on the entrance fairway to the Westport Marina, the docks should not shift significantly channelward.

5.1.3. North Marina

North Marina holds the majority of the smaller slips at Westport Marina and primarily serves the recreational and charter fleet. To the south of the marina is a fixed pier and to the north is a shallow draft area. To the north-east are the commercial fish pens requiring adequate fairway width for access. Though North Marina has its challenges in serving the existing market, the needs have been evaluated as less pressing than South and Mid Marinas. North Marina is the area of least priority, and will not be considered in early projects.

5.2. Project Types

Projects have been classified into three categories:

- Remove and Replacement
- Rehabilitation
- No Change



Remove and Replacement projects will involve the full demolition of the identified floating docks along with associated guide piles, and replacement with new floating dock in optimized configurations, new guide piles, and an upgraded electrical system and mechanical system. Prior to demolition, dock condition will be structurally assessed and select docks determined to be adequate for reuse shall be removed intact and placed in an upland location for cleaning, additional structural assessment, and rehabilitation for reuse.

Rehabilitation projects will involve structural assessment of the identified docks and a reconfiguration of the docks using the existing docks. Docks not passing the structural assessment will be removed and replaced with the stored upland docks rehabilitated under the Remove and Replacement projects. The rehabilitated docks may require replacement of whalers, through rods and float tubs. Rehabilitation projects will also involve replacement of all existing piling and replacement of the existing utilities including electric and mechanical upgrades.

No Change projects will not be upgraded from existing conditions. No docks, piles, or utility upgrades will be made and no adjustment to the exiting configuration will be made.

5.3. Phasing

Projects will be phased as follows based on project scope, scale, location, and funding opportunities:

- Near-term
- Mid-Term
- Long-Term

Near-term projects are defined as the first projects to occur, to be implemented in 1-5 years. These projects consist of the first large scale 'Remove and Replacement' projects with funding opportunities such as Port Capital Improvement Plan, Grays Harbor County .09 Fund, Washington State Recreation and Conservation Office (RCO), Rural Business Development Grant (USDA), and Economic Development Assistance (EDA). As described in Section 6, these projects are called Phase 1.

Mid-Term projects are defined as the projects to be implemented following the Phase 1 project installation, projected to be designed and constructed in 5-12 years. These projects are anticipated to have lower construction cost than Phase 1 projects and may have similar eligible funding as Phase 1 and may also be funded by the Port maintenance and operation budget. As described in Section 6, these projects are called Phase 2 and 3.

Long-term projects are defined as projects that may be investigated after the implementation of Phase 2 and 3 projects, likely 12+ years. As described in Section 6, these projects are called Phase 4, 5, and 6. Prior to Phase 4, it is recommended that slip demand is reinvestigated.



6. Redevelopment Plan

The redevelopment plan is divided into fourteen (14) phases. Though numbered consecutively, these phases may be implemented in a non-consecutive manner, dictated by funding opportunities and future marina needs. These phases are presented by marina area, starting from the near-term projects in South Marina, to Mid Marina, to the long-term projects in North Marina.

6.1. South Marina

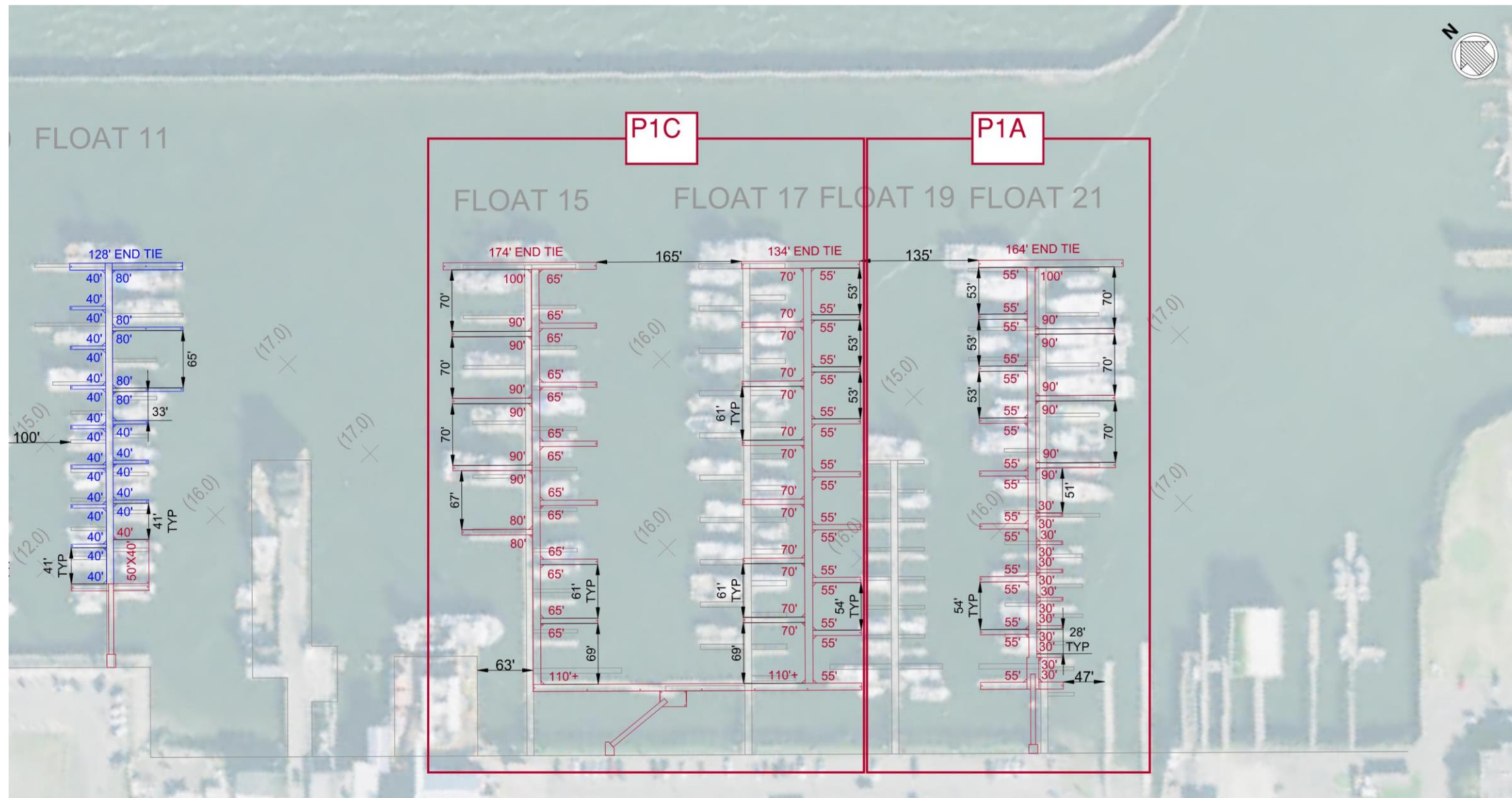
South Marina is developed to address existing issues with the large commercial fleet and consolidate these users in one area of the marina laid out for their specific needs. South Marina is the priority and represents the first phase(s) of work to be executed. South Marina captures the larger permanent commercial fleet (55 ft and up), additional slips, large slips for the commercial boat builder, and some 30 ft slips for the boat launch.

Wide commercial slip widths for large vessels were developed based on conversations with the Port and review of the Port's marina slip moorage database. On review of existing boats that reside in the marina, it is apparent that there are some unusually wide vessels. The approach to developing a reconfiguration of the marina was to select a conservative overall applied vessel beam for determination of double slip width, understanding that the widest beam vessels would be matched in a double slip with a vessel of appropriate beam for necessary clearance. The Approved South Marina Redevelopment Plan in Figure 5 has widths shown to be appropriate for double commercial slips with wide fairways. Some slips will be lost in South Marina compared with existing conditions, but this is not an overall problem – any necessary larger permanent commercial fleet slips lost are picked up in Mid Marina during existing and future improvements.

South Marina redevelopment consists of two (2) phased Remove and Replacement projects for near-term design and construction. These will be the first redevelopment projects in the marina and will increase slip length and width, optimize slip mix, and optimize access to the marina with the intent of relieving the shortcomings of existing South Marina and Mid Marina by supporting the commercial fleet. These phases are shown in Figure 5.

- Phase 1A:** This Remove and Replacement project will consist of fully demolishing and removing Float 19 and Float 21 inclusive of guide piles, utilities, gangways and abutments, and replacing with one dock tree, approximately located in the Float 21 footprint. Access will be from a new abutment structure and ADA gangway. Slips to the north will be upsized and the slip mix to the south will be optimized to include smaller slips in the South Marina. Prior to demolition, dock condition will be structurally assessed and select docks determined to be adequate for reuse shall be removed intact and placed in an upland location for cleaning, additional structural assessment, and rehabilitation for reuse. The demolition portion of this phase must be conducted prior to Phase 1C as to allow adequate fairway width for piledriving and dock installation.
- Phase 1C:** This Remove and Replace project will consist of fully demolishing and removing Float 15 and Float 17 inclusive of guide piles, utilities, gangways and abutments and replacing with two dock trees accessed by a central abutment and ADA gangway. The two dock trees will be connected by a headwalk and slips and fairways will be upsized for the commercial market. Two 100+ slips will provide dockage for the existing boat manufacturer. Prior to demolition, dock condition will be structurally assessed and select docks determined to be adequate for reuse shall be removed intact and placed in an upland location for cleaning, additional structural assessment, and rehabilitation for reuse.





WESTPORT MARINA – SOUTH MARINA
SCALE: 1"=60'

NOTE: FINAL LOCATION AND NUMBER OF PILE MAY VARY BASED ON MANUFACTURER DESIGN.

- LEGEND:
- █ REMOVE AND REPLACE
 - █ REHABILITATE
 - █ NO CHANGE



FIGURE 5: APPROVED SOUTH MARINA PHASED REDEVELOPMENT PLAN



TABLE 1: SOUTH MARINA SLIP MIX

Slip Length (ft)	Proposed South Marina Floats				Existing South Marina Floats				
	FLOAT 15	FLOAT 17	FLOAT 21	Totals	FLOAT 15	FLOAT 17	FLOAT 19	FLOAT 21	Totals
30			13	13			26	5	31
40				0		25		18	43
50				0	19	21	2		42
55		16	16	32					0
60				0	6			13	19
65	13			13					0
70		13		13	5		2	2	9
80	2			2				4	4
90	6		6	12		2			2
100	1		1	2					
110	1	1		2	2				2
Slip Totals	23	30	36	89	32	48	30	42	152
End Tie (ft)	174	149	164	487	129	99	69	159	456
Total Linear Feet	6052				7696				



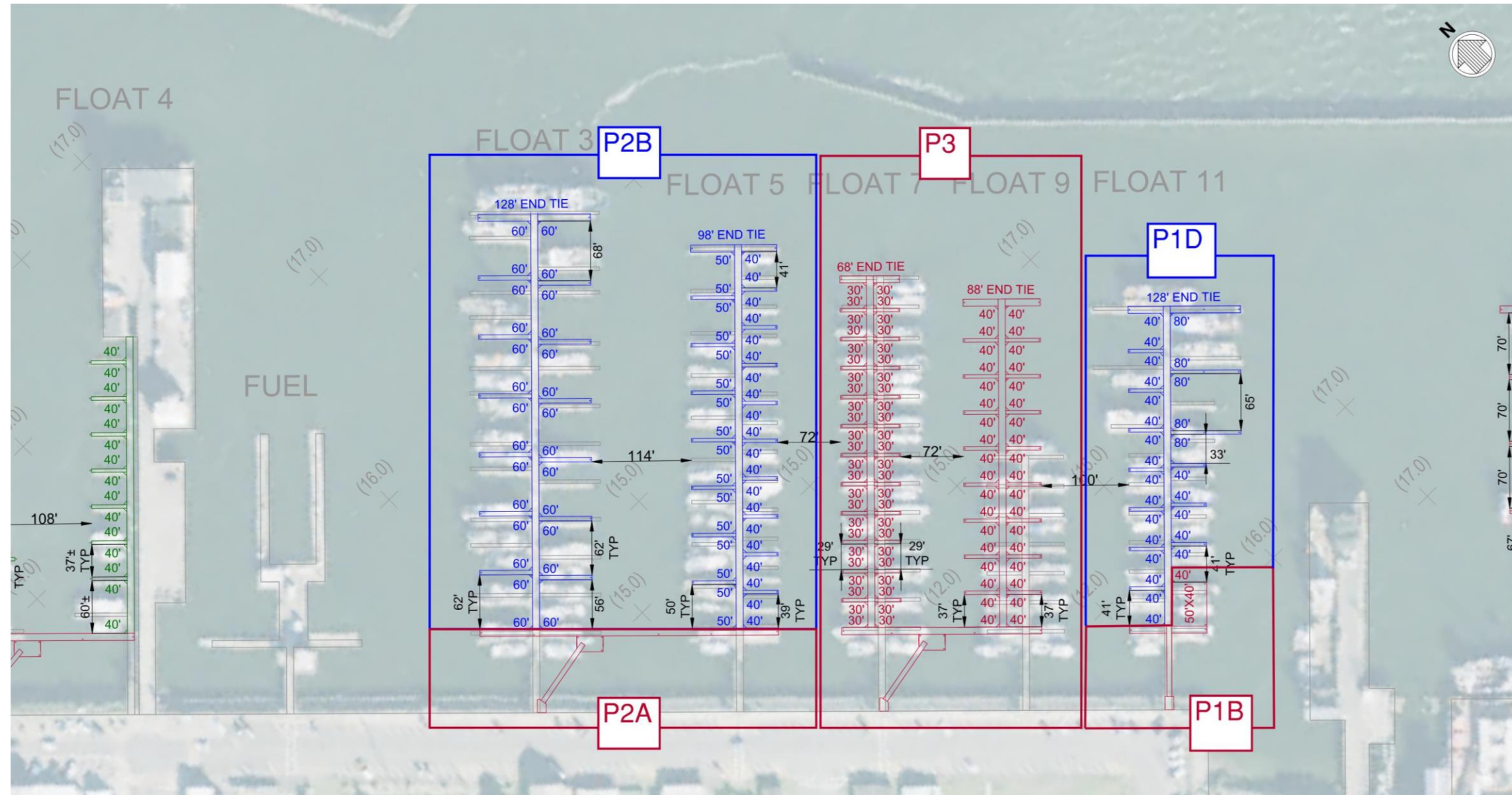
6.2. Mid Marina

Mid Marina provides both the recreational/transient and commercial moorage necessary to balance out the remaining marina demands/slip mix not captured in South Marina redevelopment.

Mid Marina redevelopment consists of five (5) phased Remove and Replacement/Rehabilitation projects for near-term design and construction. Purpose is to provide additional recreational slip capacity, while rehabilitating slips that will accommodate commercial overflow from South Marina. Access to the floats will be condensed and a new working floating platform will be installed for commercial use. These phases are shown in Figure 6.

- **Phase 1B:** This Remove and Replacement project will consist of fully demolishing and removing a portion of the mainwalk and headwalk, shoreward slips, gangway, and abutment from Float 11 and replacing with a new mainwalk, headwalk, abutment and ADA gangway, utilities, and a working floating platform for commercial use. Prior to demolition, dock condition will be structurally assessed and select docks determined to be adequate for reuse shall be removed intact and placed in an upland location for cleaning, additional structural assessment, and rehabilitation for reuse. The intent of this project is to be phased with Phase 1A.
- **Phase 1D:** This Rehabilitation project will rehabilitate the remaining Float 11 docks not removed and replaced under Phase 1B. Docks will be structurally inspected. Docks that do not pass structural inspection will be removed and replaced with the stored upland docks rehabilitated under previous phases. All piles will be removed and replaced and the docks will be reconfigured to accommodate vessels with wider beams, and provide slips to 40' vessels not accommodated by the South Marina slip layout. Though not all docks will be replaced, this phase will include utility upgrades.
- **Phase 2A:** This Remove and Replacement project will consist of fully demolishing and removing the headwalks, gangways, and abutments at Float 3 and Float 5, and replacing with a headwalk that spans between the two dock trees, connecting them for access. A new abutment and ADA gangway will be constructed at the approximate location of the existing abutment. This project is intended to be phased with Phase 2B.
- **Phase 2B:** This Rehabilitation project will rehabilitate Float 3 and Float 5. Docks will be structurally inspected. Docks that do not pass structural inspection will be removed and replaced with the stored upland docks rehabilitated under previous phases. All piles will be removed and replaced and the docks will be reconfigured to accommodate vessels with wider beams. Though not all docks will be replaced, this phase will include utility upgrades.
- **Phase 3:** This Remove and Replacement project will consist of fully demolishing and removing Float 7 and Float 9 including abutments and gangways, and replacing with two dock trees accessed by a central abutment and ADA gangway. The two dock trees will be connected by a headwalk and slips and fairways are targeted towards the underserved recreational and charter market. The next abutment will be located at the approximate location of the existing abutment.





WESTPORT MARINA – MID MARINA
SCALE: 1"=60'

NOTE: FINAL LOCATION AND NUMBER OF PILE MAY VARY BASED ON MANUFACTURER DESIGN.

- LEGEND:
- █ REMOVE AND REPLACE
 - █ REHABILITATE
 - █ NO CHANGE



FIGURE 6: APPROVED MID MARINA PHASED REDEVELOPMENT PLAN



TABLE 2: MID MARINA SLIP MIX

Slip Length	Proposed Mid Marina Floats						Existing Mid Marina Float					
	FLOAT 3	FLOAT 5	FLOAT 7	FLOAT 9	FLOAT 11	Totals	FLOAT 3	FLOAT 5	FLOAT 7	FLOAT 9	FLOAT 11	Totals
30			48			48						0
35						0						0
40		20		36	22	78		27	50	26	23	126
50		16				16		19			4	23
60	28					28					6	6
70						0	39					39
80					5	5					6	6
Slip Totals	28	36	48	36	27	175	39	46	50	26	39	200
End Tie	128	98	78	78	128	510	148	98	88	88	168	590
Total Linear Feet						7950						10350



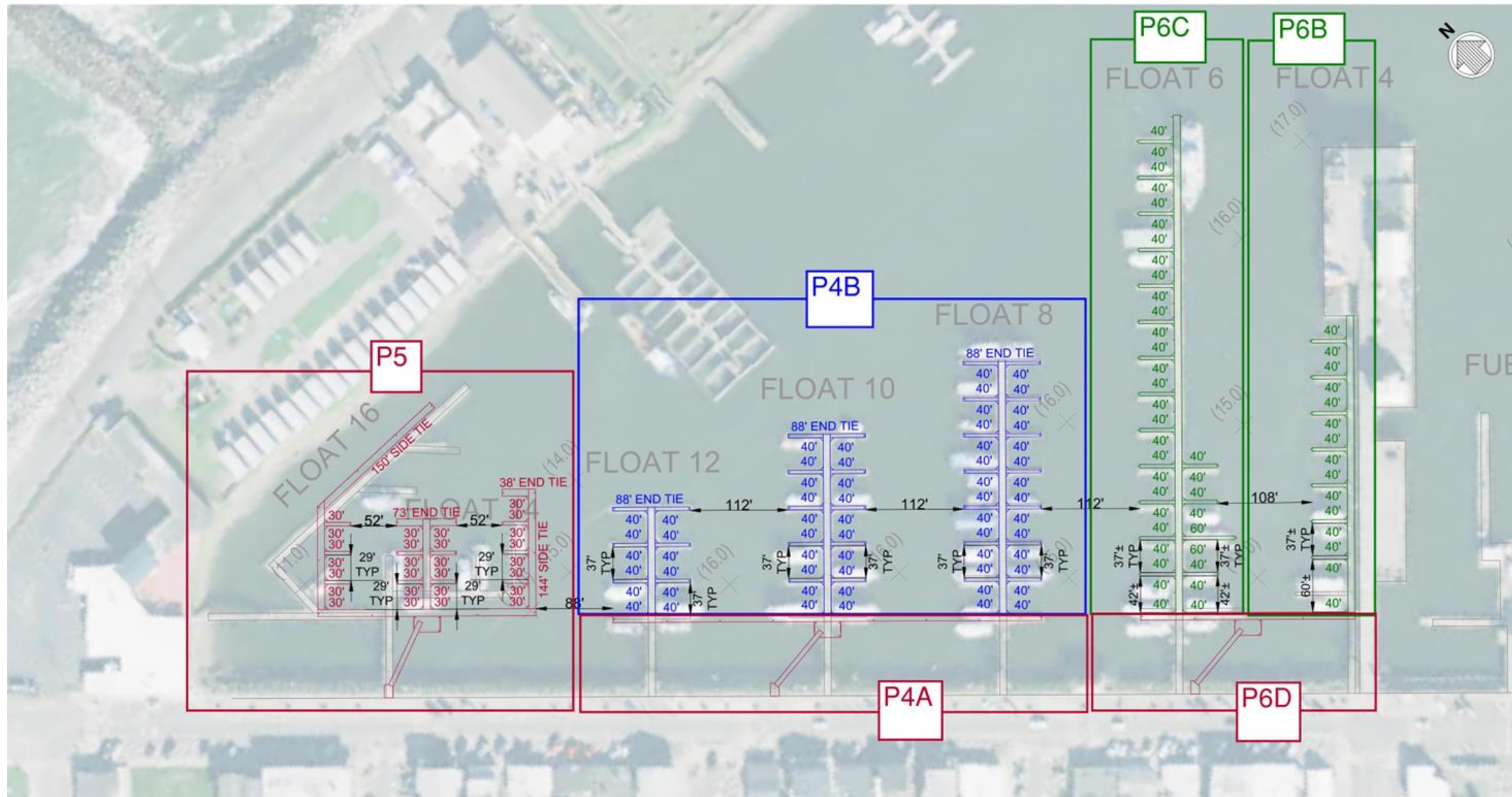
6.3. North Marina

North Marina is developed to provide appropriate slip mix in desired location to consolidate and better serve the charter fleet, recreational, and transient users. Smaller charter and recreational vessels from 30 ft to 45 ft and a few longer end tie are accommodated by conservative slip widths. There is phasing flexibility/adaptability in North Marina to meet Port needs.

North Marina redevelopment consists of seven (7) phased Remove and Replacement/Rehabilitation/No Change projects for long-term conceptual evaluation. Purpose is to refine the slip mix to accommodate the recreational and charter market. Prior to Phase 4, it is recommended that slip demand is reinvestigated. These phases are shown in Figure 7.

- **Phase 4A:** This Remove and Replacement project will consist of fully demolishing and removing the headwalks, gangways, and abutments at Float 8, Float 10 and Float 12, and replacing with a headwalk that spans between the three dock trees, connecting them for access. A new abutment and ADA gangway will be constructed at a new access point, allowing for a centrally located landing float. This project is intended to be phased with Phase 4B.
- **Phase 4B:** This Rehabilitation project will rehabilitate Float 8, Float 10, and Float 12. Docks will be structurally inspected. Docks that do not pass structural inspection will be removed and replaced with the stored upland docks rehabilitated under previous phases. All piles will be removed and replaced and the docks will be replaced in their existing configuration. Though not all docks will be replaced, this phase will include utility upgrades.
- **Phase 5:** This Remove and Replacement project will consist of fully demolishing and removing Float 14 and Float 16 inclusive of guide piles, utilities, gangways and abutments, and replacing with a reconfigured dock layout. This new layout is reconfigured to move the docks south, away from the shallow northern corner of the marina, where during low tide the existing docks become grounded. Access will be centralized from a new abutment and ADA gangway. The layout is optimized to maximize slips for the recreational market.
- **Phase 6A** (Float 20 not shown in Figure 7): This project will be a No Change project at Float 20 - prior to Phase 4 and improvements at North Marina, it is recommended that slip demand is reinvestigated to determine if Float 20 is optimally serving the marina.
- **Phase 6B:** This project will be a No Change project at Float 4 - prior to Phase 4 and improvements at North marina, it is recommended that slip demand is reinvestigated to determine if Float 4 is optimally serving the marina.
- **Phase 6C:** This project will be a No Change project at Float 6 - prior to Phase 4 and improvements at North marina, it is recommended that slip demand is reinvestigated to determine if Float 6 is optimally serving the marina.
- **Phase 6D:** This Remove and Replacement project will consist of fully demolishing and removing the headwalks, gangways, and abutments at Float 4 and Float 6, and replacing with a headwalk that spans between the two dock trees, connecting them for access. A new abutment and ADA gangway will be constructed at the approximate location of the existing Float 6 abutment. This project is intended to be phased with Phase 6B and Phase 6C, though under this concept, these are areas of No Change.





WESTPORT MARINA – NORTH MARINA
SCALE: 1"=60'

NOTE: FINAL LOCATION AND NUMBER OF PILE MAY VARY BASED ON MANUFACTURER DESIGN.

- LEGEND:
- █ REMOVE AND REPLACE
 - █ REHABILITATE
 - █ NO CHANGE



FIGURE 7: APPROVED NORTH MARINA PHASED REDEVELOPMENT PLAN



TABLE 3: NORTH MARINA SLIP MIX

Slip Length	Proposed North Marina Float									Existing North Marina Float								
	FLOAT 4	FLOAT 6	FLOAT 8	FLOAT 10	FLOAT 12	FLOAT 14	FLOAT 16	FLOAT 20	Totals	FLOAT 4	FLOAT 6	FLOAT 8	FLOAT 10	FLOAT 12	FLOAT 14	FLOAT 16	FLOAT 20	Totals
30						20	7	25	52								25	25
40	15	34	28	20	12			12	121	14	31	30	22	14	5	4	12	132
50									0									0
60		2							2	2	2							4
70									0		2			2				4
80								5	5								5	5
Slip Totals	15	36	28	20	12	20	7	42	180	16	35	30	22	14	7	4	42	170
End/Side Tie		380	108	88	88	231	150	150	1195		380	88	88	88	140	160	150	1094
Total Linear Feet	8115									8044								



6.4. Slip Mix

The Redevelopment Plan overall slip mix presented below in Table 4 reflects a balance between market demand and the development of fundable projects. As previously noted, the goals of accommodating the commercial fishing fleet, particularly the longer, wider vessels and accommodating the recreational market are both addressed. Rehabilitation projects such as P1B, P2B and P4B offer the ability to easily further refine the slip mix going forward based on demand and function at the time of project execution.



TABLE 4: RECOMMENDED SLIP MIX

Slip Length (ft)	Proposed South Marina Floats				Proposed Mid Marina Floats						Proposed North Marina Floats									Totals	Ex Totals	Delta		
	FLOAT 15	FLOAT 17	FLOAT 21	Totals	FLOAT 3	FLOAT 5	FLOAT 7	FLOAT 9	FLOAT 11	Totals	FLOAT 4	FLOAT 6	FLOAT 8	FLOAT 10	FLOAT 12	FLOAT 14	FLOAT 16	FLOAT 20	Totals					
30			13	13			48			48						20	7	25	52	113	56	57		
40				0		20		36	22	78	15	34	28	20	12			12	121	199	301	-102		
50				0		16				16									0	16	65	-49		
55		16	16	32						0									0	32	0	32		
60				0	28					28		2							2	30	29	1		
65	13			13						0									0	13	0	13		
70		13		13						0									0	13	52	-39		
80	2			2					5	5								5	5	12	15	-3		
90	6		6	12						0									0	12	2	10		
100	1		1	2						0									0	2	0	2		
110	1	1		2						0									0	2	2	0		
Slip Totals	23	30	36	89	28	36	48	36	27	175	15	36	28	20	12	20	7	42	180	444	522	-78		
End Tie (ft)	174	149	164	487	128	98	78	78	128	510		380	108	88	88	231	150	150	1195	2192	2140	52		
Total LF				6052							7950										8115	22117	26090	-3973



6.5. Slip/Dock/Fairway Dimensions

Slip width dimensions vary between target markets:

- Recreational vessels: Recommended minimum slip width is determined using guidance from American Society of Civil Engineers (ASCE) Planning and Design Guidelines for Small Craft Harbors (ASCE No. 50). Finger pier width is minimized to reduce overwater coverage but to maintain maximum operability and access. Recommended minimum slip width is found in Table 5.
- Commercial vessels: Though minimum slip width dimensions are determined for recreational vessels in Table 5, commercial vessels typically have wider beams and include rigging for fishing operations. These slips will be significantly wider than the same boat length for a recreational vessel.

TABLE 5: RECOMMENDED MINIMUM SLIP WIDTH AND DOCK DIMENSIONS

Slip Length (ft)	Applied Vessel Beam (ft)	Double Slip Width (ft)	Finger Width (ft)	Main Walkway Width (ft)
30	12	28	4	6
40	15	36	4	6
50	18	44	4	7
55	19	48	5	7
60	21	54	5	7
65	23	56	5	7
70	24	60	6	8
80	25	62	6	8
90	27	68	6	8

6.6. Site Dimensions/Access Constraints

Certain site features are present on site that limit the layout. For the three marinas this includes existing water depth, fairway offset from the breakwaters to the existing location of the T-heads, and offset from the shoreline to the existing docks. Additionally, South Marina is constrained to the south by the existing boat ramp which must remain open, and to the north by the fixed piers and the vessel yard operations. Mid Marina is constrained by the fixed pier to the south and vessel turning radius at the fuel pier to the north. North Marina is constrained by Float 4 and the fixed pier to the south, net pen access to the north, and the northern shallow basin where Float 16 is grounded at low tide.

6.6.1. Abutments and Gangways

Abutments and gangways will need to be replaced with abutments that meet current local building code and gangways that meet Americans with Disabilities Act (ADA) guidelines. As a minimum, gangways must be designed to provide for a maximum 1:12 (8.33%) slope but are not required to be longer than 80 feet in length. It is anticipated that all gangways will be 80 ft length. Abutment configuration/footprint will be



determined in the design phase based on required gangway and float clearances and interpretation of local building code requirements.

6.7. Dock and Infrastructure Considerations

6.7.1. Float Structure Types and Materials

There are several basic float structure types considered for Westport Marina as part of the replacement strategy. These float types are described based on the float structure construction – timber, steel, aluminum and concrete. Evaluation of these float structure types includes consideration of the initial capital costs, structural suitability (such as supporting integration of grated decking surfaces), stability of floats underfoot, maintenance requirements, expected service life of the float system in saltwater environment, and the marinas experience and history with concrete float types.

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 dock float systems have a mass providing stability and the concrete deck surface providing 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 6: FLOAT STRUCTURE TYPE COMPARISON

Float Structure Type	Pros	Cons	Capital Costs	Estimated Service Life
Timber	<ul style="list-style-type: none"> • Flexible and lightweight • Range of floatation can be used (HDPE, Steel, or polyethylene tubs) • Repair to damaged members can be relatively easy • Grating can be incorporated into system easily 	<ul style="list-style-type: none"> • Connection points can work loose over time; requiring dock maintenance. 	\$ 160 / SF	30+ years
Steel	<ul style="list-style-type: none"> • Durable and strong • Range of floatation can be used • Grating can be incorporated into system 	<ul style="list-style-type: none"> • May require more maintenance due to corrosion • Field adjustments may be difficult • Repair of damaged sections can be difficult 	\$ 170 / SF	30+ years
Aluminum	<ul style="list-style-type: none"> • Lightweight compared to steel and concrete. • Better resistance to corrosion than steel • Grating can be incorporated into system 	<ul style="list-style-type: none"> • Field adjustments may be difficult • Repair of damaged sections can be difficult 	\$ 175 / SF	30+ years
Concrete	<ul style="list-style-type: none"> • Solid feeling underfoot • Long service life • Difficult to incorporate grating into system 	<ul style="list-style-type: none"> • Difficult to meet grating requirements • Repairs can be difficult 	\$ 180 / SF	40+ years

6.7.2. Utilities

At minimum, the marina should offer basic utilities which include sufficient shore power, potable water, and fire protection.



6.7.2.1. Mechanical

Where new floats are provided for the Remove and Replacement and Rehabilitation projects, 1-inch potable water connections will be provided for each slip. A connection to upland utility, utilizing flexible cable carrier assembly at the gangways will be provided.

For fire protection, a manual dry pipe standpipe system with 2-1/2 inch hose connections will be provided and spaced to cover all areas on the floats up to 150 feet from the hose connection. The fire department connection will be located on the float, near the gangway. Anticipated spacing of 2-1/2 inch hose connections will be 250-300 feet. The manual dry pipe standpipe system is normally dry and is only charged during fire department operations utilizing fire department pumping trucks.

No fire sprinkler protection is required as covered moorage is not provided at the marina. No sanitary sewer pump-out will be provided, except at the existing Float 20.

6.7.2.2. Electrical

For all floats, the existing electrical distribution will remain and be reused for the new configurations. The existing service transformer will remain and the float panelboards will either remain or be relocated to the gangway location for each float. Either a 208V or 240V feeder will be provided depending on the existing service, which will provide power for the shore power boxes. The size of the shore power box will depend on the size of slips at the float as well as the overall load on the panelboard servicing each float. Table 7 provides recommended power configurations for boats based on slip size.

TABLE 7: RECOMMENDED POWER CONFIGURATION

Slip Size	Recommended Power Configuration
<50 ft	(2) 30 amp 120/240V single phase
50 – 100 ft	(2) 50 amp 120/240V single phase

If additional power is required or desired, there may be some limitations unless the panelboard and associated utility transformer are upgraded with new, larger equipment. To provide electric service to larger slips, the Port may want to consider implementing improvements in a selective approach that provides larger services at the larger commercial slips. These improvements can be evaluated per phase.

Based on preliminary investigation, the following floats will not conform to the recommended power requirements in Table 7 based on the existing provided shore power. To meet the goals of the slip upsizing and increased power requirements, the panelboard and associated utility transformer may need to be upgraded with new, larger equipment. All circuit breakers will need to be replaced with new ground fault type to accommodate the modernization. These slips may be provided using existing shore power, with reduced power requirements as follows:

- South Marina:
 - Float 17: 110 ft slip can be 50 amp, remaining slips may be a mix of 20 amp and 30 amp, 120V.
 - Float 21: The largest 7 slips may be (2) 50 amp, remaining slips may be a mix of (1) 20 amp and 30 amp, 120V.
- Mid Marina:
 - Float 7: All slips may be 20 amp or a combination of 20 and 30 amp, 120/240V. This may be acceptable for recreational vessels.
 - Float 9: At least half of slips may be (2) 30 amp, 240V. This may be acceptable for recreational vessels or smaller commercial vessels.



- North Marina:
 - Float 4: At least half of slips may be 30 amp, 120V. Half of slips may be 30 amp, 240V.
 - Float 6: Slips >50 ft may be (2) 50 amp, 240V. All other slips will be a combination of (1) 30 amp, 120V and (2) 30 amp, 240V.
 - Float 8: At least 10 slips may be (1) 30 amp, 240V. The remaining slips may be (2) 30 amp, 240V.
 - Float 12: At least 2 slips may be 20 amp, 120V. This may be acceptable for recreational/charter vessels.
 - Float 14 & 16: Up to 9 slips may be (2) 30 amp, 240V. The remaining slips may be (1) 30 amp, 240V or a combination of 20 amp and 30 amp.

Power pedestals are produced from a variety of manufacturers. Pedestals should be fabricated with Type 316 Stainless Steel enclosures to provide durability for the marine environment. The units should also have LED lights at the top to provide general illumination around the pedestal on the floats, including hangers on the sides for cord support. Each unit will be provided with one or two shore power receptacles protected by a ground fault, circuit breaker and meter. Some power pedestals have a ground fault notification option alerting the marina to any ground fault event. When a ground-fault circuit breaker trips, the originating pedestal will flash red until the fault has been cleared.



FIGURE 8: TYPICAL STAINLESS STEEL POWER PEDESTAL

City of Westport Electrical is inspected by Washington State Department of Labor and Industries (L&I), Tumwater Office. Therefore, the City of Westport would follow the State Adoption of the 2020 National Electrical Code (the Code). The 2020 National Electric Code requirements include ground fault protection where on the water. To be fully Code compliant, all the breakers will need to be replaced in the distribution panel feeding each float with a shunt-trip type and a ground fault monitoring system set to trip at 100mA. This includes new shunt-trip breakers, a set of current transformers, ground fault control station and associated wiring and conduit. Also, the circuit breakers in the shore power box with a unit with 30mA, ground-fault type for each receptacle will need to be replaced.

Per discussions with the L&I regarding their interpretation, ground fault breakers are required for all new and relocated power pedestals. For existing installations where no feeders are modified, the upstream breaker can remain without ground fault protection. However, if a feeder is lengthened or shortened, then the upstream breaker will be required to have ground fault protection. This will require replacement of the existing circuit breaker with a shunt-trip type, circuit breaker with a ground fault protection system.

The Code also requires the bonding of all non-current carrying metal parts with a minimum of #8 gauge grounding/bonding conductor. Any future modifications to the float electrical service will include this grounding/bonding conductor from the panel down to the floats.



7. Estimated Project Cost

The marina is anticipated to be modernized in strategic near-term (1-5 year), mid-term (5-12 year), and long-term (12+ year) projects.

- Near-term projects: defined as projects occurring in the next 1-5 years, will be the Phase 1 projects in South and Mid Marina.
- Mid-term projects: defined as projects occurring after Phase 1 and projected at 5-12 year, will be the Phase 2 and Phase 3 projects in South and Mid Marina. The Mid-term projects will complete the modernization of South and Mid Marina.
- Long-term projects: defined as projects occurring after 12+ years, will be the Phase 4, Phase 5, and Phase 6 projects in North Marina. Prior to Phase 4, the redevelopment plan should be revisited to validate design direction, the market decisions, and North Marina slip mix. These phases are conceptual for this analysis.

Several assumptions were made in developing probable concept cost for the marina modernization phases. Assumptions made for quantity, pricing, or demolition can be found in Appendix A. Assumptions made on future conditions and project scope include the following:

- All estimates are in 2022 USD.
- No Change projects are not estimated.
- In addition to construction, estimates include assumptions for Engineering/Design/Permitting, Sales Tax, Construction Administration, and Contingency.
- No dredging is required for the marina modernization beyond typical maintenance dredging. Dredging is excluded from the estimated cost.
- Gangway abutment structures will require replacement and will need to be designed for seismic criteria per local building codes.
- No cost allowance is provided for relocation of vessels during construction.
- No mitigation is included in the estimated cost.
- Assume there are adequate floats available to meet the required needs of the Rehabilitation projects.
- Assume there is adequate upland electrical service provided to the existing marina for marina modernization.
- Assume there is adequate upland storage for floats undergoing rehabilitation.
- Assumes rehabilitated floats will not require floatation repairs or replacement.
- Assumes no replacement of fire protection system is required prior to the start of phased construction.

Several assumptions were made in developing probable concept cost for the electrical design for the marina modernization phases, including the following:

- Assume existing service equipment (panels, meters, utility transformers) will be reused unless required to be updated by L&I.
- Assume all shore power boxes will be replaced.



- Assume all metal equipment will be bonded as required by L&I.
- Assume all wiring will be replaced on floats.
- Assume conduit will be routed within utility trenches in the floats.
- Assume all conductors and conduit will be replaced.

The estimated project cost is organized by project type as shown in Tables 8 and 9 below. The cost breakdowns and assumptions are included as Appendix A.



TABLE 8: REMOVE AND REPLACEMENT ESTIMATED PROJECT

Remove and Replacement Estimated Project Cost					
Marina Area	Phase	Approximate Proposed Square Footage	Approximate Proposed Pile Count	Abutment and Gangway Quantity	Approximate Cost
South Marina	Phase 1A	11,475	31	1	\$6,300,700
	Phase 1C	24,160	56	1	\$11,453,300
Mid Marina	Phase 1B	2,320	3	1	\$1,384,800
	Phase 2A	3,260	8	1	\$1,114,300
	Phase 3	15,508	62	1	\$7,735,300
North Marina	Phase 4A	4,460	11	1	\$2,049,500
	Phase 5	9,060	321	1	\$4,835,500
	Phase 6D	2,500	7	1	\$1,435,800

TABLE 9: REHABILITATION ESTIMATED PROJECT COST

Rehabilitation Estimated Project Cost*					
Marina Area	Phase	Approximate Proposed Square Footage	Approximate Proposed Pile Count	Abutment and Gangway Quantity	Approximate Cost
Mid Marina	Phase 1D	6,720	25	0	\$3,045,500
	Phase 2B	18,490	53	0	\$6,850,500
North Marina	Phase 4B	5,012	30	0	\$3,786,700

*Assumes there are adequate floats available to meet the required needs of the projects.



8. Permitting Strategy

The current understanding of Westport Marina Redevelopment is that the project is intended to replace the existing docks with more functional and environmentally friendly materials while resulting in no net loss to ecological function. This includes removing creosote-treated piles from the environment and installing grated decking where feasible. These types of projects typically qualify for a more streamlined environmental review process, including programmatic permits and exemptions for repair and replacement of existing structures. The following section describes the environmental compliance approach, covering the topics of permitting and Endangered Species Act (ESA) mitigation considerations for replacement of the docks within the South and Mid Marinas. It is assumed a similar approach will be taken when permitting the future phases of the Westport Marina Redevelopment program at North Marina. A multi-phase programmatic permitting approach was considered, but due to the uncertainty of timing and funding for future phases, it is not recommended.

The permitting approach anticipated for the South Marina/Mid Marina phases is to apply for programmatic permits and exemptions as applicable to streamline the environmental review process. Early agency outreach is encouraged to confirm the permitting approach and documentation requirements. Table 10 includes a summary of anticipated environmental permits and approvals.

TABLE 10: ENVIRONMENTAL PERMITS AND APPROVALS

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/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.
National Historic Preservation Act Section 106 Compliance	Washington Department of Archaeology and Historic Preservation	Potential impacts to archaeological, cultural, or historic resources	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.
Local			
SEPA Categorical Exemption	Port of Grays Harbor	Projects requiring local review in Washington State that qualify as exempt	A SEPA Categorical Exemption will be requested for repair, remodeling, and maintenance per Washington Administrative Code 197-11-800(3). If the project does not qualify as maintenance and repair a SEPA Checklist will be prepared.
Shoreline Substantial Development Permit (SSDP)	City	Repair and maintenance activities located within the shoreline buffer	A 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. If a project or phase is not eligible for SSDP exemption – a permit application will be submitted to the City.
Floodplain Code Compliance	City	In-water structures within floodplain	A Floodplain Code Consistency Memorandum will be submitted to the City.



8.1.1. Federal Permits and Approvals

Nationwide Permit 3

The USACE will be the federal lead agency for the project due to in-water work occurring in waters of the U.S. It is anticipated that the Project will qualify for NWP 3 for repair, rehabilitation, or replacement of previously authorized structures. Per the USACE regional conditions for NWP 3, if the activity meets the conditions of Section 401 of the CWA, Section 401 WQC is incorporated into the NWP and an individual authorization is not required.

A JARPA would be prepared and submitted to USACE requesting an NWP for the Project. The review time frame for NWPs is generally 9 to 12 months from complete application determination. However, recent delays in ESA consultation have been extending this timeframe to 18 months in some cases. The NWP process does not include a public notice process.

If the project does not meet the requirements of the NWP 3 an Individual Permit may be required. The review time frame for an Individual Permit is typically 18 months or more from a complete application determination and includes a public notice process. These time frames are contingent on the consultation process with other agencies and can increase with project complexity.

ESA Section 7 Consultation

A short-form Biological Evaluation will be prepared to initiate informal consultation with the Services (informal consultation is typically applicable to NWPs compared to full consultation which requires preparation of a Biological Assessment) to demonstrate ESA Section 7 compliance for the proposed in-water work. The process for informal consultation is initiated by USACE during permit review and ends with a letter issued from the Services demonstrating compliance with ESA. The time frame for ESA review is incorporated with the USACE permit time frame since USACE permits are not issued until consultation is complete. The ESA consultation process does not include a public notice.

Note that recent budget and staffing issues within the Services have resulted in significant delays in ESA consultation, adding months to the permit review time frame.

NHPA Section 106 Consultation

USACE will lead the NHPA Section 106 process, which requires consideration of effects to historic properties (historic and prehistoric sites, structures, districts, or objects eligible for listing in the National Register of Historic Places [NRHP]) and consultation with affected Tribes. Preliminary archaeological review indicates that a Cultural Resources Assessment memorandum will not be required for the project. Documentation of limited potential for encountering artifacts will be included in the JARPA and SEPA Checklist.

8.1.2. State Permits and Approvals

Hydraulic Project Approval

WDFW regulates work that uses, diverts, obstructs, or changes the natural flow or bed of any of the marine or fresh waters of the state, including projects landward of the mean higher high water mark (MHHW) that will directly impact fish life and habitat. Because project activities include work in and adjacent to waters of the state, a WDFW HPA will be required. HPA review begins once a SEPA Categorical Exemption or determination is issued and takes up to 45 days to complete. No public notice is required.



Clean Water Act Section 401 and CZMA Consistency

Ecology is the local lead agency for Clean Water Act Section 401 compliance and CZMA consistency. Clean Water Act Section 401 compliance is required for projects that propose discharge of dredge or fill material in waters of the U.S. and for projects requiring compliance with Washington State Water Quality Surface Water Standards per Washington Administrative Code (WAC) 173-201A.

Under NWP 3, individual Section 401 review is required if the project involves activities below the OHWM with new work being proposed outside the original footprint. Due to the limited shift in location of the docks within an active marina, it is assumed that individual Section 401 review will not be required. CZMA review is triggered by projects with a federal nexus that are proposed within any of Washington's 15 coastal counties. An individual CZM Consistency Determination is required for projects under NWP if Ecology Section 401 review is required.

Ecology recently updated the protocols for these reviews and is requiring a pre-filing application to be submitted 30 days prior to submittal of the JARPA. The pre-filing process includes a pre-application meeting and review of conceptual materials to determine if Clean Water Act Section 401 or CZMA compliance will be required. Once the 30-day period is over, a letter stating that the project will comply with Washington State water quality standards is submitted to Ecology with the JARPA.

8.1.3. Local Permits and Approvals

SEPA Categorical Exemption

The Port is the lead agency for local permits and approvals. The project may comply with the regulations for a SEPA categorical exemption criteria for repair, remodeling, and maintenance activities per Washington Administrative Code (WAC) 197-11-800(3). A letter confirming the categorical exemption will be prepared by the Port. There is no public notice process associated with a SEPA Categorical Exemption. SEPA Categorical Exemptions are typically issued within 1 to 2 months.

If it is determined that a SEPA review is required a SEPA Checklist will be prepared and submitted to the Port. An Environmental Impact Statement level of review is not anticipated for the project.

SSDP

The City administers the Shoreline Master Program for projects occurring within the 200-foot shoreline environment. The project will be regulated under the City of Westport Shoreline Master Program (SMP; City of Westport 2017). The Project occurs within the High Intensity shoreline environment (City of Westport 2017). If a select phase or project is eligible an exemption request and form will be prepared and submitted to the City for review. SSDP exemptions are typically issued within 1 to 2 months.

If a select phase or project component is not eligible for a SSDP exemption a permit application will be submitted to the City for review. SSDPs are typically issued within 3 to 6 months.

Floodplain Compliance

The project must comply with City of Westport floodplain requirements due to its location within a floodplain. This will include complying with the FEMA development regulations and demonstrating no net loss of floodplain habitat and no impacts to adjacent properties in a Zero Rise Analysis. A Floodplain Compliance Memorandum will be prepared and submitted to demonstrate compliance with the City's floodplain regulations.



9. Summary

Westport Marina is anticipated to be modernized in strategic 1-5 year, 5-12 year, and 12+ year projects, defined as Near-term, Mid-term, and Long-term. A redevelopment plan was developed including fourteen (14) projects broken into six (6) phases. This multi-phased approach includes projects classified into three (3) categories; Remove and Replacement, Rehabilitation, and No Change. This redevelopment plan identifies South Marina as the priority area, to be improved in conjunction with Mid Marina improvements. North Marina was identified as a future conceptual phase that will be re-evaluated closer to the start of project date. Though numbered consecutively, these phases may be implemented in a non-consecutive manner, dictated by funding opportunities and future marina needs. Phases 1, 2, and 3 will be permitted through a strategy of application for programmatic permits and exemptions as applicable. Prior to Phase 4, it is recommended that slip demand is reinvestigated.



APPENDIX A:
WESTPORT MARINA PHASED CONSTRUCTION COST

Port of Grays Harbor - WESTPORT MARINA MODERNIZATION
 South Marina - Project P1A
 29-Sep-22

Description	Unit	Quantity	Unit Cost 2022 \$	Total Cost 2022 \$
MOBILIZATION				
	ALLOW	1		\$ 535,000
SELECTIVE DEMOLITION				
				\$ 452,550
Docks - Concrete	SF	14,520	\$ 15	\$ 217,800
Docks - Salvage	SF	3,630	\$ 25	\$ 90,750
Treated Timber Pile	EA	55	\$ 2,000	\$ 110,000
Steel Pile	EA	16	\$ 500	\$ 8,000
Gangway	EA	2	\$ 1,000	\$ 2,000
Abutment Pier	SF	240	\$ 100	\$ 24,000
GANGWAY & ABUTMENT				
				\$ 290,000
Furnish & Install 80' Aluminum Gangway	EA	1	\$ 90,000	\$ 90,000
Abutment Pier	LS	1	\$ 200,000	\$ 200,000
MARINA FLOAT SYSTEM				
				\$ 2,209,500
Furnish & Install Float - Main Walkway, commerical slips	SF	11,475	\$ 180	\$ 2,065,500
Furnish & Install Float - 30' Transient slips	SF	900	\$ 160	\$ 144,000
GUIDE PILING				
				\$ 244,400
Furnish & Install Steel Guide Pile	EA	31	\$ 8,000	\$ 244,400
ELECTRICAL				
				\$ 230,000
On-dock Elec Service	LS	1	\$ 230,000	\$ 230,000
MECHANICAL				
				\$ 136,000
Water	LS	1	\$ 91,000	\$ 91,000
Fire	LS	1	\$ 45,000	\$ 45,000
Construction Subtotal				\$ 4,097,450
Engineering/Design/Permitting				10% \$ 410,000
Sales Tax (Allow.)				9% \$ 369,000
Construction Administration / Construction Management (Allow)				4% \$ 164,000
PROJECT SUBTOTAL				\$ 5,040,500
Contingency				25.0% \$ 1,260,200
PROJECT TOTAL				\$ 6,300,700

ASSUMPTIONS/NOTES:

- 1 All Estimates are in 2022 USD.
- 2 Mobilization is a 15% allowance of the construction subtotal cost.
- 3 Demolition of existing floats include an allowance to salvage a portion of the docks
- 4 No costs for localized rehabilitation of the existing seawall are included.
- 5 Demolition cost was based on area transient moorage and adjacent main walk.
- 6 Existing abutment pier is supported by treated timber piling; demolition cost includes disposal at an approved landfill.
- 7 Utilities for transient slips are assumed to be water only.
- 8 Calculated float areas are based on nominal dimensions.
- 9 Guide Pile Costs based on 60' long 12" diameter, galvanized steel piling.
- 10 Float costs for the main walkway are based on a more robust system to address the commercial users on the float. Float costs for the fingers are based on a system that will serve recreational boaters, and lesser demands on the float system.
- 11 New abutment pier structure will be designed to meet seismic criteria per local building code requirements.

Port of Grays Harbor - WESTPORT MARINA MODERNIZATION
 South Marina - Project P1C
 29-Sep-22

Description	Unit	Quantity	Unit Cost 2022 \$	Total Cost 2022 \$
MOBILIZATION				
	ALLOW	1		\$ 972,000
SELECTIVE DEMOLITION				
				\$ 489,900
Docks - Concrete	SF	15,590	\$ 15	\$ 233,900
Docks - Salvage	SF	3,900	\$ 25	\$ 97,500
Treated Timber Pile	EA	58	\$ 2,000	\$ 116,000
Steel Pile	EA	33	\$ 500	\$ 16,500
Gangway	EA	2	\$ 1,000	\$ 2,000
Abutment Pier	SF	240	\$ 100	\$ 24,000
GANGWAY & ABUTMENT				
				\$ 280,000
Furnish & Install 80' Aluminum Gangway	EA	1	\$ 80,000	\$ 80,000
Abutment Pier	LS	1	\$ 200,000	\$ 200,000
MARINA FLOAT SYSTEM				
				\$ 4,348,800
Furnish & Install Float	SF	24,160	\$ 180	\$ 4,348,800
GUIDE PILING				
				\$ 447,333
Furnish & Install Steel Guide Pile	EA	56	\$ 8,000	\$ 447,333
ELECTRICAL				
				\$ 425,000
On-dock Elec Service	LS	1	\$ 425,000	\$ 425,000
MECHANICAL				
				\$ 486,000
Water	LS	1	\$ 326,000	\$ 326,000
Fire	LS	1	\$ 160,000	\$ 160,000
Construction Subtotal				\$ 7,449,100
Engineering/Design/Permitting				10% \$ 745,000
Sales Tax (Allow.)				9% \$ 670,500
Construction Administration / Construction Management (Allow)				4.0% \$ 298,000
PROJECT SUBTOTAL				\$ 9,162,600
Contingency				25% \$ 2,290,700
PROJECT TOTAL				\$ 11,453,300

ASSUMPTIONS/NOTES:

- All Estimates are in 2022 USD.
- Mobilization is an 15% allowance of the construction subtotal cost.
- Demolition of existing floats include an allowance to salvage a portion of the docks
- No costs for localized rehabilitation of the existing seawall are included.
- Existing abutment pier is supported by treated timber piling; demolition cost includes disposal at an approved landfill.
- Calculated float areas are based on nominal dimensions.
- Guide Pile Costs based on 60' long 12" diameter, galvanized steel piling.
- Float costs are based on robust system for commercial slips
- New abutment pier structure will be designed to meet seismic criteria per local building code requirements.

Port of Grays Harbor - WESTPORT MARINA MODERNIZATION
 Mid Marina - Project P1B
 29-Sep-22

Description	Unit	Quantity	Unit Cost 2022 \$	Total Cost 2022 \$
MOBILIZATION				
	ALLOW	1		\$ 118,000
SELECTIVE DEMOLITION				
				\$ 26,200
Docks - Concrete	SF	480	\$ 15	\$ 7,200
Docks - Salvage	SF		\$ 25	\$ -
Treated Timber Pile	EA	3	\$ 2,000	\$ 6,000
Steel Pile	EA	-	\$ 500	\$ -
Gangway	EA	1	\$ 1,000	\$ 1,000
Abutment Pier	SF	120	\$ 100	\$ 12,000
GANGWAY & ABUTMENT				
				\$ 290,000
Furnish & Install 80' Aluminum Gangway	EA	1	\$ 90,000	\$ 90,000
Abutment Pier	LS	1	\$ 200,000	\$ 200,000
MARINA FLOAT SYSTEM				
				\$ 417,600
Furnish & Install Float	SF	2,320	\$ 180	\$ 417,600
GUIDE PILING				
				\$ 24,000
Furnish & Install Steel Guide Pile	EA	3	\$ 8,000	\$ 24,000
ELECTRICAL				
				\$ 11,700
On-dock Elec Service	LS	1	\$ 11,700	\$ 11,700
MECHANICAL				
				\$ 13,000
Water	LS	1	\$ 8,700	\$ 8,700
Fire	LS	1	\$ 4,300	\$ 4,300
Construction Subtotal				\$ 900,500
Engineering/Design/Permitting				10% \$ 90,100
Sales Tax (Allow.)				9% \$ 81,100
Construction Administration / Construction Management (Allow)				4% \$ 36,100
PROJECT SUBTOTAL				\$ 1,107,800
Contingency				25% \$ 277,000
PROJECT TOTAL				\$ 1,384,800

ASSUMPTIONS/NOTES:

- All Estimates are in 2022 USD.
- Mobilization is an 15% allowance of the construction subtotal cost.
- Demolition of existing floats include an allowance to salvage a portion of the docks
- No costs for localized rehabilitation of the existing seawall are included.
- Existing abutment pier is supported by treated timber piling; demolition cost includes disposal at an approved landfill.
- Calculated float areas are based on nominal dimensions.
- Guide Pile Costs based on 60' long 12" diameter, galvanized steel piling.
- Float costs are based on robust system for commercial slips
- New abutment pier structure will be designed to meet seismic criteria per local building code requirements.

Description	Unit	Quantity	Unit Cost 2022 \$	Total Cost 2022 \$
MOBILIZATION				
	ALLOW	1		\$ 259,000
SELECTIVE DEMOLITION				
				\$ 188,000
Docks - Concrete	SF	5,900	\$ 15	\$ 88,500
Docks - Salvage	SF	1,500	\$ 25	\$ 37,500
Treated Timber Pile	EA	22	\$ 2,000	\$ 44,000
Steel Pile	EA	10	\$ 500	\$ 5,000
Gangway	EA	1	\$ 1,000	\$ 1,000
Abutment Pier	SF	120	\$ 100	\$ 12,000
GANGWAY & ABUTMENT				
				\$ 280,000
Furnish & Install 80' Aluminum Gangway	EA	1	\$ 80,000	\$ 80,000
Abutment Pier	LS	1	\$ 200,000	\$ 200,000
MARINA FLOAT SYSTEM				
				\$ 672,000
Rehabilitate & Install Float	SF	6,720	\$ 100	\$ 672,000
GUIDE PILING				
				\$ 224,400
Furnish & Install Steel Guide Pile	EA	25	\$ 9,000	\$ 224,400
ELECTRICAL				
				\$ 163,300
On-dock Elec Service	LS	1	\$ 163,300	\$ 163,300
MECHANICAL				
				\$ 194,000
Water	LS	1	\$ 130,000	\$ 130,000
Fire	LS	1	\$ 64,000	\$ 64,000
Construction Subtotal				\$ 1,980,700
Engineering/Design/Permitting				10% \$ 198,100
Sales Tax (Allow.)				9% \$ 178,300
Construction Administration / Construction Management (Allow)				4% \$ 79,300
PROJECT SUBTOTAL				\$ 2,436,400
Contingency				25% \$ 609,100
PROJECT TOTAL				\$ 3,045,500

ASSUMPTIONS/NOTES:

- All Estimates are in 2022 USD.
- Mobilization is an 15% allowance of the construction subtotal cost.
- Demolition of existing floats include an allowance to salvage a portion of the docks
- No costs for localized rehabilitation of the existing seawall are included.
- Existing abutment pier is supported by treated timber piling; demolition cost includes disposal at an approved landfill.
- Calculated float areas are based on nominal dimensions.
- Guide Pile Costs based on 60' long 12" diameter, galvanized steel piling.
- Float costs are based on reuse of salvaged floats that are rehabilitated with new thru rods, walers and tri-frames.
- New abutment pier structure will be designed to meet seismic criteria per local building code requirements.

Port of Grays Harbor - WESTPORT MARINA MODERNIZATION
 Mid Marina - Project P2A
 29-Sep-22

Description	Unit	Quantity	Unit Cost 2022 \$	Total Cost 2022 \$
MOBILIZATION				
	ALLOW	1		\$ 95,000
SELECTIVE DEMOLITION				
				\$ 49,600
Docks - Concrete	SF	736	\$ 15	\$ 11,000
Docks - Salvage	SF	184	\$ 25	\$ 4,600
Treated Timber Pile	EA	4	\$ 2,000	\$ 8,000
Steel Pile	EA		\$ 500	\$ -
Gangway	EA	2	\$ 1,000	\$ 2,000
Abutment Pier	SF	240	\$ 100	\$ 24,000
GANGWAY & ABUTMENT				
				\$ 290,000
Furnish & Install 80' Aluminum Gangway	EA	1	\$ 90,000	\$ 90,000
Abutment Pier	LS	1	\$ 200,000	\$ 200,000
MARINA FLOAT SYSTEM				
				\$ 199,800
Furnish & Install Float	SF	1,110	\$ 180	\$ 199,800
GUIDE PILING				
				\$ 32,000
Furnish & Install Steel Guide Pile	EA	4	\$ 8,000	\$ 32,000
ELECTRICAL				
				\$ 28,500
On-dock Elec Service	LS	1	\$ 28,500	\$ 28,500
MECHANICAL				
				\$ 29,700
Water	LS	1	\$ 19,900	\$ 19,900
Fire	LS	1	\$ 9,800	\$ 9,800
Construction Subtotal				\$ 724,600
Engineering/Design/Permitting				10% \$ 72,500
Sales Tax (Allow.)				9% \$ 65,300
Construction Administration / Construction Management (Allow)				4% \$ 29,000
PROJECT SUBTOTAL				\$ 891,400
Contingency				25% \$ 222,900
PROJECT TOTAL				\$ 1,114,300

ASSUMPTIONS/NOTES:

- All Estimates are in 2022 USD.
- Mobilization is an 15% allowance of the construction subtotal cost.
- Demolition of existing floats include an allowance to salvage a portion of the docks
- No costs for localized rehabilitation of the existing seawall are included.
- Existing abutment pier is supported by treated timber piling; demolition cost includes disposal at an approved landfill.
- Calculated float areas are based on nominal dimensions.
- Guide Pile Costs based on 60' long 12" diameter, galvanized steel piling.
- Float costs are based on robust system for commercial slips
- New abutment pier structure will be designed to meet seismic criteria per local building code requirements.

Description	Unit	Quantity	Unit Cost 2022 \$	Total Cost 2022 \$
MOBILIZATION				
	ALLOW	1		\$ 582,000
SELECTIVE DEMOLITION				
				\$ 442,300
Docks - Concrete	SF	14,730	\$ 15	\$ 221,000
Docks - Salvage	SF	3,690	\$ 25	\$ 92,300
Treated Timber Pile	EA	44	\$ 2,000	\$ 88,000
Steel Pile	EA	30	\$ 500	\$ 15,000
Gangway	EA	2	\$ 1,000	\$ 2,000
Abutment Pier	SF	240	\$ 100	\$ 24,000
GANGWAY & ABUTMENT				
				\$ 290,000
Furnish & Install 80' Aluminum Gangway	EA	1	\$ 90,000	\$ 90,000
Abutment Pier	LS	1	\$ 200,000	\$ 200,000
MARINA FLOAT SYSTEM				
				\$ 1,849,000
Rehabilitate & Install Float	SF	18,490	\$ 100	\$ 1,849,000
GUIDE PILING				
				\$ 422,400
Furnish & Install Steel Guide Pile	EA	53	\$ 8,000	\$ 422,400
ELECTRICAL				
				\$ 426,500
On-dock Elec Service	LS	1	\$ 426,500	\$ 426,500
MECHANICAL				
				\$ 443,300
Water	LS	1	\$ 297,100	\$ 297,100
Fire	LS	1	\$ 146,200	\$ 146,200
Construction Subtotal				\$ 4,455,500
Engineering/Design/Permitting				10% \$ 445,600
Sales Tax (Allow.)				9% \$ 401,000
Construction Administration / Construction Management (Allow)				4% \$ 178,300
PROJECT SUBTOTAL				\$ 5,480,400
Contingency				25% \$ 1,370,100
PROJECT TOTAL				\$ 6,850,500

ASSUMPTIONS/NOTES:

- All Estimates are in 2022 USD.
- Mobilization is an 15% allowance of the construction subtotal cost.
- Demolition of existing floats include an allowance to salvage a portion of the docks
- No costs for localized rehabilitation of the existing seawall are included.
- Existing abutment pier is supported by treated timber piling; demolition cost includes disposal at an approved landfill.
- Calculated float areas are based on nominal dimensions.
- Guide Pile Costs based on 60' long 12" diameter, galvanized steel piling.
- Float costs are based on reuse of salvaged floats that are rehabilitated with new thru rods, walers and tri-frames.
- New abutment pier structure will be designed to meet seismic criteria per local building code requirements.

Port of Grays Harbor - WESTPORT MARINA MODERNIZATION
 Mid Marina - Project P3
 29-Sep-22

Description	Unit	Quantity	Unit Cost 2022 \$	Total Cost 2022 \$
MOBILIZATION				
	ALLOW	1		\$ 657,000
SELECTIVE DEMOLITION				
				\$ 320,900
Docks - Concrete	SF	9,760	\$ 15	\$ 146,400
Docks - Salvage	SF	2,440	\$ 25	\$ 61,000
Treated Timber Pile	EA	41	\$ 2,000	\$ 82,000
Steel Pile	EA	11	\$ 500	\$ 5,500
Gangway	EA	2	\$ 1,000	\$ 2,000
Abutment Pier	SF	240	\$ 100	\$ 24,000
GANGWAY & ABUTMENT				
				\$ 290,000
Furnish & Install 80' Aluminum Gangway	EA	1	\$ 90,000	\$ 90,000
Abutment Pier	LS	1	\$ 200,000	\$ 200,000
MARINA FLOAT SYSTEM				
				\$ 2,481,280
Furnish & Install Float	SF	15,508	\$ 160	\$ 2,481,280
GUIDE PILING				
				\$ 498,800
Furnish & Install Steel Guide Pile	EA	62	\$ 8,000	\$ 498,800
ELECTRICAL				
				\$ 470,000
On-dock Elec Service	LS	1	\$ 470,000	\$ 470,000
MECHANICAL				
				\$ 313,000
Water	LS	1	\$ 210,000	\$ 210,000
Fire	LS	1	\$ 103,000	\$ 103,000
Construction Subtotal				\$ 5,030,980
Engineering/Design/Permitting				10% \$ 503,100
Sales Tax (Allow.)				9% \$ 452,800
Construction Administration / Construction Management (Allow)				4% \$ 201,300
PROJECT SUBTOTAL				\$ 6,188,180
Contingency				25% \$ 1,547,100
PROJECT TOTAL				\$ 7,735,300

ASSUMPTIONS/NOTES:

- All Estimates are in 2022 USD.
- Mobilization is an 15% allowance of the construction subtotal cost.
- Demolition of existing floats include an allowance to salvage a portion of the docks
- No costs for localized rehabilitation of the existing seawall are included.
- Existing abutment pier is supported by treated timber piling; demolition cost includes disposal at an approved landfill.
- Calculated float areas are based on nominal dimensions.
- Guide Pile Costs based on 60' long 12" diameter, galvanized steel piling.
- Float costs are based on a system that will serve recreational boaters, and lesser demands on the float system.
- New abutment pier structure will be designed to meet seismic criteria per local building code requirements.

Port of Grays Harbor - WESTPORT MARINA MODERNIZATION
 Mid Marina - Project P4A
 29-Sep-22

Description	Unit	Quantity	Unit Cost 2022 \$	Total Cost 2022 \$
MOBILIZATION				
	ALLOW	1		\$ 174,000
SELECTIVE DEMOLITION				
				\$ 67,300
Docks - Concrete	SF	768	\$ 15	\$ 11,500
Docks - Salvage	SF	192	\$ 25	\$ 4,800
Treated Timber Pile	EA	6	\$ 2,000	\$ 12,000
Steel Pile	EA		\$ 500	\$ -
Gangway	EA	3	\$ 1,000	\$ 3,000
Abutment Pier	SF	360	\$ 100	\$ 36,000
GANGWAY & ABUTMENT				
				\$ 290,000
Furnish & Install 80' Aluminum Gangway	EA	1	\$ 90,000	\$ 90,000
Abutment Pier	LS	1	\$ 200,000	\$ 200,000
MARINA FLOAT SYSTEM				
				\$ 713,600
Furnish & Install Float	SF	4,460	\$ 160	\$ 713,600
GUIDE PILING				
				\$ 88,000
Furnish & Install Steel Guide Pile	EA	11	\$ 8,000	\$ 88,000
ELECTRICAL				
				\$ -
On-dock Elec Service	LS	-	\$ -	\$ -
MECHANICAL				
				\$ -
Water	LS	-	\$ -	\$ -
Fire	LS	-	\$ -	\$ -
Construction Subtotal				\$ 1,332,900
Engineering/Design/Permitting				10% \$ 133,300
Sales Tax (Allow.)				9% \$ 120,000
Construction Administration / Construction Management (Allow)				4% \$ 53,400
PROJECT SUBTOTAL				\$ 1,639,600
Contingency				25% \$ 409,900
PROJECT TOTAL				\$ 2,049,500

ASSUMPTIONS/NOTES:

- All Estimates are in 2022 USD.
- Mobilization is an 15% allowance of the construction subtotal cost.
- Demolition of existing floats include an allowance to salvage a portion of the docks
- No costs for localized rehabilitation of the existing seawall are included.
- Existing abutment pier is supported by treated timber piling; demolition cost includes disposal at an approved landfill.
- Calculated float areas are based on nominal dimensions.
- Guide Pile Costs based on 60' long 12" diameter, galvanized steel piling.
- Float costs are based on a system that will serve recreational boaters, and lesser demands on the float system.
- New abutment pier structure will be designed to meet seismic criteria per local building code requirements.

Port of Grays Harbor - WESTPORT MARINA MODERNIZATION
 Mid Marina - Project P4B
 29-Sep-22

Description	Unit	Quantity	Unit Cost 2022 \$	Total Cost 2022 \$
MOBILIZATION				
	ALLOW	1		\$ 322,000
SELECTIVE DEMOLITION				
				\$ 361,500
Docks - Concrete	SF	9,600	\$ 15	\$ 144,000
Docks - Salvage	SF	2,400	\$ 25	\$ 60,000
Treated Timber Pile	EA	57	\$ 2,000	\$ 114,000
Steel Pile	EA	9	\$ 500	\$ 4,500
Gangway	EA	3	\$ 1,000	\$ 3,000
Abutment Pier	SF	360	\$ 100	\$ 36,000
GANGWAY & ABUTMENT				
				\$ 290,000
Furnish & Install 80' Aluminum Gangway	EA	1	\$ 90,000	\$ 90,000
Abutment Pier	LS	1	\$ 200,000	\$ 200,000
MARINA FLOAT SYSTEM				
				\$ 501,200
Rehabilitate & Install Float	SF	5,012	\$ 100	\$ 501,200
GUIDE PILING				
				\$ 241,333
Furnish & Install Steel Guide Pile	EA	30	\$ 8,000	\$ 241,333
ELECTRICAL				
				\$ 392,200
On-dock Elec Service	LS	1	\$ 392,200	\$ 392,200
MECHANICAL				
				\$ 354,400
Water	LS	1	\$ 237,600	\$ 237,600
Fire	LS	1	\$ 116,800	\$ 116,800
Construction Subtotal				\$ 2,462,633
Engineering/Design/Permitting				10% \$ 246,300
Sales Tax (Allow.)				9% \$ 221,700
Construction Administration / Construction Management (Allow)				4% \$ 98,600
PROJECT SUBTOTAL				\$ 3,029,233
Contingency				25% \$ 757,400
PROJECT TOTAL				\$ 3,786,700

ASSUMPTIONS/NOTES:

- All Estimates are in 2022 USD.
- Mobilization is an 15% allowance of the construction subtotal cost.
- Demolition of existing floats include an allowance to salvage a portion of the docks
- No costs for localized rehabilitation of the existing seawall are included.
- Existing abutment pier is supported by treated timber piling; demolition cost includes disposal at an approved landfill.
- Calculated float areas are based on nominal dimensions.
- Guide Pile Costs based on 60' long 12" diameter, galvanized steel piling.
- Float costs are based on reuse of salvaged floats that are rehabilitated with new thru rods, walers and tri-frames.

Port of Grays Harbor - WESTPORT MARINA MODERNIZATION
 Mid Marina - Project P5
 29-Sep-22

Description	Unit	Quantity	Unit Cost 2022 \$	Total Cost 2022 \$
MOBILIZATION				
	ALLOW	1		\$ 411,000
SELECTIVE DEMOLITION				
				\$ 206,300
Docks - Concrete	SF	6,531	\$ 15	\$ 98,000
Docks - Salvage	SF	1,633	\$ 25	\$ 40,800
Treated Timber Pile	EA	27	\$ 2,000	\$ 54,000
Steel Pile	EA	1	\$ 500	\$ 500
Gangway	EA	1	\$ 1,000	\$ 1,000
Abutment Pier	SF	120	\$ 100	\$ 12,000
GANGWAY & ABUTMENT				
				\$ 290,000
Furnish & Install 80' Aluminum Gangway	EA	1	\$ 90,000	\$ 90,000
Abutment Pier	LS	1	\$ 200,000	\$ 200,000
MARINA FLOAT SYSTEM				
				\$ 1,449,600
Furnish & Install Float	SF	9,060	\$ 160	\$ 1,449,600
GUIDE PILING				
				\$ 253,600
Furnish & Install Steel Guide Pile	EA	32	\$ 8,000	\$ 253,600
ELECTRICAL				
				\$ 197,200
On-dock Elec Service	LS	1	\$ 197,200	\$ 197,200
MECHANICAL				
				\$ 337,300
Water	LS	1	\$ 226,200	\$ 226,200
Fire	LS	1	\$ 111,100	\$ 111,100
Construction Subtotal				\$ 3,145,000
Engineering/Design/Permitting				10% \$ 314,500
Sales Tax (Allow.)				9% \$ 283,100
Construction Administration / Construction Management (Allow)				4% \$ 125,800
PROJECT SUBTOTAL				\$ 3,868,400
Contingency				25% \$ 967,100
PROJECT TOTAL				\$ 4,835,500

ASSUMPTIONS/NOTES:

- All Estimates are in 2022 USD.
- Mobilization is an 15% allowance of the construction subtotal cost.
- Demolition of existing floats include an allowance to salvage a portion of the docks
- No costs for localized rehabilitation of the existing seawall are included.
- Existing abutment pier is supported by treated timber piling; demolition cost includes disposal at an approved landfill.
- Calculated float areas are based on nominal dimensions.
- Guide Pile Costs based on 60' long 12" diameter, galvanized steel piling.
- Float costs are based on a system that will serve recreational boaters, and lesser demands on the float system.

Port of Grays Harbor - WESTPORT MARINA MODERNIZATION
 Mid Marina - Project P6D
 29-Sep-22

Description	Unit	Quantity	Unit Cost 2022 \$	Total Cost 2022 \$
MOBILIZATION				
	ALLOW	1		\$ 122,000
SELECTIVE DEMOLITION				
				\$ 65,700
Docks - Concrete	SF	830	\$ 15	\$ 12,500
Docks - Salvage	SF	208	\$ 25	\$ 5,200
Treated Timber Pile	EA	11	\$ 2,000	\$ 22,000
Steel Pile	EA		\$ 500	\$ -
Gangway	EA	2	\$ 1,000	\$ 2,000
Abutment Pier	SF	240	\$ 100	\$ 24,000
GANGWAY & ABUTMENT				
				\$ 290,000
Furnish & Install 80' Aluminum Gangway	EA	1	\$ 90,000	\$ 90,000
Abutment Pier	LS	1	\$ 200,000	\$ 200,000
MARINA FLOAT SYSTEM				
				\$ 400,000
Furnish & Install Float	SF	2,500	\$ 160	\$ 400,000
GUIDE PILING				
				\$ 56,000
Furnish & Install Steel Guide Pile	EA	7	\$ 8,000	\$ 56,000
ELECTRICAL				
				\$ -
On-dock Elec Service	LS	-	\$ -	\$ -
MECHANICAL				
				\$ -
Water	LS	-	\$ -	\$ -
Fire	LS	-	\$ -	\$ -
Construction Subtotal				\$ 933,700
Engineering/Design/Permitting				10% \$ 93,400
Sales Tax (Allow.)				9% \$ 84,100
Construction Administration / Construction Management (Allow)				4% \$ 37,400
PROJECT SUBTOTAL				\$ 1,148,600
Contingency				25% \$ 287,200
PROJECT TOTAL				\$ 1,435,800

ASSUMPTIONS/NOTES:

- All Estimates are in 2022 USD.
- Mobilization is an 15% allowance of the construction subtotal cost.
- Demolition of existing floats include an allowance to salvage a portion of the docks
- No costs for localized rehabilitation of the existing seawall are included.
- Existing abutment pier is supported by treated timber piling; demolition cost includes disposal at an approved landfill.
- Calculated float areas are based on nominal dimensions.
- Guide Pile Costs based on 60' long 12" diameter, galvanized steel piling.
- Float costs are based on a system that will serve recreational boaters, and lesser demands on the float system.
- New abutment pier structure will be designed to meet seismic criteria per local building code requirements.