
Suttons Bay Marina Master Plan Implementation

Summary of Recommendations
Draft Report

September 9, 2014

SMITHGROUP JJR

Suttons Bay Marina Master Plan Implementation

SUMMARY OF RECOMMENDATIONS

PROJECT BACKGROUND

In the spring of 2014 the Village of Suttons Bay retained the services of SmithGroupJJR to study the public marina owned by the Village. The work included evaluating the immediate infrastructure needs of the marina, establishing a set of priority improvements, and identifying key funding opportunities to provide the working capital to implement these initial projects.

The Village of Suttons Bay is looking to improve its marina facilities and establish a competitive and modern marina for its boaters, while at the same time establishing an overall marina district that enhances the community. This enhanced marina district will preserve the benefits of the natural systems along its waterfront, will improve the connectivity to the waterfront from its downtown Village, increase connectivity to the residents and businesses to the waterfront, and increase the economic vitality by creating a unique, active and sustainable waterfront district.

The Village developed a Master Plan for the Marina in 2011 and 2012 that illustrated a long-term vision for marina and waterfront improvements. The plan was developed through a public participatory process.

While the Village wishes to improve the marina and supporting land facilities, the existing park-like, casual atmosphere of the area should be maintained. The character of the existing marina suits the Village core and waterfront area, and is a key part of what makes the marina attractive to boaters.

PLANNING PROCESS

The planning process began with a site tour of the marina and the surrounding waterfront areas with the Harbormaster to share insights and gather feedback and thoughts regarding the function and condition of the waterfront facilities. The team examined the relative functionality and condition of the following:

- North breakwater structure,
- Head docks and finger piers,
- Utility service to the docks and associated service facilities,
- Harbor related buildings and facilities,
- Shoreline configuration,
- Boat launch and parking,
- Coal dock area,
- Wetlands, streams and natural features, and
- The relationship of these marina and waterfront elements to each other and to the adjacent waterfront and downtown areas.

A spreadsheet was prepared while on site to organize the findings, recommendations for improvements, and sequence of funding and construction. In a working meeting with the Village Manager and Harbormaster the spreadsheet was reviewed, discussed, and edited to reflect the discussion.

Following the site visit, SmithGroupJJR completed an Estimate of Probable Construction Costs for the required marina and site improvements, and ordered the improvements into several sets of work which could logically be implemented together.

This technical report and attached diagrams and tables will provide a summary of the results and activities of this first phase for the Village's use and to provide a guide for moving forward with improvements to the marina. This document will include the following:

- a) A summary of the functionality and condition of the marina and adjacent waterfront area, and the recommended improvements (refer to Table A: Condition Assessment and Recommendations).
- b) A list of priority improvements to the marina facilities and cost summaries for the proposed priority improvements (refer to Table B: Phasing and Implementation, as well as Diagram A: Priority One Improvements and Diagram B: Priority Two Improvements.).
- c) A description of specific funding opportunities to pay for the improvements, including a review of the funding source's priorities for funding and application schedule (summarized below).

CONDITION ASSESSMENT AND RECOMMENDATIONS

A spreadsheet noting the existing conditions and recommendations for improvement has been prepared as part of this report (refer to Table A: Conditions Assessment and Recommendations). The spreadsheet categorizes the findings into the three geographic areas of the public marina – North Pier, South Pier, and Coal Dock. For each of these areas the findings include an assessment of the following marina components:

- Access and Connections
- Site Improvements and Amenities
- Marina Support Facilities
- Walls and Banks
- Docks
- Utility Services

PHASING AND IMPLEMENTATION

While implementing the full Master Plan for the waterfront remains a target for Suttons Bay, this study has identified the improvements that need to be made based on the following criteria:

- Facility Condition
- Boater Needs
- Public Safety
- Marina Management Efficiency

The recommendations identified in Table A: Condition Assessment and Recommendations were reviewed against the criteria and grouped logically based on construction sequence, funding sources, and relative priority. The recommended work was divided into three categories:

- Work to be Arranged by Suttons Bay
- Priority One Improvements
- Priority Two Improvements

The list of work items and an order of magnitude estimate of probable costs can be found on Table B: Phasing and Implementation. The recommendations are also illustrated on Diagram A: Priority One Improvements and Diagram B: Priority Two Improvements.

FUNDING

The successful pursuit of project funding is both art and science, and starts with the identification of potential funding sources. The positive aspect of a project that has such broad range of long-term goals is that the potential pool of sources is large. The downside is that each funding source has its own set of goals, requirements, timing, match expectations, and project size to learn and work with.

The potential funding sources have several common goals they are trying to achieve as they invest in communities, and these goals are consistent with the attributes of the Suttons Bay waterfront project, including:

- Creating and improving public access to the Great Lakes.
- Improving publicly accessible boating facilities.
- Creating and improving wildlife habitats and restoring native landscapes.
- Providing for education and learning opportunities about our natural environment and cultural history.
- Building and strengthening partnerships between governmental agencies, non-profit organizations, institutions, and private entities.
- Enhancing community character, safety, and livability through the improvement of public road and streetscape infrastructure.
- Providing for non-motorized facilities such as bike lanes and paths whose use will improve the health and well-being of community members.

Potential funding sources for implementing the waterfront recommendations include:

1. **Federal and State Sources**

- *Coastal Zone Management Grants and Waterways Program Grants:* These are funding programs managed by the Michigan Department of Environmental Quality (MDEQ). They typically require a 50% match and are normally in the range of \$10,000-\$30,000. Though small in size, the grants can be very helpful in funding design and engineering studies in the design phase.
- *Great Lakes Waterways Program Grants:* Funded through the Michigan State Waterways Fund from state marine fuel tax and water craft registrations. Administration of the Waterways Program is through the Michigan Department of Natural Resources (MDNR) and overseen by the Department's Parks and Recreation Division. Funds are available for design and construction of boater facilities with a particular focus on transient marina facilities, and the program encourages a 50% local match of projects.
- *Great Lake Fisheries Trust:* A non-profit organization governed by the parties to a settlement resulting from impacts to Great Lakes fisheries through the operation of the Ludington Pumped Storage Project. The Trust manages the assets generated by the settlement. The Great Lakes Fishery Trust will provide grant funds to non-profit organizations and government entities for the following purposes:
 - Research projects that benefit Great Lakes fishery resources,
 - Rehabilitation of lake trout, lake sturgeon and other Great Lakes fish species,
 - Protection and enhancement of Great Lakes fisheries habitat,
 - Public education about the Great Lakes fishery, and
 - Property acquisition for the above purposes or to provide access to the Great Lakes.

Although a match is not required, it does show support and local commitment to the project.

- *The National Fish and Wildlife Foundation (NFWF)*: A 501(c)(3) non-profit that preserves and restores our nation's native wildlife species and habitats. Created by Congress in 1984, NFWF directs public conservation dollars to the most pressing environmental needs and matches those investments with private funds. The Foundation's method is simple and effective: work with a full complement of individuals, foundations, government agencies, non-profits, and corporations to identify and fund the nation's most intractable conservation challenges.
- *Boating Infrastructure Grant (BIG)*: A federal program administered by the U.S. Department of the Interior and the MDNR, which focuses on building projects that increase boating and water access. Though little used by Michigan communities, this source of funding may be a good fit for the Village marina.
- *Michigan Natural Resources Trust Fund (MNRTF)*: A reasonably broad state run program that funds land acquisition and project construction, and could be tapped into relative to creating and restoring natural habitat, as well as providing recreational resources such as the path.
- *Transportation Enhancement Grants*: This program is federally funded and managed by the Michigan Department of Transportation (MDOT). The program typically funds transportation projects that fit outside the construction of road, such as streetscape improvements and multi-use paths. A local match of 20% is required; however, most successful grantees offer a local match of 40% to 50%.
- *Land and Water Conservation Fund*: A program ran by the National Parks Service which supports projects that focus on preserving and enhancing riparian, floodplains, and wetland habitats.
- *Michigan Economic Development Corporation (MEDC)*: This organization can be an effective partner in developing a strategic plan for the waterfront and assisting in site development and funding.

2. Local Organizations

- Grand Traverse Regional Community Foundation
- Rotary Charities
- Traverse City Light and Power
- Kiwanis, Lions Clubs
- Grand Traverse Area Sport Fishing Association

3. Foundations

- W. K. Kellogg Foundation
- Kresge Foundation
- Oleson Foundation
- Mott Foundation
- Other private funders and foundations
- Private corporation grants

SUTTONS BAY MARINA and WATERFRONT

Table A: Conditions Assessment and Recommendations

20-Aug-14

North Pier		
	Existing Conditions	Recommendations
Access and Connections		
Sidewalks	There is no sidewalk connection from the downtown to the waterfront. The recently completed segment of the TART trail offers great opportunities to link to the water for non-motorized travelers.	In conjunction with upgrading and moving the boater's bath facilities, a new barrier free concrete walk (6 to 8 feet wide) should be installed connecting to the downtown. The walk location and configuration should be coordinated with planned changes to Jefferson Street.
Wetland Boardwalks	None	None
Vehicular Access	The intersection with Front Street is poorly located between Jefferson and Adams. Entrance road is steeply sloped, and does not have curbs so runoff is unmanaged.	A new entrance drive is proposed to improve access and provide a safer intersection. The new drive should include sidewalk on at least one side, and provisions for a safe crossing of the TART. The drive should be curbed and stormwater managed. The asphalt road surface should not exceed 22 feet wide to maintain a village scale.
Parking	The parking lot appears to function adequately and is fair condition; however, recommendations to relocate the entrance drive would displace the existing lot.	Construct a new parking lot in conjunction with a new entrance road and boater's facilities. Removing the boat launch from the marina could increase parking capacity in the vicinity for boaters and visitors to Suttons Bay. Manage storm water according to best practices.
Site Improvements and Amenities		
Landscaping	The beach front park is nicely landscaped and has a pleasant park-like character. The existing entrance and north pier area are sparsely landscaped.	A limited investment in landscaping along a new entrance, at the new boater's facility, and along the north pier could significantly enhance the character and usability of the area.
Site Furnishings	Several picnic tables and grills are located along the north pier as it extends into the bay, most of which are in working condition.	Replace picnic tables and grills as needed. Since the North Pier is the most accessible to the general public, installing several benches overlooking the beach and the bay is appropriate.
Site Lighting	There is limited site lighting on the docks and adjacent site areas.	The new access road and parking lot should have new site lighting to promote safe driving and access. The north pier extension into the bay could have some limited site lighting, such as bollard lighting, near gathering places and active areas like the fuel pier, keeping in mind the desire to provide a low-key and casual atmosphere. Head docks should include service pedestals that include safety lighting.
Shaded Picnic/Gathering Place	None	Additional shade trees should be provided per the landscape recommendations. The design of a new boater facility/harbor master building should consider including a shaded outdoor area for boater picnicking and activities, rain or shine.
Marina Support Facilities		
Bath Facilities	Existing bathroom facilities provide showers and toilets for boaters, as well as a public restroom which services downtown and the waterfront. Bath building blocks view from downtown, and has structural cracks in walls.	New boater's bath facilities need to be provided east of the current location, and could include boater lounge space and harbor master facilities
Harbor Management Facilities	The existing harbor master office is limited in size for current staffing. There is limited room for storage of equipment used on a regular basis. The separation of the harbor master's office, fuel pier and boater facilities is inefficient from a management standpoint.	When a new boater facility is constructed, consider including a new harbor master office as part of this building or very near by.
Boat Launch	The existing boat launch is in adequate condition, but is showing signs of age; its location offers limited parking and maneuvering room.	Consider closing the boat launch and encouraging the use of the new boat launch facility to the north of the marina.
Fuel Dock and Tank	Pat/Bill	Pat/Bill need to note the rail requirements for safety
Walls and Banks		
Timber Retaining Walls	The timber retaining wall on the north side of the north pier is in poor condition. Along the XXX liner feet of wall the Village has backfilled gravel behind the wall as evidence of solid subsidence has become clear. The wall is leaning outward, indicating a failure of the whaler and anchors to hold it in place.	The recommendation to repair this situation is to remove the upper 24 inches of wall, and to use MDOT heavy rip rap torevet the slope, with a maximum grade from the crown of the slope to the toe of 3:1 (Horizontal:Vertical).
Riprap Banks	The rip rap is a mix of stone and concrete, and contains some invasive plant species, debris, and reinforcing steel.	Debris, invasive plants, and reinforcing steel should be removed. Existing rip rap should be supplemented with evenly graded stone rip rap to stabilize the slopes and improve the appearance. Native shrubs could be planted along the bank in places to provide visual interest and reduce the need for rip rap.

SUTTONS BAY MARINA and WATERFRONT

Table A: Conditions Assessment and Recommendations

20-Aug-14

North Pier		
	Existing Conditions	Recommendations
Docks		
Head Dock	There are two segments of head dock in the North Pier area, without utility services. The remaining finger piers access the land through narrow wood ramps which are installed each spring and adjusted to provide access, though they are not barrier free.	Install new head docks and access ramps along the entire North Pier, in three segments to break for the boat launch and fuel pier. Provide at least one access ramps which meets universal access standards. Run the new electrical water, and structured wiring through the head docks to service the dock pedestals.
Finger Piers	The finger piers are generally in good condition. Ramps to each finger are too narrow and railings are discontinuous.	Reuse the existing finger piers to the extent possible when installing the proposed head docks. The existing head docks can be retrofitted to replace any finger docks which are in need of replacement. Existing ramps to the finger piers should not be reused.
Utility Services		
Water	Water Service is provided to each dock with a hose bib mounted in a 4X4 wood post, independent of the power pedestal. The hose bib is located on top of the marina rip rap bank, necessitating the draping of hoses from land onto the dock. The hose bibs are nearing the end of their useful life.	New water mains have been installed in Front Street during recent reconstruction work, including new taps located to provide new water service to the marina. New water mains should be installed from these taps to the western edge of the three marina docks. Install new dock pedestal systems on the proposed head docks which provide water service, electrical service, courtesy lighting, and internet access.
Electrical	Electrical service is provided to the site by way of several electrical panels located on site. Individual electrical outlets are provided for the docks on land, at the top of the rip rap slope. Individual power outlets are linked to a 30 amp breaker, which is inadequate power for larger boats.	New electrical primary power will be required to the marina area, and new transformers installed at the western edge of the three marina docks. Install new dock pedestal systems on the proposed head docks which provide water service, electrical service, courtesy lighting, and internet access.
Internet and Cable	Several wireless transmitters are located in the marina which provide WIFI access, although the service is weak in many part of the marina. Hardwired cable access is not available.	Install new dock pedestal systems on the proposed head docks which provide water service, electrical service, courtesy lighting, and internet access.
Storm Water	Stormwater drains down the existing access drive and across the parking lots directly into the marina, without measures to control the path of stormwater, detain any quantity of water, or provide water quality cleansing prior to release into the harbor.	Reconstruction of the entry drive provides an opportunity to install stormwater management best practices.

SUTTONS BAY MARINA and WATERFRONT

Table A: Conditions Assessment and Recommendations

20-Aug-14

South Pier		
	Existing Conditions	Recommendations
Access and Connections		
Sidewalks	There is no sidewalk connection from the downtown to the waterfront.	A new barrier free concrete walk (5 to 6 feet wide) should be installed connecting to the downtown. Locate the walk on the north side of Madison Street to avoid conflicts with the wide curb cut on the south side.
Wetland Boardwalks	The existing boardwalk connecting the coal dock with the south pier area is too narrow for service carts and is showing signs of wear	Replace the existing boardwalk with an 8 foot wide boardwalk. Add a new wetland crossing boardwalk to increase interpretive learning opportunities and better connect the coal dock slips with the new bath facilities at the south pier.
Vehicular Access	The existing drive was recently repaved, and is adequate for providing access.	None
Parking	Limited Parking is available at the east end of Madison Street, which was recently re-paved, including storm water management improvements.	None
Site Improvements and Amenities		
Landscaping	The south pier is pleasantly landscaped which creates a desirable place for informal boater recreation. Some of the trees are in decline.	Replace declining tree as required, focusing on the use of native shade trees.
Site Furnishings	Several picnic tables and grills are located along the south pier park area, most of which are in working condition.	Replace picnic tables and grills as needed.
Site Lighting	There is limited site lighting on the docks and adjacent site areas. There are several attractive pedestrian lights in the area which could become the design standard. The proposed new and revitalized boardwalks connecting the South Pier and Coal Dock should be lit with low scale bollards or pedestrian fixtures to provide safe access to the proposed bathrooms on the South Pier.	The parking area should have new site lighting to promote security and access. The south pier park area could have some limited site lighting, such low pedestrian scale light standards, near gathering places, keeping in mind the desire to provide a low-key and casual atmosphere. Head docks should include service pedestals that include safety lighting.
Shaded Picnic/Gathering Place	None	Additional shade trees should be provided per the landscape recommendations. The design of a new boater pavilion will provide a shaded outdoor area for picnicking and activities, rain or shine.
Marina Support Facilities		
Bath Facilities	None that are permanent. Portable toilets used as needed.	In conjunction with a new boater pavilion, a basic boater bathroom set should be provided, located to also encourage use from boaters at the Coal Dock.
Harbor Management Facilities	None	None
Boat Launch	None	None
Fuel Dock and Tank		
Walls and Banks		
Timber Retaining Walls	None	None
Riprap Banks	The rip rap is a mix of stone and concrete, and contains some invasive plant species, debris, and reinforcing steel.	Debris, invasive plants, and reinforcing steel should be removed. Existing rip rap should be supplemented with evenly graded stone rip rap to stabilize the slopes and improve the appearance. Native shrubs could be planted along the bank in places to provide visual interest and reduce the
Docks		
Head Dock	There is one segment of head dock in the South Pier area, without utility services. The remaining finger piers access the land through narrow wood ramps which are installed each spring and adjusted to provide access, though they are not barrier free. The fixed pier to the south of the existing head dock requires a safety railing.	Install new head docks and access ramps along the entire South Pier, which may require two segments to break for the change in alignment at the fixed pier. Provide three ramps, with at least one access ramp that meets universal access standards. Run the new electrical water, and structured wiring through the head docks to service the dock pedestals.
Finger Piers	Refer to conditions noted under the North Pier Column.	Refer to recommendations noted under the North Pier Column.
Utility Services		
Water	Refer to conditions noted under the North Pier Column.	Refer to recommendations noted under the North Pier Column.
Electrical	Refer to conditions noted under the North Pier Column.	Refer to recommendations noted under the North Pier Column.
Internet and Cable	Refer to conditions noted under the North Pier Column.	Refer to recommendations noted under the North Pier Column.
Storm Water	The recent improvements to the eastern end of Madison Street included storm water management best practices, such as a small detention basin and forebay, prior to release of stormwater into the existing wetland.	None

SUTTONS BAY MARINA and WATERFRONT

Table A: Conditions Assessment and Recommendations

20-Aug-14

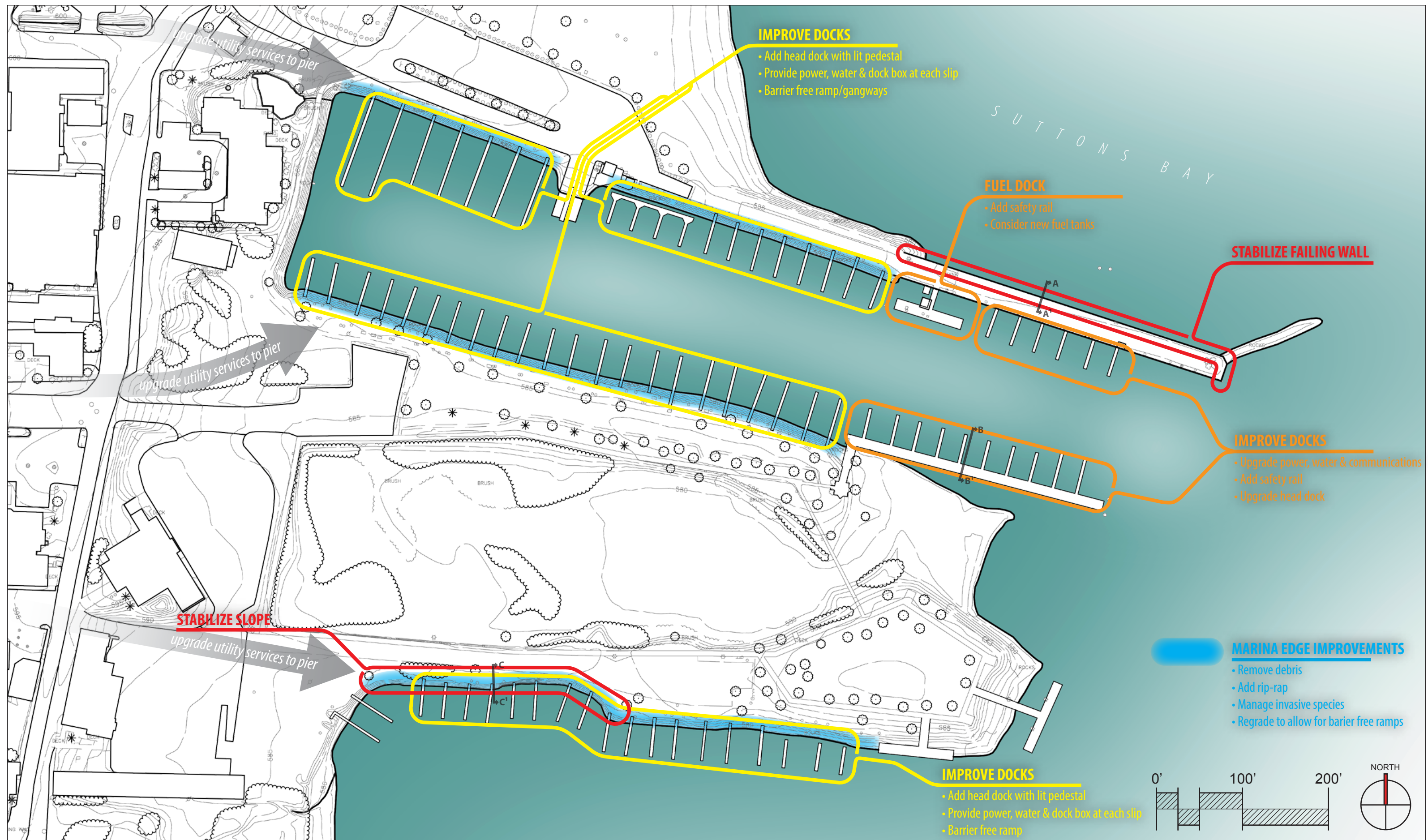
Coal Dock		
	Existing Conditions	Recommendations
Access and Connections		
Sidewalks	There is no sidewalk connection from the downtown to the waterfront.	A new barrier free concrete walk (5 to 6 feet wide) should be installed connecting to the downtown. The right of way may require investigation as to the best location for the walk.
Wetland Boardwalks	The boardwalk along the south side of the wetland is showing signs of wear and settlement.	Stabilize and re-build the boardwalks as required.
Vehicular Access	The connecting drive from Front Street is narrow and steep, and unpaved.	Long term this access should be improved, but this is not considered an immediate need.
Parking	Parking for boaters at the Coal dock is limited, and is surfaced in gravel.	Long term this parking area should be improved, but this is not considered an immediate need.
Site Improvements and Amenities		
Landscaping	The coal dock is pleasantly landscaped. The edge of the marina slip area and the parking lots are sparsely landscaped.	In conjunction with the shoreline stabilization, the area between the shoreline and the parking lot/road could be better landscaped, focusing in the use of native trees and shrubs, and grasses.
Site Furnishings	Several picnic tables and grills are located along the coal dock slip area, most of which are in working condition.	Replace picnic tables and grills as needed.
Site Lighting	There is limited site lighting on the docks and adjacent site areas. There are several attractive pedestrian lights in the area which could become the design standard.	The parking area should have new site lighting to promote security and access. The coal dock park area could have some limited site lighting, such low pedestrian scale light standards, near gathering places, keeping in mind the desire to provide a low-key and casual atmosphere. Head docks should include service pedestals that include safety lighting.
Shaded Picnic/Gathering Place	The park area at the Coal Dock provides a great deal of shaded area for picnicking.	Additional shade trees should be provided between the parking lot and shoreline per the landscape recommendations.
Marina Support Facilities		
Bath Facilities	None that are permanent. Portable toilets used as needed.	None
Harbor Management Facilities	None	None
Boat Launch	None	None
Fuel Dock and Tank		
Walls and Banks		
Timber Retaining Walls	None	None
Riprap Banks	The eastern length of the shoreline is as noted for the rest of the marina, and those recommendations apply. The western end of the Coal Dock shoreline is suffering from slope failure and requires priority attention for repair.	The slope failure area can be stabilized with a combination of rip rap, aggregate backfill, and native landscape plantings. Given the water level fluctuations and wave environment, typical inland lake shoreline stabilization techniques such as coir logs should be avoided.
Docks		
Head Dock	There is no head dock in the Coal Dock area. The finger piers access the land through narrow wood ramps which are installed each spring and adjusted to provide access, though they are not barrier free.	Install new head docks and access ramps along the entire Coal Dock Pier. Provide two access ramps, with at least one access ramp that meets universal access standards. Run the new electrical water, and structured wiring through the head docks to service the dock pedestals.
Finger Piers	Refer to conditions noted under the North Pier Column.	Refer to recommendations noted under the North Pier Column.
Utility Services		
Water	Refer to conditions noted under the North Pier Column.	Refer to recommendations noted under the North Pier Column.
Electrical	Refer to conditions noted under the North Pier Column.	Refer to recommendations noted under the North Pier Column.
Internet and Cable	Refer to conditions noted under the North Pier Column.	Refer to recommendations noted under the North Pier Column.
Storm Water	Stormwater drains down the existing access drive and across the parking lots directly into the marina, without measures to control the path of stormwater, detain any quantity of water, or provide water quality cleansing prior to release into the harbor.	The bank stabilization project provides an opportunity to install stormwater management best practices to manage where the entry drive drains to the bay and to filter runoff and control erosion through the use of vegetated swales and rip rap.

SUTTONS BAY MARINA and WATERFRONT

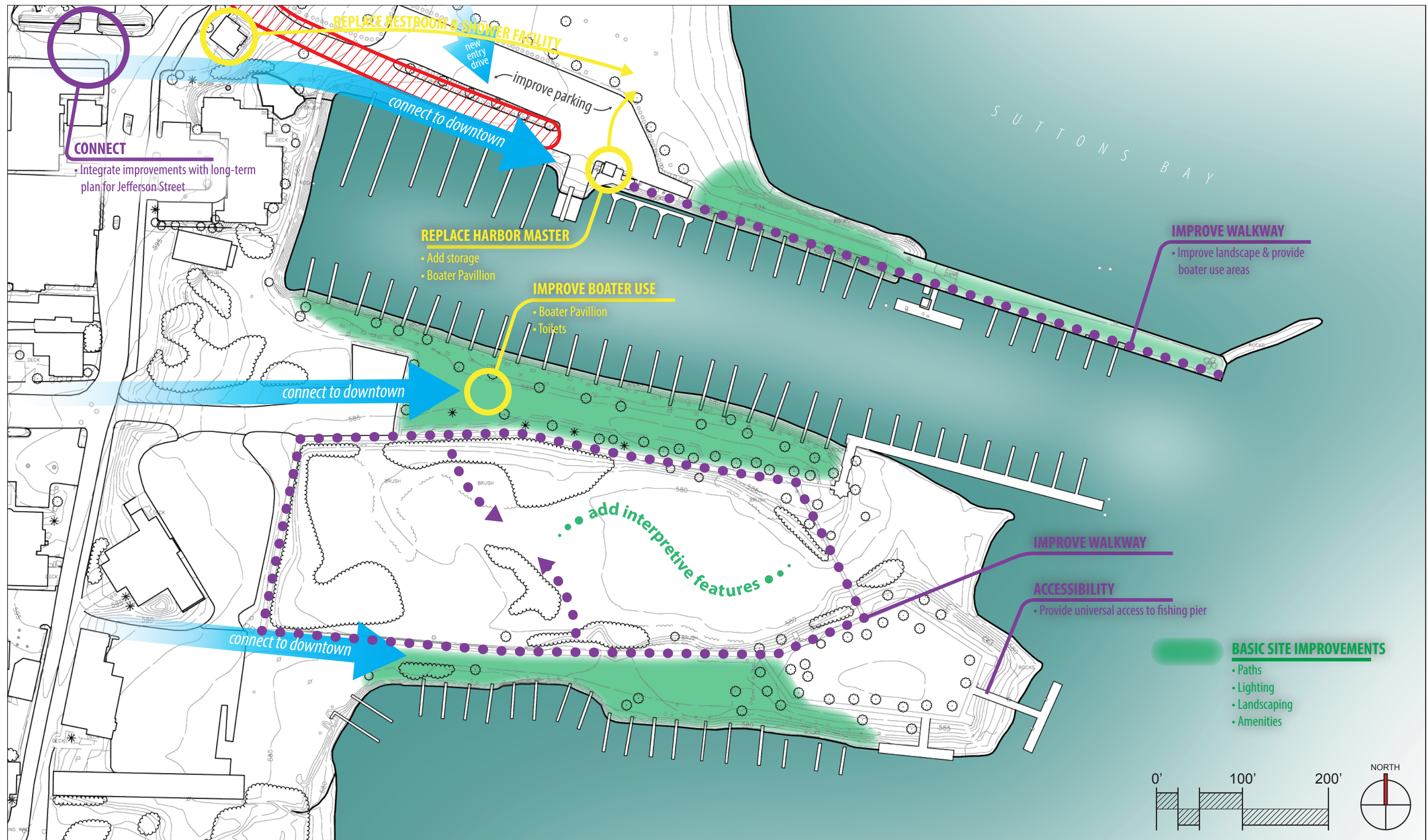
Table B: Phasing and Implementation

16-Aug-14

RECOMMENDED WORK ITEM	Quantities			TOTAL QUANTITY	UNIT	UNIT PRICE	COST	
	North Pier	South Pier	Coal Dock					
Minor Work Arranged by Suttons Bay								
Provide wifi coverage in marina and open spaces				0				
Add Fire supression				0				Dry fire lines, hoses, extinguishers
Ladders, life rings, fire connections				0				Place per code
Create marina usage rules				0				
				0				
Priority One Improvements								
Electrical Upgrade				1	LS	\$400,000.00	\$400,000.00	Includes service upgrade, new panels, rough electrical to head dock
Upgrade water distribution	1200	1350	950	3500	LF	\$75.00	\$262,500.00	Provide new water service up to and through head docks
New pedestals and electric service	32	32	18	82	Ea	\$10,000.00	\$820,000.00	Harbor, parking, walkways - site security, not a uniform lighting plan
Barrier Rails on existing fixed docks	300	300	0	600	LF	\$125.00	\$75,000.00	Eliminate falling hazards at fixed docks, fuel pier
New Head Docks	750	950	550	2250	LF	\$500.00	\$1,125,000.00	10 foot wide, assumes reuse of fingers and ex. head docks
Ramps and gangways	3	4	2	9	Ea	\$15,000.00	\$135,000.00	One barrier free ramp at North and South piers
Stabilize north pier outer wall	400	0	0	400	LF	\$450.00	\$180,000.00	Revetment rip rap, no sheet pile
Stabilize south shore coal dock	0	0	300	300	LF	\$300.00	\$90,000.00	Soft shoreline, stone and coir logs, plantings, erosion occuring
Shoreline stabilization/clearing	800	800	300	1900	LF	\$75.00	\$142,500.00	Areas of erosion, loss of materials, remove steel
Relocate Fuel Tank(s)				1	LS	\$50,000.00	\$50,000.00	
SUBTOTAL							\$3,280,000.00	
20% Design and construction contingency							\$656,000.00	
Design and Engineering							\$262,400.00	
TOTAL FOR THIS SECTION							\$4,198,400.00	
Priority Two Improvements								
Site Prep and Demolition				1	LS	\$150,000.00	\$150,000.00	
Replace restroom/shower facility	1500	0	0	1500	SF	\$300.00	\$450,000.00	Out of line-of-site, more accessible, secure, disperse?
Provide adequate harbor master facility and storage	250	0	0	250	SF	\$200.00	\$50,000.00	Need space to operate efficiently, perhaps built as part of boater facilities
Make connections to village main street	550	350	250	1150	LF	\$30.00	\$34,500.00	6 foot wide concrete
Relocate/improve entry road	36000	0	0	36000	SF	\$8.00	\$288,000.00	Plan with Jefferson work, restroom relocation, etc.
Marina road and parking storm water management				1	LS	\$100,000.00	\$100,000.00	Vortex treatment chambers, vegetated swales,
Improve site lighting	12	8	8	28	Ea	\$9,000.00	\$252,000.00	Entry Road, around major facilities, main paths
Improve wetland walkways, add interpretive elements	0	1000	1000	2000	LF	\$200.00	\$400,000.00	6 foot wide wood deck, signage, clearing invasives, education
Improve site paths within marina	950	850	0	1800	LF	\$50.00	\$90,000.00	include accessible route to fishing pier, 8 ft. wide bituminous
Site Improvements in boater use areas				1	LS	\$150,000.00	\$150,000.00	Add landscape, park furnishings; signs
Boater Use pavillion	500	500	0	1000	SF	\$150.00	\$150,000.00	
SUBTOTAL							\$2,114,500.00	
20% Design and construction contingency							\$422,900.00	
Design and Engineering							\$169,160.00	
TOTAL FOR THIS SECTION							\$2,706,560.00	
TOTAL PROJECT COST FOR Priority One and Two							\$6,904,960.00	



Priority One Improvements



Priority Two Improvements

ANN ARBOR

CHICAGO

DALLAS

DETROIT

LOS ANGELES

MADISON

PHOENIX

SAN FRANCISCO

SHANGHAI

WASHINGTON, DC

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