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Damariscotta Shore and Harbor Master Plan

MRLD Landscape Architecture + Urbanism

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DAMARISCOTTA SHORE & HARBOR MASTER PLAN

Damariscotta | Maine

MARCH 2010

MRLD Landscape Architecture + Urbanism

Blais Civil Engineers

Kleinschmidt Associates

T.Y. Lin International

Contents

Acknowledgements	3
Project Overview	4
Community Outreach	7
Existing Conditions	11
Master Plan	23
Wayfinding and Branding	44
Permitting	49
Phasing	50
Master Plan Estimated Costs	52

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In 2008, Damariscotta received a planning grant from the Maine State Planning Office's Maine Coastal Program. MRLD was retained to prepare a Shore and Harbor Master Plan. The project required public outreach, analysis of existing conditions and regulatory policies and the development of a Master Plan addressing the following six objectives:

1. Study and possibly redesign the harbor lot to maximize the width of the shoreline open space while minimizing the loss of parking spaces.
2. Study and possibly redesign underground utilities, including possible new stormwater management facilities underneath the parking area and a possible new public rest room facility near the park / boat landing.
3. Study the overall sidewalk trails system in Town to create safe connections to the new waterfront park, Main Street, the river trails and their spurs between Route 1B sidewalks at Roundtop Farm and Shell Midden Park to the Damariscotta River Association Riverwalk Trail.
4. Plan and design the waterfront as a Town park that includes the most appropriate esplanade and / or boardwalk with plantings/landscaping plan, benches and other street furniture. Design more space, if possible, for new vegetated islands in the public parking area.
5. Study and possibly plan and design improved boat launch and related facilities integrated with the new waterfront park and updated parking area.
6. Identify and design eye-catching and safe connections from Main Street to the waterfront using new signage and logo, distinctive paving materials, banners and flags.

Project Overview



The Study Area: Main Street to the Harbor and "Misery Gulch" to Water Street



Main Street is a safer and more beautiful civic space after extensive improvements in 2007



View of the harbor lot towards the Water Street access

This study has specific action items and a focused study area as noted above, however the scope of the project has a far greater reach in terms of the economy and culture of Damariscotta. Residents of Damariscotta want to nurture a local economy while protecting the natural assets of the community. To many, “nature” and “culture” are viewed as inseparable when thinking of Maine, but in Damariscotta like other communities such as Rockland, Camden, Hallowell and Gardiner, the functional aspect of the waterfront is both a fulcrum and a wedge. Simply put, the harbor lot in Damariscotta supports the economy of Main Street, but divides Main Street from the waterfront. Two of the Town’s greatest assets are so close, yet so far apart.

During the course of this study, it was noted again and again that the downtown “turns its back” to the waterfront. But it was also recognized that the interface between Main Street and the waterfront is complex. The beauty of the Main Street is supported by the necessary infrastructure of the harbor lot: deliveries, power lines, sewer connections, the pump station, stormwater management, dumpsters - not to mention a full-tide public boat launch.

The area between Main Street and the waterfront is also a confined space with numerous zoning and environmental restrictions. However, the intent of this study is to untangle these issues and create a plan of action where Main Street and the waterfront complement each other and the harbor lot serves the greater good. The Shore and Harbor Master Plan integrates Main Street, the harbor lot and the waterfront in the most effective manner. This study has been an exercise in aligning practicalities with the values of the community - not an exercise in frustration, but a refreshing, proactive and productive process.



The back of Main Street buildings reveals the "function" supporting the "form" of Main Street



Eco-tourism plays a role in the economy of Damariscotta



The harbor lot has site specific issues as well as connections to greater concerns such as parking management in the downtown, the integration of pedestrian and vehicular movement throughout Damariscotta, access to natural areas, the development of civic spaces, snow plowing and snow storage, environmental impacts and guiding and absorbing growth in a responsible manner. If a matrix were developed of all the critical issues facing Damariscotta, the study area would be checked in most sections - including siting the best location for a public rest room. In fact, a matrix of critical issues facing the Town was developed during the Heart & Soul Planning Charrette and the harbor lot and waterfront were identified numerous times as an area of significance.

Damariscotta was selected by the Orton Family Foundation for the Heart & Soul Community Program. As part of this program a major charrette was held in October of 2009 to look at the entire Town in a holistic manner. The charrette provided the community the opportunity to reflect on its core values in order to make informed choices regarding a range of issues. The study area was a focus of the charrette and further revealed how this part of downtown reflected the greater concerns and values of the community and the desire to find solutions that are born from and work specifically for Damariscotta.

As a result of the charrette, the Damariscotta Planning Advisory Committee (DPAC) has established subcommittees to address issues central to the Shore and Harbor Master Plan such as Green Infrastructure, Multi-Modal Transportation, Access to Natural Resources, Satellite Parking, a Waterfront Park and Rest Rooms.

The redesign of the shore and harbor lot provides an opportunity to build on two of the community's greatest concerns: maintaining a sustainable downtown while protecting and providing access to natural resources such as the harbor and river.

To best understand the concerns of community and develop appropriate solutions, a number of public events and forums were held. In addition to public meetings, there were numerous research calls and site meetings with Town departments, the Great Salt Bay Sanitary District and contractors hired by the Town to maintain the harbor lot.

January 23, 2009 - Site Walk Kick-Off Meeting

The site walk with DPAC and community members was the first opportunity for the project team to understand the complexities of the site such as pedestrian and vehicular circulation, snow storage, drainage, flooding, delivery areas and the seasonal nature of parking demand.

Community Outreach



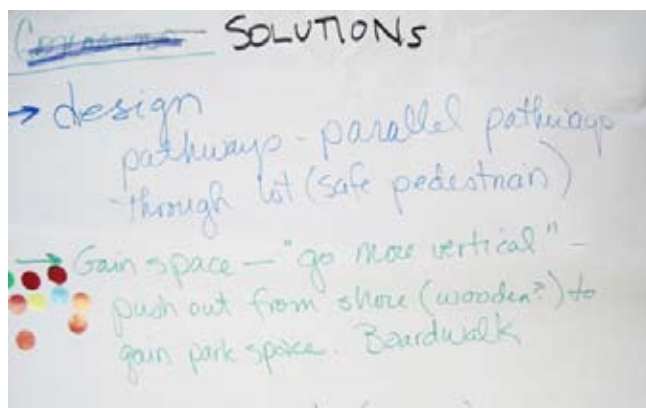
A work group from the May 21, 2009 Public Workshop. Participants were asked to identify what they most value about the area and then develop solutions to maximize the potential of these valued assets

May 21, 2009 - Shore and Harbor Community Forum

After receiving a detailed survey of the area from the Town and researching existing conditions and the applicable regulatory standards, a Community Forum was held in conjunction with the Heart & Soul planning process.

This was a hands on design charrette where community members were asked to work with an aerial photograph and first identify what they most value about the study area and then develop solutions to improve these assets.

Each work group made a short presentation on their efforts and then summaries of assets and solutions were mounted on the wall at the front of the room. Participants were given dots to spend as "currency", prioritizing the assets and solutions.



Prioritized Assets:

- Improve waterfront
- Careful redesign of harbor lot to accommodate all users
- Public rest rooms
- Safe pedestrian connections from Main Street to water
- More boater parking and better enforcement
- More bike friendly connections - bike racks
- Better wayfinding signage
- Harbor lot is not highest and best use for land
- Conflicts between recreational and commercial users of boat ramp
- Parking is important, but a seasonal issue that should be addressed through management
- Working waterfront adds character to Town
- Waterfront is opportunity to attract boats - full service marina needed
- Potential infill building locations behind Main Street
- More dinghy space needed
- Landowners need to be involved (it was counted that only one attended forum)

Prioritized Solutions:

- Construct waterfront park, remove some parking if necessary
- Establish shuttle service for employee parking and seasonal use
- Strongly consider one-way entrance from Main Street into harbor lot and maintain two-way access from Water Street
- Build a new boat launch down river
- Add a rest room to the barber shop
- Improve harbor for cruising boats
- Acquire land behind Christian Science building to expand park
- Expand dingy dock
- Span deck over Misery Gulch
- Add informational signage at waterfront
- Remove harbor lot and turn into a park
- Improve wayfinding
- Create infill sites for buildings in harbor lot with views of harbor
- Construct a parking structure over existing harbor lot with park on top
- Limit parking to commercial users
- Purchase land behind Mediterranean Grill for parking or infill development
- Build a parking garage

Business / Property Owner Meetings

Because of the concern that the downtown merchants were not adequately represented at the May 9 Shore and Harbor Community Forum, three separate meetings were held specifically for downtown business and property owners. These were on June 3, 2009, June 30, 2009 and September 4, 2009.

The meetings were coordinated with the assistance of the Damariscotta Region Chamber of Commerce, DPAC and Heart & Soul. Without going into details of the meeting formats, there was consistent feedback in these areas:

- Damariscotta is a special place - a vibrant and close-knit community of businesses owners
- More parking is needed
- A public rest room is needed in a strategic location
- Protect the environment
- Provide safe pedestrian connections within and to the downtown. Install site amenities such as bike racks
- Improve the waterfront - create a better park with more capacity and flexibility to support a greater range of events
- Public transportation (parking management)
- A parking structure

Heart & Soul Charrette

As part of the scope of work for the Shore and Harbor Master Plan, the project team attended the Heart & Soul Charrette on October 23, 2009. This was the day of the charrette with a particular focus on the downtown including work sessions entitled Access to Nature & Culture, Access to Town, and Working Locally.



DAMARISCOTTA HEART & SOUL PLANNING CHARRETTE DOWNTOWN DAMARISCOTTA: BPL PHASING PLANS



Phase 1: Survey existing parking in all of the downtown and develop a Park Once strategy - adding more parking areas, structures, satellite parking and public/private management of existing parking. Determine best location and type of new development while maintaining parking.

Phase 2: Experiment with a layout (chalk or paint) for creating blocks and streets in the BPL and look at opportunities north of Main Street as well. Begin installation of boardwalk park as determined by Shore and Harbor process.

Phase 3: Mark out a temporary Town Square during a special event and line it with trees in pots and mobile carts. Have shuttle to remote parking lot during the festival to make up for parking spaces. Parking can continue all around the square.

Phase 4: Continue the experiment at more festivals and/or summer by lining the best location for the square with temporary one story structures and kiosks. Look at extending shuttle to Route 18 and Biscay Road as well as additional parking near church.

Phase 5: Once additional permanent parking is developed in the whole downtown (within 500 feet), make the Town Square permanent. Add planted trees around square and additional trees in pots along 'streets' from Maine Street to the water. This approach is possible north of Maine Street as well.

Phase 6: As new parking is provided north of Main Street and structures, the 'blocks' are available for development of mixed use buildings - retail, office, housing, hotel. This development can help pay for a structure and help make the waterfront more vibrant.

The vision plan is designed to be a flexible framework that can evolve over time and respond to changing market conditions, land ownership, and unanticipated conditions. The vision plan can also be phased in order to absorb needs in the market as they arise. The Back Parking Lot (BPL) plans to the left show how development can occur over time as opportunities arise.



Damariscotta : Existing Conditions Water to Main



Possible temporary uses to define public space.

www.bdenis.com
B. Dennis Town Design, For Illustrative Purposes Only.

VISION PLAN D.4

A concept build-out for the harbor lot and shore. This scheme introduces a "block" system reinforcing the nascent block system in the downtown, creating a framework for infill development and on-street parking. As noted in the Charrette Report, this scheme is only feasible if developed in conjunction with a "park once" plan and most likely the development of a parking structure and additional on-street parking. Courtesy B. Dennis Town Design

The charrette was extensive in scope, but many of the general and specific recommendations relate to the Shore and Harbor Master Plan:

- Make small incremental changes to improve parking and circulation downtown
- Develop a long-term strategy integrating parking and infill development
- Create a new street and block system as a framework for growth
- Locate water-dependent uses near the water
- Allow temporary “pop up” retail during events
- Expand access to the waterfront and provide civic spaces
- Break up the harbor lot with streets
- Pedestrians first - “park once” master plan
- Create parking to support businesses and downtown residents including a parking management plan, delivery plan, satellite parking and the potential creation of a parking structure
- Walk everywhere
- Bike everywhere
- Create a better wayfinding system
- Redevelop the back harbor lot to accommodate greater public gatherings
- Go to the water - explore opportunities for rain gardens, increased plantings, reduced pavement. Add pedestrian amenities. Create a boardwalk
- Provide public rest rooms



A rendering of how the harbor lot could be developed as a flexible space for a range of events. Again, this is only recommended as part of a greater plan to manage growth and parking throughout the downtown. Courtesy B. Dennis Town Design



The harbor and waterfront park already support special events such as the annual Pumpkinfest and Regatta. Image to the left shows DPAC member Buzz Pinkham in action. Courtesy The Washington Post.



Demand for all-day parking often exceeds supply



The harbor lot is full approximately seven months of the year, with the least amount of turnover in spaces during the summer

Existing Conditions

The existing conditions and applicable regulations of the study area are complex. The project team had to balance the need to make improvements for the harbor lot, shore and harbor with both the vision / potential of the area and the practicalities of a restricted space, the proximity of the harbor (a regulated natural resource), flooding events, above ground and buried infrastructures and the general role the harbor lot plays in supporting the downtown economy.

Parking has a premium that continues to be absorbed by the local economy even though it was constructed years ago. In reality it is subsidized by local merchants, tax payers and visitors to Damariscotta. It is not actually free. Besides the obvious costs such as plowing and maintaining pot holes - every item sold downtown, every meal eaten and newspaper read - has a hidden cost due to the availability of free parking. And when one begins to understand the actual costs associated with redeveloping the harbor lot and associated infrastructure (right now it is taken as a right - almost like a home free and clear of a mortgage), the actual cost becomes apparent. Ultimately there is a "high cost to free parking" - the title of a seminal book on parking and the sustainability of downtowns. To quote Donald Shoup, author of the book, free parking has other associated costs. It distorts transportation choices, warps urban form and degrades the environment.

If there was just one finding from the Shore and Harbor Master Plan, it is that parking is not "free". As noted above, parking is paid for through taxes as well as other hidden costs in the operation of running a business. Something as valued as a parking space has an associated value that can be calculated. This is most evident when a space is recommended for removal - what many consider as a direct hit to their bottom line.



Water Street access



Private access



Theater Street / barber shop access



Private gas station access



Public access - "Taco Alley"



Main Street public access

The existing harbor lot is accessed by two two-way entrances: Water Street to the east and the Main Street entrance to the west. "Taco Alley", which is across from Elm Street, also provides public access - mainly a pedestrian connection to the harbor lot and one-way delivery for small trucks. Taco Alley is centrally located between the two primary entrances. There are other informal entrances from Main Street to the harbor lot, but these are on private lands not deeded for access. Thus while there is adequate access to the harbor lot and glimpses of the harbor, the Main Street buildings and the harbor lot are currently a barrier to the waterfront. The Town owns in fee the central portion of the harbor lot. The Town has permanent easements on the remaining parking designated as accessible, three hour, eight hour and for the boat launch spaces (Figure 1).

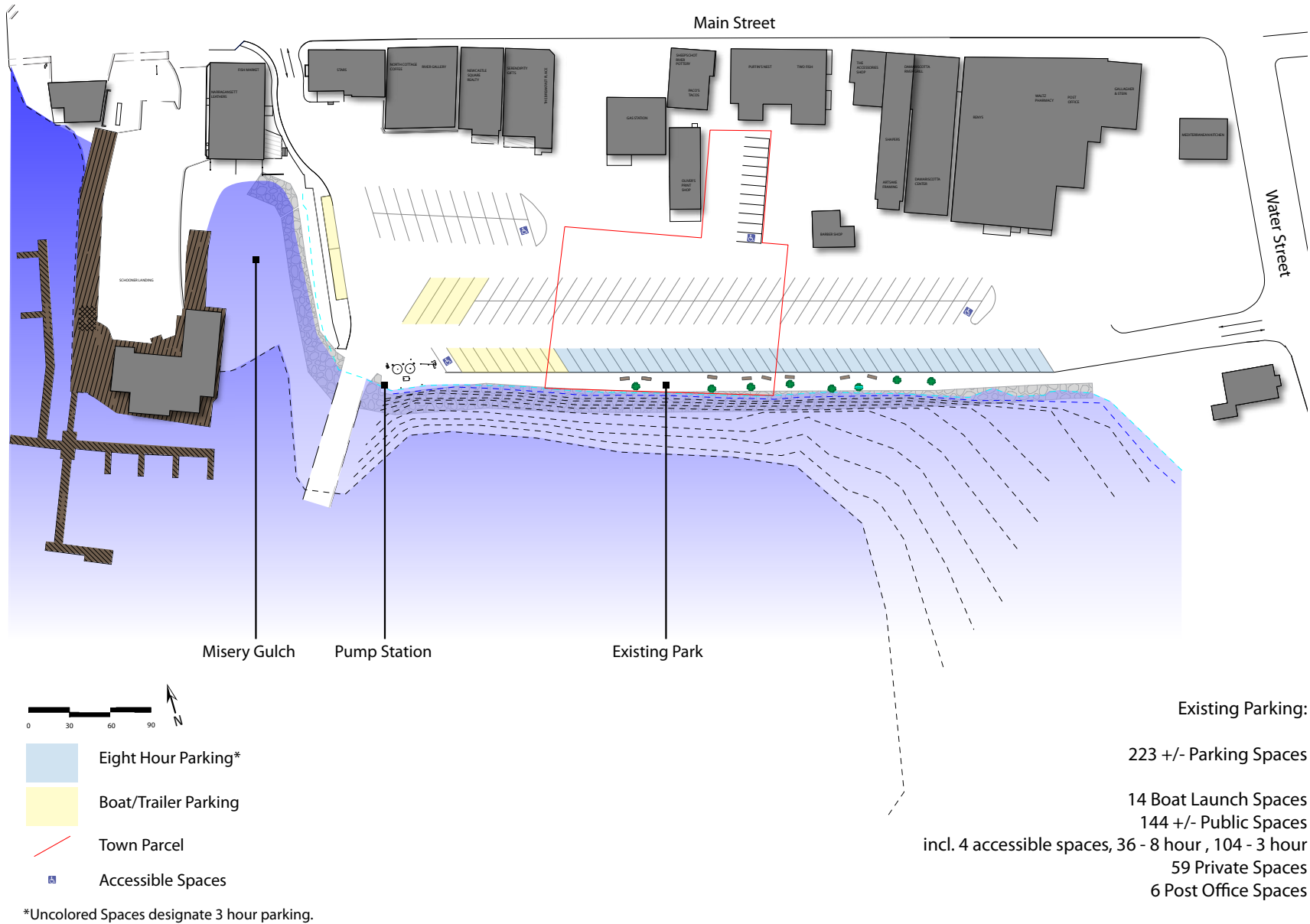


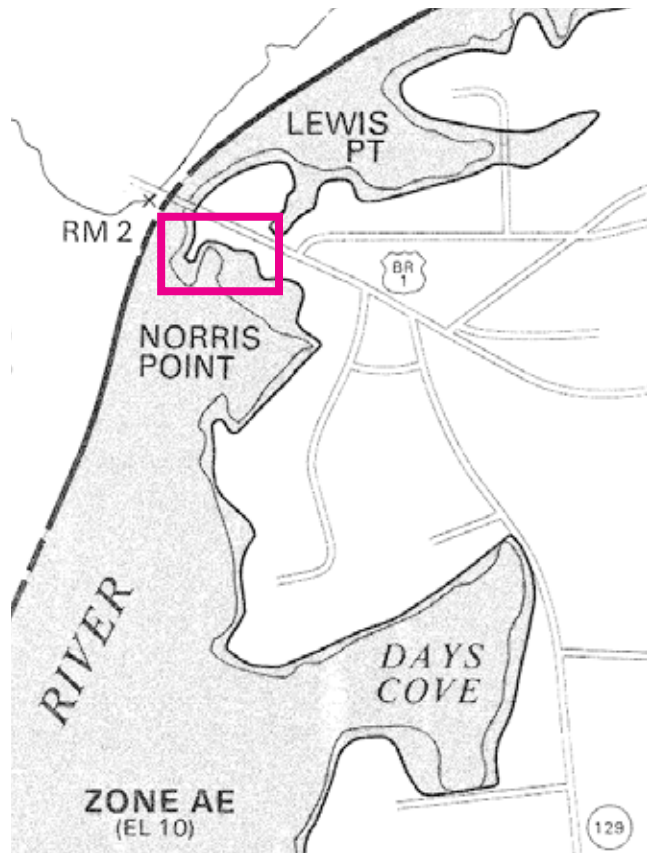
FIGURE 1: EXISTING PARKING

There are four accessible spaces in the harbor lot, one near the pump station / boat launch and three evenly distributed in spaces closer to Main Street. It is recommended that a harbor lot of this size have six to seven accessible spaces, however because the harbor lot is in effect supporting Main Street businesses and there are several accessible spaces along Main Street, the harbor lot meets the basic ADA requirements.

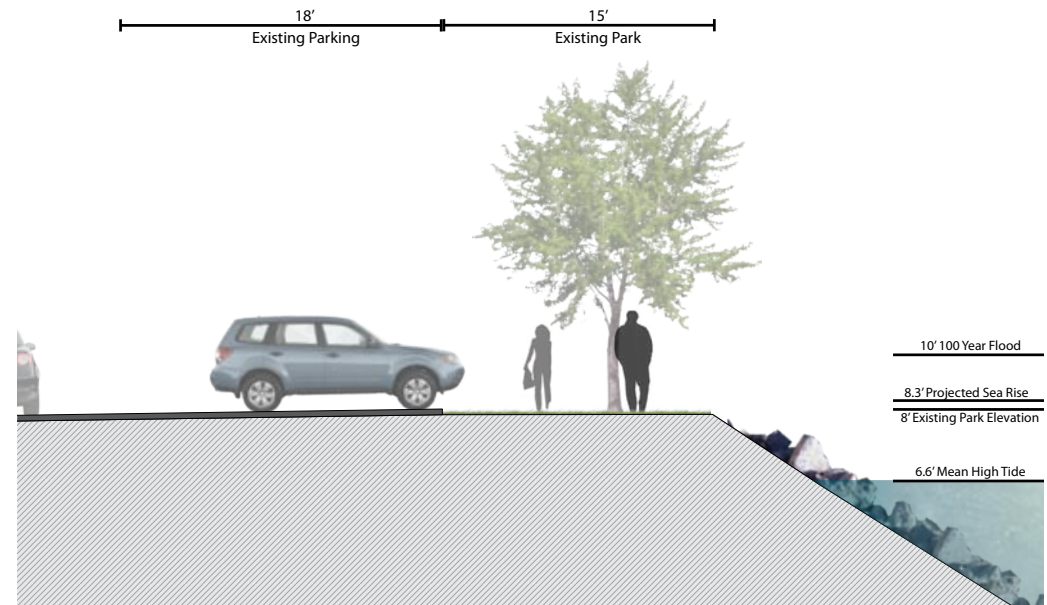
The harbor lot is currently maximized for parking spaces. During the course of the study, various layouts were developed, including compact parking and alternative circulation patterns, but the parking count did not increase in any practical manner. Parking capacity will ultimately improve with parking efficiencies currently being studied by the DPAC. Ultimately, the Town needs to retain a downtown parking specialist to develop a specific plan that may include metered parking, seasonal shuttle buses, additional on-street parking and a parking structure.

The harbor lot is basically functional, but is what some would call a contested space and can be improved through better design and management. Besides the parking, the harbor lot must also support the boat launch, deliveries and access to dumpsters, the pump station and private spaces and businesses fronting the harbor lot. And while the current strip of park along the shore is not a great attraction, the parking also allows people to sit in their car and view the harbor - or step outside and relax on one of the benches facing the harbor.





FEMA map showing that the study area is in the AE 100-year flood zone with a base flood elevation of 10'. This means that there is a 1% chance each year of a 100-year flood



Cross-section at shore showing existing and projected water levels

The existing harbor lot and shore is mainly located at the eight to nine foot elevations. The topography rises to the Water Street entrance. The mean-high tide is 6.6'. The 100' year flood is at the 10' elevation and projected sea level rise due to climate change is 1.7' in the next 90 +/- years. While addressing sea rise and climate change is outside the scope of this study, the community must begin to look at this complex issue.

The study area is in the Commercial 1 Zone and the Commercial Shoreland Zoning District, requiring a 25' setback for structures and impervious surfaces from the edge of the coastal wetland or mean high tide. Surface parking is considered a "structure". The existing parking and park fall within the 25' setback. However, "piers, docks and wharfs" are allowed within the 25' setback, but determinations on any proposed designs are made by the Code Enforcement Officer and other agencies such as the Maine DEP and the Army Corps of Engineers.

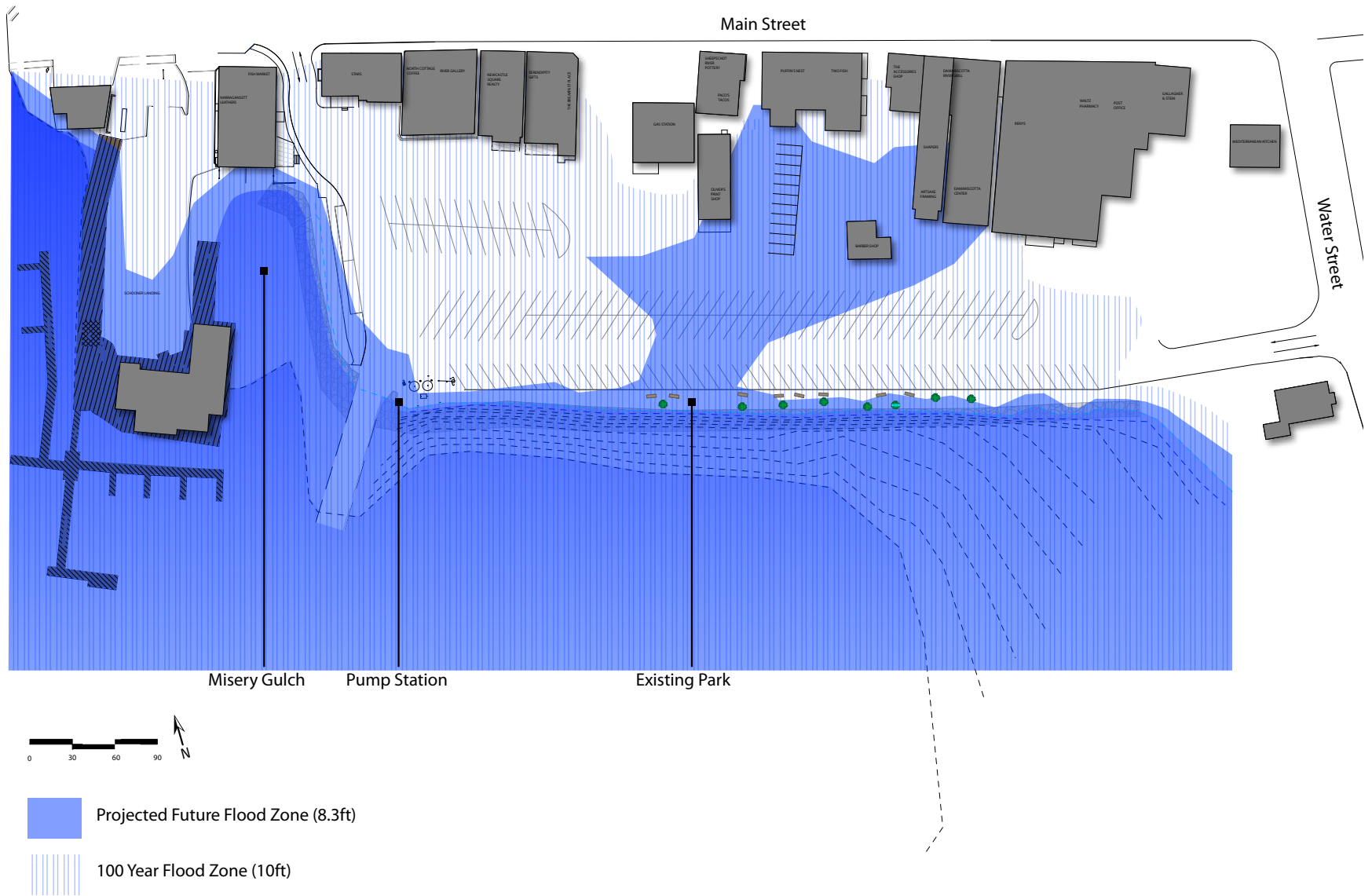


FIGURE 2: EXISTING AND PROJECTED FLOOD ZONES



A view of the array of infrastructure in the study area: utility lines and poles, transformers, lighting, the boat launch, the pump station and manhole covers for the force main and the outfall. The Great Salt Bay Sanitary District easement runs straight down the aisle of parking. Just beyond the pump station in the rip rap below the park are three stormwater outfalls

There are three primary utility concerns in the study area: sewer lines, overhead utilities (power and data) and a stormwater system.

Overhead Utilities

The study area is served by two-phase power provided by Central Maine Power (CMP). Data is provided by Tidewater Telecom. Many of the Main Street buildings on the southern side of the street - at least north to Renys - receive power from a network of utility poles in the harbor lot. Power enters via a primary cable at the Main Street entrance and is then distributed throughout the harbor lot by a series of utility poles and lines with step-down transformers feeding the Main Street buildings with secondary cables (Figure 3). There are five utility poles with step-down transformers and seven that have cobra-head harbor lot light fixtures. These transformers would have to be placed with at least an equal amount of pad mounted transformers if the power and data lines are buried.

Sewer Lines

The Great Salt Bay Sanitary District has two trunk lines running parallel to the shore - a force main running to the treatment plant and then a return outfall line. An array of lateral sewer lines connect the Main Street buildings with the force main. The pump station for the force main is located just east of the boat launch. After the wastewater is treated by the District it comes back to the harbor lot and runs under the boat launch discharging west of the dingy float system. The District maintains a 30' wide sewer easement from Water Street along the first row of parking facing the water and then out to Main Street. A plan entitled, "Great Salt Bay Sanitary District Municipal Park Lot Easements from 1986" shows the approximate locations of the sewer laterals sketched in by hand. This plan was used to develop probable cost estimates for replacing the private sewer laterals. The force main and outfall trunk lines are currently functioning and inspected every year with a camera. However, the laterals are known to be in disrepair and there is an unknown amount of leakage. The pump station is in good condition and there are no plans for an upgrade.

Stormwater System

The stormwater system for the harbor lot currently consists of nine catch basins connecting to four harbor outfalls (Figure 4). In general, the system functions even though it is not the most efficient layout and the catch basins and culverts are in poor condition and most likely undersized. The current stormwater system does not mitigate any of the impacts associated with the harbor lot such as oil, grit and other pollutants.

In recent years, there has been minor maintenance to the harbor lot, such as a skim coating to fill in potholes and maintain a reasonable level of surface drainage and stability. But in general, the harbor lot continues to warp due to the unstable fill.



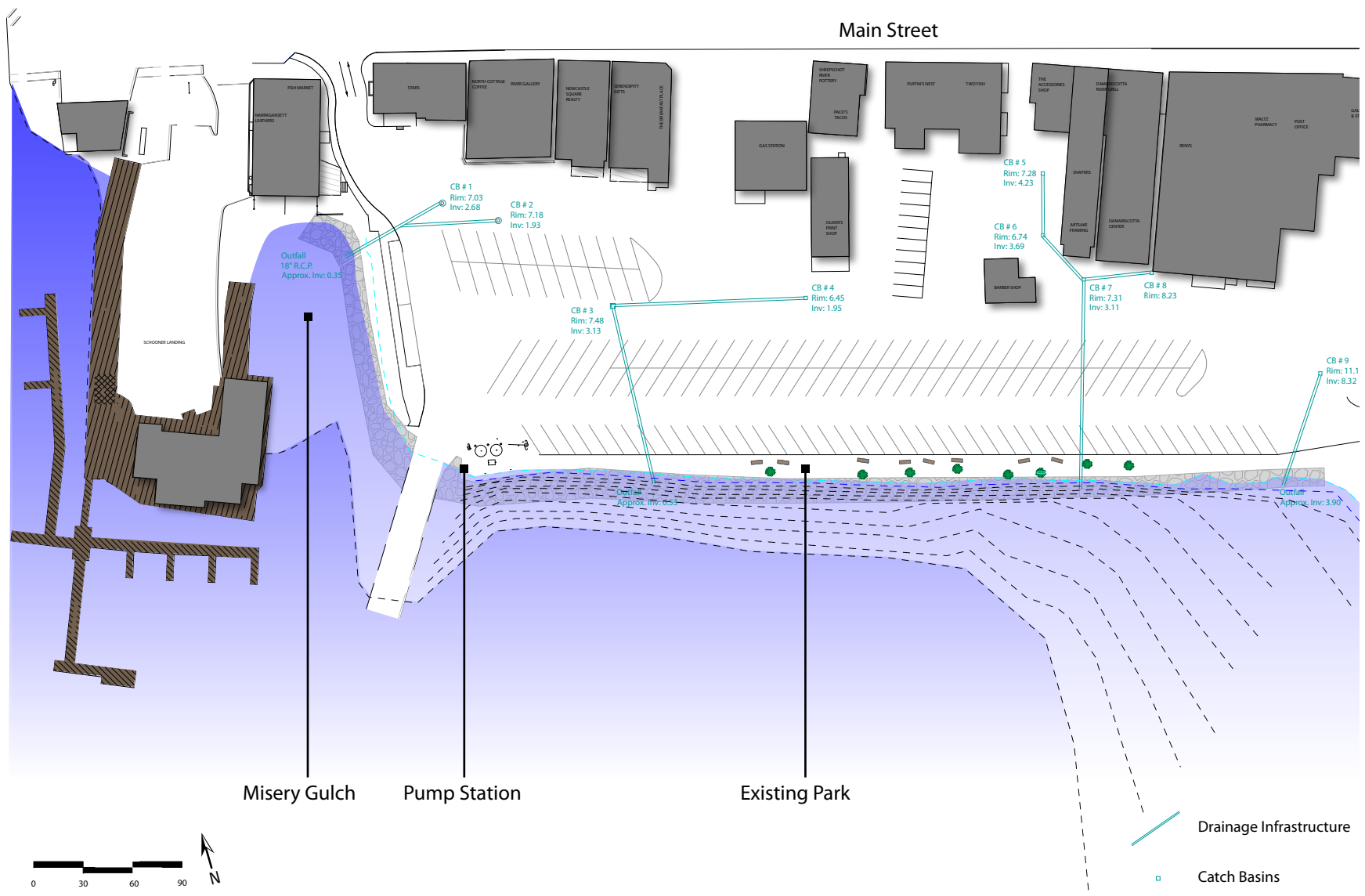


FIGURE 4: EXISTING STORMWATER SYSTEM



Boat Launch and Harbor

The public boat launch not only serves commercial and recreational users, but adds to the authenticity of downtown as a “real” Maine town. It is a gateway to the river, part of the working waterfront for clammers, oyster harvesters and researchers. The Damariscotta River is a unique and beautiful ecosystem and maintaining the boat launch should be a priority. Some would prefer to see it moved to a less congested area than downtown, but this would have an impact on the culture and economy of the community.

The boat launch is in good shape as reported by the Harbor Master and is maintained by the Department of Conservation. Several of the current floats need replacement and there is the need to add more floats to the end of the system to increase dingy storage. There are plans to replace the necessary floats and expand the system this year.

There are several issues with the management of the boat launch. Dinghies are limited to twelve feet and on many mornings the Road Commissioner must call the Harbor Master to have dinghies / skiffs towed to an unused mooring in the harbor.

The boat launch has 14 dedicated spaces. Interviews with users of the launch found that there is usually space for boaters, except occasionally on weekends. Non-boaters do park in the dedicated boat spaces (intentionally or not), but in general the launch to parking ratio is adequate - although most boaters like most merchants will say that there can never be enough parking.

The harbor is currently at capacity with 110 moorings. A joint Newcastle and Damariscotta Harbor Committee is currently reviewing the mooring field to identify unused moorings. There are currently no Town guest moorings, although Riverside Marina has 15 moorings available on a first come first serve basis.

A number of participants in the forums noted that Damariscotta would benefit from attracting boats cruising the coast, however the harbor lacks visitor moorings as well as a pump out. The Great Salt Bay Sanitary District does not have the proper permits nor the proper design to treat waste from boats. It is not currently cost effective for the marinas in the harbor to install holding tanks and then pay for the waste to be removed to an approved facility.

Shore Park

The existing waterfront park provides wonderful views of the harbor, but it is in rough shape, poorly designed and lacking contemporary amenities. It is not a destination of significance nor can it support large community events in a safe manner.

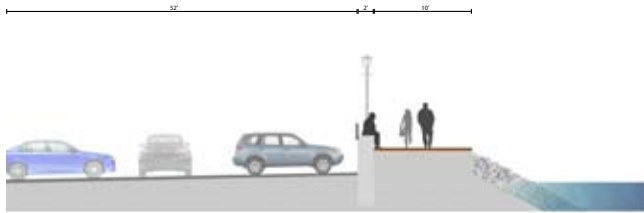
The park is not ADA accessible, lacks bike racks and safe connections to Main Street and the greater network of sidewalks and bike routes throughout the Town.

The varied surfaces, utility poles, the unkempt lawn and trees, worn benches, broken guardrails and unsightly trash receptacles do nothing but show the need for improvements. But people do use the space and on a nice day one can find people reading, eating lunch or taking in the view. There is tremendous inherent potential for a redesigned park - even if these improvements are modest in nature.

This area has the capacity to be the Town Common, a civic gathering space complementing the beautiful and pedestrian-friendly Main Street. The harbor and Main Street are two of the greatest assets in the downtown. A redesigned park could be a “front porch” as noted at the Shore and Harbor Forum. It can also be part of Damariscotta’s local approach to economic development. A redesigned waterfront park would encourage more people to visit the community, providing yet another reason to return again and again.

A redesigned park could also support a greater range of public events, further strengthening a sense of community and making Damariscotta an even more vibrant place.

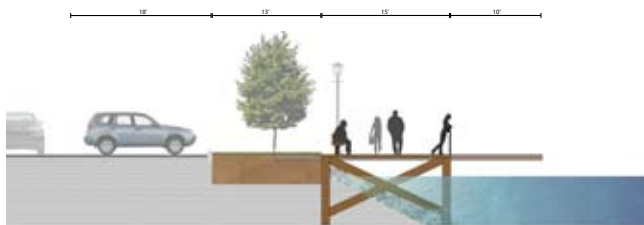




Concept A: The waterfront park is elevated to 11' to mitigate the 100'-year flood. The park is in the same location as the existing park - adjacent to the resource. Stormwater drains to a central valley with speciality catch basins



Concept B: The waterfront park is elevated to 11' to mitigate the 100'-year flood. The park is in the same location as the existing park - adjacent to the resource. Stormwater drains to a rain garden along the shore. Parking aisles are shifted and all spaces are compact dimensions



Concept C: The waterfront park remains at the current elevation and location, but is expanded with a boardwalk over the tidal zone. As with Concept A, stormwater drains to a central valley with speciality catch basins

Master Plan

After gathering input from the community and analyzing the existing conditions, the project team developed several concept plans. These plans were presented to the Town staff and DPAC for review and comment. It was not anticipated that one of the concepts would be selected, but that preferred elements from each plan would be combined to create the best plan.

In general, the concept plans differed in three primary ways:

- Harbor lot layout and pedestrian and vehicular circulation
- Stormwater management
- Waterfront park design

In each of the schemes all utilities are buried underground and a rest room is located either at the pump station or as part of a redesign of the barber shop. Each scheme has the option for one-way or two-way access from the Main Street entrance, two-way access from Water Street and pedestrian connections located at either ends of the park. One scheme adds a third pedestrian connection down the middle of the harbor lot aligning with "Taco Alley". There is potential in each scheme for a multi-modal parking structure along Water Street with a village-scaled / designed facade facing Main Street with street level commercial space.

After further review by DPAC and the project team, the final plan was developed to best meet regulatory standards, provide maximum connectivity for pedestrians, minimize the loss of parking, mitigate the impacts of stormwater, comply with ADA regulations and maintain clear views of the harbor by not raising the elevation of the park (Figures 5 and 6).

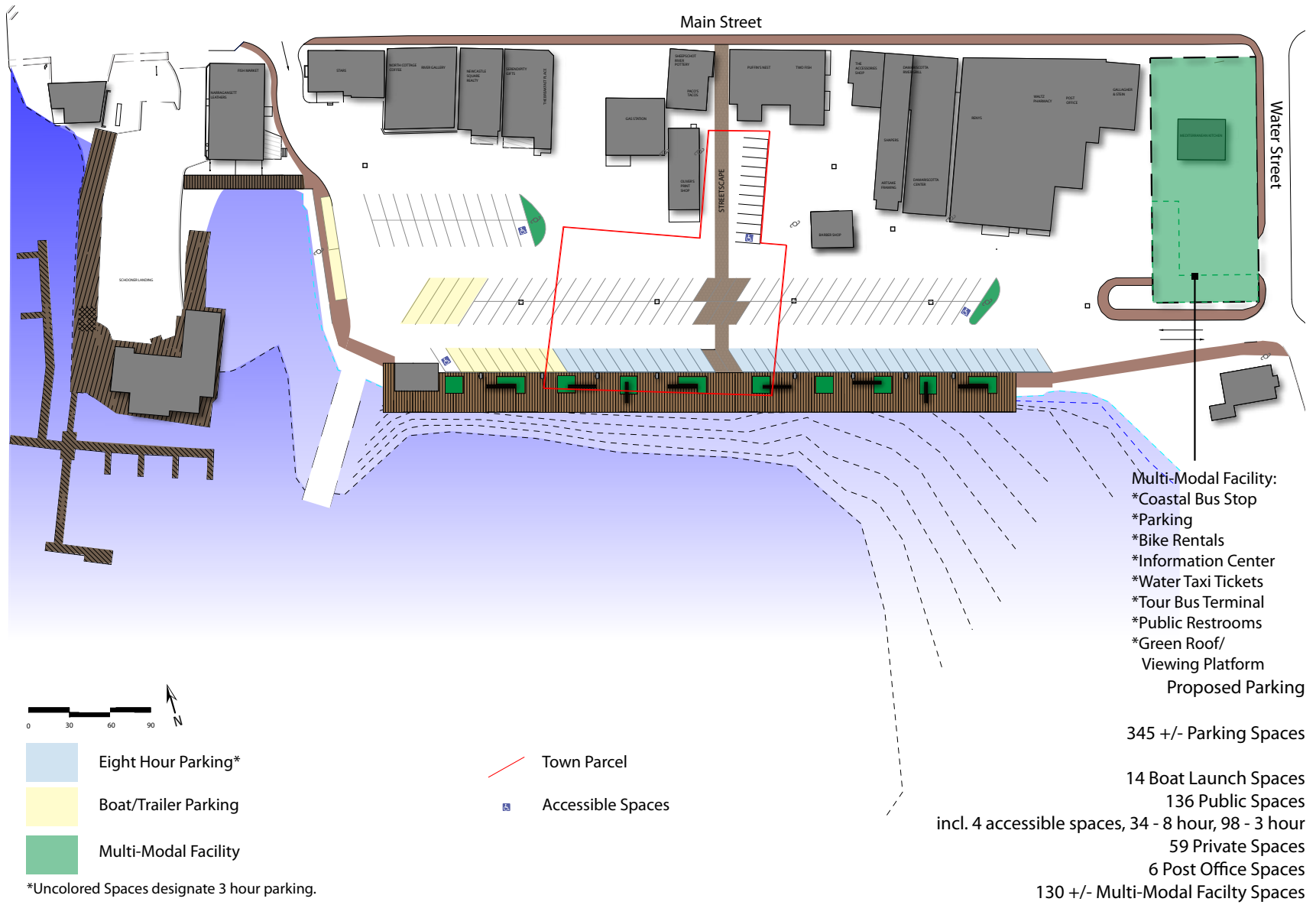


FIGURE 6: PROPOSED PARKING COUNTS AND DESIGNATIONS

The Shore and Harbor Master Plan addresses the six following themes. These are discussed in detail in the following text and applicable illustrations:

1. Study and possibly redesign the harbor lot
2. Study and possibly redesign underground utilities
3. Study overall sidewalk/trails system in Town
4. Study and possibly plan and design improved boat launch and related facilities
5. Plan and design the harbor shoreline open space
6. Identify and design eye-catching connectors from Main Street to the harbor

1. Study and Possibly Redesign Harbor Lot

A number of alternative layouts were reviewed for the harbor lot to maximize parking, improve pedestrian connections between Main street and the waterfront while minimizing conflicts with varying uses. The master plan does not make major changes to the layout of the harbor lot, but does make the following improvements:

A pedestrian “streetscape” extends through the middle of the harbor lot connecting Main Street to the proposed waterfront park via Taco Alley. This streetscape is defined by pavers - clearly noting that it is an extension of the improvements on Main Street. A central, ADA accessible pedestrian island is created in the harbor lot allowing pedestrians to both see and be seen by cars. This island is the equivalent to a bump-out on Main Street, which shortens the crossing for a pedestrian. Another similar bump-out is located in the row of parking adjacent to the waterfront park, again creating a shorter pedestrian crossing. ADA accessible drop curbs are located at the central island along the waterfront, bringing users level with the waterfront park.

In adding this central pedestrian alignment, there is a loss of eight existing parking spaces.

Pedestrian connections to the eastern and western ends of the boardwalk are provided by a new sidewalk along Water Street and along Misery Gulch. There is extra room in the access way to the boat launch and the two trailer spaces along Misery Gulch can be moved to the east, allowing for a five-foot wide walk from Main Street to the waterfront park.

In addition to the pedestrian access from Main Street, the center of the harbor lot and Water Street, a new 10'-wide pedestrian footbridge is proposed along the northern edge of Misery Gulch. During community forums it was recommended to either fill or place a boardwalk over all of Misery Gulch, but this is a highly unlikely scenario. This was previously explored and recommended in the 2002 Comprehensive Plan as an action item, but even then it was noted that the idea had strong resistance from the Maine DEP.



In the proposed plan, two-way access is maintained on Water Street. During the course of the study it was recommended by the public to make the Main Street entrance one-way in to the harbor lot. This would improve pedestrian safety by narrowing the entrance, but still allow access for deliveries and the boat launch. A minimum 30' radius is required coming north into the lot. It should be noted that if this entrance becomes one way, the Town should complete a traffic study to understand the impacts on the Water Street area.

In terms of snow plowing and dumping, the proposed harbor lot maintains the snow dumps at Misery Gulch and the boat launch, however the snow dump along the shore would have to move closer to Water Street in order to not damage the waterfront park.

The existing Maine DEP Permit for the snow dumps expires in 2012 and will have to be renegotiated at that time.

To increase parking capacity and establish a multi-modal hub, there is the potential for a parking structure running from the Water Street entrance to Main Street. This facility would hold approximately 130 cars. At the Main Street end of the facility, a street level space could be created serving as a bus stop, rest room, information center, ticketing for a river water taxi and regional bus excursions. This could also be a bike rental location. The Main Street facade of the parking garage is the width and height of typical Main Street buildings and could be designed as a continuation of the Main Street facades. As noted in Figure 5, the multi-modal facility top deck also includes a green roof / viewing platform / summer outdoor cafe.

2. Study and Possibly Redesign Underground and Overhead Utilities

As previously noted in the existing conditions review, both the private lateral sewer lines and the stormwater system are in poor condition and should be replaced.

Currently the harbor lot topography falls away from the shore to a series of catch basins near



Example of a rain garden / bio-swale. Courtesy Stormwater Solutions Handbook, Portland OR



Example of pervious pavers in a parking lot. Courtesy Stormwater Solutions Handbook, Portland OR

the back of the Main Street buildings. The proposed stormwater system grades the harbor lot away from the waterfront and the back of the Main Street buildings to a series of catch basins running down the middle of the harbor lot. The catch basins are to be replaced with state of the art designs filtering grit and pollutants before entering the harbor (Figure 7).

During the course of the study, rain gardens, porous asphalt, porous pavers and other low impact development approaches were reviewed and incorporated into concept schemes. However, due to the limited area, the unknown condition of the harbor lot fill, the height of the water table and concerns with maintenance and cost, such innovative approaches were found to have more concerns than known benefits. The project team civil engineer gave great thought to the stormwater system and in many cases more innovative approaches seemed to be a forced solution. Attention should be given to low impact development stormwater parking designs when more detailed information is available and the scope of work moves beyond the planning level to detail design.

In terms of the of lateral sewer lines feeding to the Great Salt Bay Sanitary District force main, the Master Plan assumes that all of these lines will be replaced. The exact location nor the specific condition of the lines is not known, but a cost estimate has been prepared for replacing these lines. It is assumed that due to the condition of the lines, wastewater could be seeping into the water table and into the harbor and river.

Overhead Utilities

It is assumed as part of this study that all existing overhead utilities will be buried in coordination with the other site work. Existing harbor lighting would be replaced with both pedestrian-scaled lighting and taller harbor lot lighting. A major goal of the proposed lighting scheme is to reduce the existing lighting to the lowest level necessary, minimizing light pollution. It is recommended that all new lighting have low lumen, full-cut off light emitting diode (LED) fixtures to minimize glare and reduce energy consumption by up to 75%. The existing harbor lot is probably over-lit and the high pressure sodium cobra-head lights are visually out of date and contribute to light pollution (Figure 8).

The proposed lighting plan includes:

- Five harbor lot lights
- Eight pedestrian-level lights along the parking lot side of the boardwalk
- 20 post-mounted down lights along the boardwalk
- A handrail light for the “pump station” stage steps

Burying the overhead utilities would greatly improve the visual quality of the harbor lot, even if this is just along the waterfront.

The pole mount transformers step-down the overhead line voltage to 240/120 volts for the service drops. Replacing the pole mounted transformers would require pad mounted transformers, which require more space on the ground.

A more efficient layout of the overhead utility system may be achieved by going underground, but as with other underground utilities, the distribution of data and power through conduits, ductbanks and the associated stubs, transformers and manholes would have to be carefully coordinated with other utilities and the proposed site grading.

Each secondary cable and data drop to buildings would be routed underground from the new pad mounted transformers. The connections to each of the buildings (multiple tenants and meters) would have to be redesigned.

When the Town decides to prepare a detailed electrical, data and lighting plan, this will provide an opportunity to develop the most cost effective distribution layout while meeting the standards of CMP and the other service providers. In addition to the site work and underground infrastructure, CMP will charge for transformers, connections, make ready charges and CIAC taxes.

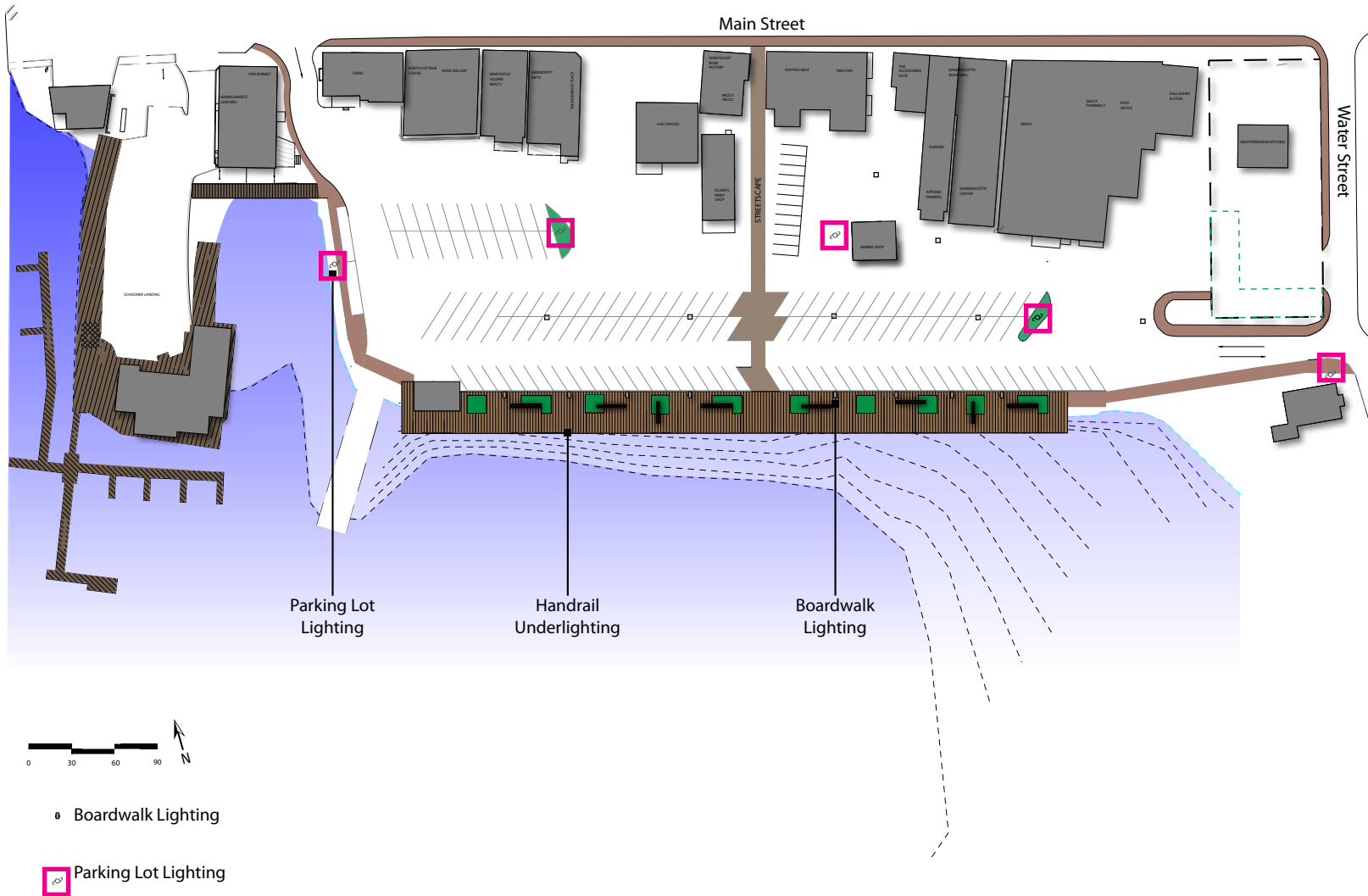


FIGURE 8: PROPOSED LIGHTING PLAN

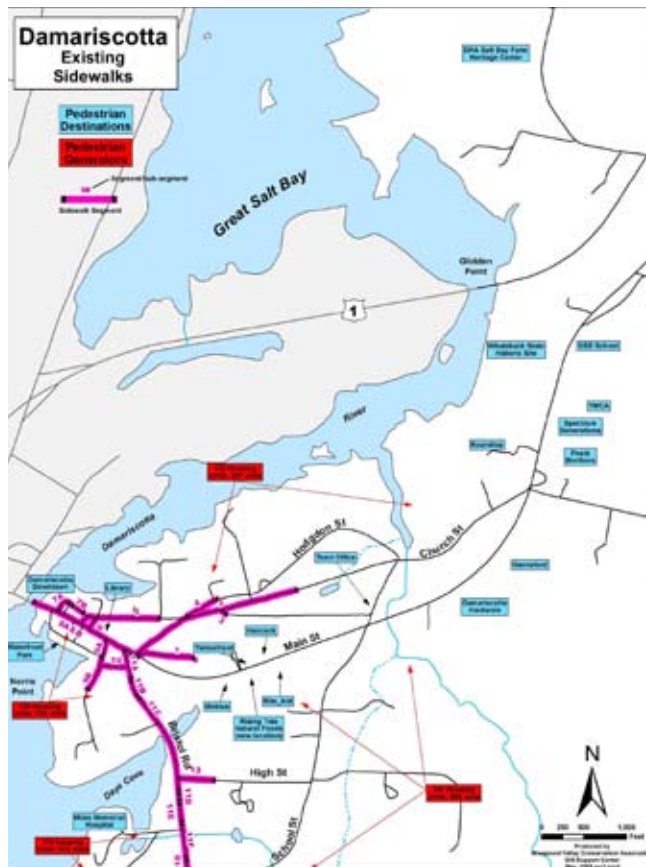


Image from the Sidewalk-Bicycle Plan showing both Destinations and trip generators. The study area is unique in that it is a key destination and trip generator in Damariscotta.

3. Study Overall Sidewalk / Trails System in Town

Downtown Damariscotta is very pedestrian-friendly. The 2007 Main Street improvements have created a safer pedestrian environment and a more inviting experience. The Town has been working with the Damariscotta River Association (DRA) to plan for stronger links between the downtown sidewalks and the DRA trail systems and open spaces as well as sidewalks and bike lanes on Route 1B and other streets. Additionally, the DRA is working towards a stronger connection between the downtown area and the preserve system along the upper river through a proposed river trail. It is a goal of the 2002 Comprehensive Plan, the 2008 Damariscotta Sidewalk-Bicycle Plan, the 2010 Heart & Soul Charrette Report and The Shore and Harbor Master Plan to enable connectivity throughout the Town. As noted in the Sidewalk-Bicycle Plan, there is the potential to link 500 dwelling units and 2,500 jobs within walking distance of the downtown. It is important to note that the downtown area alone is a “pedestrian generator” with 139 housing units and 732 jobs. It can only be assumed that the pedestrians generated in the downtown need safe connections to other parts of the Town for recreating and shopping.

The Sidewalk-Bicycle Plan planning process identified the waterfront as one of the important pedestrian destinations in the community. However there are missing links in the sidewalk and bike lane system allowing for safe connectivity between other major destinations such as the Town Offices, Hannaford, Roundtop and the Great Salt Bay School.

The Shore and Harbor Master Plan recognizes the importance of connectivity throughout the Town, but does not replicate the detailed efforts of the Sidewalk-Bicycle Plan. Neither does the Shore and Harbor Master Plan outline specific measures for a downtown “park once” master plan, shuttle services and satellite parking. As mentioned previously in this report, the Heart & Soul Charrette lead to the creation of a number of DPAC subcommittees, which will hopefully directly and indirectly address the specific recommendations of the Sidewalk-Bicycle Plan.

The Shore and Harbor Master Plan does include specific designs and cost estimates for creating safe connectivity within the harbor lot and to Main Street and Water Street. Sidewalks are well-defined with granite curbs and are ADA accessible in terms of width, curb drops as well as surface material. The waterfront park is ADA accessible and includes bike racks.

4. Study and Possibly Plan and Design Improved Boat Launch and Related Facilities

As noted above in the existing conditions analysis, the boat launch is in good condition, however several floats need to be replaced and the float system needs to be expanded to accommodate more dinghies. According to the Harbor Master, these improvements are scheduled to take place for the 2010 boating season.

There are currently 14 parking spaces dedicated to the boat launch as part of an agreement with the Department of Conservation. More commercial and recreational parking is always needed, but in general users of the facility typically find spaces. There is a DPAC subcommittee looking for alternative boat launch sites on the river and this will certainly provide more access to the water.

Removing the boat launch would greatly impact the character of Damariscotta as a coastal community. People enjoy watching the launch activity. The float system is the “parking lot” for mooring holders. The river is a unique ecosystem for the cultivation of oysters. Main Street Damariscotta is an authentic working community.

Many other downtowns in Maine are suffering. Similarly, working waterfronts along the Maine coast are losing ground. Damariscotta should strive to maintain the boat launch for all users, be it a recreational boater, clammer or tourist launching a kayak.

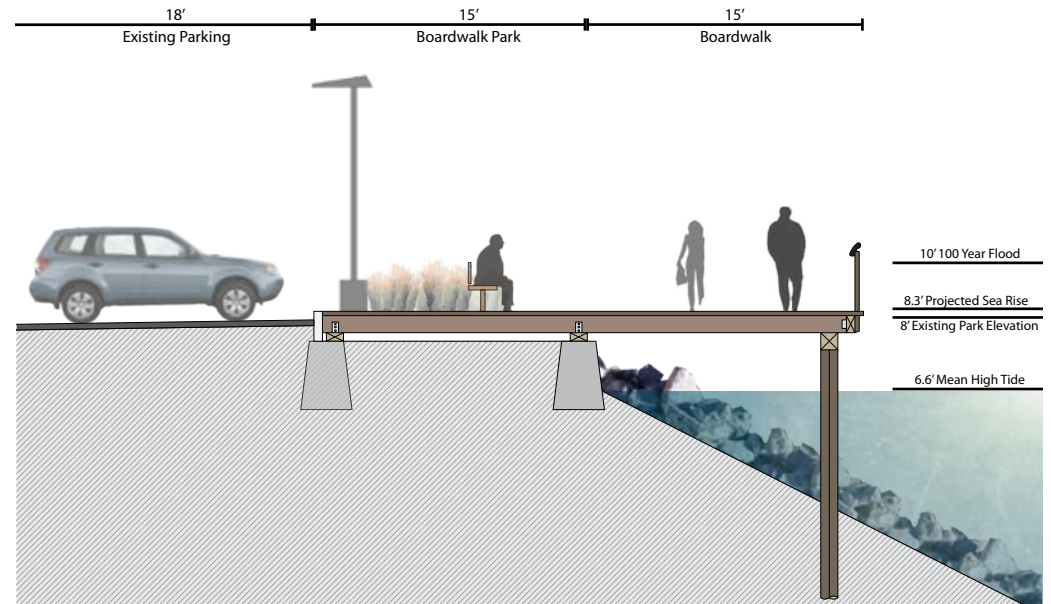
In relation to other recommendations in the master plan, such as making the Main Street entrance one-way into the harbor lot, the large haulers should not be impacted and it is only a matter of flagging traffic for a few minutes. Typically large haulers do not use the Water Street entrance.

5. Plan & Design a Shoreline Open Space

The proposed waterfront park is 30' x 400' (Figures 9-16). The first 15' along the harbor lot are in the location of the current park. This section is called the "Boardwalk Park" because it is set on a prepared infiltration surface and can feature landscape plantings, benches, lights, bike racks and trash receptacles without interfering with the 15' portion of the boardwalk extending over the rip rap. The boardwalk does not extend over the mud flats.

As illustrated in the plans, sections and perspectives, the waterfront park allows for a range of experiences and uses. The waterfront park can comfortably accommodate 700 people and during more event-like situations can accommodate 1,200 to 1,400 people. In addition, a stage / observation platform is proposed to cover the existing pump station. The design of this stage must be coordinated with the Great Salt Bay Sanitary Sewer District in order that access to the pump station is maintained. When the railing is removed from the backside of the stage, the parking lot can be cordoned off and the crowd capacity greatly increases.

The front and sides of the stage facing the harbor feature stadium steps for seating and viewing the harbor. Other seating along the boardwalk is nestled in with hardy native planting to create areas of privacy, but still enough visibility for security purposes. In fact, the waterfront park is designed specifically to be easily patrolled from the parking lot. In addition, the existing front row of parking remains in place, allowing people to sit in their cars and view the harbor during all seasons.



A cross-section through the proposed waterfront park

The boardwalk can be made of either recycled plastic or a wood such as plantation grown Southern Yellow Pine impregnated with copper compounds, not chromated copper arsenate (CCA). In 2004, the EPA reached a voluntary agreement program with the wood industry to limit the use of CCA treated materials to areas where it will not come in contact with people.

Wood pilings for boardwalks and piers are still treated with CCA, but there are other options for supporting the boardwalk such as greenheart timber, composite plastic, concrete or steel piles. The advantage to a wood boardwalk is that it can handle greater loads, but because the boardwalk is envisioned for light loads, recycled plastic decking is suitable with the proper design.



An example of an LED down light integrated with a railing system. This particular example could be used on the handrail leading to the stage / viewing platform in order to meet access codes while minimizing light pollution

Lighting for the waterfront park includes eight pedestrian-level lights facing the harbor lot with cut-off fixtures - allowing some ambient lighting for the waterfront park. Additional lighting includes 20 post-mounted down lights evenly spaced along the length of the boardwalk rail.

The goal with the lighting plan is to provide the minimum level of lighting for the safe use of the harbor lot and boardwalk in order to reduce glare and light pollution to the greatest extent possible. The proposed lighting, combined with the harbor lot lighting, will draw people from Main Street to the waterfront in a safe manner, but still allow people to enjoy the dark sky. All lighting throughout the parking lot and within the waterfront park should include low lumen LED cut-off fixtures for energy efficiency and better color rendering. LED fixtures have a life span of 20-30 years and consume less energy than standard light fixtures.

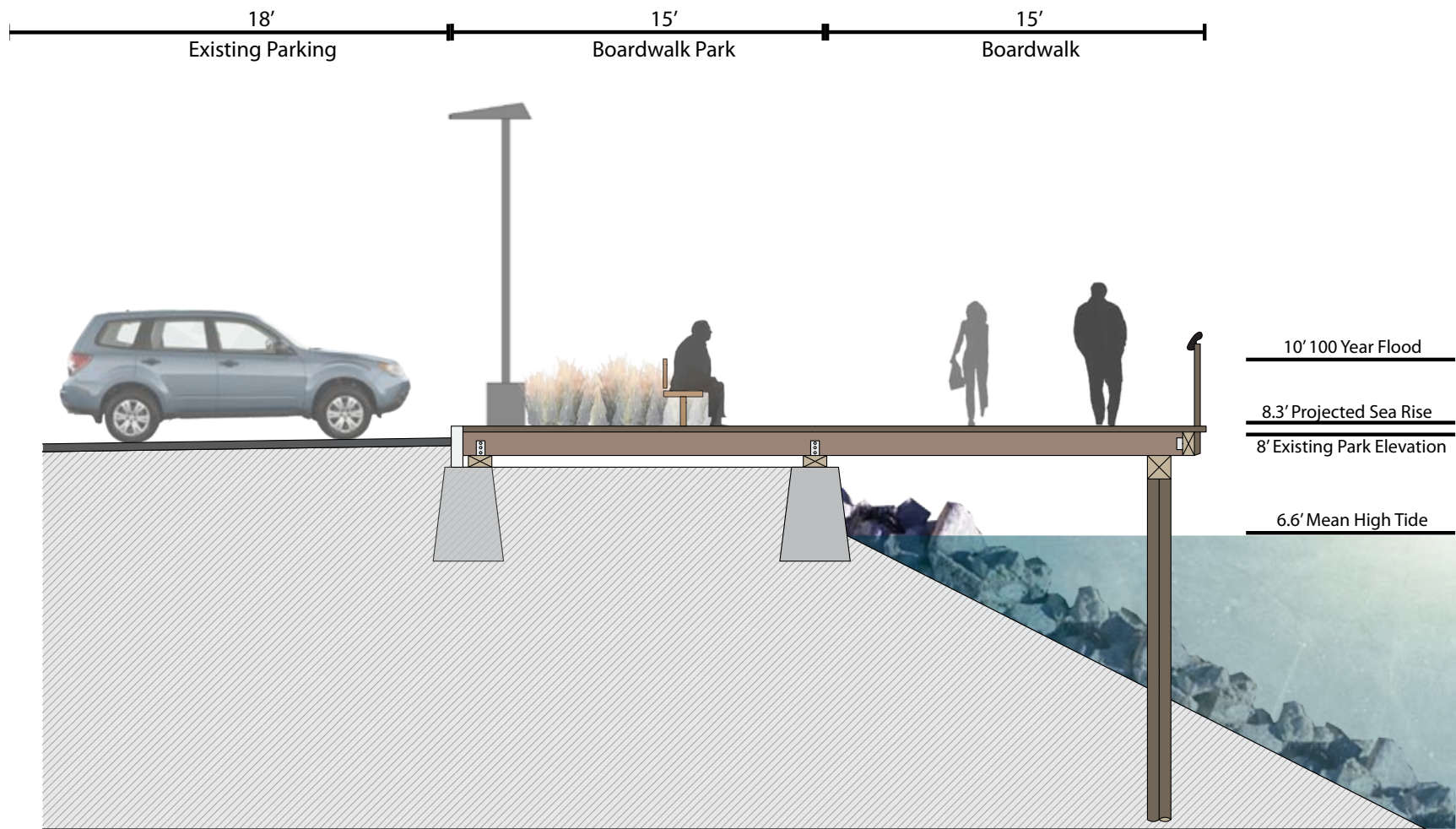


FIGURE 9: CROSS-SECTION THROUGH THE PROPOSED WATERFRONT PARK



FIGURE 10: EXISTING VIEW TOWARDS WATER STREET



FIGURE 11: PROPOSED VIEW TOWARDS WATER STREET



FIGURE 12: EXISTING VIEW TOWARDS BOAT LAUNCH



FIGURE 13: PROPOSED VIEW TOWARDS BOAT LAUNCH



FIGURE 14: PROPOSED VIEW OF STAGE AND STADIUM SEATING

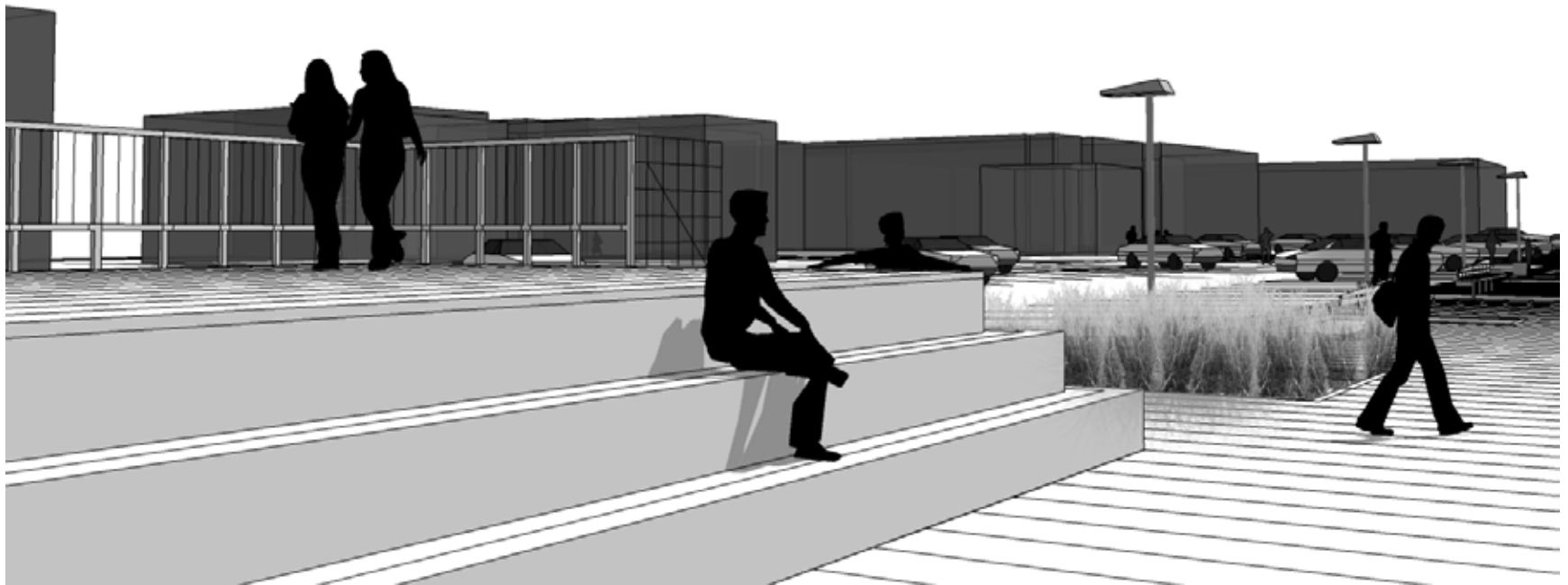


FIGURE 15: PROPOSED VIEW OF STAGE AND STADIUM SEATING WITH WATER STREET MULTI-MODAL FACILITY IN BACKGROUND



FIGURE 16: PROPOSED VIEW OF "PUMP STATION" STAGE FROM PARKING LOT
(VIEW SHOWS PARKING LOT SIDE RAILING REMOVED)

6. Identify and Design Eye-Catching Connector Passageways from Main Street to The Harbor

Damariscotta has a beautiful Main Street with a range of quality and iconic signs for individual businesses. However, there are different types of wayfinding and informational signage throughout the downtown and the harbor lot that is confusing, cluttered and in disrepair. There are directional signs, speed limit signs, regulatory signs, Town Ordinance signs, kiosks and different symbols and striping on the pavement.

All of this information is necessary, but it can be presented in a more uniform, less cluttered manner (Figure 17). In general, the more signs, the less people pay attention. When an area contains too much information as in the image to the right, which includes a one-way directional sign, an accessible parking sign, a boater parking space designation sign as well as pavement striping and symbols, not only does the situation become unattractive, but there is a general information overload for the user.

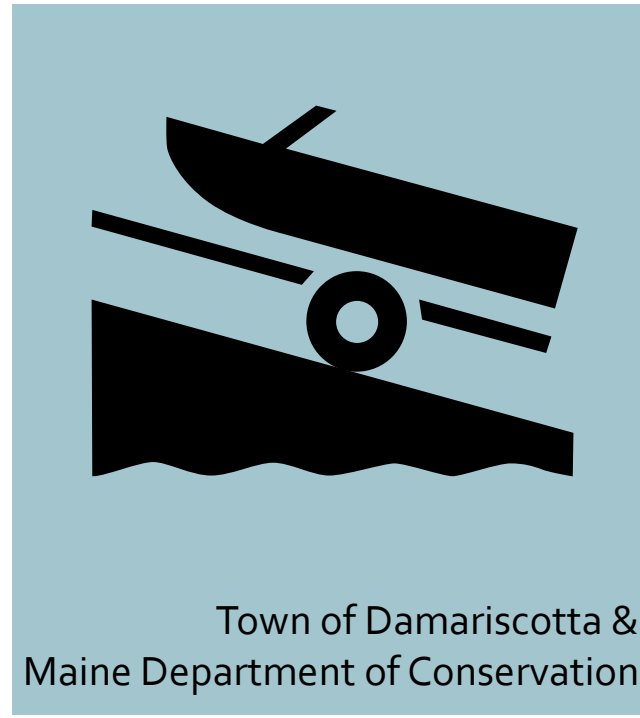
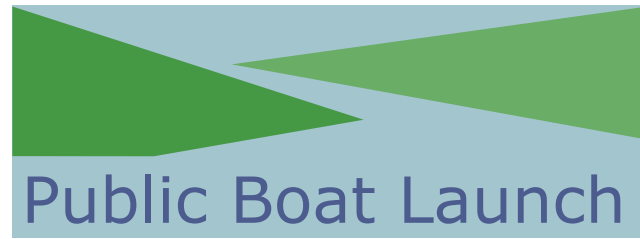
In addition, the design of the signs - the graphic quality and consolidation of information in a uniform manner - can help brand the community and unify the wayfinding experience. The wayfinding and informational signs should be consistent in design, even though they are conveying different types of information. The proposed branded wayfinding and information signs should clearly contrast with the creative and diverse private-sector signs in the downtown. Wayfinding and informational signage should be creative, but not diverse in style.

Wayfinding and Branding





- PARKING >
- BOAT LAUNCH >
- WATERFRONT PARK >
- RESTROOMS >
- VISITOR'S CENTER >
- WATER TAXI >
- DOWNTOWN ^



As part of developing a wayfinding system, a concept “brand” design was developed that can be applied universally to a range of information sign types. This is a concept and has not been vetted by the community. In summary, it represents the harbor in the foreground with the Damariscotta River winding to the open ocean. The goal was to create an image referencing the community’s commitment to the environment, but in an abstracted manner. The color palette is minimal and the fonts are limited to two types. The signage can be scaled, ranging from a doorway sign to a Town gateway sign.

A specific image like an alewife or a particular view or building in Town was deliberately avoided to allow the information

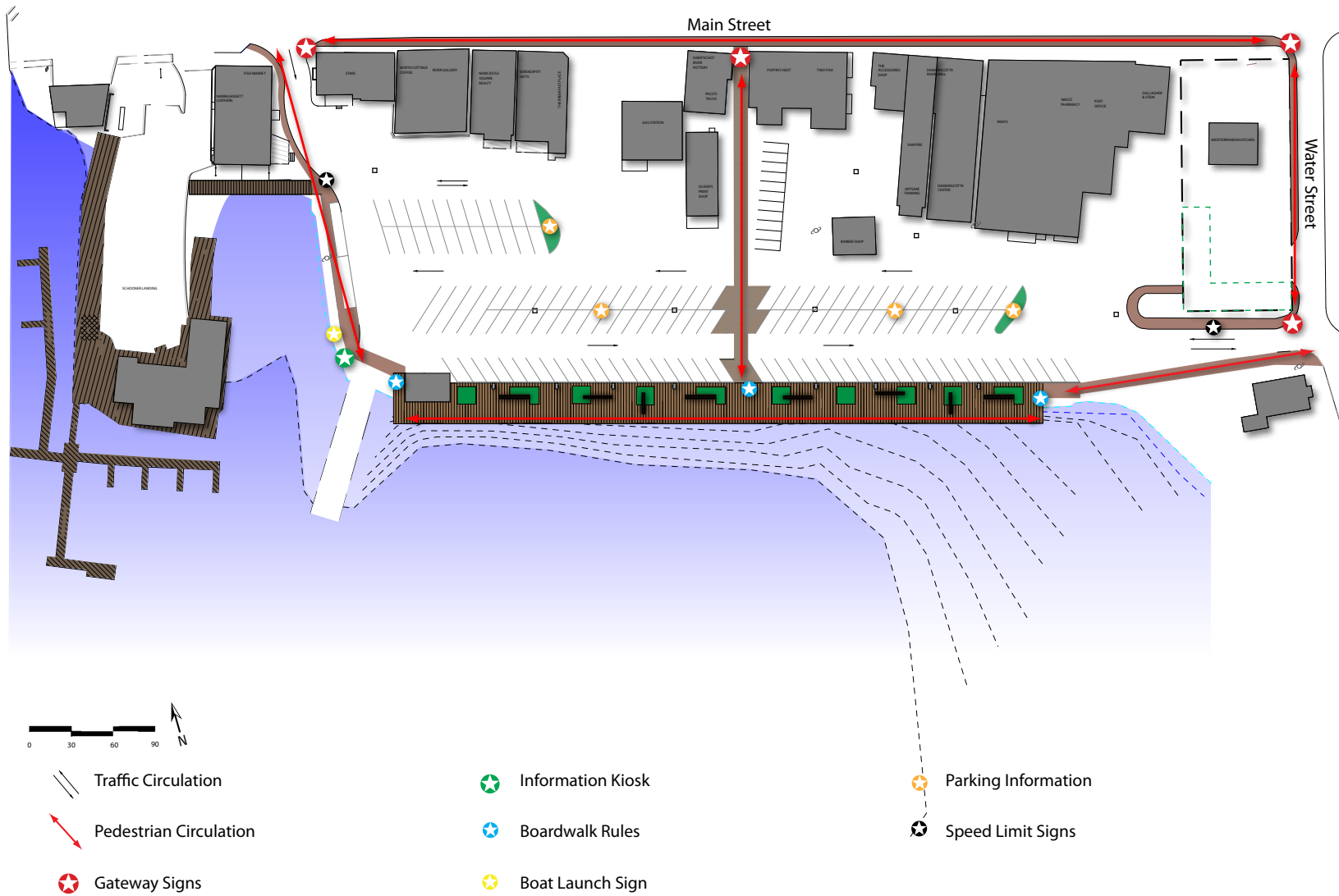


FIGURE 17: PEDESTRIAN / VEHICULAR CIRCULATION AND WAYFINDING



Existing array of signage at the Main Street entrance to the harbor lot



Proposed concept for simplifying signage while establishing a consistent "brand" identity

to "pop", grabbing the attention of the viewer. The branded aspect of the wayfinding system should be consistent, but not compete with the information that needs to be conveyed. Again, this is why the concept design is simple and limited in colors and fonts.

The proposed improvements to the waterfront will make it a destination as well as support existing and new events with a greater crowd capacity. The harbor activity is already a theatrical experience and the waterfront park will make it safer and more pleasurable to experience this wonderful asset. The proposed master plan for the harbor lot includes safe pedestrian access to the waterfront, but both residents and visitors to Damariscotta need an "eye-catching" iconic sign to direct people to the waterfront. In keeping with the idea that the waterfront is a theatrical experience and the need to promote different waterfront events, the idea of using a traditional theater marquee is suggested. This marquee can incorporate the community brand image as well as a reader board announcing different events. The Marquee could be commissioned as a piece of public art through State grants.

It is important to have the sign project from the face of the buildings in order to catch the eye of a person walking or driving Main Street. Main Street is dynamic and visually stimulating and the marquee must be unique in order to serve its function. It is easy to forget - and in the case of a tourist - not even be aware of the waterfront. Pedestrians will be drawn to the waterfront by the marquee. Furthermore, removing cars in the proposed streetscape sight line within the harbor lot will create a clear view of the harbor.



An example of a traditional Main Street marquee



Central pedestrian access point from Main Street before the proposed Waterfront Marquee



Central pedestrian access point from Main Street with the concept Waterfront Marquee

Permitting

Permitting a project of this scope can be complex and hard to predict. Any activity “adjacent, in, on or over” a coastal wetland requires a permit. In particular, proposed improvements within 75’ of a resource are carefully regulated. Because the parking lot and the park (and the site amenities) already exist these should be considered as grandfathered uses and structures. The extent of the required permitting is not decided until an official “pre-application” meeting is held with the Maine DEP. This project will most likely require a full Natural Resource Protect Act Permit from the Maine DEP. An important aspect of the NRPA permit is that the Town has to complete a thorough alternatives analysis demonstrating that the design is the most practicable solution and does not have unreasonable impacts on the environment. A type of “alternatives” analysis was part of the current master planning process and this is a good starting point for the Maine DEP review.

In terms of other agencies reviewing the NRPA Permit, it can be assumed that the Department of Inland Fisheries and Wildlife, the Army Corps of Engineers, the Department of Marine Resources and potentially the Department of Conservation will provide comments on the application.

Other potential permits include:

- The proposed regrading and utility work in the parking lot will require a Stormwater Permit-By-Rule from the DEP because over an acre of land is being disturbed. This is a short-form permit with a 14-day review period.
- An “Individual Permit” may be required from the Army Corps of Engineers due to the construction of a permanent structure. As with the Maine DEP pre-application meeting, the ACOE reviews projects to determine the level of review, if any.
- A lease agreement may be required with the Department of Marine Resources because the boardwalk extends over submerged lands.
- If changes are made to the Main Street entrance, such as narrowing the width and installing curbing with a larger radius, a Modified Driveway Permit may be required from Maine DOT.
- The site work and the construction of the boardwalk, a new rest room / barber shop or multi-modal-facility would individually or cumulatively trigger local Site Plan Review.

In terms of the boardwalk, it is in the Town’s best interest to review the project in tandem with the Maine DEP review to expedite the process by demonstrating that the project has received all required local permits.

Phasing

Implementing the improvements to the harbor lot and the waterfront park will be complicated because the harbor lot provides most of the parking for the downtown, access to the boat launch and ares for deliveries and trash hauling. The harbor lot also includes a network of above ground and buried utilities. Improvements to the infrastructure would have to be coordinated with the function of the Main Street buildings. The harbor lot is on unstable fill and any work to create long-lasting improvements would require the removal of material to be replaced with a new stable subbase. Finally, permitting agencies may make determinations on when improvements can take place.

There are three basic approaches to implementing the master plan. None are ideal, but all are feasible. Many site contractors are experienced with project phasing and integrating their work with the functional needs of downtowns. When detailed designs are prepared for the harbor and waterfront and a contractor is selected, a construction management plan can be created with input from the Town and business owners.

- The most cost effective and direct approach is to complete the project in one combined effort starting in the fall and finishing before tourist season. This does not mean that the harbor lot is completely off limits during construction because the Town can work with a site contractor to develop a plan where the various uses of the harbor lot shift location during the course of construction. Parking capacity would decrease, but because this is in the winter, demand may not be as great. Another issue with this approach is that the Town would have to fund the work in one phase. The waterfront park could be constructed in a second phase.

- Another approach is that the utilities are installed in a phased approach, carefully coordinating any work with the final grading of the parking lot and the new catch basins and culverts. This would be the most complex approach and may be more disruptive because the work would be spread out over several construction seasons. Again, it is ideal to complete the work during the winter to minimize disruptions to parking and other services. It is recommended that the new sewer laterals be installed first by excavating trenches to the force main and then backfilling and repaving. The new buried electrical and data services can be installed while the existing overhead utilities remain in place. This would also involve trenching, back filling and repaving. Once the connections to the Main Street buildings are in place, the overhead utilities can be removed. Future areas for power or lighting would be stubbed and in some cases new lighting would have to be installed to maintain use of the harbor lot. Any work in a phased approach would have to carefully take into account the design of the proposed finish grades of the parking lot, the depth and pitch of the culverts and the catch basin rim elevations. After burying the existing utilities, the proposed parking drainage improvements can occur in a separate phase. Because the recommended drainage system is a combination of regrading the parking lot and installing new culverts and catch basins, it would be difficult to implement the drainage plan in separate phases. The clearest advantage to this approach is that each phase could be completed with the availability of funding.
- Finally, there has been discussion of creating a multi-modal facility parking structure. If this were constructed, the harbor lot and waterfront park could be completed in subsequent stages without disrupting parking and minimizing impacts on functions such as the boat launch, deliveries and trash hauling.

In all the potential alternatives, the replacement of the three culvert outfalls below the existing shore park would have to occur prior to the construction of the waterfront park.

Master Plan Estimated Costs

Harbor Lot Site Preparation:	\$166,380.00
Misc. Site Demolition:	\$4,000.00
Harbor Lot Utilities:	
Stormwater:	\$96,480.00
Buried Electrical / Data:	\$150,000.00
Sewer Laterals:	\$88,750.00
Harbor Regrading and Repaving:	\$352,784.50
Harbor Lot Striping and Stencils:	\$2,400.00
Harbor Lot Lighting:	\$40,000.00
Public Rest rooms / Barber Shop:	\$100,000.00 (\$250 SF)
Multi-Modal Facility:	\$4,000,000.00
Misery Gulch Footbridge (10' x 100'):	\$143,400.00
Waterfront Park Boardwalk (30' x 400'):	\$659,300.00
Safe & Visible Accessibility to Waterfront:	
Gateway Marquee:	\$20,000.00
Central Passage Pavers:	\$30,000.00
Water Street / Main Street Sidewalks:	\$42,682.50 (asphalt walk with granite curbing)
ADA Curb Drops:	\$12,500.00
Directional / Information Signage:	\$25,000.00
<i>Subtotal:</i>	<i>\$5,933,677.00</i>
15% Contingency:	\$890,051.55
10% Design / Permitting Fee:	\$593,367.70
Total Estimated Cost:	\$7,417,096.25




CONCEPTUAL PHASE OPINION OF COST

Project: **Damariscotta**
 Subject: **New 30' x 400' Timber Boardwalk**

Page: 1
 Project: 1663001.01
 By: STR
 Date: 2/12/10

Item	Description	Quantity	Unit	Unit Price	Extension	Total
1.0	Mobilization and Demobilization					
2.0	Excavation 4'x4' x 360' x 2 grade beams	1	LS	\$20,000	\$20,000	\$20,000
3.0	Grade Beam x 2	485	CY	\$20	\$9,700	\$9,700
	Concrete Grade Beam 2' x 4' high	200	CY	\$500	\$100,000	
	Granite curb	400	LF	\$25	\$10,000	
	Gravel Backfill	225	CY	\$30	\$6,800	
	Misc Sitework	5	day	\$2,000	\$10,000	
4.0	Structure (wood @ \$4/BF)					\$126,800
	Support Piles@ 12 ft	30	EA	\$2,000	\$60,000	
	Pile Caps 12x12	400	LF	\$48	\$19,200	
	Sill + Band Joist 6x12 x2	810	LF	\$24	\$19,400	
	Stringers 4x12 x 15 ft @ 2 ft on center x2	6150	LF	\$16	\$98,400	
	Decking 3x8	12300	SF	\$12	\$147,600	
	Metal clips and bolts	2	LS	\$10,000	\$20,000	
	Misc	2	LS	\$10,000	\$20,000	
5.0	Handrail					\$384,600
	Handrail Post 6x6	310	LF	\$15	\$4,700	
	Handrail panels	55	Each	\$300	\$16,500	
7.0	Electrical Allowance	1	LS		\$40	\$21,200
	Down light cost					
8.0	Site amenities					\$40
	Bike Racks	3	Each	\$600	\$1,800	
	Benches	10	Each	\$1,000	\$10,000	
	Trash Receptables	5	Each	\$200	\$1,000	
	Landscaping					
	Lighting	20	Each	\$400	\$8,000	
	Lighting	8	Each	\$6,000	\$48,000	
	Landscaping		LS	\$1,400	\$1,400	
						\$70,200
Subtotal						\$632,540
	Contractor's overhead and profit			10%		
	Construction Subtotal					\$632,540
	Contingency			15%		\$95,000
	Design and Permitting Fees					\$43,300
Total						\$770,840

		Project: Damariscotta Subject: New 10' x 100' Timber Boardwalk at Misery Gulch		Page: 2 Project: 1663001.01 By: STR Date: 3/23/10		
						CONCEPTUAL PHASE OPINION OF COST
Item	Description	Quantity	Unit	Unit Price	Extension	Total
1.0	Mobilization and Demobilization	1	LS	\$5,000	\$5,000	\$5,000
2.0	Excavation 4'x4' x 120' grade beam side and ends	75	CY	\$20	\$1,500	\$1,500
3.0	Grade Beam	40	CY	\$500	\$20,000	
	Concrete Grade Beam 2' x 4' high	100	LF	\$25	\$2,500	
	Granite curb	35	CY	\$30	\$1,100	
	Gravel Backfill	2	day	\$2,000	\$4,000	\$27,600
4.0	Misc Sitework					
	Structure (wood @ \$4/BF)	8	EA	\$2,000	\$16,000	
	Support Piles@ 12 ft on center	100	LF	\$48	\$4,800	
	Pile Caps 12x12	200	LF	\$24	\$4,800	
	Sill + Band Joist 6x12 x2	500	LF	\$16	\$8,000	
	Stringers 4x12 x 10 ft @ 2 ft on center	1000	SF	\$12	\$12,000	
	Decking 3x8	1	LS	\$2,000	\$2,000	
	Metal clips and bolts	1	LS	\$5,000	\$5,000	
	Misc 10%					
5.0	Handrail	70	LF	\$15	\$1,100	
	Handrail Post 6x6	12	Each	\$300	\$3,600	
	Handrail panels					
7.0	Electrical Allowance	1	LS	\$10,000	\$10,000	\$10,000
	2 lamps?					
Subtotal						\$101,400
Contractor's overhead and profit				15%		\$15,000
Construction Subtotal						\$116,400
Contingency				15%		\$17,000
Design and Permitting Fees (estimated additional to main boardwalk)						\$10,000
Total						\$143,400

DRAFT
OPINION OF PROBABLE COSTS
DAMARISCOTTA SHORE & HARBOR PROJECT
DAMARISCOTTA, MAINE
 March 30, 2010

DESCRIPTION	QUANTITY	UNITS	COST/UNIT	COST
Demo Utility Poles	11	EACH	\$297.00	\$3,267.00
Lighting	5	EACH	\$8,000.00	\$40,000.00
Gravel				
Type "D" (18")	6,517	CY	\$21.50	\$140,115.50
Type "A" (6")	2,172	CY	\$29.50	\$64,074.00
Pavement				
Binder	634	CY	\$75.00	\$47,550.00
Surface	815	CY	\$76.00	\$61,940.00
Geotextile	13,085	SY	\$3.00	\$39,105.00
Street Scope	2,500	SF	\$12.00	\$30,000.00
Curbing- V erticle Granite Curb				
Straight	695	LF	\$23.50	\$16,332.50
Curved	300	LF	\$34.50	\$10,350.00
ADA Ramps	4	EACH	\$2,500.00	\$10,000.00
Stormwater Piping System				
12" HDPE	563	LF	\$40.00	\$22,520.00
15" HDPE	88	LF	\$45.00	\$3,960.00
Catch Basin	7	EACH	\$10,000.00	\$70,000.00
Sanitary Sewer	1,775	LF	\$50.00	\$88,750.00
Material Export from Site				
Net export of 1' of material	6,500	CY		
Export of material replaced by gravel	8,689	CY		
Export of 4" of material replaced by pavement	1,449	CY		
Total material Export from Site	16,638	CY	\$10.00	\$166,380.00
Subtotal				\$814,344.00

Subtotal		\$814,344.00
Contingency	20%	\$162,868.80
TOTAL		\$977,212.80