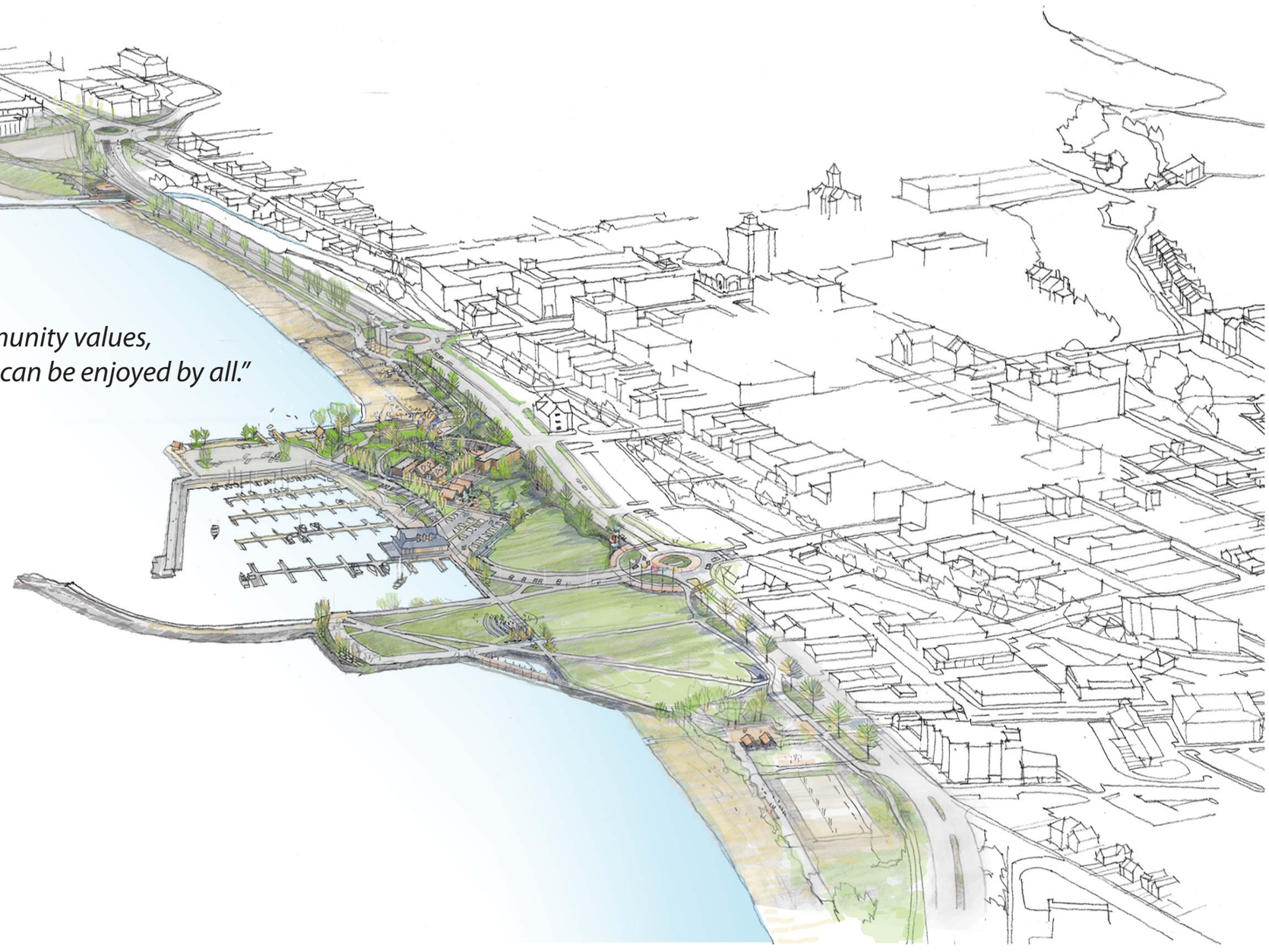
"Our bayfront has untapped potential.
Through thoughtful design reflecting community values,
our waterfront will become a resource that can be enjoyed by all."

Mayor Chris Bzdok, July 8, 2010



Traverse City Bayfront 2010

July 2010

TRAVERSE CITY BAYFRONT 2010

Adopted by Traverse City City Commission: _____, 2010

City Commissioners

- Mayor Chris Bzdok
- Jody Bergman
- Barbara Budros
- Jim Carruthers
- Mike Gillman
- Mary Ann Moore
- Ralph Soffredine

Bayfront Steering Committee

- Nate Elkins (Chair) – Parks & Recreation Commission
- Michael Borer -- Parks & Recreation Commission
- Jim Carruthers – City Commission
- T. Michael Jackson – Downtown Development Authority
- Jennifer Jaffe – Planning Commission
- Rick Shimmel -- Parks & Recreation Commission
- Gary Howe -- Parks & Recreation Commission

City Staff

- Russ Soyring, Planning Director
- Bryan Crough, Community Development Director
- Lauren Vaughn, Parks and Recreation Director
- Ben Bifoss, City Manager
- Makayla Vitous, Assistant to the City Manager
- Tim Lodge, City Engineer
- Captain Steve Morgan, Traverse City Police Departments

Stakeholders Groups

- Downtown Development Authority
- Downtown Traverse City Association
- Michigan Department of Transportation
- Traverse City Engineering
- Rotary Charities
- Traverse City Light and Power
- Grand Traverse Band of Ottawa and Chippewa Indians
- Carter Oosterhouse Foundation
- Traverse City Cherry Festival
- Traverse City Film Festival
- Traverse City Schooner Festival
- City of Traverse City and Charter Township of Garfield Recreational Authority
- Traverse Area Recreation and Transportation Trails
- Watershed Center
- Traverse City Senior Center
- Grand Traverse Conservation District
- Holiday Inn Northwestern Michigan College Watershed Studies Institute
- Grand Traverse Regional Land Conservancy
- Grand Traverse Area Sport Fishing Association
- Traverse City Convention and Visitors Bureau
- Traverse City Chamber of Commerce
- Traverse Area Association of Realtors
- Bay Area Transportation Authority
- Slabtown Neighborhood Association
- Kids Creek Neighborhood Association
- Boardman Neighborhood Association
- Old Towne Neighborhood Association
- Central Neighborhood Association
- Oak Park Neighborhood Association
- Oak Heights Neighborhood Association
- Northwest Michigan Disability Network

Aerial Photography

- Anderson Aerial Photography
- Elmer's Crane and Dozer

Prepared by:

URS
Traverse City • Chicago • Grand Rapids

AECOM
Florida

Johnson Hill Land Ethics Studio
Traverse City • Ann Arbor
w/ William J. Johnson FASLA

Baird
Toronto

00
TABLE OF CONTENTS

01
INTRODUCTION

SUMMARY & PURPOSE

The Traverse City Bayfront Preliminary Engineering design project addresses improvements to public parkland recreational facilities for over two miles of shoreline from the intersection of Grandview Parkway (M-72) and M-22 east to the Traverse City Senior Center. The plan is a detailed refinement of the Traverse City Waterfront Concept Plan developed by the "Your Bay, Your Say" project in 2007.

"Your Bay, Your Say" Plan

The proposed improvements developed from stakeholder and public input include a balance of enhancements to both the urban and natural environments along the Traverse City Bayfront.

STUDY AREAS

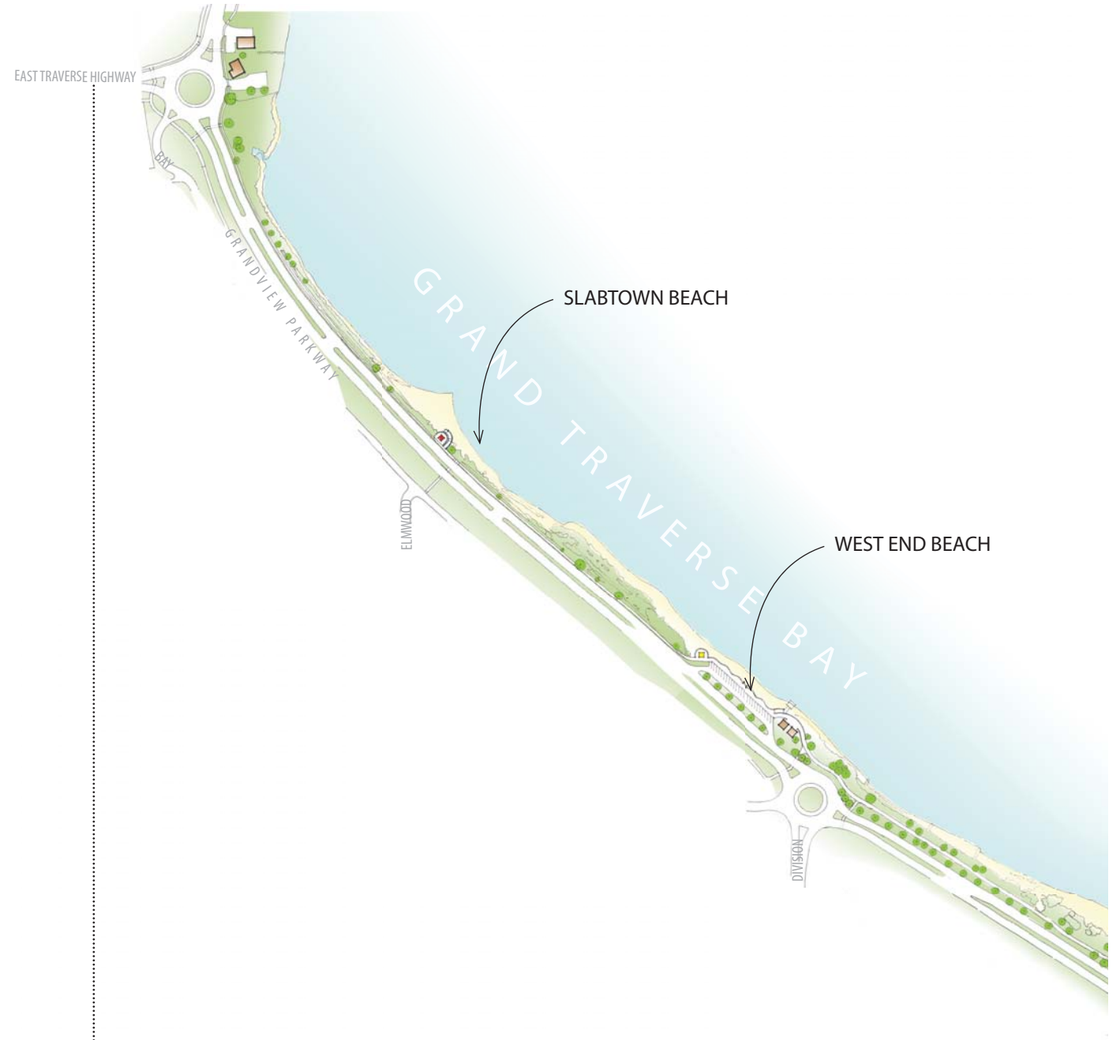
For the purpose of this design exercise the study area between the intersection of Grandview Parkway (M-72) and M-22 and the Traverse City Senior Center was divided into three distinct areas:

- The East End beginning at the east edge of Clinch Park Beach and extending east to the Senior Center.
- The Core Area bracketed by the volleyball courts on the west end and Clinch Park Beach on the east end.
- The West End beginning at the west edge of the volleyball courts and extending west along the Bayfront to the intersection of M-72 and M-22.

GOALS

The specific goals addressed by the Preliminary Engineering Plan include:

- Provision of designs for crosswalks and gateways that enhance pedestrian circulation and provide connectivity between the Bayfront and the downtown districts and residential neighborhoods located south of Grandview Parkway.
- Provision of designs for the public spaces on the Bayfront that are responsive to the hopes and desires of the community which were embodied in the preferred Traverse City Waterfront Concept Plan, developed by the "Your Bay, Your Say" project.
- Provision of drawings and renderings that illustrate the Preliminary Bayfront Engineering plan provide understanding and seek endorsement from stakeholders.
- A professional and transparent process that supported stakeholder and community involvement in furthering the design of the improvements for the Traverse City Bayfront.
- Provision of preliminary engineering plans, phasing plans, a cost estimate and supporting documentation.



PROCESS

INVESTIGATION

In order to understand the expectations, goals and issues of the stakeholders and community, the Bayfront project team reviewed relevant reports and other documentation. These documents included the following:

- Key Recommendations – Traverse City's Waterfront Plan "Your Bay. Your Say"
- West Bay Image and Character Study – Small Town Design initiative Michigan State University, May 2006
- Across Grandview Parkway – Traverse City Character Study prepared by Masters Students from the University of Michigan
- Engineering plans for existing infrastructure on file with the City of Traverse City
- Grand Traverse Bay Watershed Protection Plan
- FEMA Flood Plain Maps and TCLP Flood Inundation Mapping and Modeling
- City of Traverse City Master Plan, 2009
- New Designs for Growth Development Guidebook
- Low Impact Development (LID) in the Grand Traverse Region

SITE INVESTIGATIONS

The design team completed site walkthroughs of the Bayfront and assessed the existing infrastructure and facilities. In general, the design team determined the majority of pedestrian infrastructure and facilities constructed prior to the renovation of Clinch Park Marina can be classified as functional but nearing the end of their lifecycle.

In addition, the bathroom faculties, existing structures, and pedestrian ways require significant improvements to comply with the Americans with Disabilities Act and Universal Access Design Standards.

CHARRETTE

Working under the direction of the Bayfront Steering Committee, the project team conducted a three-day charrette in March. The charrette served to both validate the Traverse City Waterfront Concept Plan and collect new stakeholder and citizen input regarding its refinement. In order to effectively provide for an accessible public forum, the charrette took place in a vacant storefront beneath the City Opera House in downtown Traverse City.

A series of hour long meetings with more than thirty stakeholders groups started the charrette process. During these sessions, participants provided commentary on both the overall plan and individual elements of specific interest to their organization. A walk through the Grandview corridor provided the team a clearer understanding of pedestrian and vehicular interaction along Grandview Parkway.

Following this initial information gathering stage, multiple design sessions were held to refine and distill the suggestions into a cohesive plan. The design process was open to the public for comments throughout every stage of the process.

A presentation in the Traverse City Opera House closed the charrette process, with a request that further public comment for the design team be directed to a special e-mail address specifically created for the project.

PRELIMINARY ENGINEERING PLAN DESIGN

In April and early May the design team proceeded with the development of the preliminary engineering plan based on the design concepts derived from stakeholder and public input defined during the charrette. Three separate meetings with the Steering Committee helped to verify that the progress of the preliminary design was consistent with expectations.

In mid-May, the design team presented a spatially mapped show of the design concepts to many of the stakeholders that participated in the charrette. Once again, all stakeholder groups were invited to submit additional input and comments to the special e-mail address specifically created for the project. Public input was collected throughout the process. We estimate more than three hundred citizens participated in the open houses and public presentations, or submitted comments via e-mail.

FINAL DELIVERABLES

In June, the design team finalized the preliminary engineering plans, prepared a cost estimate and developed the additional graphics and illustrations contained within this report.

Charrette graphic

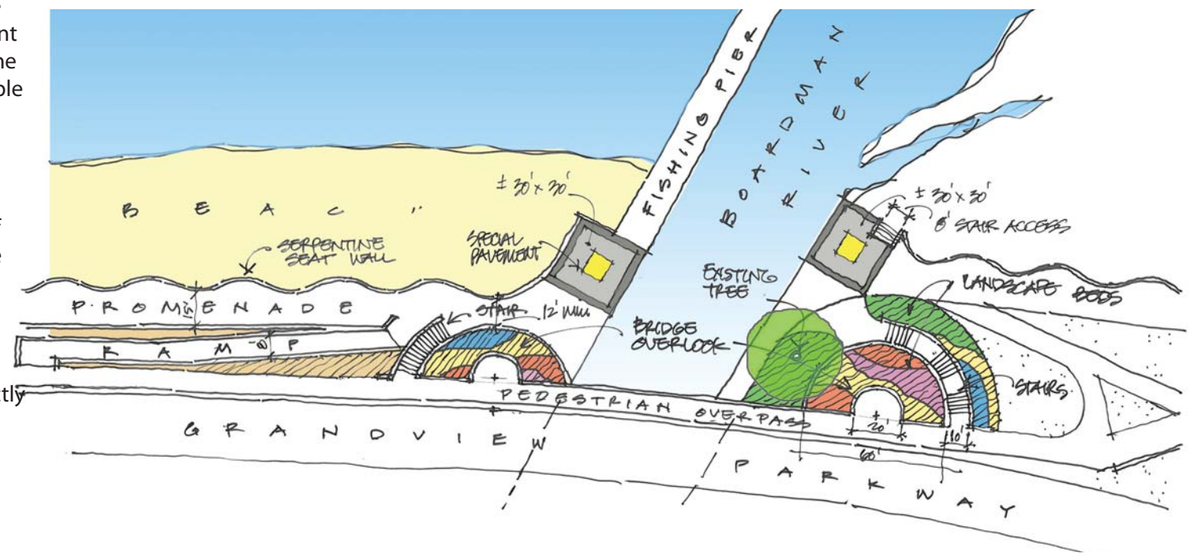
02
EAST END

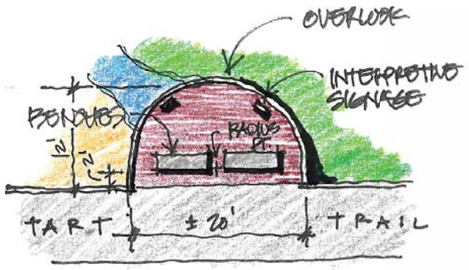
MURCHIE BRIDGE & FISHING PIER

The most significant element of the Murchie Bridge area plan is a public fishing pier that would extend out into Lake Michigan adjacent to the Boardman river outlet. The pier would provide universal access for fishing from the shore. It would also create a significant destination point at the east end of the shoreline promenade. Views of the downtown and sunsets to the west would be comparable to those enjoyed by boaters on the bay.

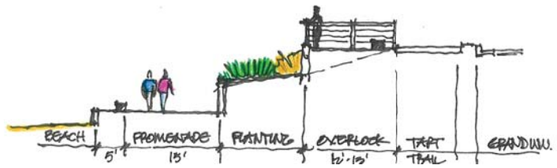
Other recommendations in this area include stair and accessible ramp connections from the TART trail to the fishing pier and promenade, overlooks on both sides of the bridge with cultural and natural history interpretive opportunities, and the enhancement of the TART trail underneath the Murchie Bridge with the addition of cantilevered decking to widen the passage.

Finally, because the Murchie Bridge treatments are strictly utilitarian, the bridge lacks any visual cues that a river is being crossed. It is recommended that the bridge be enhanced with more aesthetically appropriate lighting and railing treatments that identifies it as a bridge and allows it to be part of the gateway to the waterfront.

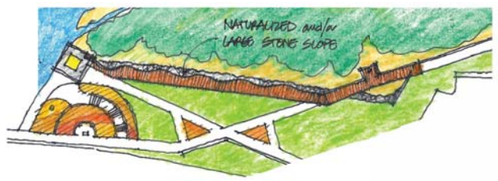




Overlook study



Overlook section



Alternative promenade treatment at emergent wetland

SUNSET PARK

The preliminary plans for Sunset Park reflect the interest of the community to enhance the usability of this small but distinct city park between the Northwestern Michigan College Great Lakes Campus and the Holiday Inn. Recommended improvements include the following:

- A curb wall that will clearly separate the beach from the lawn areas and provide a windbreak to minimize windblown sand migration south from the beach onto park lawn.
- A beachfront promenade and sidewalks that will provide shoreline connectivity from east to west.
- A picnic shelter that could be rented for small events.
- A new playground replacing the existing obsolete equipment.
- A mobility mat installed on the sand beach for universal access to the beach and water.
- Enhanced pedestrian crossings of Front Street should also be considered.

An additional alternative that could be considered is a land swap with the Holiday Inn whereby Sunset Park would occupy the land adjacent to the lakeshore and the Holiday Inn parking lot would occupy the land closest to Grandview. Complications associated with this alternative include the negotiations process and electoral approval.

ACCESS EASEMENTS

The plan for the Holiday Inn address the desire to facilitate pedestrian connectivity between the Murchie Bridge and Sunset Park. It relies on the development of a public and private partnership between the City and the owners of the Holiday Inn.

To address the constraints of the limited space between the Holiday Inn and the existing seawall, the plan proposes the construction of a new seawall along the existing shoreline to provide additional space for the continuation of a wide promenade through this section of the Bayfront. A public easement across the Holiday Inn property will be necessary. Prior to proceeding, it is recommended that the potential impact of a seawall expansion on the shoreline be assessed. If the expanded seawall is deemed unfeasible, an alternative solution would be to negotiate an easement agreement with the Holiday Inn that would accommodate public passage utilizing the existing walkway.

Although the existing walkway that traverses the Northwestern Michigan College Great Lakes campus is much more accommodating for general public access, an additional access easement will be necessary in this area.

SENIOR CENTER

The preliminary plans for the Senior Center reflect the shared community desire to improve pedestrian connectivity along the Bayfront. A new sidewalk will provide westerly access to the existing promenade along the north side of Northwestern Michigan College Great Lakes Campus. In addition, new sidewalk connections to and enhanced pedestrian crossings of Front Street will better facilitate connectivity with the neighborhoods south of the Parkway. Initially, high visibility pavement markings will provide an improved pedestrian crossing. In the future, increased pedestrian traffic could warrant the installation of pedestrian actuated crossing equipment. As an alternative, Barlow Street could also be considered for the installation of a roundabout to create a friendlier environment for pedestrians.

03
CORE AREA

The Core Area extends from the volleyball beach east to the Clinch Beach area. It is the most heavily utilized section of the Bayfront Park and represents the heart of the community's waterfront. The Core Area encompasses a number of key elements that are briefly discussed in the following sections.

CLINCH BEACH

The plan for the Clinch Park Beach includes a number of enhancements to Traverse City's premier swimming beach. Installation of a roundabout at the Park Street and Grandview Parkway intersection will calm traffic flow along Grandview and enhance pedestrian accessibility between the Bayfront and Downtown. The Park Street entrance to the beach will be distinguished by a row of banners or flag poles. New ramps and stairs at Park Street will provide beachgoers with universal direct access to the beach after crossing Grandview Parkway.

Parallel to the beach are two non-motorized throughways. Closest to Grandview Parkway, a widened TART trail will provide a thoroughfare for recreational traffic. Adjacent to the beach, the proposed promenade will provide a separate walkway for pedestrian traffic. Landscape plantings including street trees and native beach grasses will provide a transition between the beach promenade and Grandview Parkway. At the beach level, a removable mobility mat will provide a universally accessible pathway to the shore for pedestrians, wheelchairs, and strollers.

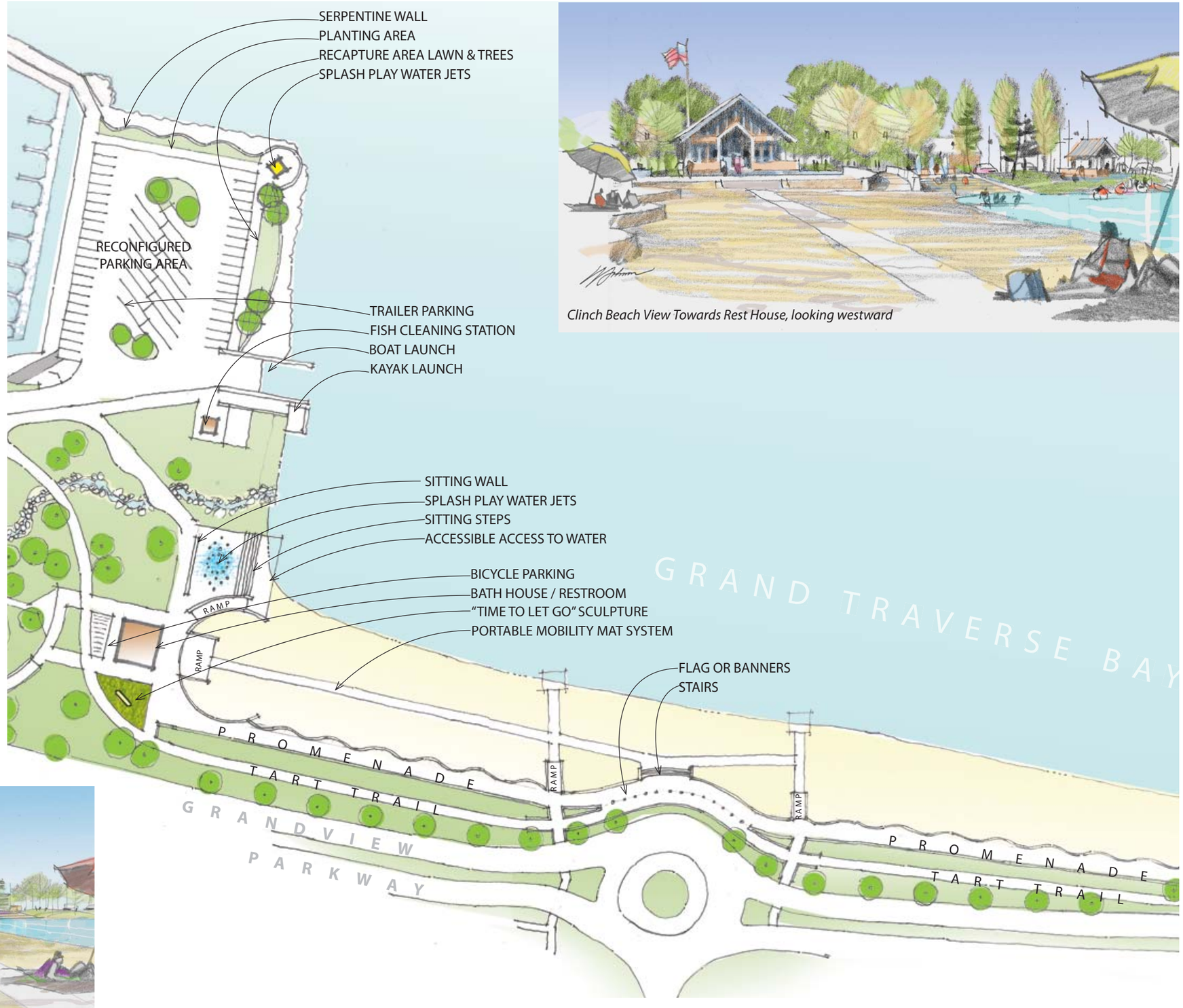
Opposite the entrance at Park Street, a new bathhouse and bathroom facility will anchor the west end of Clinch Park Beach. New features include additional toilets, drinking fountains, foot wash, outdoor and indoor showers, diaper changing facilities, and a family restroom.

Possible Splash Play Water Jets

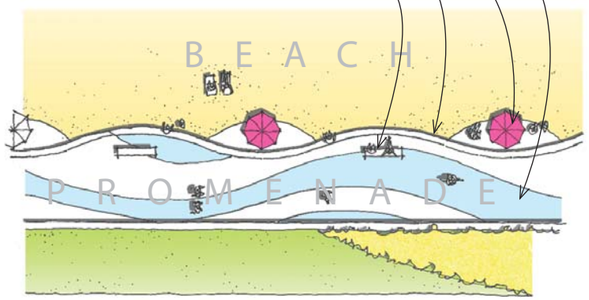
Clinch Beach

Additional recreational facilities associated with Clinch Park Beach include the following:

- A Splash Pad will substantially expand and enhance water play at the Bayfront. Recirculating and seasonally warmed water jets will provide an opportunity for water-play at the beach before Lake Michigan warms to a comfortable temperature in late spring. The splash pad would consist of rhythmically pulsating jets or fountains arranged in geometric patterns on a flat concrete pad. For added character the pad could be enhanced with a regional map or artwork significant to the area.
- A Fish Cleaning Station will provide a needed facility for use by anglers to clean their catch after returning from a successful fishing trip on Grand Traverse Bay.
- A Universal Small Boat Launch will provide an opportunity for universal access to the bay so that kayakers and canoeists with any physical capability can launch and enter a small watercraft.



Clinch Beach View Towards Rest House, looking westward

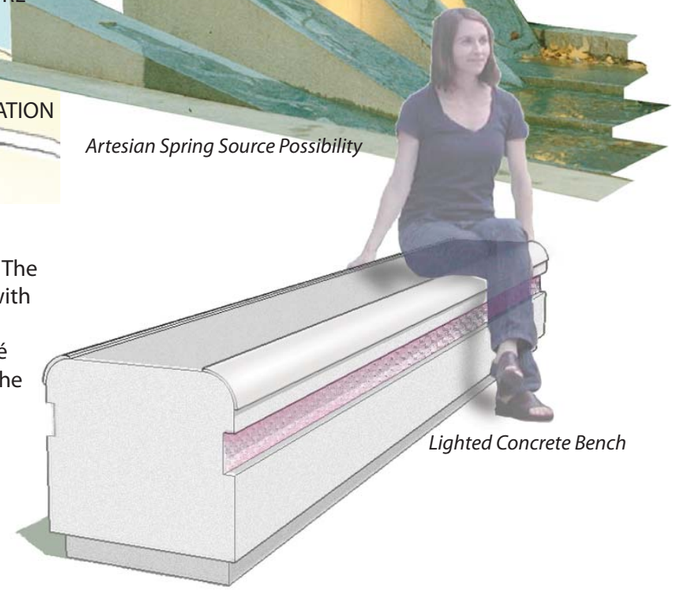


Looking west at Clinch Park Beach Promenade

Con Foster Commons Streetscape, looking to the east

Con Foster Commons Plaza, looking toward Con Foster Building

Artesian Spring Source Possibility



Lighted Concrete Bench

CON FOSTER COMMONS

The plan for the Con Foster Commons was developed in response to public interest in a multi-season gathering place for community activity on the Bayfront. Renovation of the Con Foster Museum and construction of a series of new structures around a plaza will provide a framework for the desired venue. The core of the Commons will be the existing Con Foster Museum building which will be renovated and reoriented so that the new main entrance opens onto the Commons instead of Grandview Parkway. General renovations of the building will include restoration of the vertical window elements that have been sealed in brick, new bathrooms on the north side of the building, and energy efficient mechanical equipment. The proposed renovation will maintain the historical integrity of the structure and enhance its flexibility .

Five new buildings, as well as the renovated former aquatic mammals building will surround the Con Foster building at the Commons. These facilities will provide small flexible spaces that can be affordably leased by services complementary to the public use of the space. Anticipated lessees are likely to include vendors, concessions and renters of recreational equipment. The central plaza of the Commons will provide a space with various café amenities including seating and tables. The Commons will provide an area suitable for a café experience that will be complemented by views of the activities occurring on the plaza: winter ice skating, natural play ground, TART trail, and the surrounding Bayfront.

Natural Play Area, looking northwest towards marina

Water & Sand Play Features

Other significant elements of the Con Foster Commons plan included the following:

NATURAL WATER FEATURE: One exciting opportunity is the chance to harness a naturally occurring artesian well that currently flows into the Marina. The plan proposes construction of a shallow stream that would flow through the Commons, the natural play area, and underneath the TART trail. This element would be fun, aesthetically pleasing, and celebrate the importance of the water to the Traverse City region.

NATURAL PLAY AREA: The natural play area will be specially designed to be universally accessible and incorporate local natural materials and vegetation with sculpted landforms in order to create an interesting and complex environment for play. Components could include water features, sand play areas, tunnels, hillside slides, boulders, natural objects and structures for climbing, and naturally surfaced walking paths. In addition, there was also public support for the incorporation of interactive animal sculptures reminiscent of the former zoo and appropriately associated with each play area.

CASS STREET TUNNEL: Public input during the design process expressed a strong desire for a wider and taller tunnel at Cass Street. The redesigned tunnel should provide for a wider, taller, and more friendly access under the roadway. Reconstruction of the tunnel should be considered in conjunction with future MDOT maintenance or reconstruction of Grandview Parkway.

SOUND WALL & SIGNAGE: In addition to reconstructing the Tunnel, the design team also recommends the construction of a low sound wall from the west side of the Con Foster Building, east across the width of the natural play area. The sound wall will dampen the noise generated by traffic on Grandview Parkway and will also provide a canvas for artistic identification of the Con Foster Commons to motorists traveling on Grandview Parkway. The sound wall will also enhance the functionality of the existing amphitheater / outdoor classroom formed by the plazas and stairs that approach the Cass Street Tunnel.

MULTI-USE PARKING PLAZA: The existing traditional parking lot that services the marina will be replaced by a parking lot that is integrated into the Con Foster Commons. The parking lot will be designed as a multi-use space that can be converted to additional public plaza space for larger events. The surface of the parking lot will be a pervious paver brick to encourage infiltration of stormwater.

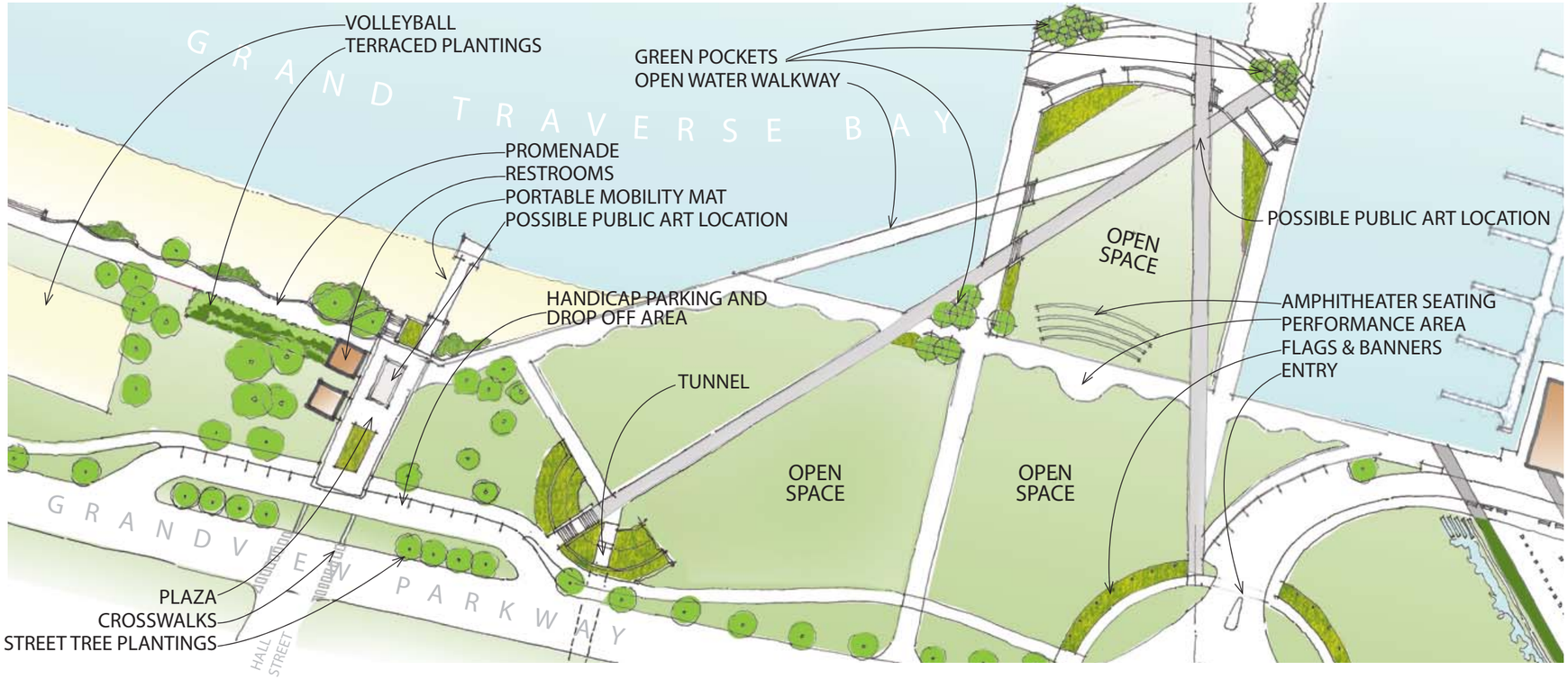
WINTER ICE-SKATING: In response to varied opinions as to the suitability of the Bayfront for an ice skating facility the design team has identified an area of Con Foster Commons that can be flooded during winter months to create an area for ice skating. The ice skating area is adjacent to the plaza which will provide supporting amenities such a warming area and winter concessions.

Buffalo Climbing Sculpture

BOAT LAUNCH AREA

Prior to proceeding with redevelopment of this area, the breakwater that protects the pier requires consideration for reconstruction. A 2002 recommendation that the marina parking lot be protected by a new stone revetment does not appear to have been constructed. Presently, the parking lot revetment appears to be in poor overall condition, with deteriorated timber piles and evidence of various ad-hoc repairs of the revetment. Prior to proceeding with any improvements of this area, we recommend that improvements for revetment be designed based on a numerical model and analysis of wave action impact to the shoreline.

After the revetment issue has been addressed, the parking lot should be reconfigured to allow increased green space. Trees, indigenous vegetation, and a tensile shade structure should be included with the reconstruction of the revetment in order to soften the harshness of the shoreline and create a friendlier pedestrian environment around the parking lot. Finally, the asphalt should be replaced with a pervious pavement material so as to encourage infiltration of stormwater rather than direct run-off to Lake Michigan.



FESTIVALS

A substantial benefit of leaving the open space "open" is that the broad expanses of the existing green remain readily available to meet the needs of current and future festivals. While some festival functions may require reorientation or refitting to the new open space layout, the overall redesign retains the current flexibility of use.

OPEN SPACE

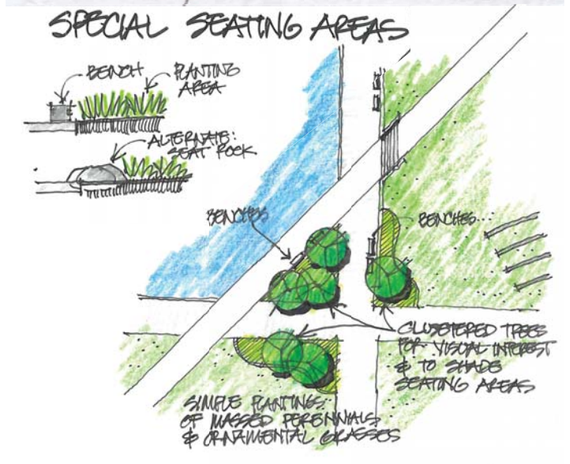
The open space plan remains unencumbered by new features or vegetation that would limit the use of the open green or infringes upon the view of the Grand Traverse Bay. Proposed improvements are limited to a few critical clusters of trees, banner poles, and ground level features that enhance pedestrian space and non-motorized mobility.

ACCESSIBILITY

An important overall design approach for the open space plan is to incorporate universal design standards. Most significant of these is the addition of barrier free access features in and around the open space peninsula. Existing staircases will be replaced or supplemented with ramps that will enhance accessibility.

GREEN POCKETS

Public input during the charrette favored a series of small places or small pockets offering a quiet respite from the activity along the Bayfront. At three corners of the open space peninsula such places are provided by a cluster of trees and a series of benches. These small pocket parks will provide a shaded place to rest and relax and to enjoy the view of the bay.



Amphitheater seating example

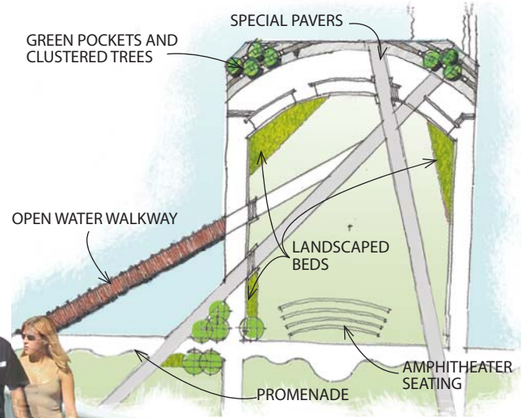
Open Water Walkway, looking west from the open space peninsula

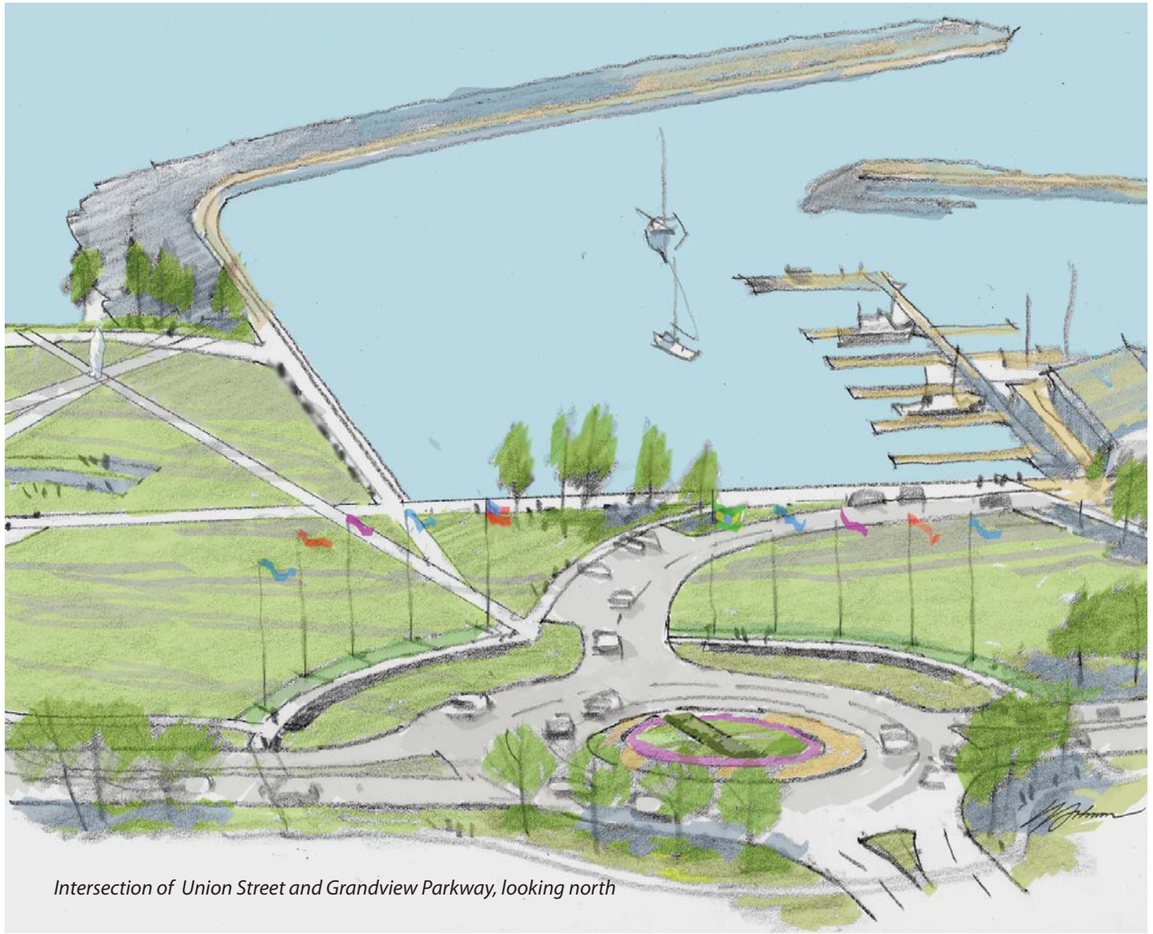
AMPHITHEATER AREAS

The design team has proposed a series of seat walls at the southern end of the open space peninsula. These seat walls represent a minimalist approach that utilizes the existing slope up to the open space peninsula and provides only audience seating without disrupting other open space uses. Consequently, performers can provide their own staging equipment, or none at all in the case of spontaneous performances. When the amphitheater is not used for performances, it will serve as a terraced seating area providing an excellent view of both the bay and downtown.

MAIN ENTRANCE

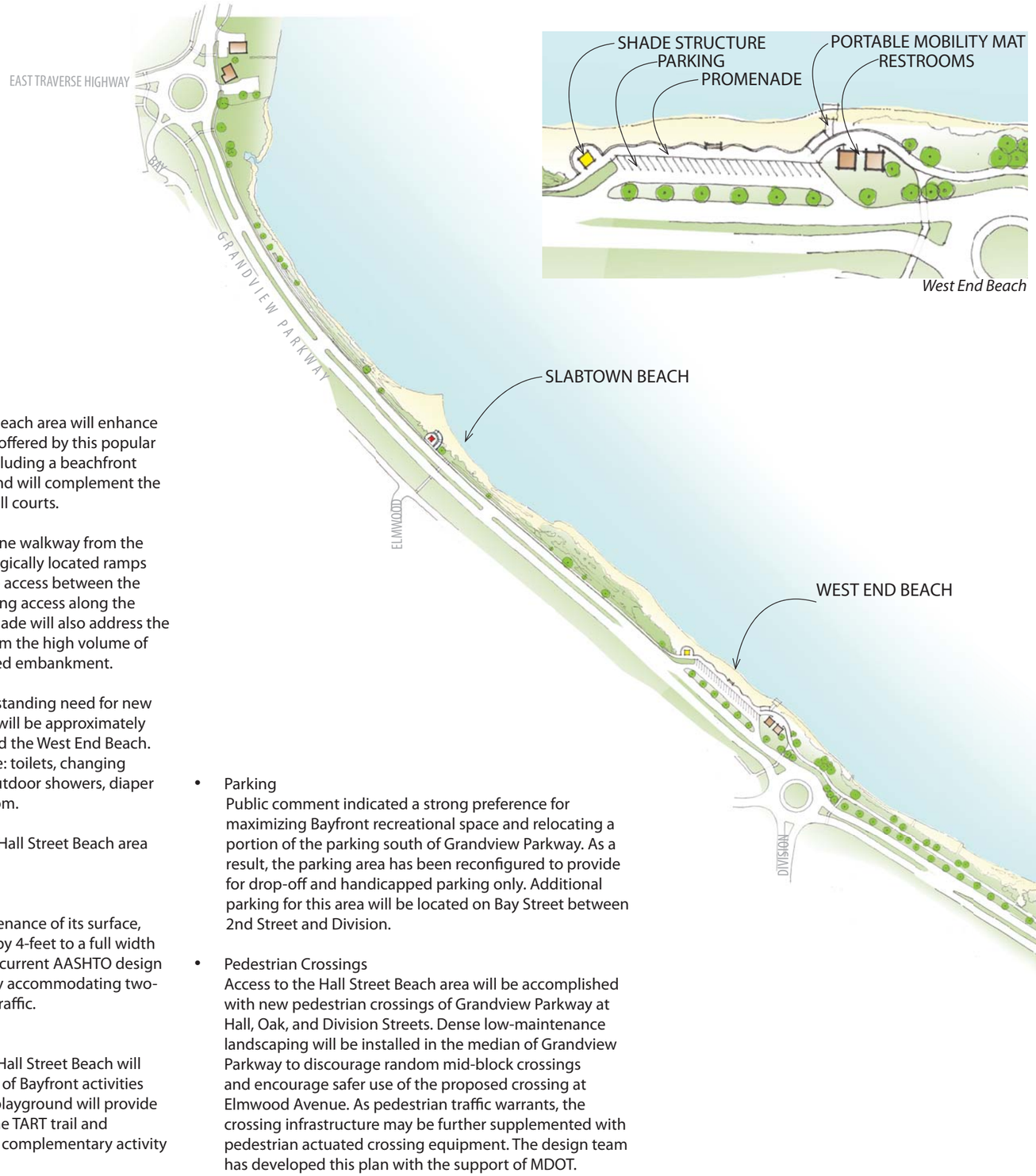
The intersection of Union Street and Grandview Parkway is universally regarded as the center of the Bayfront. In order to provide for a safer pedestrian crossing, a roundabout is proposed to provide traffic control at this intersection. This entrance will be enhanced with half crescents of banner poles installed in broad arcs on the north side of the intersection. The annual open space garden will be relocated to this area so that the annual planting tradition of the Traverse City Garden Club, Traverse City Parks and Recreation Division, and local high school students can continue unabated.





Intersection of Union Street and Grandview Parkway, looking north

04
WEST END



West End Beach

BEACH ENHANCEMENT

VOLLEYBALL BEACH
The redevelopment of the Hall Street beach area will enhance the recreational opportunities already offered by this popular Bayfront activity area. New features including a beachfront promenade, bathrooms, and playground will complement the existing TART Trail, beach, and volleyball courts.

The promenade will extend the shoreline walkway from the Open Space west to Oak Street. Strategically located ramps and stairs along its length will facilitate access between the beach and park. In addition to enhancing access along the entire length of the beach, the promenade will also address the severe erosion problem that results from the high volume of foot traffic over the existing unimproved embankment.

The new restrooms respond to a long-standing need for new facilities at this location. In addition, it will be approximately halfway between Clinch Park Beach and the West End Beach. New features are anticipated to include: toilets, changing areas, drinking fountains, foot wash, outdoor showers, diaper changing facilities, and a family restroom.

Other proposed enhancements of the Hall Street Beach area include:

- Widened TART Trail
  In association with lifecycle maintenance of its surface, the TART trail should be widened by 4-feet to a full width of 12-feet. This width conforms to current AASHTO design standards recommended for safely accommodating two-way multi-modal non-motorized traffic.

- Playground
  The playground proposed for the Hall Street Beach will round out a comprehensive range of Bayfront activities in the Hall Street Beach area. The playground will provide a family activity waypoint along the TART trail and promenade, as well as providing a complementary activity for the beach and volleyball areas.

- Parking
  Public comment indicated a strong preference for maximizing Bayfront recreational space and relocating a portion of the parking south of Grandview Parkway. As a result, the parking area has been reconfigured to provide for drop-off and handicapped parking only. Additional parking for this area will be located on Bay Street between 2nd Street and Division.

- Pedestrian Crossings
  Access to the Hall Street Beach area will be accomplished with new pedestrian crossings of Grandview Parkway at Hall, Oak, and Division Streets. Dense low-maintenance landscaping will be installed in the median of Grandview Parkway to discourage random mid-block crossings and encourage safer use of the proposed crossing at Elmwood Avenue. As pedestrian traffic warrants, the crossing infrastructure may be further supplemented with pedestrian actuated crossing equipment. The design team has developed this plan with the support of MDOT.

WEST END BEACH
The west end beach will be enhanced with a new bathhouse to replace the existing obsolete structure. The new bathhouse will comply with current ADA standards and provide comprehensive facilities responsive to the needs of families and individuals. New features are anticipated to include: additional toilets, drinking fountains, foot wash, outdoor and indoor showers, diaper changing facilities, and a family restroom. In addition, the TART trail will be reconstructed along the north side of the bathroom facility and extended along the front of the existing parking lot to provide continuous connectivity to the sidewalk that will be extended west along the north side of Grandview Parkway.

SLABTOWN BEACH
The plans for Slabtown Beach have been developed in response to the expressed desire of west side residents for a neighborhood beach. Access to Slabtown Beach will be accomplished with a pedestrian crossing of Grandview Parkway at Elmwood Avenue that will include: a new sidewalk, ADA accessible ramps, high visibility pavement markings and signage. The crossing will also provide connectivity with the sidewalk that will be extended from West End Beach along the north side of the Parkway. Dense low maintenance landscaping will be installed in the median of Grandview Parkway to discourage random mid-block crossings and encourage safer use of the proposed crossing at Elmwood Avenue. As pedestrian traffic warrants, the crossing infrastructure may be further supplemented with pedestrian actuated crossing equipment. The design team has developed this plan with the support of MDOT.

On the north side of Grandview Parkway, a small viewing platform and ramp access between the road level and beach will be constructed. The city has obtained permission from the MDNRE to mow a limited area of existing foliage and enhance the beach. Further improvements required to accommodate water activities include the removal of an old foundation and the remnants of a former dock and seawall, which are hazards.

05

UNIFYING ELEMENTS

Throughout the Core Area, East End and West End, the unifying elements of the Traverse City Bayfront design include: uninterrupted shoreline walkability for pedestrians, a separated non-motorized recreational trail, and connectivity to the downtown and residential neighborhoods.

SUSTAINABILITY

The design of the preliminary engineering plans reflect unifying consideration of local and national green design standards as well as standards for universal accessibility. The final project should comply with a number of Leadership in Energy and Environmental Design (LEED) Sustainable Site Design standards, including the following:

- Protection and restoration of habitat along the West End
- Protection and restoration for the Boardman River outlet wetlands
- Stormwater design quality control through installation of interceptors for all storm sewer discharges
- Stormwater design quantity control through the installation of pervious pavements
- Heat island effect minimization by maximizing the use of concrete instead of asphalt
- Light pollution reduction with appropriate fixtures and light sources
- LEED compliant renovation of the Con Foster Museum and Aquatic Mammals Building

Low Impact Development (LID) techniques promoted by the Watershed Center include:

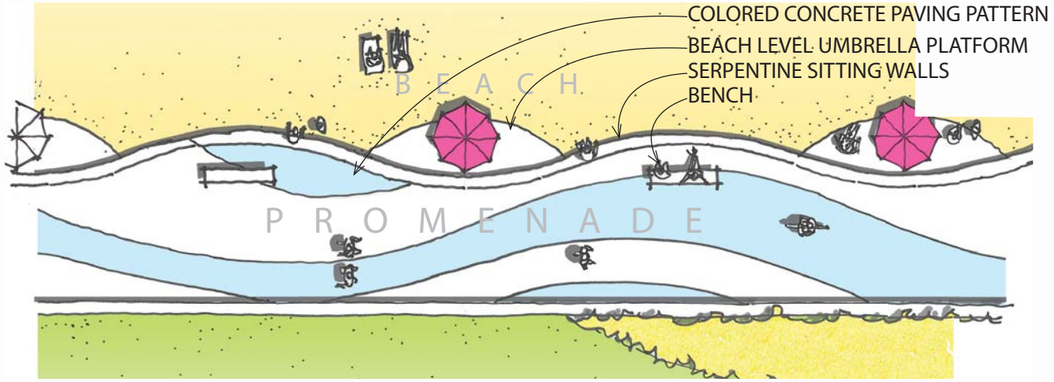
- Permeable pavements providing stormwater infiltration
- Low impact native landscaping requiring minimal or no irrigation

Supplement to the requirements of the Americans with Disabilities Act (ADA), Universal Accessibility Design refers to common design standards that provide accessibility for all people, not just those with disabilities. Some of the universally accessible aspects of the Bayfront include:

- Typical amenities including benches, picnic tables, and drinking fountains
- Playground equipment
- Mobility mat for accessibility to the water and beach
- Ramps at grade changes
- New bathroom construction
- New building construction
- Renovation of the Con Foster Museum
- Public Pier accessibility
- Boat launching facilities

Representative paving and lighting possibilities

Looking west at Clinch Beach Promenade



PROMENADE

Perhaps the most significant unifying element of the Bayfront plan, the proposed promenade will complete and enhance Traverse City's Bayfront by providing pedestrian accessibility to the length of the urban shoreline. The promenade improvements will complete a more than 2-mile walkable route from the intersection of M-72 and Grandview east to the Senior Center.

PRIMARY PROMENADE
The primary promenade enhancements are proposed from Oak Street to the Open Space and from Clinch Park beach to the public pier at the mouth of the Boardman River. The promenade in these areas will consist of an 18-inch seatwall directly adjacent to the beach and, where needed, a variable height retaining wall against the parkland to the south. In between will be a 15-foot wide walkway and simple concrete benches located at approximately 40-foot intervals in the arcs of the serpentine seat wall.

SECONDARY PROMENADE
The secondary promenade will be constructed in several locations to provide continuity along the shoreline between existing walks. This promenade will not need to accommodate as much traffic as the primary promenade and therefore will be narrower. The promenade adjacent to the parking area at West End Beach will connect the new sidewalk along the north side of Grandview Parkway from Slabtown Beach with the TART Trail east of West End Beach. An additional promenade will be constructed between the Murchie Bridge and Sunset Park to provide shoreline connectivity to the College.

CONCRETE PATTERN & STAINING
Colored concrete bands that sweep along the entire length of the promenade will enhance the unique character of the walkway and provide continuity to the waterfront experience.

BENCHES
Solid concrete benches will be placed at all locations where the promenade widens behind the serpentine walls. These custom benches will be designed to withstand skateboard abuse and, in key areas, will include a band of light on both sides.

TART TRAIL IMPROVEMENTS

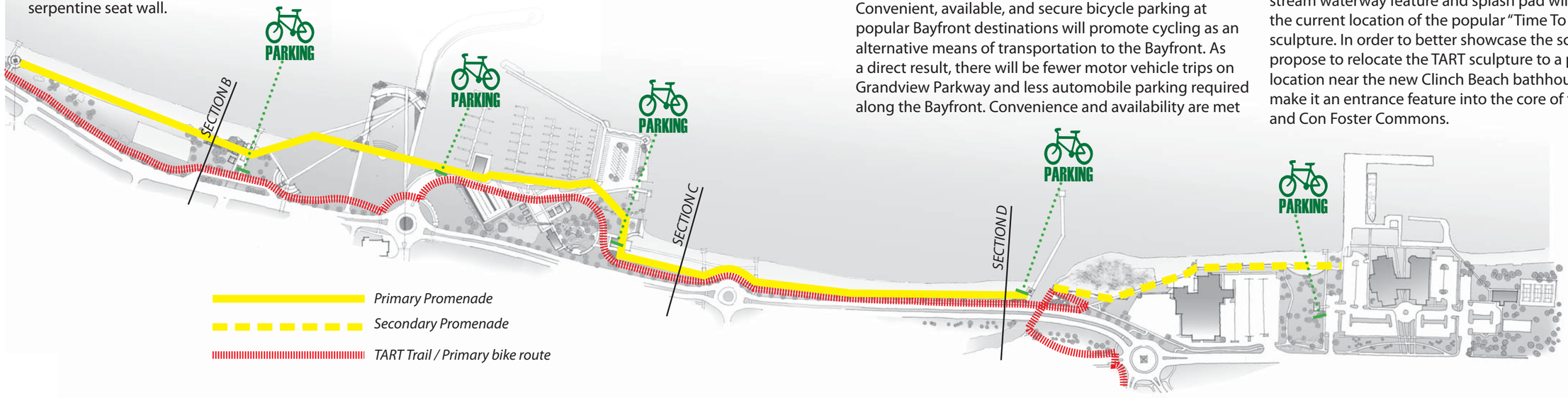
Traverse City's commitment to non-motorized recreation and transportation was recognized by the League of American Bicyclists in 2009 with the certification of bronze-level Bicycle Friendly Community. In keeping with the public's enthusiasm for non-motorized transportation, the Bayfront plan enhances the existing non-motorized transportation trail and associated infrastructure.

A wide variety of non-motorized users including pedestrians, cyclists, in-line skaters, skateboarders, and people with strollers, wheelchairs, and bicycle trailers can regularly be seen using the TART Trail. According to accepted standards promulgated by the American Association of State Highway and Transportation Officials (AASHTO), the current 8-foot width of the TART trail is not adequate to safely accommodate a high volume of non-motorized shared use traffic. Therefore, we recommend that the most highly trafficked segments of the TART trail along the Bayfront be widened by 4-feet to a full width of 12-feet. This work can be done in conjunction with adjacent Bayfront redevelopment phases or as stand-alone projects completed in association with anticipated lifecycle maintenance of the trail surface.

BICYCLE PARKING
Convenient, available, and secure bicycle parking at popular Bayfront destinations will promote cycling as an alternative means of transportation to the Bayfront. As a direct result, there will be fewer motor vehicle trips on Grandview Parkway and less automobile parking required along the Bayfront. Convenience and availability are met

by the proposed plan with proposed bicycle parking racks located in close proximity to all of the popular Bayfront destinations. To provide for ease of security, the proposed plan recommends the use of the simple inverted U-rack because they support the bike in two places and accommodate flexibility in securing a wide variety of bicycle types.

SCULPTURE RELOCATION
As part of the redevelopment of the Con Foster Commons and Clinch Park Beach, new features including a proposed stream waterway feature and splash pad will impose on the current location of the popular "Time To Let Go" TART sculpture. In order to better showcase the sculpture we propose to relocate the TART sculpture to a prominent location near the new Clinch Beach bathhouse so as to make it an entrance feature into the core of the Bayfront and Con Foster Commons.

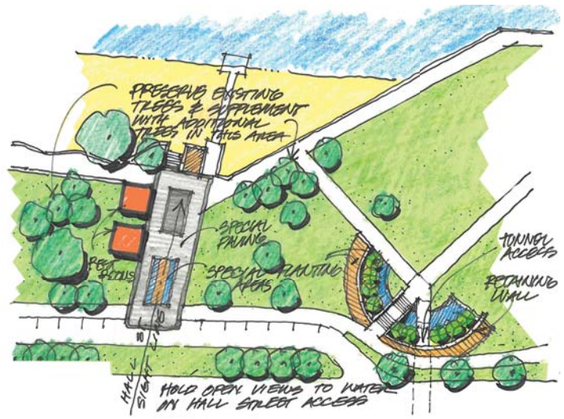


LANDSCAPE

The landscape component of the Bayfront project is an important design element that can help to unify the waterfront, visually soften the character of the various spaces and highlight or call attention to key locations of the park, such as the main entry or the Commons. There are a number or important priorities that should drive the design decisions for the landscaping. The landscaping should be appropriate to the Traverse City area and a good fit for the relaxed, informal northern Michigan waterfront location. Plant choices should be primarily native or native cultivars of the Michigan region and all plant choices should be hardy, low maintenance and non-invasive. Preserving views to the water are an high priority for the stakeholders, so being strategic about how and where plants are located, as well as what types plants are used is important Maintenance resources are limited for any community these days, so it is also important to be strategic about how plants are used. For example, taking advantage large areas of low maintenance dune grass to buffer and soften or locating higher maintenance planting areas in high visibility locations like the main entry, or the Con Foster commons.

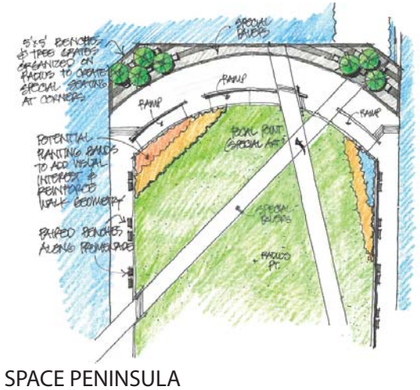
MAIN ENTRY

The Union Street entrance is a high visibility location and the plan shows planting beds that could utilize simple sweeps of shrubs, ornamental grasses and/or perennials located to reinforce the form of the walks and roundabout. The front portion of this bed is a prime location for the local garden club to plant their annual flower installation and provide season long color at the park entrance. A series of flag or banner poles in these beds reinforces the form and adds visual interest and color.



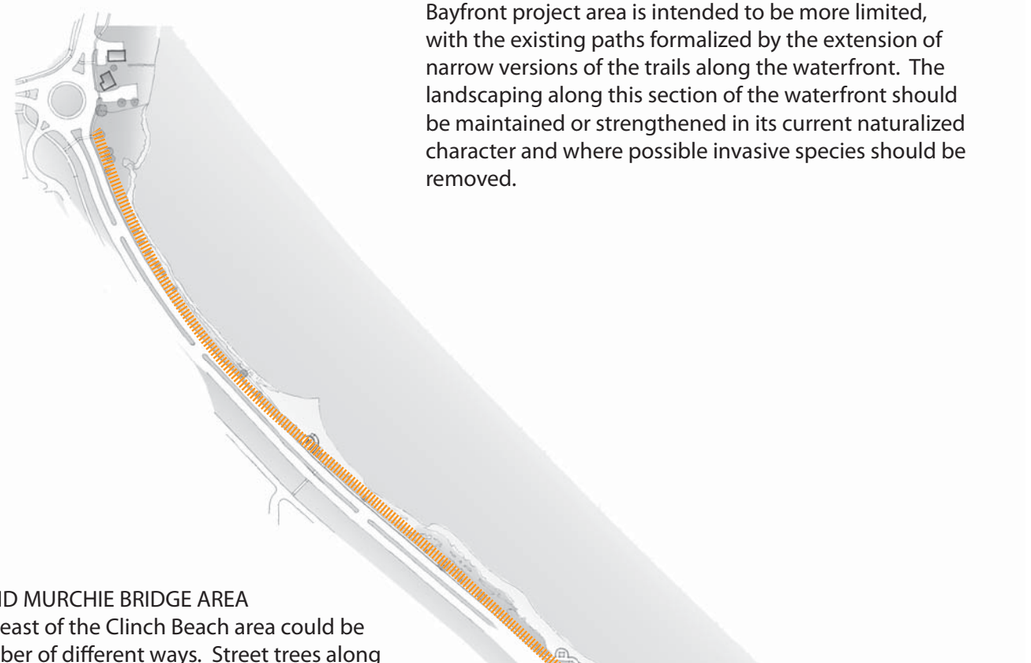
VOLLEYBALL BEACH AND TUNNEL ENTRANCE

The Volley Ball Beach area shows new restroom facilities oriented on a new pedestrian plaza that is aligned with the visual sight line of Hall Street and features special paving and planting areas. Existing trees in the lawn and beach areas that are not disturbed by the new construction will be preserved. The existing retaining wall in this area will be replaced with a more naturalized planting and terracing of the grade. Supplemental beach planting will be added in this area to soften the transition between the promenade and beach. Nearby, the proposed pedestrian access tunnel beneath Grandview Parkway enters the park 10 to 12 feet below the existing grade. Walls and landscaping create a more gracious entry to the park and form a visual terminus to one of the diagonal walks through the park open space.



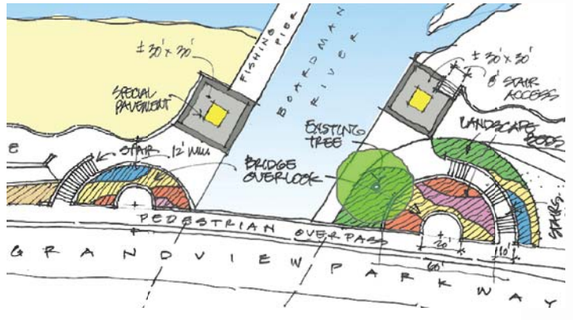
OPEN SPACE PENINSULA

To maximize flexibility for a wide range of uses, it is important that this space remain generally open. However, it is important to soften and add some visual interest to this large area with the placement of clustered canopy trees and planting beds along edges. The plan shows planting beds of ornamental grasses and/or perennials along the edges of the perimeter walk. The plan also shows pockets of clustered trees and seating at some of the corners and walk intersections.



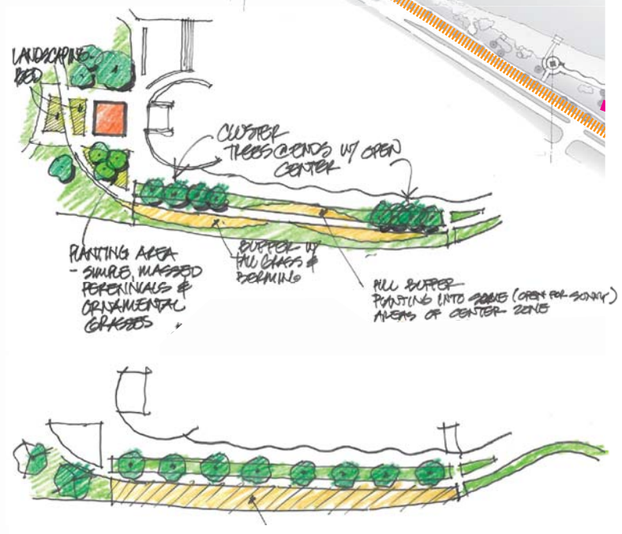
PROMENADE AND MURCHIE BRIDGE AREA

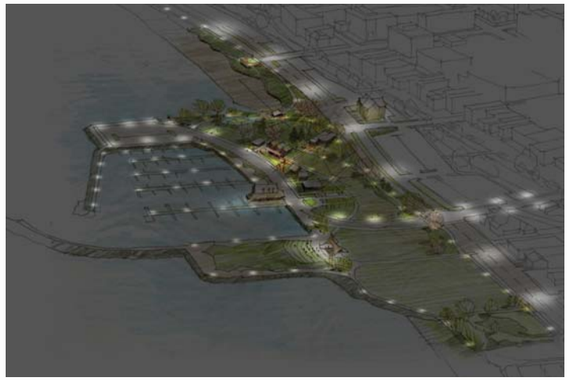
The promenade east of the Clinch Beach area could be treated in a number of different ways. Street trees along the road and ground level plantings help to buffer the road from the walks and beach area without blocking the views to the water. Street trees could be regularly spaced or clustered. The use of slight berming and large sweeps of dune or ornamental grasses can help to create a sense of separation from the road. Closer to the public pier massed plantings of native grasses can be utilized on the embankment for the bridge. The public pier, Murchie Bridge crossing, the ramp and stair access and the paired overlooks create an eastern terminus to the main promenade. Plantings of massed shrubs, ornamental grasses and perennials around the overlooks highlight the importance of this location.



WEST END TREATMENT

The recommended treatment of the west end of the Bayfront project area is intended to be more limited, with the existing paths formalized by the extension of narrow versions of the trails along the waterfront. The landscaping along this section of the waterfront should be maintained or strengthened in its current naturalized character and where possible invasive species should be removed.





LIGHTING

Lighting profoundly affects a space's evening and nighttime appearance. A good lighting strategy not only illuminates the space in an appealing manner but also provides the perception of a safe and secure environment for nighttime activity. The proposed lighting plan efficiently illuminates the Bayfront's nooks and crannies, providing a sense of security that encourages active use while discouraging undesirable activities. The lighting plan enhances the appearance of the Bayfront both from the shore and from the water, while respecting regional dark sky initiatives.

In order to accomplish these goals a number of different lighting levels and styles are employed to create a cohesive nighttime environment:

STREET LIGHTING:
In locations where the TART Trail and other Bayfront facilities are in close proximity to Grandview Parkway, lighting will be provided by the existing street lights. Future plans for replacement of the cobra head lights will be designed to enhance the illumination of the adjacent Bayfront facilities.

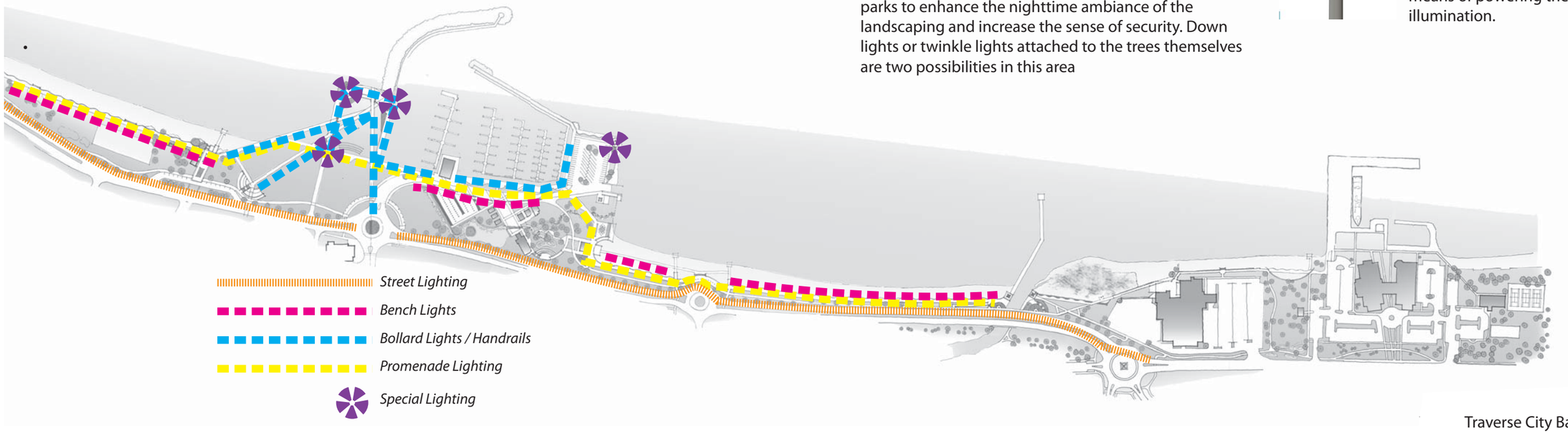
BENCH LIGHTS:
Along the access drive to the marina, a series of low, downward-pointing strip lights will be inset in the concrete benches that separate the TART trail from the marina access drive.

SPECIAL LIGHTING
Strategic landscape lighting will be installed at pocket parks to enhance the nighttime ambiance of the landscaping and increase the sense of security. Down lights or twinkle lights attached to the trees themselves are two possibilities in this area

BOLLARD LIGHTS:
The existing marina guard rail will be continued around the open space peninsula. Continuation of the existing bollard lighting will provide a low ground level illumination of the promenade walk in these areas as well as along the diagonal walks across the open space.

PROMENADE LIGHTING:
Along the promenade, the design team proposes to continue the use of the fixture or style of fixture previously selected for the Clinch Park Marina. These fixtures provide an efficient overhead illumination of the promenade and walks along the Bayfront. The continuation of the white waterfront style fixture will also promote a cohesive aesthetic to the character of the Bayfront.

WIND / SOLAR LIGHT FIXTURES:
Energy efficiency is an important consideration, and the selection of energy sources and lighting levels should balance the use of electricity with the level of illumination. In addition, the lifecycle costs and the efficiencies of solar and wind powered sources and electricity storage should be explored further as a green means of powering the Bayfront's illumination.



CONNECTIVITY

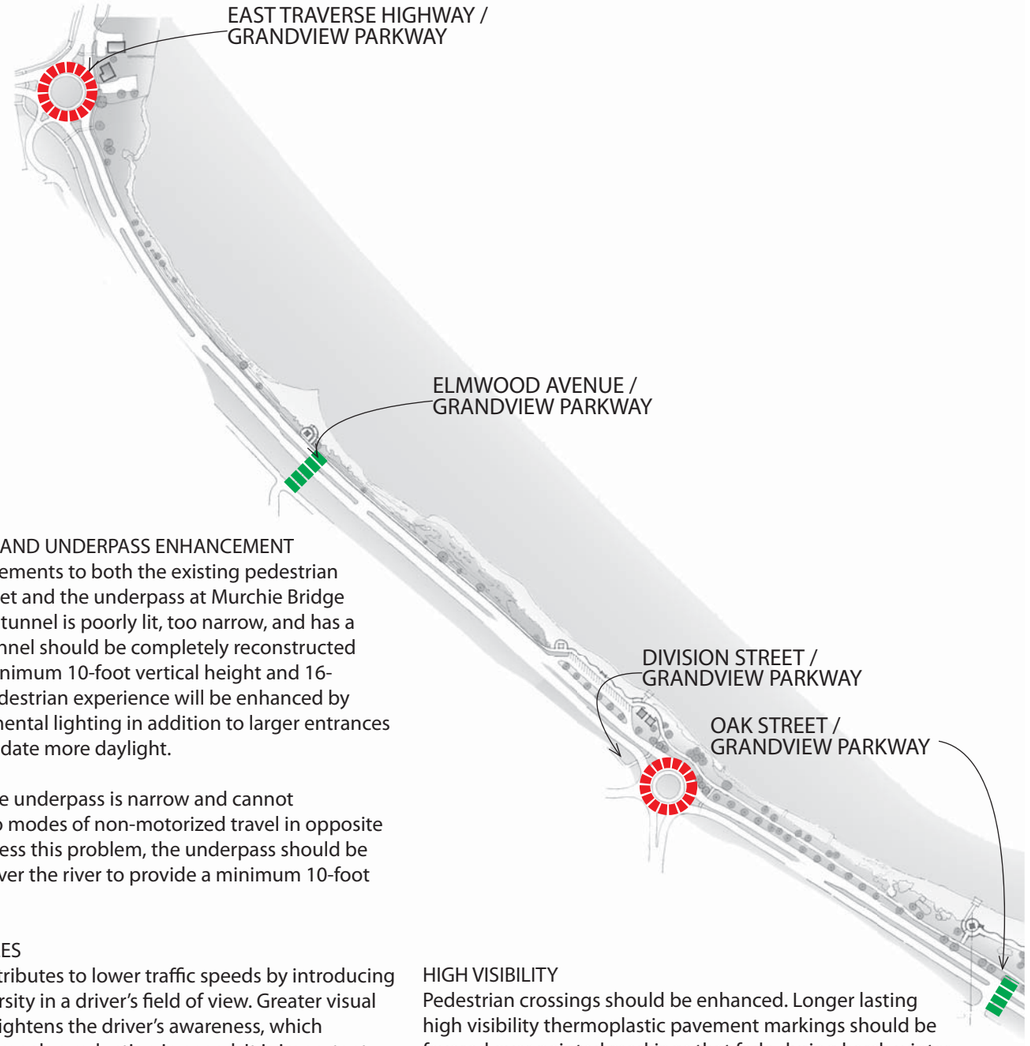
Input collected during the stakeholder and public participation sessions supported enhancement of pedestrian accessibility to the Bayfront by calming traffic along the entire length of Grandview Parkway from the intersection with M-72 and M-22 east to the Senior Center. Stakeholders and citizens preferred traffic calming because it equitably improves the conditions of pedestrian accessibility along the entire corridor without attempting to funnel people to a singular major capital improvement such as a land bridge over Grandview Parkway.

The design team's recommended means of slowing traffic while maintaining traffic flow along Grandview is the construction of modern roundabouts at a number of strategic intersections. The modern roundabout is effective and efficient at improving and maintaining a constant flow of traffic while providing a safe environment for pedestrian crossings. Traffic entering a roundabout must slow to between 15-20 miles per hour. Vehicles entering the roundabout must yield to other vehicles already circulating in the roundabout. The combination of slowing and yielding vehicles naturally creates gaps that accommodate pedestrian crossings.

Roundabouts are safer than traditional signalized traffic intersections. Most significantly, drivers cannot accelerate into or through a roundabout as they would to beat a stale signal. Furthermore, roundabout geometry minimizes conflict points where accidents are likely. There are only eight vehicle-to-vehicle conflict points and eight vehicle-to-pedestrian conflict points in a roundabout as opposed to a traditional four-way intersection, which has thirty-two vehicle-to-vehicle conflict points and twenty-four vehicle-to-pedestrian conflict points. When accidents do occur vehicles are moving at slower speeds, which substantially reduces the severity of the collision. Studies have shown that replacing a traditional intersection with a roundabout results in up to a ninety percent reduction in accidents that result in serious injury or fatality.

The City of Traverse City is currently working with MDOT and various other stakeholders to consider the viability of roundabouts for the Division Street Corridor, which includes the intersection of Division Street and Grandview Parkway. The Division Street Corridor study project is the first step toward determining the viability of implementing roundabouts on a more significant scale along Grandview Parkway. A substantial amount of study, modeling and design will be required prior to the introduction of roundabouts along the corridor. In the interim, the design team proposes the following methods to support traffic calming and improve pedestrian accessibility along Grandview Parkway.

REPLACE STREET LIGHTS
Replacing cobra head streetlights with a lower, more context appropriate ornamental streetlight has been shown to contribute to slower traffic speeds



EXISTING TUNNEL AND UNDERPASS ENHANCEMENT
Significant improvements to both the existing pedestrian tunnel at Cass Street and the underpass at Murchie Bridge are necessary. The tunnel is poorly lit, too narrow, and has a low ceiling. The tunnel should be completely reconstructed to provide for a minimum 10-foot vertical height and 16-foot width. The pedestrian experience will be enhanced by improved supplemental lighting in addition to larger entrances that will accommodate more daylight.

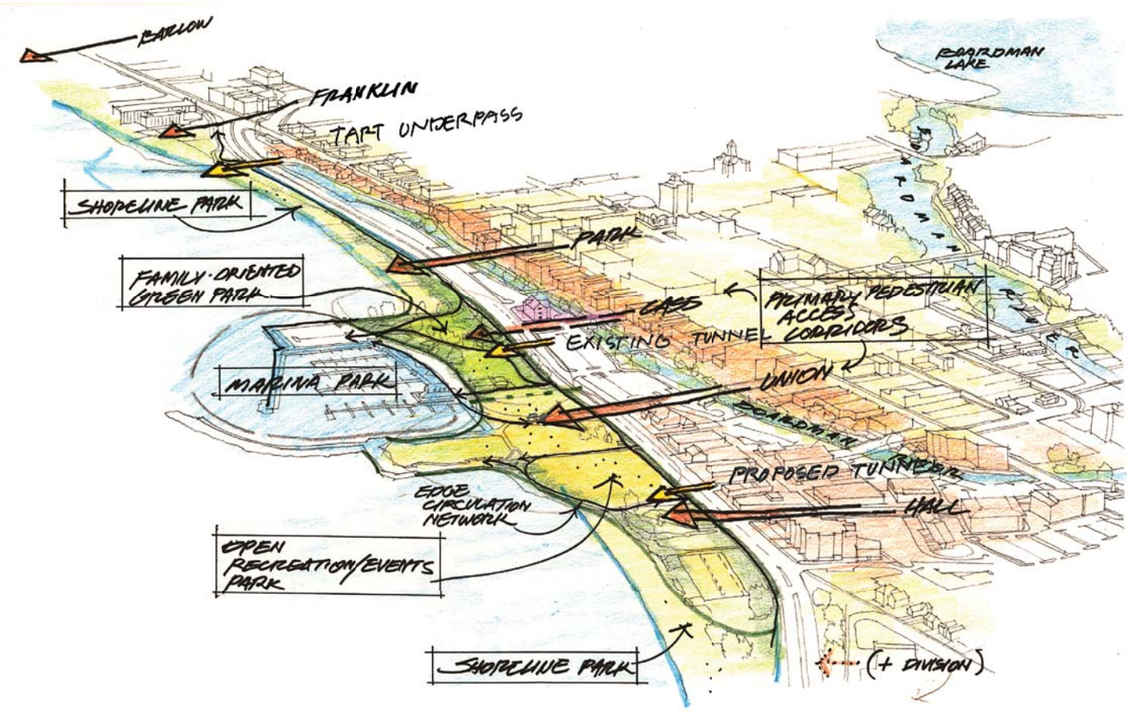
The Murchie Bridge underpass is narrow and cannot accommodate two modes of non-motorized travel in opposite directions. To address this problem, the underpass should be cantilevered out over the river to provide a minimum 10-foot width.

PLANT STREET TREES
Planting trees contributes to lower traffic speeds by introducing greater visual diversity in a driver's field of view. Greater visual diversity subtly heightens the driver's awareness, which psychologically compels a reduction in speed. It is important to note that the key element of this tool is visual diversity not obstruction of view. Additionally, trees need not obstruct the view of the Bayfront to have a positive affect on reducing vehicular speeds.

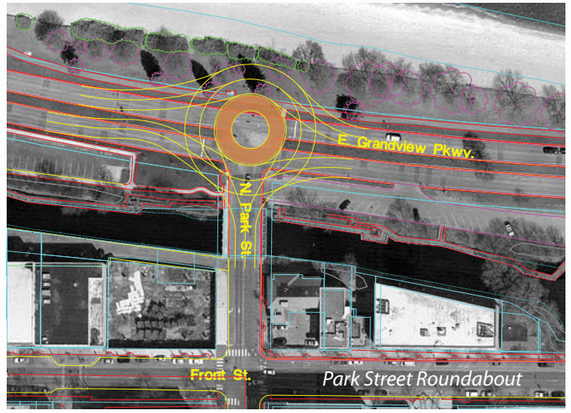
REMODEL MURCHIE BRIDGE
The current appearance of Murchie Bridge with its rural guardrail barriers and highway character encourages greater speeds on Grandview Parkway. We propose future renovation of the bridge renovating with more context sensitive safety barriers and other architectural treatments.

HIGH VISIBILITY
Pedestrian crossings should be enhanced. Longer lasting high visibility thermoplastic pavement markings should be favored over painted markings that fade during harsh winter conditions. Existing and proposed pedestrian crossing without traffic signalization should be studied and considered for the installation of appropriate pedestrian actuated crossing equipment.

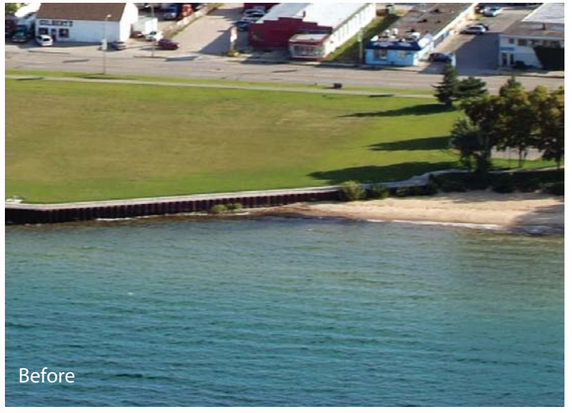
LANDSCAPING
Appropriate landscaping can support greater visual diversity in the same manner as street trees. Furthermore, landscaping the Grandview Parkway median with dense low foliage can work to discourage mid-block crossings that are hazardous to both pedestrians and motorists.



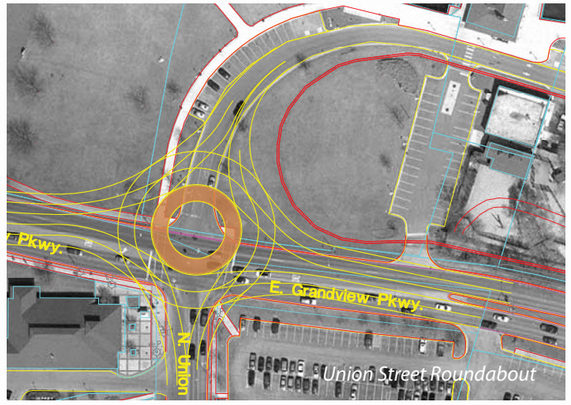
Early conceptual plan defining important connections from downtown



Park Street Roundabout



Before

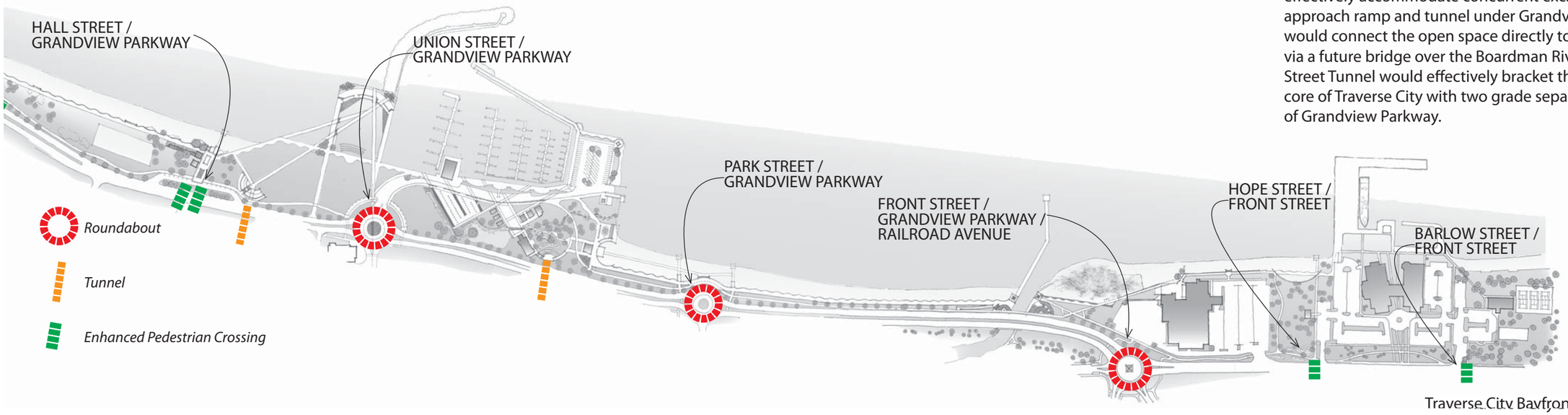


Union Street Roundabout

After

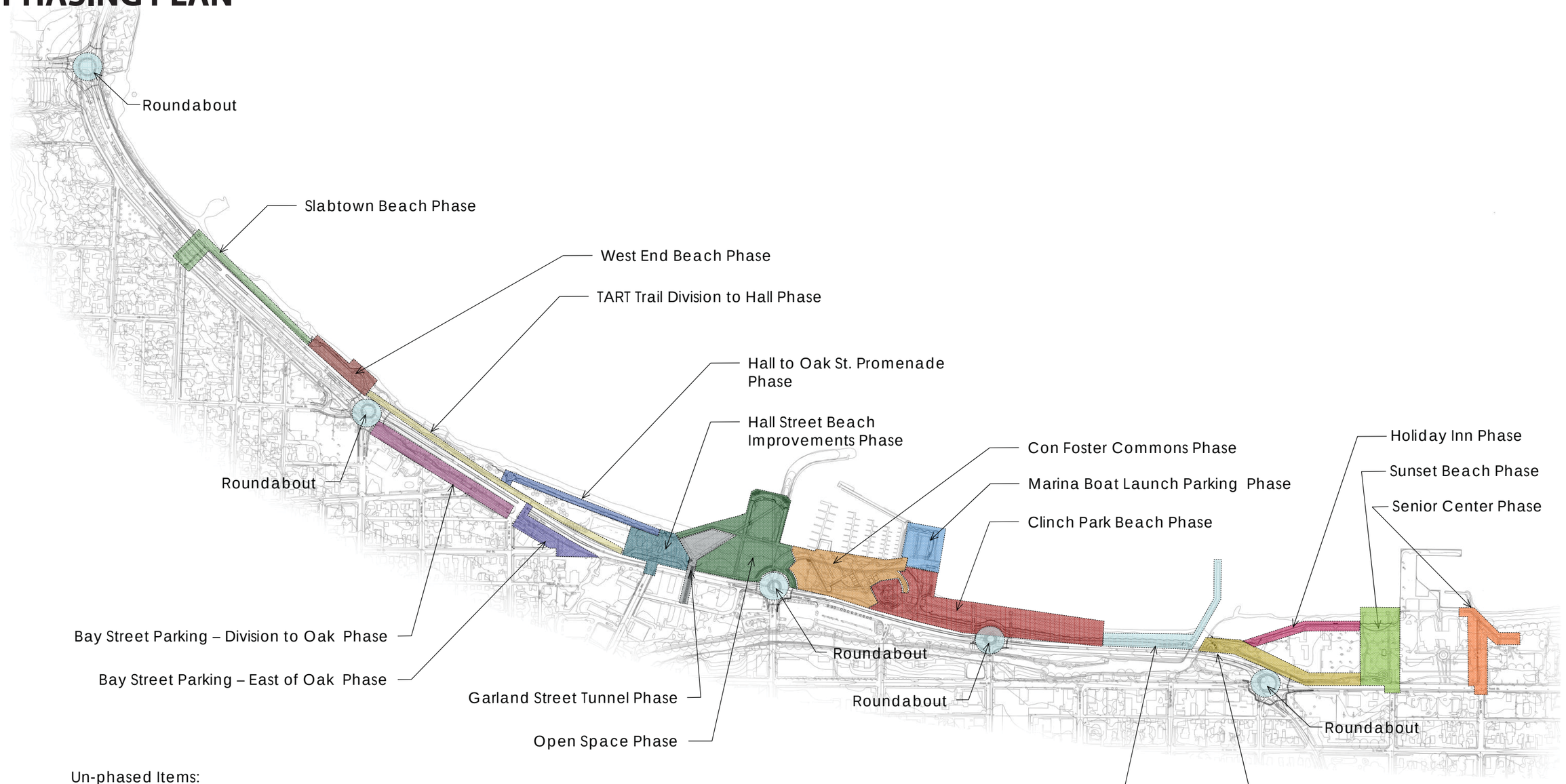
PROPOSED TUNNEL

Plans for a proposed new hotel at the corner of Hall Street and Grandview Parkway offer a special opportunity to enhance pedestrian connectivity with the Bayfront. Excavation of the underground hotel parking would cost-effectively accommodate concurrent excavation of the approach ramp and tunnel under Grandview. This tunnel would connect the open space directly to the downtown via a future bridge over the Boardman River. The Garland Street Tunnel would effectively bracket the downtown core of Traverse City with two grade separated crossings of Grandview Parkway.



06

PHASING PLAN



Un-phased Items:

- Roundabouts
- Replacement of Cobra Head Street Lights
- Grandview Parkway Median Landscaping

TRAVERSE CITY BAYFRONT

PRELIMINARY ENGINEERING DRAWINGS

RENOVATIONS AND NEW CONSTRUCTION
FROM
TRAVERSE CITY, MICHIGAN

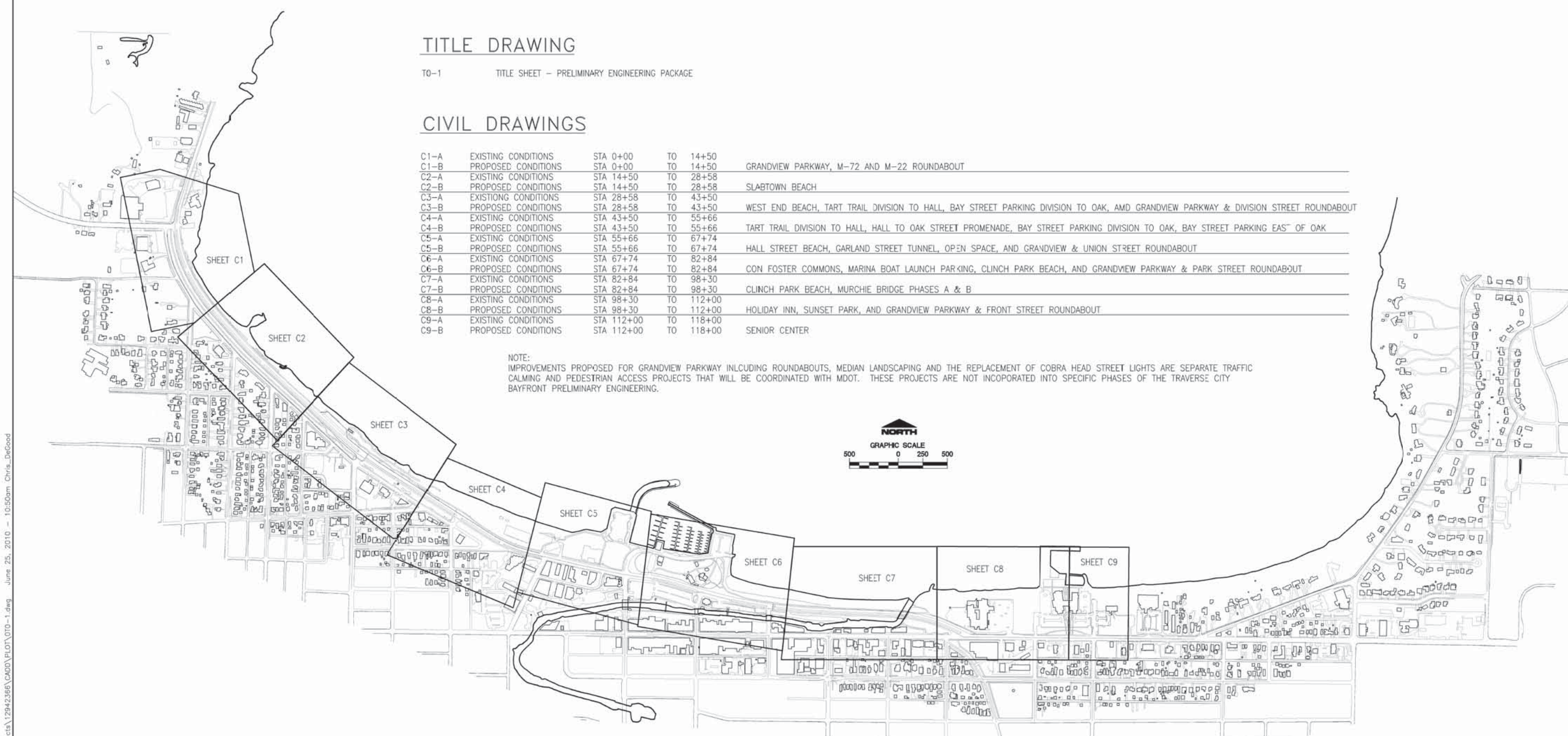
TITLE DRAWING

T0-1 TITLE SHEET – PRELIMINARY ENGINEERING PACKAGE

CIVIL DRAWINGS

C1–A	EXISTING CONDITIONS	STA 0+00	TO	14+50	
C1–B	PROPOSED CONDITIONS	STA 0+00	TO	14+50	GRANDVIEW PARKWAY, M–72 AND M–22 ROUNDABOUT
C2–A	EXISTING CONDITIONS	STA 14+50	TO	28+58	
C2–B	PROPOSED CONDITIONS	STA 14+50	TO	28+58	SLABTOWN BEACH
C3–A	EXISTIONG CONDITIONS	STA 28+58	TO	43+50	
C3–B	PROPOSED CONDITIONS	STA 28+58	TO	43+50	WEST END BEACH, TART TRAIL DIVISION TO HALL, BAY STREET PARKING DIVISION TO OAK, AMD GRANDVIEW PARKWAY & DIVISION STREET ROUNDABOUT
C4–A	EXISTING CONDITIONS	STA 43+50	TO	55+66	
C4–B	PROPOSED CONDITIONS	STA 43+50	TO	55+66	TART TRAIL DIVISION TO HALL, HALL TO OAK STREET PROMENADE, BAY STREET PARKING DIVISION TO OAK, BAY STREET PARKING EAST OF OAK
C5–A	EXISTING CONDITIONS	STA 55+66	TO	67+74	
C5–B	PROPOSED CONDITIONS	STA 55+66	TO	67+74	HALL STREET BEACH, GARLAND STREET TUNNEL, OPEN SPACE, AND GRANDVIEW & UNION STREET ROUNDABOUT
C6–A	EXISTING CONDITIONS	STA 67+74	TO	82+84	
C6–B	PROPOSED CONDITIONS	STA 67+74	TO	82+84	CON FOSTER COMMONS, MARINA BOAT LAUNCH PARKING, CLINCH PARK BEACH, AND GRANDVIEW PARKWAY & PARK STREET ROUNDABOUT
C7–A	EXISTING CONDITIONS	STA 82+84	TO	98+30	
C7–B	PROPOSED CONDITIONS	STA 82+84	TO	98+30	CLINCH PARK BEACH, MURCHIE BRIDGE PHASES A & B
C8–A	EXISTING CONDITIONS	STA 98+30	TO	112+00	
C8–B	PROPOSED CONDITIONS	STA 98+30	TO	112+00	HOLIDAY INN, SUNSET PARK, AND GRANDVIEW PARKWAY & FRONT STREET ROUNDABOUT
C9–A	EXISTING CONDITIONS	STA 112+00	TO	118+00	
C9–B	PROPOSED CONDITIONS	STA 112+00	TO	118+00	SENIOR CENTER

NOTE:
IMPROVEMENTS PROPOSED FOR GRANDVIEW PARKWAY INLCUDING ROUNDABOUTS, MEDIAN LANDSCAPING AND THE REPLACEMENT OF COBRA HEAD STREET LIGHTS ARE SEPARATE TRAFFIC CALMING AND PEDESTRIAN ACCESS PROJECTS THAT WILL BE COORDINATED WITH MDOT. THESE PROJECTS ARE NOT INCOPORATED INTO SPECIFIC PHASES OF THE TRAVERSE CITY BAYFRONT PRELIMINARY ENGINEERING.



R:\Projects\12942366\CADD\PLOT\0T0-1.dwg June 25, 2010 – 10:50am Chris_DeGood

06/25/2010 SUBMITTAL TO TRAVERSE CITY
DATE | ISSUED FOR | 1999.1

DA/E CGD
DR SGD/CGD
CK BEJ
APP LAB
L.A. BONZELET
IN CHARGE

URS · The Johnson Hill Land Ethics Studio · AECOM · Baird

CITY OF TRAVERSE CITY
TRAVERSE CITY, MI
BAYFRONT PRELIMINARY ENGINEERING
TITLE PAGE - PRELIMINARY ENGINEERING PAGE

DRAWING
T0-1

FILE
12942366

DA/E CDD
DR SD
CK BEJ
APP LAB

IN CHARGE L.A. BONZELET

DATE	ISSUED FOR
6/25/2010	SUBMITAL TO TRAVERSE CITY
	1999.1

URS | AECOM Baird | The Johnson Hill Land Ethics Studio

CITY OF TRAVERSE CITY
TRAVERSE CITY, MI
BAYFRONT PRELIMINARY ENGINEERING
STATION 0+00 TO 14+50 AERIAL

DRAWING
C1-A

FILE
12942366

R:\Projects\12942366\CADD\Pr_01\C1-A.dwg June 25, 2010 - 12:50pm chris_dagood

PROPOSED CONCRETE PAVING

PROPOSED CONCRETE PAVING AND REALIGNED TART TRAIL

NORTH

GRAPHIC SCALE
50 0 25 50

MATCHLINE STA 0+00.00

MATCHLINE STA 14+50

DENSE LOW MAINTENANCE LANDSCAPE BEDS TO DISCOURAGE PEDESTRIAN AND NON-MOTORIZED USE OF SHOULDER

DENSE LOW MAINTENANCE LANDSCAPE BEDS TO DISCOURAGE MID-BLOCK CROSSINGS

INSTALL STORMWATER POLLUTION INTERCEPTOR FOR STORMSEWER OUTLET

TART TRAIL

INSTALL STORMWATER POLLUTION INTERCEPTOR FOR STORMSEWER OUTLET

PROPOSED ROUNDABOUT AND ASSOCIATED SIDEWALKS/TRAIL ALIGNMENTS TO REPLACE EXISTING INTERSECTION.

DENSE LOW MAINTENANCE LANDSCAPE BEDS TO DISCOURAGE MID-BLOCK CROSSINGS

REPLACE COBRA HEAD STREET LIGHTS WITH 15' HIGH CONTEXT SENSITIVE STREET LIGHTS (TYP.)

TART TRAIL

W. Grandview PKWY.

E. Traverse Hwy.

Bay St.

Monroe St.

Ramsdell Rd.

DA/E	CDD		
DR	SGD/CDD		
CK	RSJ		
APP	LAB		
IN CHARGE	L.A. RUNDELETT	DATE	ISSUED FOR
			12/09/10

URS | AECOM | Baird | The Johnson Hill Land Ethics Studio

CITY OF TRAVERSE CITY
TRAVERSE CITY, MI
BAYFRONT PRELIMINARY ENGINEERING
STATION 0+00 TO 14+50 PROPOSED CONDITIONS

DRAWING
C1-B

FILE
12942366

R:\Projects\12942366\CADD\PLOT\C1-B.dwg June 25, 2010 - 11:06am Chris_DeGood

R:\Projects\12942366\CADD\PLOT\C2-A.dwg June 25, 2010 - 12:57pm chris_degood

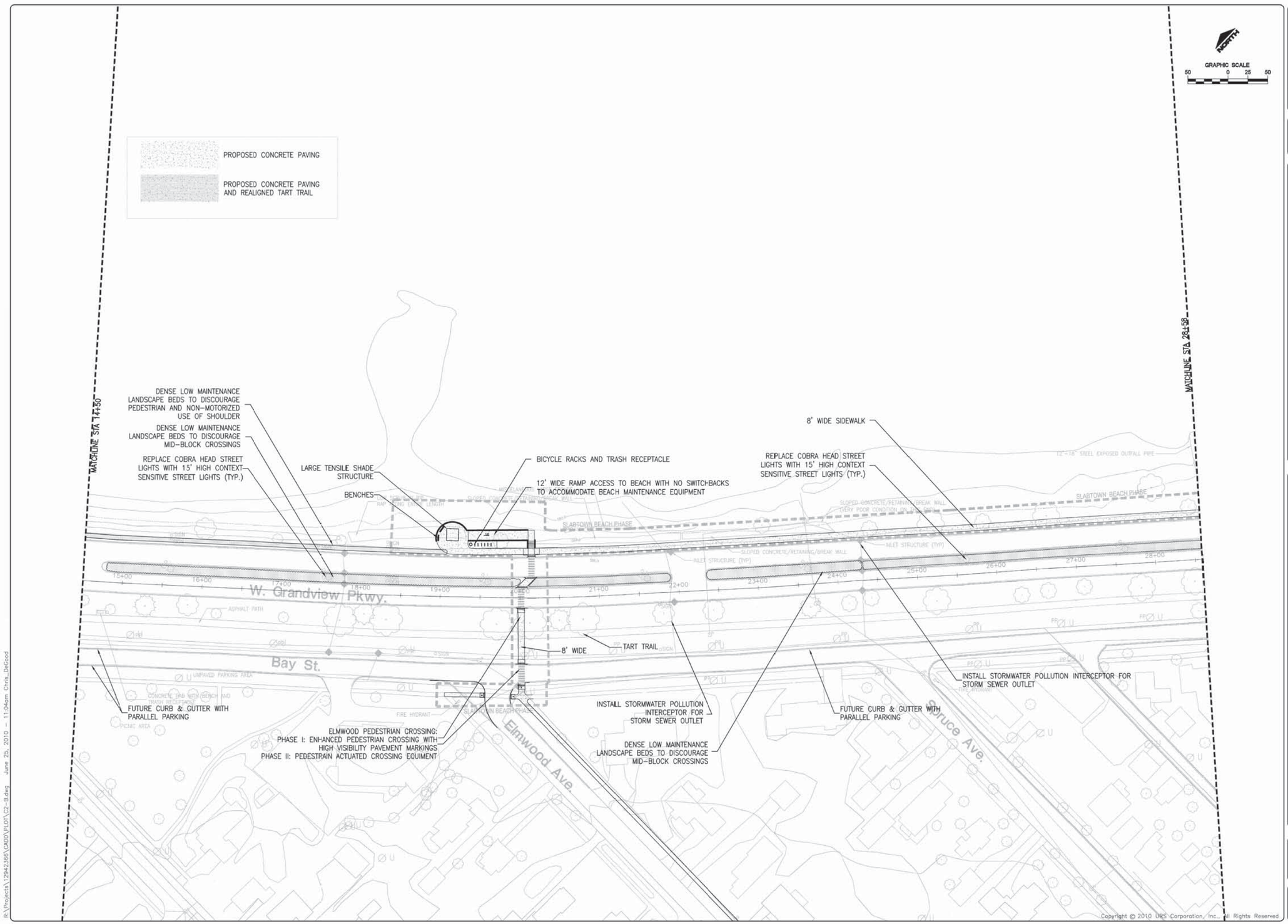
DA/E	CSD
DR	SGD/CGD
CK	BEJ
APP	LAB
IN CHARGE	L.A. RONDLET
DATE	SCALE: 1" = 50'
ISSUED FOR	1999.1

URS | The Johnson Hill Land Ethics Studio | AECOM | Baird

CITY OF TRAVERSE CITY
TRAVERSE CITY, MI
BAYFRONT PRELIMINARY ENGINEERING
STATION 14+50 TO 28+58 AERIAL

DRAWING
C2-A

FILE
12942366



R:\Projects\12942366\CAD\PLOT\C2-B.dwg June 25, 2010 - 11:04am Chris_DeGood

DA/E CDD
DR SGD/COD
CK RSJ
APP LAB
J.A. BUNDLET
IN CHARGE

DATE	ISSUED FOR
[illegible]	12993.1

URS
AECOM Baird
The Johnson Hill Land Ethics Studio

CITY OF TRAVERSE CITY
TRAVERSE CITY, MI
BAYFRONT PRELIMINARY ENGINEERING
STATION 14+50 TO 28+58 PROPOSED CONDITIONS

DRAWING
C2-B

FILE
12942366

R:\Projects\12942366\CADD\PLOT\C3-A.dwg June 25, 2010 - 12:52pm chris_degood

DA/E	CDD		
DR	SGD/CGD		
CK	BEJ		
APP	LAB		
IN CHARGE	J.A. RONDELET	6/25/2010	SUBMITTAL TO TRAVERSE CITY

DATE	ISSUED FOR
	1999.1

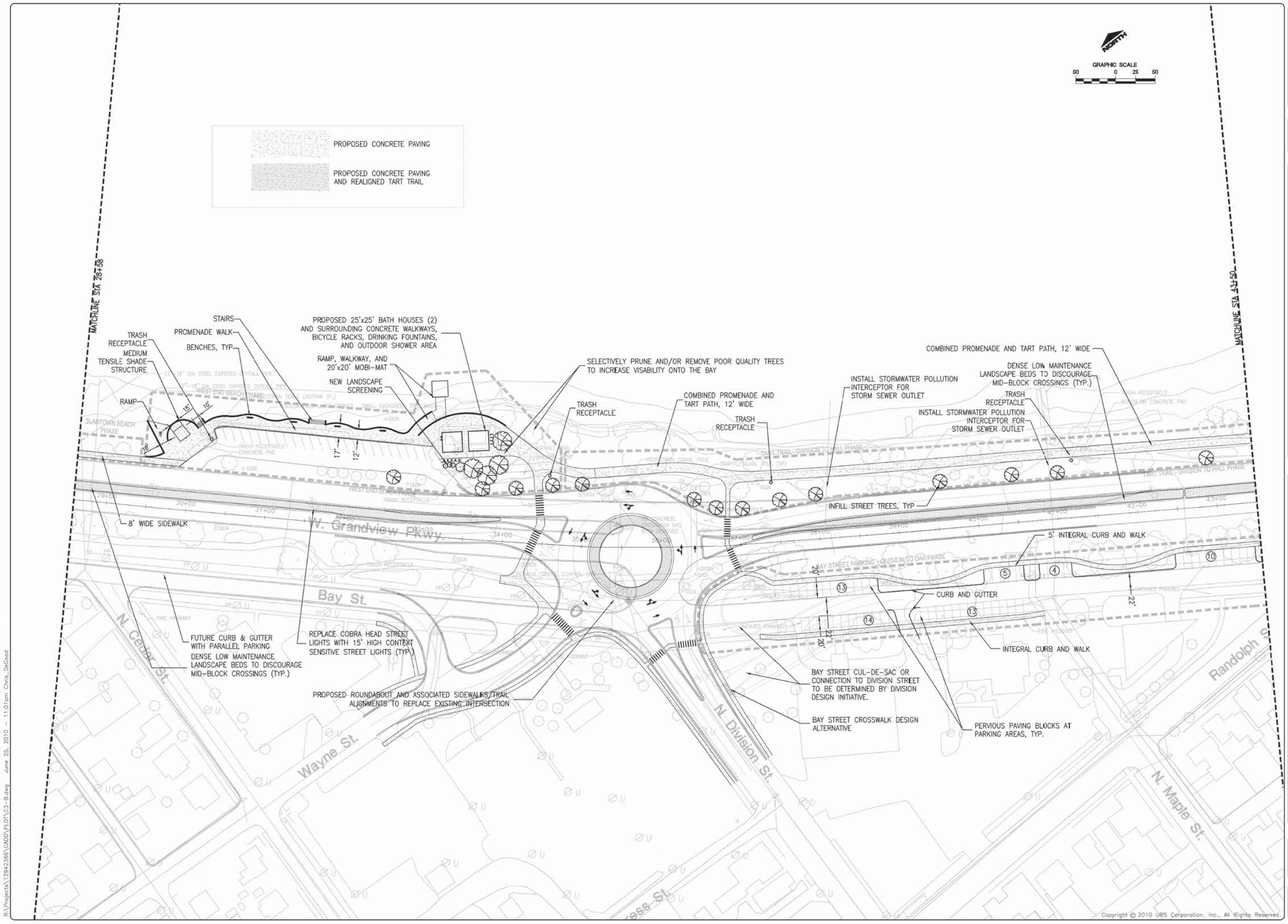
URS | AECOM | Baird

The Johnson Hill Land Ethics Studio

CITY OF TRAVERSE CITY
TRAVERSE CITY, MI
BAYFRONT PRELIMINARY ENGINEERING
STATION 28+58.77 TO 43+50 AERIAL

DRAWING
C3-A

FILE
12942366



DA/E CSD
DR SKD/CSD
CK RSJ
APP LAB
IN CHARGE J.A. BENDELET

DATE	ISSUED FOR
6/25/10	SUBMITTAL TO TRAVERS CITY
10/19/10	

URS AECOM Baird
The Johnson Hill Land Ethics Studio

CITY OF TRAVERSE CITY
TRAVERSE CITY, MI
BAYFRONT PRELIMINARY ENGINEERING
STATION 28+58.77 TO 43+50 PROPOSED CONDITIONS

DRAWING
C3-B

FILE
12942366

R:\Projects\12942366\CADD\PLOT\C3-B.dwg June 25, 2010 - 11:01am Chris_DeCood

R:\Projects\12942366\CADD\Plot\C4-A.dwg June 25, 2010 - 12:59pm chris_degood

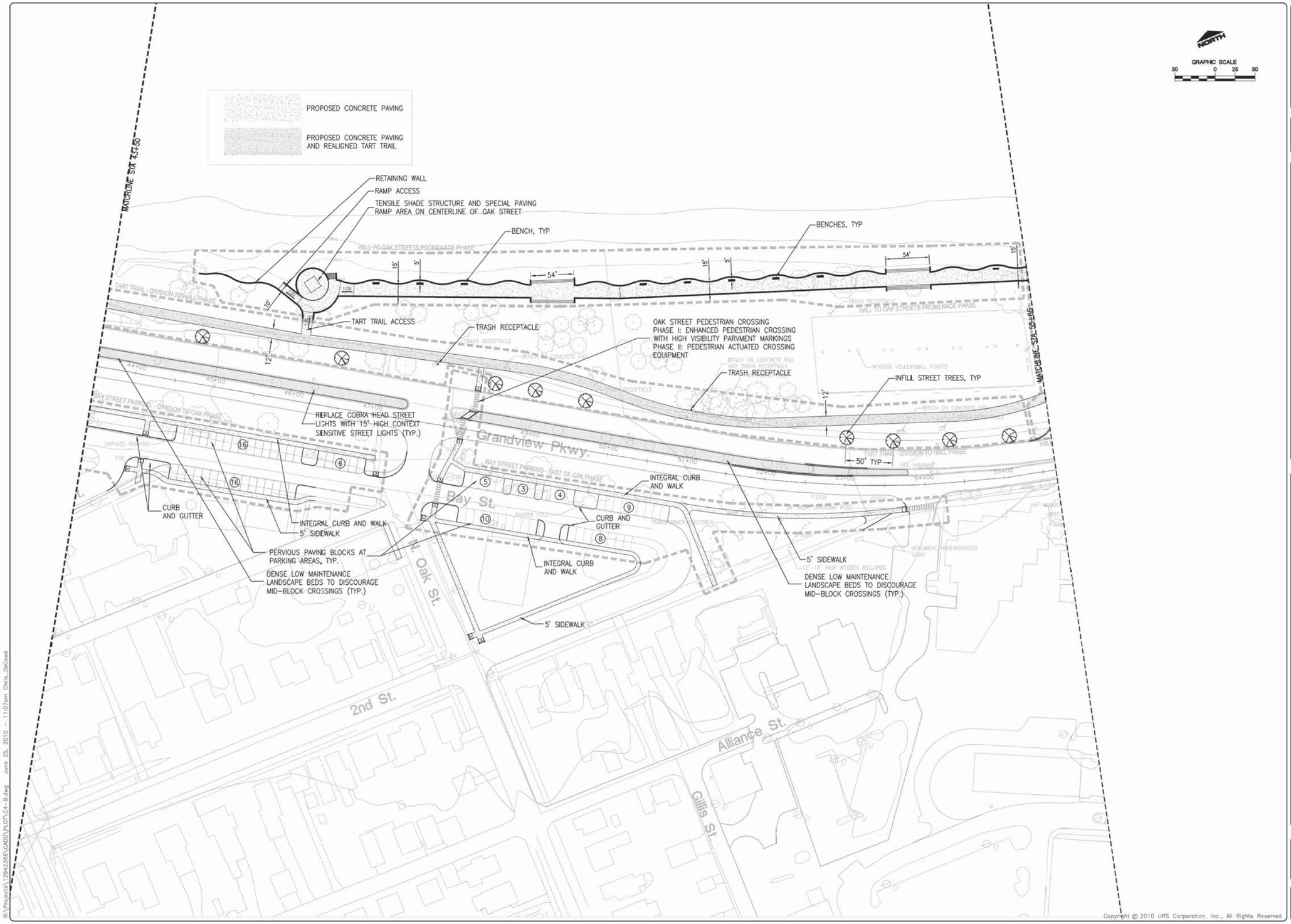
DA/E	CSD		
DR	SGD/CGD		
CK	BEJ		
APP	LAB		
IN CHARGE	J.A. RONDI, ET	06/25/2010	SCALE: 1" = 50'-0"
DATE	ISSUED FOR		1999.1

URS | AECOM | Baird | The Johnson Hill Land Ethics Studio

CITY OF TRAVERSE CITY
TRAVERSE CITY, MI
BAYFRONT PRELIMINARY ENGINEERING
STATION 43+50 TO 55+66 AERIAL

DRAWING
C4-A

FILE
12942366



R:\Projects\12942366\CAD\PLOT\C4-B.dwg June 25, 2010 - 11:07am Chris_DeGood

DA/E	CSD		
DR	SGD/CSD		
CK	RSJ		
APP	LAB		
IN CHARGE	L.A. BUNDLE ET	DATE	ISSUED FOR
			12/9/10

URS AECOM Baird
The Johnson Hill Land Ethics Studio

CITY OF TRAVERSE CITY
TRAVERSE CITY, MI
BAYFRONT PRELIMINARY ENGINEERING
STATION 43+50 TO 55+66 PROPOSED CONDITIONS

DRAWING
C4-B

FILE
12942366

DA/E	CSD	PROJECT MGR	
DR	SAS/CSD	SCALE: 1" = 50'-0"	
CK	RBJ		
APP	LAB		
IN CHARGE	J.A. RONDELET	DATE	ISSUED FOR
			1999.1

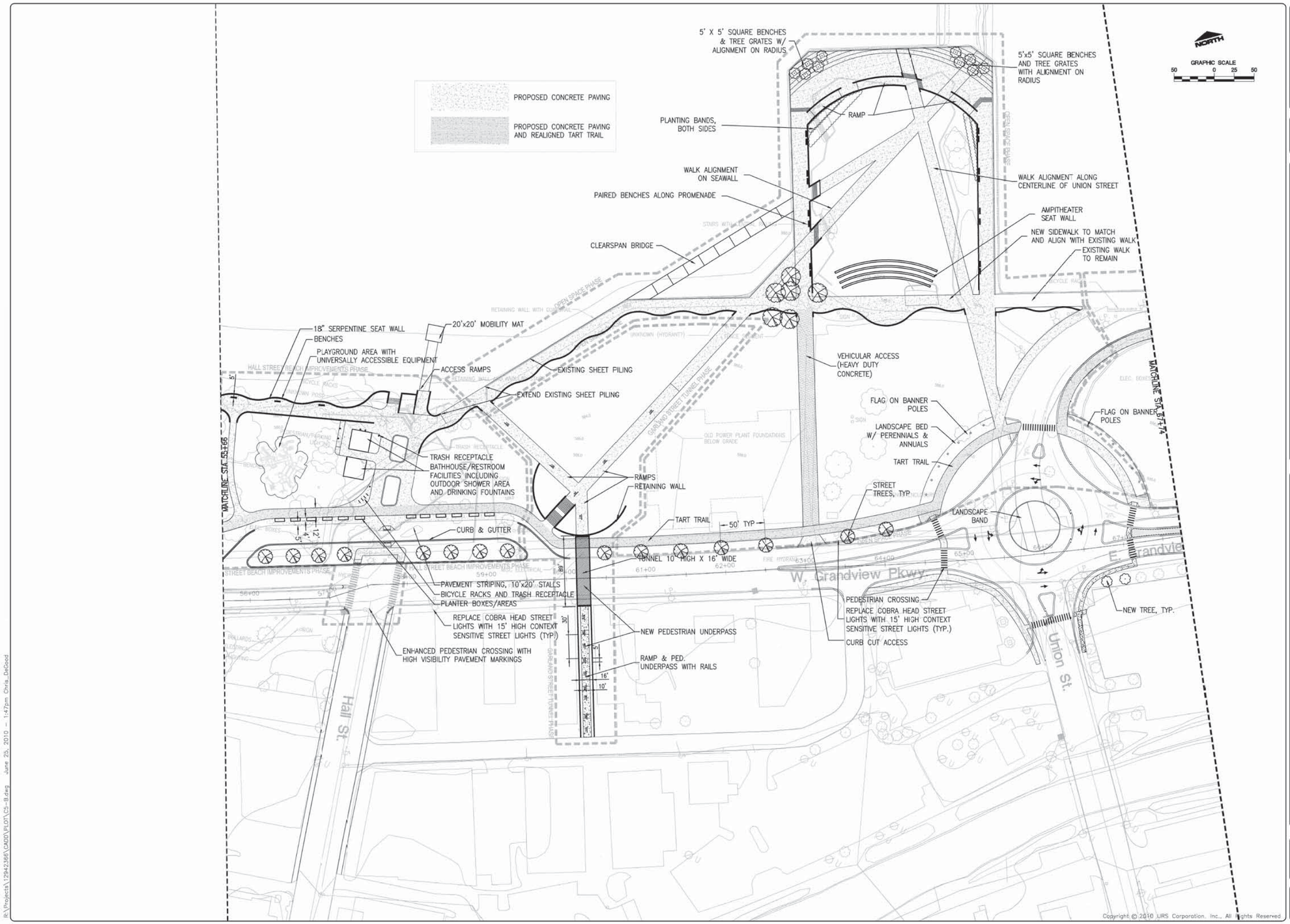
URS | AECOM | Baird | The Johnson Hill Land Ethics Studio

CITY OF TRAVERSE CITY
TRAVERSE CITY, MI
BAYFRONT PRELIMINARY ENGINEERING
STATION 55+66 TO 67+74 AERIAL

DRAWING
C5-A

FILE
12942366

R:\Projects\12942366\CADD\PLOT\C5-A.dwg June 25, 2010 - 1:07pm chris_degood



DATE	ISSUED FOR
12/9/10	100% SUBMITTAL

DA/E CDD
DR SGD/CDD
CK RSJ
APP LAB
IN CHARGE L.A. BUNDLEY

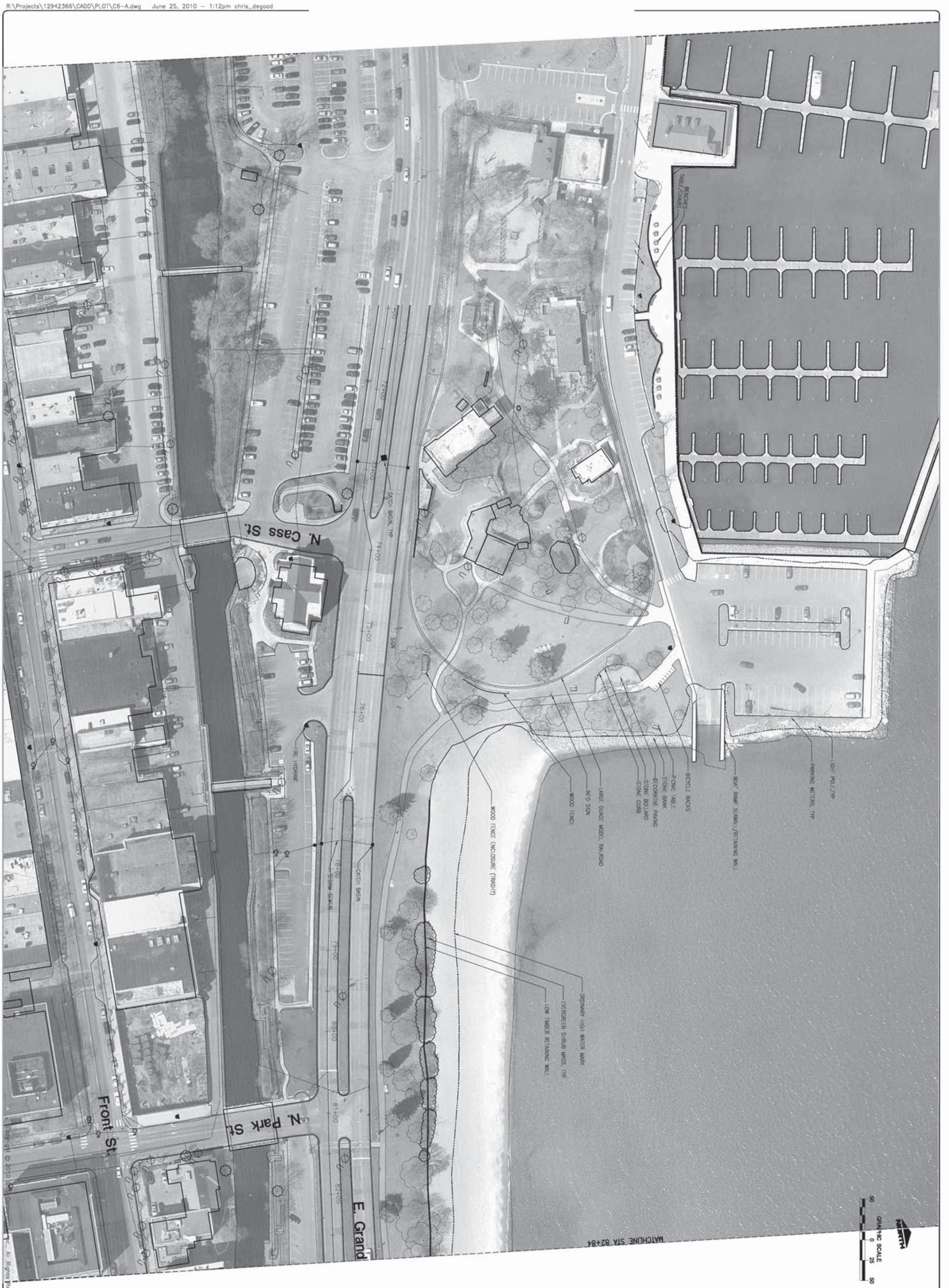
URS AECOM Baird
The Johnson Hill Land Ethics Studio

CITY OF TRAVERSE CITY
TRAVERSE CITY, MI
BAYFRONT PRELIMINARY ENGINEERING
STATION 55+66 TO 67+74 PROPOSED CONDITIONS

DRAWING
C5-B

FILE
12942366

R:\Projects\12942366\CADD\PLOT\C5-B.dwg June 25, 2010 - 1:47pm Chris_DeGood



CITY OF TRAVERSE CITY

BAYFRONT PRELIMINARY ENGINEERING — TRAVERSE CITY, MI

STATION 67+74 TO 82+84 AERIAL

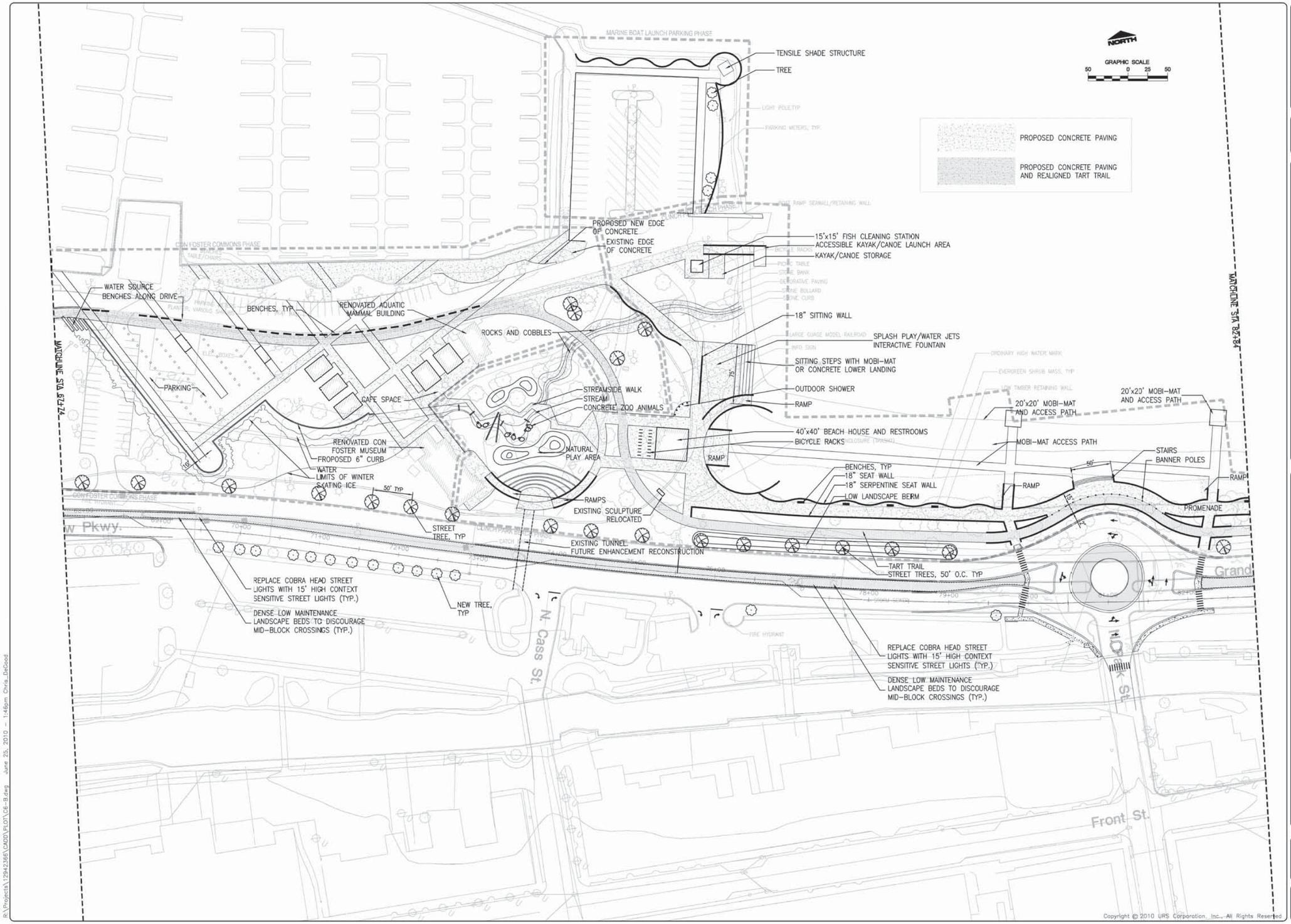
URS | The Johnson Hill Land Ethics Studies | AECOM | Baird

DA/E	CGD
DR	SGD/CGD
CK	BEJ
APP	LAB
L.A.	BONZELET
IN CHARGE	

DATE	ISSUED FOR
06/25/2010	SUBMITTAL TO TRAVERSE CITY
1999.1	

DRAWING C6-A

FILE 12942366



DA/E CDD
DR SGD/CDD
CK RSJ
APP LAB
IN CHARGE J.A. BUNDLET

NO.	DESCRIPTION	DATE
1	ISSUED FOR	12/09/10

URS AECOM Baird
The Johnson Hill Land Ethics Studio

CITY OF TRAVERSE CITY
TRAVERSE CITY, MI
BAYFRONT PRELIMINARY ENGINEERING
STATION 67+74 TO 82+84 PROPOSED CONDITIONS

DRAWING
C6-B

FILE
12942366

R:\Projects\12942366\CADD\PLOT\C6-B.dwg June 25, 2010 - 1:46pm Chris_DeGood

FILE	DRAWING
12942366	C7-A

CITY OF TRAVERSE CITY

BAYFRONT PRELIMINARY ENGINEERING — TRAVERSE CITY, MI

STATION 82+84 TO 98+30 AERIAL

URS | The Johnson Hill Land Ethics Studio | AECOM | Baird

DA/E	CDD
DR	SGD/CDD
CK	BEJ
APP	LAB
L.A. BONZELET	
IN CHARGE	

DATE	ISSUED FOR
06/09/2010	SUBMITAL TO TRAVERSE CITY
	1999.1

PROPOSED CONCRETE PAVING

PROPOSED CONCRETE PAVING AND REALIGNED TART TRAIL

NORTH

GRAPHIC SCALE 50 0 25 50

MATCHLINE STA 82+84

MATCHLINE STA 98+30

ORDINARY HIGH WATER MARK

18" SEAT WALL

18" SERPENTINE SEAT WALL

PROMENADE

CLINCH PARK BEACH PHASE

BENCH, TYP

50' TYP

ORDINARY HIGH WATER LINE

APPROXIMATE SHORELINE

18" SERPENTINE WALL

PROMENADE

15'

TART TRAIL

RAMP

STAIRS

12' WALL - BRIDGE OVERLOOK

30'x30' DECK WITH TENSILE STRUCTURE

EXISTING SHORELINE

FISHING PIER

30'x30' PAVED AREA WITH TENSILE STRUCTURE AND 8' WIDE ACCESS STAIR

EXISTING TREE TO REMAIN

30'x30' PAVED AREA WITH TENSILE STRUCTURE

18" SERPENTINE WALL

PLANTING BEDS ON EITHER SIDE OF STAIRS

BENCH, TYP

20'

STAIRS

BRIDGE OVERLOOK

E. Grandview Pkwy.

MURCHIE BRIDGE PHASE A

83+00 84+00 85+00 86+00 87+00 88+00 89+00 90+00 91+00 92+00 93+00 94+00 95+00 96+00 97+00 98+00

STREET TREES

REPLACE COBRA HEAD STREET LIGHTS WITH 15' HIGH CONTEXT SENSITIVE STREET LIGHTS (TYP.)

DENSE LOW MAINTENANCE LANDSCAPE BEDS TO DISCOURAGE MID-BLOCK CROSSINGS (TYP.)

WIDEN PEDESTRIAN UNDERPASS TO 12' WIDE WITH CANTILEVER

Boardman Ave.

Wellington St.

Front

DA/E	CSD		
DR	SGD/CSD		
CK	RSJ		
APP	LAB		
LA BUNDLET			
IN CHARGE		DATE	ISSUED FOR
			12/09.1

AECOM Baird

The Johnson Hill Land Ethics Studio

URS

CITY OF TRAVERSE CITY

TRAVERSE CITY, MI

BAYFRONT PRELIMINARY ENGINEERING

STATION 82+84 TO 98+30 PROPOSED CONDITIONS

DRAWING C7-B

FILE 12942366

R:\Projects\12942366\CAD\PLOT\C7-B.dwg June 25, 2010 - 1:45pm Chris_DeGood

R:\Projects\12942366\CADD\PLOT\C8-A.dwg June 25, 2010 - 1:22pm chris_degood

NORTH

GRAPHIC SCALE
50 0 25 50

FILE 12942366

DRAWING C8-A

CITY OF TRAVERSE CITY

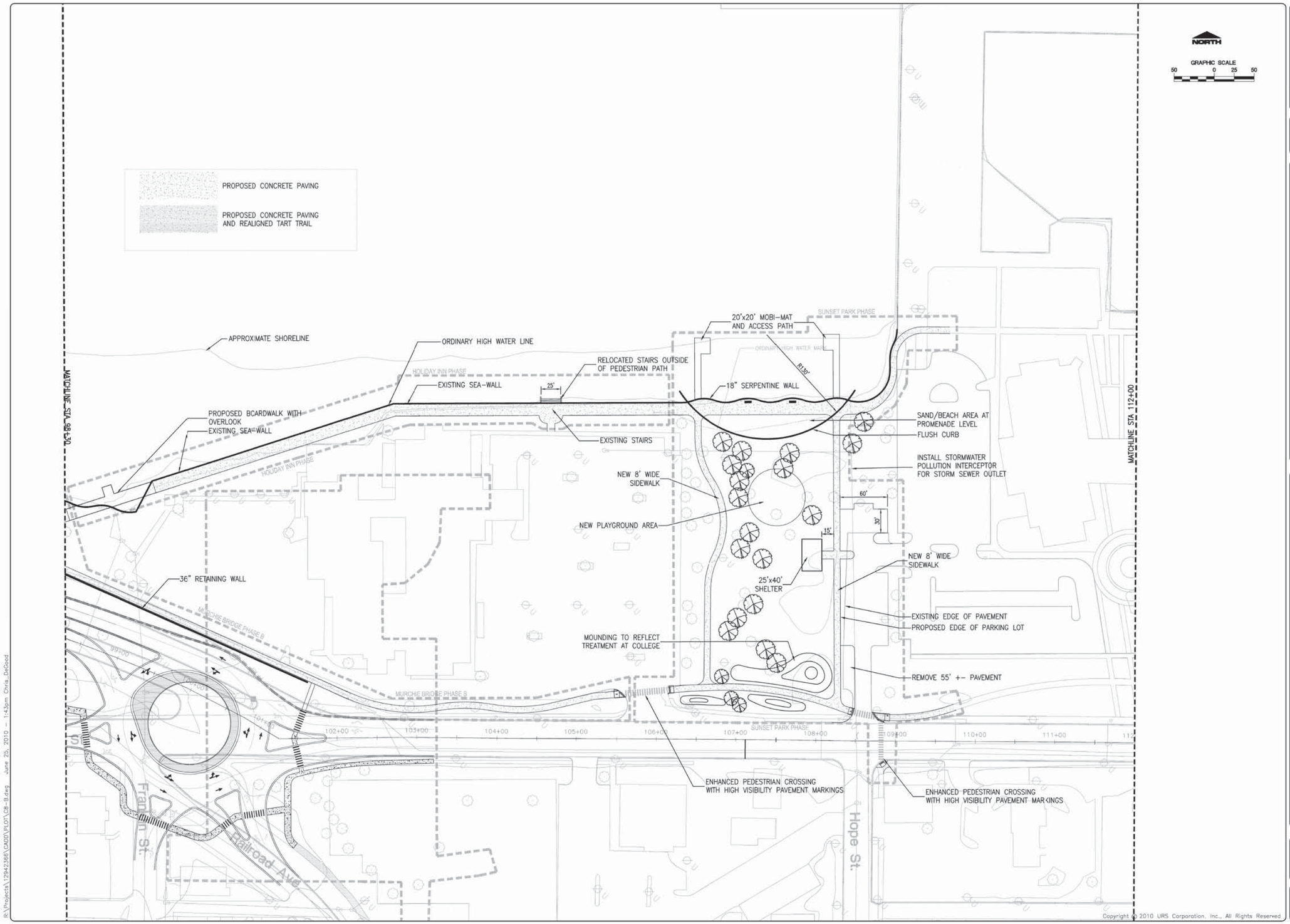
BAYFRONT PRELIMINARY ENGINEERING TRAVERSE CITY, MI

STATION 98+30 TO 112+00 AERIAL

URS | The Johnson Hill Land Ethics Studio | AECOM | Baird

DA/E	CGD
DR	CGD
CK	BEJ
APP	LAB
L.A. BONZELET IN CHARGE	

DATE	ISSUED FOR
06/25/2010	SUBMITAL TO TRAVERSE CITY
	1999.1



DA/E CDD
DR SGD/CDD
CK RSJ
APP LAB
J.A. RUNDLETT
IN CHARGE

NO.	DATE	ISSUED FOR
		1999.1

URS AECOM Baird
The Johnson Hill Land Ethics Studio

CITY OF TRAVERSE CITY
TRAVERSE CITY, MI
BAYFRONT PRELIMINARY ENGINEERING
STATION 98+30 TO 112+00 PROPOSED CONDITIONS

DRAWING
C8-B

FILE
12942366

R:\Projects\12942366\CADD\PLOT\C8-B.dwg June 25, 2010 - 1:43pm Chris_DeGood

R:\Projects\12942366\CADD\PLOT\C9-A.dwg June 25, 2010 - 1:26pm chris_degood

GRAPHIC SCALE 50 0 25 50

NORTH

FILE 12942366

DRAWING C9-A

CITY OF TRAVERSE CITY

BAYFRONT PRELIMINARY ENGINEERING TRAVERSE CITY, MI

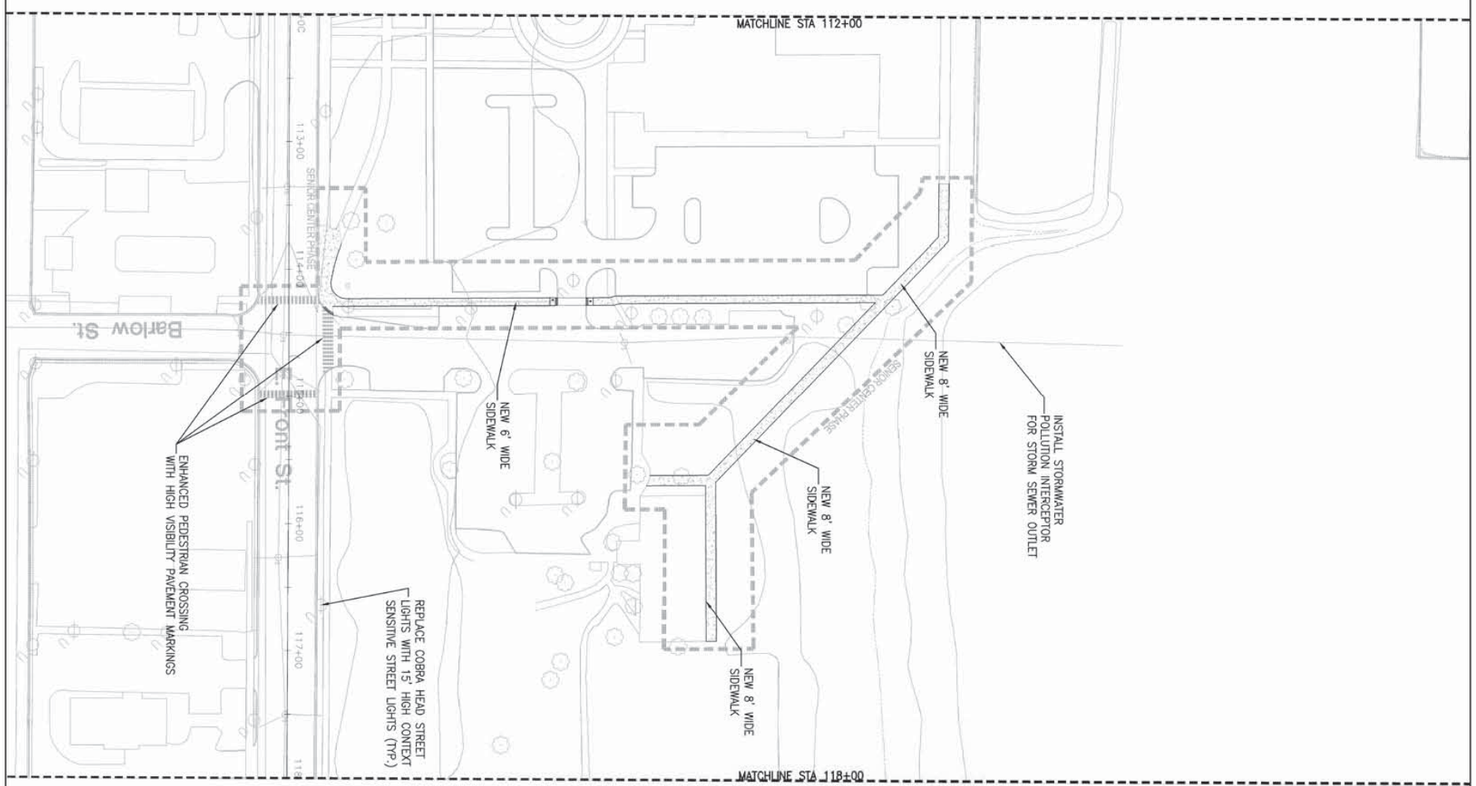
STATION 112+00 TO 118+00 AERIAL

URS | The Johnson Hill Land Ethics Studio | AECOM | Baird

DA/E	CGD
DR	CGD
CK	BEJ
APP	BEJ
L.A. BONZELET	
IN CHARGE	

DATE	ISSUED FOR
06/09/2010	SUBMITAL TO TRAVERSE CITY
	1999.1

R:\Projects\12942366\CADD\PLOT\C9-B.dwg June 25, 2010 - 1:49pm Chris_DeGood



NORTH

GRAPHIC SCALE 50 0 25 50

CITY OF TRAVERSE CITY

BAYFRONT PRELIMINARY ENGINEERING TRAVERSE CITY, MI

STATION 112+00 TO 118+00 PROPOSED CONDITIONS

URS | The Johnson Hill Land Ethics Studio | AECOM | Baird

DA/E	CGD
DR	CGD
CK	BEJ
APP	BEJ
L.A. BONZELET	
IN CHARGE	

DATE	ISSUED FOR
6/25/2010	SUBMITTAL TO TRAVERSE CITY

DRAWING C9-B

FILE 12942366

08
COST ESTIMATE

Traverse City Bayfront 2010

Preliminary Engineering Estimate Summary

DRAWING	PHASE	ESTIMATE
C2-B, C3-B	SLABTOWN BEACH	259,939
C3-B	WEST END BEACH	936,183
C3-B, C4-B	TART TRAIL DIVISION TO HALL	430,881
C3-B, C4-B	BAY STREET PARKING DIVISION TO OAK	528,853
C4-B	BAY STREET PARKING EAST OF OAK STREET	276,233
C4-B	HALL TO OAK STREETS PROMENADE	1,192,643
C4-B, C5-B	HALL STREET BEACH	1,545,499
C5-B	GARLAND STREET TUNNEL	803,121
C5-B	OPEN SPACE	2,847,756
C5-B, C6-B	CON FOSTER COMMONS	2,820,389
C6-B	MARINA BOAT LAUNCH PARKING	2,171,514
C6-B, C7-B	CLINCH PARK BEACH	4,042,888
C7-B	PIER AND MURCHIE BRIDGE A	4,322,804
C7-B	MURCHIE BRIDGE B	716,509
C7-B, C8-B	HOLIDAY INN	2,318,500
C8-B	SUNSET PARK	583,234
C9-B	SENIOR CENTER	161,888
2010 ESTIMATED COST BASED ON PRELIMINARY ENGINEERING		**$25,958,834**

Traverse City Bayfront 2010

Preliminary Grandview Engineering Estimate Summary

DRAWING	PHASE	ESTIMATE
C1-B	M-72, M-22 AND GRANDVIEW PARKWAY ROUNDABOUT	$1,500,000
C3-B	DIVISION STREET & GRANDVIEW PARKWAY ROUNDABOUT	$1,500,000
C5-B	UNION STREET & GRANDVIEW PARKWAY ROUNDABOUT	$1,500,000
C6-B	PARK STREET & GRANDVIEW PARKWAY ROUNDABOUT	$1,500,000
C8-B	FRONT SREET & GRANDVIEW PARKWAY ROUNDABOUT	$1,650,000
	SUB TOTAL	**7,650,000**

COBRA HEAD LIGHTING REPLACEMENT

	Quantity	Unit	Cost / Unit	
SHEET C1-B	4	EACH	$4,000.00	$16,000
SHEET C2-B	7	EACH	$4,000.00	$28,000
SHEET C3-B	9	EACH	$4,000.00	$36,000
SHEET C4-B	7	EACH	$4,000.00	$28,000
SHEET C5-B	13	EACH	$4,000.00	$52,000
SHEET C6-B	8	EACH	$4,000.00	$32,000
SHEET C7-B	8	EACH	$4,000.00	$32,000
SHEET C8-B	15	EACH	$4,000.00	$60,000
SHEET C9-B	6	EACH	$4,000.00	$24,000
			SUB TOTAL	**308,000**

LANDSCAPED MEDIANS (10-FOOT WIDTH)

	Quantity	Unit	Cost / Unit	
SHEET C1-B	1400	LF	$35.00	$49,000
SHEET C2-B	1750	LF	$35.00	$61,250
SHEET C3-B	1100	LF	$35.00	$38,500
SHEET C4-B	1000	LF	$35.00	$35,000
SHEET C5-B	100	LF	$35.00	$3,500
SHEET C6-B	1300	LF	$35.00	$45,500
SHEET C7-B	1100	LF	$35.00	$38,500
			SUB TOTAL	**271,250**

2010 ESTIMATED COST BASED ON PRELIMINARY ENGINEERING **$8,229,250**

Project: Traverse City Bayfront 2010 Preliminary Engineering Estimate

Phase: Slabtown Beach

Drawing Sheet: C2-B, C3-B

Description	Quantity	Units	Cost/Unit	Totals	Assumptions
DEMOLITION AND CLEARING					
Tree Removal and Clearing	1	LS	$1,000.00	$1,000	Allowance
Tree Protection	2	EA	$250.00	$500	Allowance
Remove Curb and Gutter	1	LS	$500.00	$500	
Miscellaneous Structures	2	LS	$501.00	$2,000	Foundation of old boat shop
DEMOLITION AND CLEARING SUB-TOTAL				**$4,000**	
EARTHWORK					
Soil Erosion & Sediment Control	1	LS	$2,000.00	$2,000	Silt Fence $1.50 / LF plus allowance for misc.
Earthwork	800	CY	$6.00	$4,800	Assumes .5' cut/fill over a 1 Acre site
EARTHWORK SUB-TOTAL				**$6,800**	
STORMWATER MANAGEMENT					
Stormwater Treatment Structure	1	EA	$40,000.00	$40,000	
STORMWATER MANAGEMENT SUB-TOTAL				**$40,000**	
WALKS AND PAVEMENTS					
Curb and Gutter	20	LF	$20.00	$400	
Poured in Place Concrete Retaining Wall	60	LF	$250.00	$15,000	
Concrete Stairs	1	EA	$6,000.00	$6,000	
Concrete Ramp	1	EA	$10,000.00	$10,000	
Asphalt HMA (330 LB/SY w/ Agg base)	1	LS	$5,000.00	$5,000	Included Surface, Leveling, sub-grade and base
Standard Duty Concrete (6-inches)	9,750	SF	$5.00	$48,750	Included Surface and base
Pavement Marking Striping	1	LS	$5,000.00	$5,000	
WALKS AND PAVEMENTS SUB-TOTAL				**$90,150**	
LANDSCAPING					
Topsoil (4" depth), Seed, Fert, Mulch	1,650	SY	$5.00	$8,250	Assume 1 Acre
Deciduous Tree	2	EA	$425.00	$850	Assumes 4-inch caliper
Ornamental Tree	2	EA	$330.00	$660	Assumes 3-inch caliper
LANDSCAPING SUB-TOTAL				**$9,760**	
SITE LIGHTING					
Allowance	1	LS	$5,000.00	$5,000	
SITE LIGHTING SUB-TOTAL				**$5,000**	
SITE AMENITIES					
Large Tensile Shade Structure	1	EA	$7,500.00	$7,500	
Manufactured Bench (Metal)	2	EA	$2,000.00	$4,000	
Bike Rack	8	EA	$400.00	$3,200	Assume upside down U as preferred by TART
Waste / Recycling Receptacle	1	EA	$1,000.00	$1,000	
Wayfinding / Information Signs	1	EA	$2,000.00	$2,000	
Street Signs	4	EA	$500.00	$2,000	Stops Signs, Parking etc.
SITE AMENITIES SUB-TOTAL				**$19,700**	
SPECIAL ITEMS					
Remove Underwater obstacles	1	EA	$10,000.00	$10,000	Former marine wood piles and seawall
SPECIAL ITEMS SUB-TOTAL				**$10,000**	
TOTAL SITE CONSTRUCTION COSTS				$185,410	

SOFT COSTS

ARCHITECTURAL AND ENGINEERING SERVICES				
Geotechnical & Surveying Services		LS	$4,000	$4,000
Architectural & Engineering Services (10%)		LS	$18,541	$18,541
ARCHITECTURAL AND ENGINEERING SERVICES SUB-TOTAL				$22,541

TOTAL SOFT AND HARD COSTS	$207,951
CONTINGENCY (25%)	$51,988
2010 EST. COST BASED ON PRELIMINARY ENGINEERING	**$259,939**

Project: Traverse City Bayfront 2010 Preliminary Engineering Estimate

Phase: WEST END BEACH

Drawing Sheet: C3-B

Description	Quantity	Units	Cost/Unit	Totals	Assumptions
DEMOLITION AND CLEARING					
Existing Building	1	LS	$10,000.00	$10,000	
Underground Electrical	1	LS	$500.00	$500	Allowance
Tree Removal and Clearing	1	LS	$2,500.00	$2,500	Allowance
Tree Protection	8	EA	$250.00	$2,000	Allowance
Remove Asphalt	200	SY	$5.00	$1,000	
Remove Concrete	900	SF	$1.50	$1,350	
DEMOLITION AND CLEARING SUB-TOTAL				**$17,350**	
EARTHWORK					
Soil Erosion & Sediment Control	1	LS	$2,750.00	$2,750	Silt Fence $1.50 / LF plus allowance for misc.
Earthwork	1	LS	$3,000.00	$3,000	
EARTHWORK SUB-TOTAL				**$5,750**	
STORMWATER MANAGEMENT					
Stormwater Treatment Structure	1	EA	$40,000.00	$40,000	
STORMWATER MANAGEMENT SUB-TOTAL				**$40,000**	
WALKS AND PAVEMENTS					
Poured in Place Concrete Retaining Wall	230	LF	$250.00	$57,500	
Concrete Stairs	2	EA	$4,000.00	$8,000	
Concrete Ramp	1	EA	$8,000.00	$8,000	
Standard Duty Concrete (6-inches)	8,300	SF	$5.00	$41,500	Included Surface, Leveling, sub-grade and base
Promenade	280	LF	$650.00	$182,000	Incl. walls, footings, benches, and walk
Seawall Railing	104	LF	$150.00	$15,600	
Seawall Cap	104	LF	$130.00	$13,520	
WALKS AND PAVEMENTS SUB-TOTAL				**$326,120**	
LANDSCAPING					
Topsoil (4" depth), Seed, Fert, Mulch	140	SY	$5.00	$700	Assume 1/4 acre area
Planted Beds	2,500	SF	$4.00	$10,000	
Irrigation - Planted Beds (Sm/ Med Area)	2,500	SF	$0.65	$1,625	
Deciduous Tree	4	EA	$425.00	$1,700	Assumes 4-inch caliper
Ornamental Tree	4	EA	$330.00	$1,320	Assumes 3-inch caliper
Evergreen Tree	2	EA	$320.00	$640	Assumes 10-foot Height
LANDSCAPING SUB-TOTAL				**$15,985**	
SITE LIGHTING					
Allowance	1	EA	$20,000.00	$20,000	
SITE LIGHTING SUB-TOTAL				**$20,000**	
SITE AMENITIES					
Medium Tensile Shade Structure	1	EA	$5,000.00	$5,000	
Concrete Bench	4	EA	$1,500.00	$6,000	
Picnic Table	2	EA	$2,000.00	$4,000	
Bike Rack	8	EA	$400.00	$3,200	Allowance
Waste / Recycling Receptacle	3	EA	$1,000.00	$3,000	Allowance
Drinking Fountain	2	EA	$3,000.00	$6,000	
Shower / Foot wash	1	EA	$4,000.00	$4,000	Inlcudes pad, untilties and fixtures
Wayfinding / Information Signs	1	EA	$2,000.00	$2,000	
Street Signs	4	EA	$500.00	$2,000	Stops Signs, Parking etc.
SITE AMENITIES SUB-TOTAL				**$35,200**	
BUILDINGS					
Restroom Facility	1	LS	200,000	$200,000	
Water Service	1	LS	5,000	$5,000	
Sanitary Service	1	LS	5,000	$5,000	
Utility Services	1	LS	5,000	$5,000	
BUILDINGS SUB-TOTAL				**$215,000**	
TOTAL SITE CONSTRUCTION COSTS				$675,405	

SOFT COSTS

ARCHITECTURAL AND ENGINEERING SERVICES				
Geotechnical & Surveying Services		LS	$6,000	$6,000
Architectural & Engineering Services (10%)		LS	$67,541	$67,541
ARCHITECTURAL AND ENGINEERING SERVICES SUB-TOTAL				$73,541

TOTAL SOFT AND HARD COSTS	$748,946
CONTINGENCY (25%)	$187,237
2010 EST. COST BASED ON PRELIMINARY ENGINEERING	**$936,183**

Project: Traverse City Bayfront 2010 Preliminary Engineering Estimate

Phase: TART Trail Division Street to Hall Street

Drawing Sheet: C3-B, C4-B

Description	Quantity	Units	Cost/Unit	Totals	Assumptions
DEMOLITION AND CLEARING					
Remove Asphalt	2,225	SY	$5.00	$11,125	
Remove Concrete	750	SF	$1.50	$1,125	
DEMOLITION AND CLEARING SUB-TOTAL				**$12,250**	
EARTHWORK					
Soil Erosion & Sediment Control	1	LS	$3,500.00	$3,500	Silt Fence $1.50 / LF plus allowance for misc.
Earthwork	800	CY	$6.00	$4,800	Assumes .5' cut/fill over a 1 Acre site
EARTHWORK SUB-TOTAL				**$8,300**	
STORMWATER MANAGEMENT					
Stormwater Treatment Structure	3	EA	$40,000.00	$120,000	
STORMWATER MANAGEMENT SUB-TOTAL				**$120,000**	
WALKS AND PAVEMENTS					
Standard Duty Concrete (6-inches)	25,200	SF	$5.00	$126,000	Included Surface, Leveling, sub-grade and base
WALKS AND PAVEMENTS SUB-TOTAL				**$126,000**	
LANDSCAPING					
Topsoil (4" depth), Seed, Fert, Mulch	2,450	SY	$5.00	$12,250	Assume 1/2 acre area
Deciduous Tree	10	EA	$425.00	$4,250	Assumes 4-inch caliper
Ornamental Tree	10	EA	$330.00	$3,300	Assumes 3-inch caliper
Evergreen Tree	10	EA	$320.00	$3,200	Assumes 10-foot Height
LANDSCAPING SUB-TOTAL				**$23,000**	
SITE AMENITIES					
Manufactured Bench (Metal)	5	EA	$2,000.00	$10,000	Allowance
Bike Rack	5	EA	$400.00	$2,000	Assume upside down U as preferred by TART
Waste / Recycling Receptacle	5	EA	$1,000.00	$5,000	
Drinking Fountain	1	EA	$3,000.00	$3,000	
Wayfinding / Information Signs	1	EA	$2,000.00	$2,000	
SITE AMENITIES SUB-TOTAL				**$22,000**	
TOTAL SITE CONSTRUCTION COSTS				$311,550	

SOFT COSTS

ARCHITECTURAL AND ENGINEERING SERVICES				
Geotechnical & Surveying Services		LS	$2,000	$2,000
Architectural & Engineering Services (10%)		LS	$31,155	$31,155
ARCHITECTURAL AND ENGINEERING SERVICES SUB-TOTAL				$33,155

TOTAL SOFT AND HARD COSTS	$344,705
CONTINGENCY (25%)	$86,176
2010 EST. COST BASED ON PRELIMINARY ENGINEERING	**$430,881**

Project: Traverse City Bayfront 2010 Preliminary Engineering Estimate

Phase: Bay Street Parking Division to Oak Street

Drawing Sheet: C3-B, C4-B

Description	Quantity	Units	Cost/Unit	Totals	Assumptions
DEMOLITION AND CLEARING					
Tree Removal and Clearing	3	EA	$800.00	$2,400	Allowance
Tree Protection	22	EA	$250.00	$5,500	Allowance
Remove Curb and Gutter	0	LF	$2.50	$0	
Remove Asphalt	2,940	SY	$5.00	$14,700	
DEMOLITION AND CLEARING SUB-TOTAL				**$22,600**	
EARTHWORK					
Soil Erosion & Sediment Control	1	LS	$3,000.00	$3,000	Silt Fence $1.50 / LF plus allowance for misc.
Earthwork	3,300	CY	$6.00	$19,800	Assumes 1' cut/fill over a 2 Acre site
EARTHWORK SUB-TOTAL				**$22,800**	
WALKS AND PAVEMENTS					
Curb and Gutter	2,600	LF	$20.00	$52,000	
Asphalt HMA (330 LB/SY w/ Agg base)	2,950	SY	$20.00	$59,000	Included Surface, Leveling, sub-grade and base
Standard Duty Concrete (6-inches)	9,877	SF	$5.00	$49,385	Included Surface and base
Pavement Marking Striping	1	LS	$3,000.00	$3,000	
Sidewalk Ramps w/ Detectable Warning	4	EA	$500.00	$2,000	
Paver Brick	20,400	SF	$6.00	$122,400	
WALKS AND PAVEMENTS SUB-TOTAL				**$287,785**	
LANDSCAPING					
Topsoil (4" depth), Seed, Fert, Mulch	2,420	SY	$5.00	$12,100	Assume 1/2 acre area
Deciduous Tree	12	EA	$425.00	$5,100	
Ornamental Tree	30	EA	$330.00	$9,900	Assumes 3-inch caliper
Evergreen Tree	9	EA	$320.00	$2,880	Assumes 10-foot Height
LANDSCAPING SUB-TOTAL				**$29,980**	
SITE AMENITIES					
Manufactured Bench (Metal)	4	EA	$2,000.00	$8,000	Allowance
Waste / Recycling Receptacle	4	EA	$1,000.00	$4,000	
Wayfinding / Information Signs	1	EA	$2,000.00	$2,000	
Street Signs	4	EA	$500.00	$2,000	Stops Signs, Parking etc.
SITE AMENITIES SUB-TOTAL				**$16,000**	
TOTAL SITE CONSTRUCTION COSTS				$379,165	

SOFT COSTS

ARCHITECTURAL AND ENGINEERING SERVICES				
Geotechnical & Surveying Services		LS	$6,000	$6,000
Architectural & Engineering Services (10%)		LS	$37,917	$37,917
ARCHITECTURAL AND ENGINEERING SERVICES SUB-TOTAL				$43,917

TOTAL SOFT AND HARD COSTS	$423,082
CONTINGENCY (25%)	$105,771
2010 EST. COST BASED ON PRELIMINARY ENGINEERING	**$528,853**

Project: Traverse City Bayfront 2010 Preliminary Engineering Estimate

Phase: Bay Street Parking East of Oak Street

Drawing Sheet: C4-B

Description	Quantity	Units	Cost/Unit	Totals	Assumptions
DEMOLITION AND CLEARING					
Tree Removal and Clearing	1	LS	$2,500.00	$2,500	Allowance
Tree Protection	10	EA	$250.00	$2,500	
Remove Curb and Gutter	100	LF	$2.50	$250	
Remove Asphalt	950	SY	$5.00	$4,750	
DEMOLITION AND CLEARING SUB-TOTAL				**$10,000**	
EARTHWORK					
Soil Erosion & Sediment Control	1	LS	$1,000.00	$1,000	Silt Fence $1.50 / LF plus allowance for misc.
Earthwork	1,650	CY	$6.00	$9,900	Assumes 1' cut/fill over a 1 Acre site
EARTHWORK SUB-TOTAL				**$10,900**	
WALKS AND PAVEMENTS					
Curb and Gutter	980	LF	$20.00	$19,600	
Asphalt HMA (330 LB/SY w/ Agg base)	950	SY	$20.00	$19,000	Included Surface, Leveling, sub-grade and base
Standard Duty Concrete (6-inches)	8,000	SF	$5.00	$40,000	Included Surface and base
Pavement Marking Striping	1	LS	$5,000.00	$5,000	
Sidewalk Ramps w/ Detectable Warning	10	EA	$500.00	$5,000	
Paver Brick	7,800	SF	$6.00	$46,800	
WALKS AND PAVEMENTS SUB-TOTAL				**$135,400**	
LANDSCAPING					
Topsoil (4" depth), Seed, Fert, Mulch	5,000	SY	$5.00	$25,000	Assume 1/4 acre area
Deciduous Tree	4	EA	$425.00	$1,700	Assumes 4-inch caliper
Ornamental Tree	10	EA	$330.00	$3,300	Assumes 3-inch caliper
Evergreen Tree	3	EA	$320.00	$960	Assumes 10-foot Height
LANDSCAPING SUB-TOTAL				**$30,960**	
SITE AMENITIES					
Manufactured Bench (Metal)	2	EA	$2,000.00	$4,000	Allowance
Waste / Recycling Receptacle	2	EA	$1,000.00	$2,000	
Wayfinding / Information Signs	1	EA	$2,000.00	$2,000	
Street Signs	4	EA	$500.00	$2,000	Stops Signs, Parking etc.
SITE AMENITIES SUB-TOTAL				**$10,000**	
TOTAL SITE CONSTRUCTION COSTS				$197,260	

SOFT COSTS

ARCHITECTURAL AND ENGINEERING SERVICES

Geotechnical & Surveying Services	LS	$4,000	$4,000	
Architectural & Engineering Services (10%)	LS	$19,726	$19,726	
ARCHITECTURAL AND ENGINEERING SERVICES SUB-TOTAL			$23,726	

TOTAL SOFT AND HARD COSTS	$220,986
CONTINGENCY (25%)	$55,247
2010 EST. COST BASED ON PRELIMINARY ENGINEERING	**$276,233**

Project: Traverse City Bayfront 2010 Preliminary Engineering Estimate

Phase: Hall to Oak Street Promenade

Drawing Sheet: C4-B

Description	Quantity	Units	Cost/Unit	Totals	Assumptions
DEMOLITION AND CLEARING					
Trees Removal and Clearing	1	LS	$10,000.00	$10,000	Allowance
Tree Protection	14	EA	$250.00	$3,500	
DEMOLITION AND CLEARING SUB-TOTAL				**$13,500**	
EARTHWORK					
Soil Erosion & Sediment Control	1	LS	$2,000.00	$2,000	Silt Fence $1.50 / LF plus allowance for misc.
Earthwork	1,350	CY	$6.00	$8,100	Assumes 1' cut/fill over a 1 Acre site
EARTHWORK SUB-TOTAL				**$10,100**	
STORMWATER MANAGEMENT					
Stormwater Treatment Structure	1	EA	$40,000.00	$40,000	
STORMWATER MANAGEMENT SUB-TOTAL				**$40,000**	
WALKS AND PAVEMENTS					
Poured in Place Concrete Retaining Wall	300	LF	$250.00	$75,000	Up to 3-feet high
Concrete Stairs	3	EA	$5,000.00	$15,000	
Concrete Ramp	1	EA	$7,000.00	$7,000	
Standard Duty Concrete (6-inches)	2,600	SF	$5.00	$13,000	Included Surface and base
Promenade	850	LF	$650.00	$552,500	Incl. walls, footings, benches, and walk
WALKS AND PAVEMENTS SUB-TOTAL				**$662,500**	
LANDSCAPING					
Topsoil (4" depth), Seed, Fert, Mulch	5,000	SY	$5.00	$25,000	Assume 1 Acre
Deciduous Tree	12	EA	$425.00	$5,100	Assumes 4-inch caliper
Ornamental Tree	16	EA	$330.00	$5,280	Assumes 3-inch caliper
Evergreen Tree	8	EA	$320.00	$2,560	Assumes 10-foot Height
LANDSCAPING SUB-TOTAL				**$37,940**	
SITE LIGHTING					
Allowance	1	EA	$75,000.00	$75,000	
SITE LIGHTING SUB-TOTAL				**$75,000**	
SITE AMENITIES					
Large Tensile Shade Structure	1	EA	$7,500.00	$7,500	
Picnic Table	4	EA	$2,000.00	$8,000	Allowance
Bike Rack	8	EA	$400.00	$3,200	Allowance
Waste / Recycling Receptacle	4	EA	$1,000.00	$4,000	
Wayfinding / Information Signs	1	EA	$2,000.00	$2,000	Allowance
SITE AMENITIES SUB-TOTAL				**$24,700**	
TOTAL SITE CONSTRUCTION COSTS				$863,740	

SOFT COSTS

ARCHITECTURAL AND ENGINEERING SERVICES

Geotechnical & Surveying Services	LS	$4,000	$4,000	
Architectural & Engineering Services (10%)	LS	$86,374	$86,374	
ARCHITECTURAL AND ENGINEERING SERVICES SUB-TOTAL			$90,374	

TOTAL SOFT AND HARD COSTS	$954,114
CONTINGENCY (25%)	$238,529
2010 EST. COST BASED ON PRELIMINARY ENGINEERING	**$1,192,643**

Project: Traverse City Bayfront 2010 Preliminary Engineering Estimate

Phase: Hall Street Beach

Drawing Sheet: C4-B, C5-B

Description	Quantity	Units	Cost/Unit	Totals	Assumptions
DEMOLITION AND CLEARING					
Tree Removal and Clearing Allowance	1	LS	$6,000.00	$6,000	Allowance
Tree Protection	10	EA	$250.00	$2,500	
Remove Retaining Walls	200	LF	$20.00	$4,000	Existing walls around open space peninsula
Remove Curb and Gutter	1,000	LF	$2.50	$2,500	
Remove Asphalt	2,220	SY	$5.00	$11,100	
Remove Concrete	2,500	SF	$1.50	$3,750	
Miscellaneous Structures	1	LS	$5,000.00	$5,000	Bicycle Racks, Stairs, miscellaneous
DEMOLITION AND CLEARING SUB-TOTAL				**$34,850**	
EARTHWORK					
Soil Erosion & Sediment Control	1	LS	$1,000.00	$1,000	Silt Fence $1.50 / LF plus allowance for misc.
Earthwork	2,420	CY	$6.00	$14,520	Assumes 1' cut/fill over a 1.5 Acre site
EARTHWORK SUB-TOTAL				**$15,520**	
MARINE SHORELINE IMPROVEMENTS					
Steel Sheet Piling	1,600	SF	$40.00	$64,000	Assumed sheet pile length of 20-feet
MARINE SHORELINE IMPROVEMENTS SUB-TOTAL				**$64,000**	
WALKS AND PAVEMENTS					
Curb and Gutter	1,000	LF	$20.00	$20,000	
Poured in Place Concrete Retaining Wall	200	LF	$250.00	$50,000	up to 3-feet high
Concrete Stairs	1	EA	$8,000.00	$8,000	
Concrete Ramp	1	EA	$10,000.00	$10,000	
Asphalt HMA (330 LB/SY w/ Agg base)	1,300	SY	$20.00	$26,000	Included Surface, Leveling, sub-grade and base
Standard Duty Concrete (6-inches)	19,500	SF	$5.00	$97,500	Included Surface and base
Pavement Marking Striping	1	LS	$5,000.00	$5,000	
Paver Brick	3,000	SF	$6.00	$18,000	
Promenade	200	LF	$650.00	$130,000	Incl. walls, footings, benches, and walk
Sidewalk Ramps w/ Detectable Warning	9	EA	$500.00	$4,500	
Mobility Mat	1,100	SF	$12.00	$13,200	
Seawall Railing	80	LF	$150.00	$12,000	
Seawall Cap	80	LF	$130.00	$10,400	
WALKS AND PAVEMENTS SUB-TOTAL				**$404,600**	
LANDSCAPING					
Topsoil (4" depth), Seed, Fert, Mulch	4,850	SY	$5.00	$24,250	Assume 1 Acre
Irrigation - Lawn (Large Area)	43,560	SF	$0.30	$13,068	
Planted Beds	800	SF	$4.00	$3,200	
Irrigation - Planted Beds (Sm/ Med Area)	800	SF	$0.65	$520	
Deciduous Tree	20	EA	$425.00	$8,500	Assumes 4-inch caliper
Ornamental Tree	20	EA	$330.00	$6,600	Assumes 3-inch caliper
Evergreen Tree	20	EA	$320.00	$6,400	Assumes 10-foot Height
LANDSCAPING SUB-TOTAL				**$62,538**	
SITE LIGHTING					
Allowance	1	LS	$75,000.00	$75,000	
SITE LIGHTING SUB-TOTAL				**$75,000**	
SITE AMENITIES					
Manufactured Bench (Metal)	6	EA	$2,000.00	$12,000	Allowance
Concrete Planter Boxes	12	EA	$1,200.00	$14,400	
Picnic Table	2	EA	$2,000.00	$4,000	Allowance
Bike Rack	10	EA	$400.00	$4,000	Assume upside down U as preferred by TART
Waste / Recycling Receptacle	3	EA	$1,000.00	$3,000	
Drinking Fountain	1	EA	$3,000.00	$3,000	Allowance
Shower / Foot wash	1	EA	$4,000.00	$4,000	Inlcudes pad, untilties and fixtures
Wayfinding / Information Signs	1	EA	$2,000.00	$2,000	
Street Signs	4	EA	$500.00	$2,000	Stops Signs, Parking etc.
SITE AMENITIES SUB-TOTAL				**$48,400**	
BUILDINGS					
Restroom Facility	2	EA	$115,000.00	$230,000	
Water Service	2	LS	$5,000.00	$10,000	
Sanitary Service	2	LS	$5,000.00	$10,000	
Utility Services	2	LS	$5,000.00	$10,000	
BUILDINGS SUB-TOTAL				**$260,000**	
SPECIAL ITEMS					
Playground	1	EA	$150,000.00	$150,000	
SPECIAL ITEMS SUB-TOTAL				**$150,000**	
TOTAL SITE CONSTRUCTION COSTS				$1,114,908	
SOFT COSTS					
ARCHITECTURAL AND ENGINEERING SERVICES					
Geotechnical & Surveying Services		LS	$10,000	$10,000	
Architectural & Engineering Services (10%)		LS	$111,491	$111,491	
ARCHITECTURAL AND ENGINEERING SERVICES SUB-TOTAL				$121,491	

TOTAL SOFT AND HARD COSTS	$1,236,399
CONTINGENCY (25%)	$309,100
2010 EST. COST BASED ON PRELIMINARY ENGINEERING	**$1,545,499**

Project: Traverse City Bayfront 2010 Preliminary Engineering Estimate

Phase: Garland Street Tunnel

Drawing Sheet: C5-B

Description	Quantity	Units	Cost/Unit	Totals	Assumptions
DEMOLITION AND CLEARING					
Remove Curb and Gutter	1	LS	$500.00	$500	
Remove Asphalt	1	LS	$2,000.00	$2,000	
DEMOLITION AND CLEARING SUB-TOTAL				**$2,500**	
EARTHWORK					
Soil Erosion & Sediment Control	1	LS	$1,000.00	$1,000	Silt Fence $1.50 / LF plus allowance for misc.
Earthwork	10,000	CY	$6.00	$60,000	Assumes Average 6' cut/fill over a 1 Acre site
EARTHWORK SUB-TOTAL				**$61,000**	
WALKS AND PAVEMENTS					
Curb and Gutter	120	LF	$20.00	$2,400	
Poured in Place Concrete Retaining Wall	510	LF	$350.00	$178,500	up to 12-feet high
Concrete Stairs	1	EA	$15,000.00	$15,000	
Standard Duty Concrete (6-inches)	9,850	SF	$5.00	$49,250	Included Surface and base
WALKS AND PAVEMENTS SUB-TOTAL				**$245,150**	
LANDSCAPING					
Topsoil (4" depth), Seed, Fert, Mulch	4,840	SY	$5.00	$24,200	Assume 1 Acre
Irrigation - Lawn (Large Area)	4,840	SF	$0.30	$1,452	
Planted Beds	2,300	SF	$4.00	$9,200	
Irrigation - Planted Beds (Sm/ Med Area)	2,300	SF	$0.65	$1,495	
LANDSCAPING SUB-TOTAL				**$36,347**	
SITE LIGHTING					
Allowance	1	LS	$20,000.00	$20,000	
SITE LIGHTING SUB-TOTAL				**$20,000**	
SITE AMENITIES					
Manufactured Bench (Metal)	4	EA	$2,000.00	$8,000	Allowance
Wayfinding / Information Signs	1	EA	$2,000.00	$2,000	
SITE AMENITIES SUB-TOTAL				**$10,000**	
SPECIAL ITEMS					
Pre-Manufactured Concrete Tunnel	1	EA	$200,000.00	$200,000	
SPECIAL ITEMS SUB-TOTAL				**$200,000**	
TOTAL SITE CONSTRUCTION COSTS				$574,997	
SOFT COSTS					
ARCHITECTURAL AND ENGINEERING SERVICES					
Geotechnical & Surveying Services		LS	$10,000	$10,000	
Architectural & Engineering Services (10%)		LS	$57,500	$57,500	
ARCHITECTURAL AND ENGINEERING SERVICES SUB-TOTAL				$67,500	

TOTAL SOFT AND HARD COSTS	$642,497
CONTINGENCY (25%)	$160,624
2010 EST. COST BASED ON PRELIMINARY ENGINEERING	**$803,121**

* Garland Street tunnel estimate does not include costs for relocation of water and sewer utilities

Project: Traverse City Bayfront 2010 Preliminary Engineering Estimate

Phase: Open Space

Drawing Sheet: C5-B

Description	Quantity	Units	Cost/Unit	Totals	Assumptions
DEMOLITION AND CLEARING					
Underground Electrical	1	LS	$10,000.00	$10,000	
Tree Removal and Clearing	1	LS	$1,500.00	$1,500	Allowance
Tree Protection	5	EA	$250.00	$1,250	Allowance
Remove Retaining Walls	760	LF	$20.00	$15,200	Existing walls around open space peninsula
Remove Railing	550	LF	$5.00	$2,750	
Remove Curb and Gutter	400	LF	$2.50	$1,000	
Remove Asphalt	700	SY	$5.00	$3,500	
Remove Concrete	8,726	SF	$1.50	$13,089	
Miscellaneous Structures	1	LS	$2,000.00	$2,000	Includes salvage of bricks Garden Club Planter
DEMOLITION AND CLEARING SUB-TOTAL				**$50,289**	
EARTHWORK					
Soil Erosion & Sediment Control	1	LS	$18,000.00	$18,000	Silt Fence $1.50 / LF plus allowance for misc.
Earthwork	8,100	CY	$6.00	$48,600	Assumes 2' cut/fill over a 5 Acre site
EARTHWORK SUB-TOTAL				**$66,600**	
WALKS AND PAVEMENTS					
Curb and Gutter	400	LF	$30.00	$12,000	
Poured in Place Concrete Retaining Wall	875	SF	$250.00	$218,750	
Concrete Stairs	6	EA	$6,000.00	$36,000	
Concrete Ramp	2	EA	$10,000.00	$20,000	
Asphalt HMA (330 LB/SY w/ Agg base)	700	SY	$20.00	$14,000	Included Surface, Leveling, sub-grade and base
Standard Duty Concrete (6-inches)	33,500	SF	$5.00	$167,500	Included Surface and base
Imprinted Std. Duty Concrete (6-inches)	11,100	SF	$8.50	$94,350	Included Surface, Leveling, sub-grade and base
Heavy Duty Concrete (8-inches)	5,550	SF	$8.60	$47,730	Included Surface, Leveling, sub-grade and base
Pavement Marking Striping	1	LS	$1,000.00	$1,000	
Paver Brick	3,200	SF	$6.00	$19,200	
Seawall Railing	550	LF	$150.00	$82,500	
Seawall Cap	550	LF	$130.00	$71,500	
Sheet Pile Seawall	550	SF	$120.00	$66,000	
WALKS AND PAVEMENTS SUB-TOTAL				**$850,530**	
LANDSCAPING					
Topsoil (4" depth), Seed, Fert, Mulch	20,000	SY	$5.00	$100,000	Assume 4 acre area
Irrigation - Lawn (Large Area)	180,000	SF	$0.30	$54,000	
Planted Beds	6,300	SF	$4.00	$25,200	
Irrigation - Planted Beds (Sm/ Med Area)	6,300	SF	$0.65	$4,095	
Tree Grate	10	EA	$800.00	$8,000	
Deciduous Tree	20	EA	$425.00	$8,500	Assumes 4-inch caliper
Ornamental Tree	20	EA	$330.00	$6,600	Assumes 3-inch caliper
Evergreen Tree	20	EA	$320.00	$6,400	Assumes 10-foot Height
LANDSCAPING SUB-TOTAL				**$212,795**	
SITE LIGHTING					
Bollard Lights	25	EA	$2,200.00	$55,000	Assume 22' centers integrated with sewall railing
Allowance	1	LS	$60,000.00	$60,000	
SITE LIGHTING SUB-TOTAL				**$115,000**	
SITE AMENITIES					
Concrete Bench	35	EA	$1,500.00	$52,500	Allowance
Bike Rack	8	EA	$400.00	$3,200	Assume upside down U as preferred by TART
Waste / Recycling Receptacle	6	EA	$1,000.00	$6,000	
Drinking Fountain	1	EA	$3,000.00	$3,000	
Flag or Banner Poles	14	EA	$2,000.00	$28,000	
Wayfinding / Information Signs	4	EA	$2,000.00	$8,000	
Street Signs	4	EA	$500.00	$2,000	Stops Signs, Parking etc.
SITE AMENITIES SUB-TOTAL				**$102,700**	
SPECIAL ITEMS					
Amphitheater Seat Wall	520	LF	$250.00	$130,000	
Clearspan Bridge	1	LS	$525,000.00	$525,000	
SPECIAL ITEMS SUB-TOTAL				**$655,000**	
TOTAL SITE CONSTRUCTION COSTS				$2,052,914	

SOFT COSTS

ARCHITECTURAL AND ENGINEERING SERVICES				
Geotechnical & Surveying Services	LS	$20,000	$20,000	
Architectural & Engineering Services (10%)	LS	$205,291	$205,291	
ARCHITECTURAL AND ENGINEERING SERVICES SUB-TOTAL			$225,291	

TOTAL SOFT AND HARD COSTS	$2,278,205
CONTINGENCY (25%)	$569,551
2010 EST. COST BASED ON PRELIMINARY ENGINEERING	**$2,847,756**

Project: Traverse City Bayfront 2010 Preliminary Engineering Estimate

Phase: Con Foster Commons

Drawing Sheet: C5-B, C6-B

Description	Quantity	Units	Cost/Unit	Totals	Assumptions
DEMOLITION AND CLEARING					
Existing Building	2	LS	$35,000.00	$70,000	Assumes removal including foundation
Underground Electrical Relocation	1	LS	$120,000.00	$120,000	
Tree Removal and Clearing	1	LS	$5,000.00	$5,000	Allowance
Tree Protection	20	EA	$250.00	$5,000	
Remove Curb and Gutter	760	LF	$2.50	$1,900	
Remove Asphalt	21,600	SY	$5.00	$108,000	
Remove Concrete	5,200	SF	$1.50	$7,800	
Miscellaneous	1	LS	$8,000.00	$8,000	Allowance
DEMOLITION AND CLEARING SUB-TOTAL				**$325,700**	
EARTHWORK					
Soil Erosion & Sediment Control	1	LS	$3,000.00	$3,000	Silt Fence $1.50 / LF plus allowance for misc.
Earthwork	3,300	CY	$6.00	$19,800	Assumes 2' cut/fill over a 2 Acre site
EARTHWORK SUB-TOTAL				**$22,800**	
WALKS AND PAVEMENTS					
Curb and Gutter	1,300	LF	$20.00	$26,000	
Poured in Place Concrete Retaining Wall	0	LF	$250.00	$0	
Concrete Stairs	0	EA	$6,000.00	$0	
Concrete Ramp	0	EA	$10,000.00	$0	
Asphalt HMA (330 LB/SY w/ Agg base)	2,400	SY	$20.00	$48,000	Included Surface, Leveling, sub-grade and base
Standard Duty Concrete (6-inches)	28,700	SF	$5.00	$143,500	Included Surface and base
Pavement Marking Striping	1	LS	$1,000.00	$1,000	
Paver Brick	21,500	SF	$6.00	$129,000	
Sidewalk Ramps w/ Detectable Warning	12	EA	$500.00	$6,000	
WALKS AND PAVEMENTS SUB-TOTAL				**$353,500**	
LANDSCAPING					
Topsoil (4" depth), Seed, Fert, Mulch	9,700	SY	$5.00	$48,500	Assume 2 acre area
Irrigation - Lawn (Large Area)	9,700	SF	$0.30	$2,910	
Planted Beds	2,000	SF	$4.00	$8,000	
Irrigation - Planted Beds (Sm/ Med Area)	2,000	SF	$0.65	$1,300	
Tree Grate	6	EA	$800.00	$4,800	
Deciduous Tree	20	EA	$425.00	$8,500	Assumes 4-inch caliper
Ornamental Tree	20	EA	$330.00	$6,600	Assumes 3-inch caliper
Evergreen Tree	20	EA	$320.00	$6,400	Assumes 10-foot Height
LANDSCAPING SUB-TOTAL				**$87,010**	
SITE LIGHTING					
Allowance	1	LS	$100,000.00	$100,000	
SITE LIGHTING SUB-TOTAL				**$100,000**	
SITE AMENITIES					
Manufactured Bench (Metal)	6	EA	$2,000.00	$12,000	Allowance
Concrete Bench	24	EA	$1,500.00	$36,000	
Bike Rack	30	EA	$400.00	$12,000	Assume upside down U as preferred by TART
Waste / Recycling Receptacle	10	EA	$1,000.00	$10,000	
Drinking Fountain	2	EA	$3,000.00	$6,000	
Wayfinding / Information Signs	3	EA	$2,000.00	$6,000	
Street Signs	10	EA	$500.00	$5,000	Stops Signs, Parking etc.
SITE AMENITIES SUB-TOTAL				**$87,000**	
BUILDINGS					
Con Foster White Box Renovations	1	LS	330,000	$330,000	Assumes white box renovation
Aquatic Animals White Box Renovations	1	LS	102,000	$102,000	
600 SF Vendor Buliding	3	EA	70,000	$210,000	
750 SF Vendor Buliding	2	EA	90,000	$180,000	
Water Service	5	EA	2,000	$10,000	
Sanitary Service	5	EA	2,000	$10,000	
Utility Services	5	EA	5,000	$25,000	
BUILDINGS SUB-TOTAL				**$867,000**	
SPECIAL ITEMS					
Natural Water Feature	1	LS	$150,000.00	$150,000	
Prep for Skating Ice	1	LS	$20,000.00	$20,000	
Relocation of TART Sculpture	1	LS	$20,000.00	$20,000	
SPECIAL ITEMS SUB-TOTAL				**$190,000**	
TOTAL SITE CONSTRUCTION COSTS				$2,033,010	

SOFT COSTS

ARCHITECTURAL AND ENGINEERING SERVICES				
Geotechnical & Surveying Services	LS	$20,000	$20,000	
Architectural & Engineering Services (10%)	LS	$203,301	$203,301	
ARCHITECTURAL AND ENGINEERING SERVICES SUB-TOTAL			$223,301	

TOTAL SOFT AND HARD COSTS	$2,256,311
CONTINGENCY (25%)	$564,078
2010 EST. COST BASED ON PRELIMINARY ENGINEERING	**$2,820,389**

Project: Traverse City Bayfront 2010 Preliminary Engineering Estimate

Phase: Marina Boat Launch Parking

Drawing Sheet: C6-B

Description	Quantity	Units	Cost/Unit	Totals	Assumptions
DEMOLITION AND CLEARING					
Remove Curb and Gutter	388	LF	$2.50	$970	
Remove Asphalt	4,200	SY	$5.00	$21,000	
Remove Concrete	1,830	SF	$1.50	$2,745	
DEMOLITION AND CLEARING SUB-TOTAL				**$24,715**	
EARTHWORK					
Soil Erosion & Sediment Control	1	LS	$2,000.00	$2,000	Allowance for misc.
Earthwork	532	CY	$6.00	$3,192	Assumes .5' cut/fill over a 0.66 Acre site
EARTHWOTK SUB-TOTAL				**$5,192**	
WALKS AND PAVEMENTS					
Curb and Gutter	317	LF	$30.00	$9,510	
Poured in Place Concrete Retaining Wall	455	SF	$60.00	$27,300	
Standard Duty Concrete (6-inches)	4,616	SF	$5.00	$23,080	Included Surface and base
Pavement Marking Striping	1	LS	$2,000.00	$2,000	
Pervious Conctrete Pavement	28,764	SF	$6.00	$172,584	Included Surface and base
WALKS AND PAVEMENTS SUB-TOTAL				**$234,474**	
LANDSCAPING					
Planted Beds	4,100	SF	$4.00	$16,400	
Irrigation - Planted Beds (Sm/ Med Area)	4,100	SF	$0.65	$2,665	
Deciduous Tree	4	EA	$425.00	$1,700	Assumes 4-inch caliper
LANDSCAPING SUB-TOTAL				**$20,765**	
SITE LIGHTING					
Allowance	1	LS	$15,000.00	$15,000	
SITE LIGHTING SUB-TOTAL				**$15,000**	
SITE AMENITIES					
Concrete Bench	4	EA	$1,500.00	$6,000	Allowance
Large Tensile Shade Structure	1	EA	$7,500.00	$7,500	
Street Signs	4	EA	$500.00	$2,000	Stops Signs, Parking etc.
SITE AMENITIES SUB-TOTAL				**$15,500**	
SPECIAL ITEMS					
Revetment Reconstruction	450	LF	$2,800.00	$1,260,000	See assumptions and cost breakdown below
SPECIAL ITEMS SUB-TOTAL				**$1,260,000**	
TOTAL SITE CONSTRUCTION COSTS				$1,575,646	

SOFT COSTS

ARCHITECTURAL AND ENGINEERING SERVICES				
Geotechnical & Surveying Services	LS	$4,000	$4,000	
Architectural & Engineering Services (10%)	LS	$157,565	$157,565	
ARCHITECTURAL AND ENGINEERING SERVICES SUB-TOTAL			$161,565	

TOTAL SOFT AND HARD COSTS	$1,737,211
CONTINGENCY (25%)	$434,303
2010 EST. COST BASED ON PRELIMINARY ENGINEERING	**$2,171,514**

REVETMENT RECONSTRUCTION: Preliminary cost projections are based on the HCCL modeling report. HCCL proposed large armor stone for the Clinch Marina breakwater, with sizes decreasing towards the east end. The JJR design drawings for the Clinch Park Marina improvements show an average depth of 4.5 at Low Water Datum (577.5 feet IGLD85). The design estimate assumes a revetment top elevation of 589 with 3 to 6 armor stone (2 layers) placed over filter stone. The estimated per foot cost for the boat launch parking revetment for this quantity of armor stone may be in the range of $2,800 per linear foot.

Project: Traverse City Bayfront 2010 Preliminary Engineering Estimate

Phase: CLINCH PARK BEACH

Drawing Sheet: C6-B, C7-B

Description	Quantity	Units	Cost/Unit	Totals	Assumptions
DEMOLITION AND CLEARING					
Existing Building	1	LS	$15,000.00	$15,000	Existing bathroom
Underground Electrical	1	LS	$5,000.00	$5,000	Allowance
Tree Removal and Clearing	1	LS	$8,000.00	$8,000	Allowance
Tree Protection	20	EA	$250.00	$5,000	Allowance
Remove Retaining Walls	1,100	LF	$2.00	$2,200	Wood wall
Remove Asphalt	1,600	SY	$5.00	$8,000	Existing TART Trail
Miscellaneous Structures	1	LS	$5,000.00	$5,000	Allowance
DEMOLITION AND CLEARING SUB-TOTAL				**$48,200**	]
EARTHWORK					
Soil Erosion & Sediment Control	1	LS	$3,000.00	$3,000	Silt Fence $1.50 / LF plus allowance for misc.
Earthwork	3,250	CY	$6.00	$19,500	Assumes .5' cut/fill over a 4 Acre site
EARTHWORK SUB-TOTAL				**$22,500**	
WALKS AND PAVEMENTS					
Poured in Place Concrete Retaining Wall	200	LF	$250.00	$50,000	up to 3-feet
Concrete Stairs	3	EA	$8,000.00	$24,000	
Concrete Ramp	3	EA	$10,000.00	$30,000	
Standard Duty Concrete (6-inches)	1,680	SF	$5.00	$8,400	Included Surface and base
Mobility Mat	4,250	SF	$12.00	$51,000	
Promenade	1,050	LF	$650.00	$682,500	Incl. walls, footings, benches, and walk
WALKS AND PAVEMENTS SUB-TOTAL				**$845,900**	
LANDSCAPING					
Topsoil (4" depth), Seed, Fert, Mulch	14,500	SY	$5.00	$72,500	Assume 3 acre area
Irrigation - Lawn (Large Area)	14,500	SF	$0.30	$4,350	
Planted Beds	1,000	SF	$4.00	$4,000	
Irrigation - Planted Beds (Sm/ Med Area)	1,000	SF	$0.65	$650	
Deciduous Tree	40	EA	$425.00	$17,000	Assumes 4-inch caliper
Ornamental Tree	40	EA	$330.00	$13,200	Assumes 3-inch caliper
Evergreen Tree	40	EA	$320.00	$12,800	Assumes 10-foot Height
LANDSCAPING SUB-TOTAL				**$124,500**	
SITE LIGHTING					
Allowance	1	EA	$120,000.00	$120,000	
SITE LIGHTING SUB-TOTAL				**$120,000**	
SITE AMENITIES					
Manufactured Bench (Metal)	10	EA	$2,000.00	$20,000	Allowance
Picnic Table	8	EA	$2,000.00	$16,000	Allowance
Bike Rack	20	EA	$400.00	$8,000	Assume upside down U as preferred by TART
Waste / Recycling Receptacle	8	EA	$1,000.00	$8,000	
Drinking Fountain	2	EA	$3,000.00	$6,000	
Outdoor Shower / Foot wash	1	EA	$4,000.00	$4,000	Inlcudes pad, untilties and fixtures
Flag or Banner Poles	15	EA	$2,000.00	$30,000	
Wayfinding / Information Signs	2	EA	$2,000.00	$4,000	Allowance
SITE AMENITIES SUB-TOTAL				**$96,000**	
BUILDINGS					
Restroom Facility	1	LS	200,000	$200,000	
Water Service	1	LS	5,000	$5,000	
Sanitary Service	1	LS	5,000	$5,000	
Utility Services	1	LS	5,000	$5,000	
BUILDINGS SUB-TOTAL				**$215,000**	
SPECIAL ITEMS					
Public Art Installation	1	LS	$10,000.00	$10,000	Relocate Tart Sculpture
Natural Playground	1	LS	$250,000.00	$250,000	
Splash Pad	1	LS	$300,000.00	$300,000	
Water Feature	1	LS	$30,000.00	$30,000	
Fish Cleaning Station	1	LS	$20,000.00	$20,000	
Kayak Launch	1	LS	$15,000.00	$15,000	
Sound Wall and Sign	1	LS	$25,000.00	$25,000	
Tunnel Reconstruction	1	LS	$800,000.00	$800,000	Assumed Budget from Garland Street Estimate
SPECIAL ITEMS SUB-TOTAL				**$1,450,000**	
TOTAL SITE CONSTRUCTION COSTS				$2,922,100	

SOFT COSTS

ARCHITECTURAL AND ENGINEERING SERVICES				
Geotechnical & Surveying Services	LS	$20,000	$20,000	
Architectural & Engineering Services (10%)	LS	$292,210	$292,210	
ARCHITECTURAL AND ENGINEERING SERVICES SUB-TOTAL			$312,210	

TOTAL SOFT AND HARD COSTS	$3,234,310
CONTINGENCY (25%)	$808,578
2010 EST. COST BASED ON PRELIMINARY ENGINEERING	**$4,042,888**

Project: Traverse City Bayfront 2010 Preliminary Engineering Estimate

Phase: PUBLIC PIER AND MURCHIE BRIDGE A

Drawing Sheet: C7-B

Description	Quantity	Units	Cost/Unit	Totals	Assumptions
DEMOLITION AND CLEARING					
Tree Removal and Clearing	1	LS	$2,000.00	$2,000	Allowance
Remove Asphalt	560	SY	$5.00	$2,800	
Remove Concrete	500	SF	$1.50	$750	
DEMOLITION AND CLEARING SUB-TOTAL				**$5,550**	
EARTHWORK					
Soil Erosion & Sediment Control	1	LS	$2,000.00	$2,000	Silt Fence $1.50 / LF plus allowance for misc.
Earthwork	1,000	CY	$6.00	$6,000	Assumes 2' cut/fill over a .1 Acre site
EARTHWORK SUB-TOTAL				**$8,000**	
WALKS AND PAVEMENTS					
Poured in Place Concrete Retaining Wall	50	LF	$250.00	$12,500	up to 3-foot wall
Poured in Place Concrete Retaining Wall	90	LF	$500.00	$45,000	3 to 12-foot wall
Concrete Stairs	1	EA	$12,000.00	$12,000	
Concrete Ramp	1	EA	$20,000.00	$20,000	
Standard Duty Concrete (6-inches)	7,200	SF	$5.00	$36,000	Included Surface, Leveling, sub-grade and base
Promenade	700	LF	$650.00	$455,000	Incl. walls, footings, benches, and walk
WALKS AND PAVEMENTS SUB-TOTAL				**$580,500**	
LANDSCAPING					
Topsoil (4" depth), Seed, Fert, Mulch	485	SY	$5.00	$2,425	Assume 1/10 acre area
Planted Beds	700	SF	$4.00	$2,800	
LANDSCAPING SUB-TOTAL				**$5,225**	
SITE LIGHTING					
Allowance	1	LS	$65,000.00	$65,000	
SITE LIGHTING SUB-TOTAL				**$65,000**	
SITE AMENITIES					
Large Tensile Shade Structure	1	EA	$7,500.00	$7,500	
Bike Rack	6	EA	$400.00	$2,400	Assume upside down U as preferred by TART
Waste / Recycling Receptacle	2	EA	$1,000.00	$2,000	
Wayfinding / Information Signs	1	EA	$2,000.00	$2,000	
SITE AMENITIES SUB-TOTAL				**$13,900**	
SPECIAL ITEMS					
Public Fishing Pier	550	LF	$4,450.00	$2,447,500	See assumptions below
SPECIAL ITEMS SUB-TOTAL					
TOTAL SITE CONSTRUCTION COSTS				$3,125,675	

SOFT COSTS

ARCHITECTURAL AND ENGINEERING SERVICES				
Geotechnical & Surveying Services		LS	$20,000	$20,000
Architectural & Engineering Services (10%)		LS	$312,568	$312,568
ARCHITECTURAL AND ENGINEERING SERVICES SUB-TOTAL				$332,568

TOTAL SOFT AND HARD COSTS	$3,458,243
CONTINGENCY (25%)	$864,561
2010 EST. COST BASED ON PRELIMINARY ENGINEERING	**$4,322,804**

* Pier as shown on plans illustrates 15-foot wide pier projecting 550-feet into Grand Traverse Bay. Additional pier elements also includes a 30' X 30' platforms with large tensile structure . Preliminary cost projections the fishing pier are conditioned on assumptions made without lake bottom bathymetry, design wave conditions analysis, soil borings on the water side and determination of regulatory constraints. Assuming the pier will consist of two 40-foot sheet pile sections (assume SSP PZ-27), backfill with sand and gravel, and an 18-inch reinforced concrete cap with a top of peir elevation at 585.00, the estimated per foot cost for the peir may be in the range of $4,450 per linear foot.

Project: Traverse City Bayfront 2010 Preliminary Engineering Estimate

Phase: MURCHIE BRIDGE B

Drawing Sheet: C7-B

Description	Quantity	Units	Cost/Unit	Totals	Assumptions
DEMOLITION AND CLEARING					
Tree Removal and Clearing	1	LS	$2,100.00	$2,100	Allowance
Remove Retaining Walls	400	LF	$20.00	$8,000	Existing walls around open space peninsula
Remove Concrete	5,000	SF	$1.50	$7,500	
DEMOLITION AND CLEARING SUB-TOTAL				**$17,600**	
EARTHWORK					
Soil Erosion & Sediment Control	1	LS	$2,500.00	$2,500	Silt Fence $1.50 / LF plus allowance for misc.
Earthwork	1,100	CY	$6.00	$6,600	Assumes 0.5' cut/fill over a 1.3 Acre site
EARTHWORK SUB-TOTAL				**$9,100**	
WALKS AND PAVEMENTS					
Poured in Place Concrete Retaining Wall	565	LF	$250.00	$141,250	Height varies up to 3-feet
Concrete Stairs	1	EA	$4,000.00	$4,000	
High Curving Stairs	1	EA	$20,000.00	$20,000	
Standard Duty Concrete (6-inches)	6,100	SF	$5.00	$30,500	Included Surface and base
Promenade	250	LF	$650.00	$162,500	Incl. walls, footings, benches, and walk
WALKS AND PAVEMENTS SUB-TOTAL				**$358,250**	
LANDSCAPING					
Topsoil (4" depth), Seed, Fert, Mulch	2,400	SY	$5.00	$12,000	Assume 1/4 acre area
Planted Beds	3,625	SF	$4.00	$14,500	
Irrigation - Planted Beds (Sm/ Med Area)	3,625	SF	$0.65	$2,356	
Deciduous Tree	4	EA	$425.00	$1,700	Assumes 4-inch caliper
LANDSCAPING SUB-TOTAL				**$30,556**	
SITE LIGHTING					
Allowance	1	LS	$25,000.00	$25,000	
SITE LIGHTING SUB-TOTAL				**$25,000**	
SITE AMENITIES					
Large Tensile Shade Structure	1	EA	$7,500.00	$7,500	
Waste / Recycling Receptacle	2	EA	$1,000.00	$2,000	
Wayfinding / Information Signs	1	EA	$2,000.00	$2,000	
SITE AMENITIES SUB-TOTAL				**$11,500**	
SPECIAL ITEMS					
TART Underpass Widening	1	EA	$60,000.00	$60,000	
SPECIAL ITEMS SUB-TOTAL				**$60,000**	
TOTAL SITE CONSTRUCTION COSTS				$512,006	

SOFT COSTS

ARCHITECTURAL AND ENGINEERING SERVICES				
Geotechnical & Surveying Services		LS	$10,000	$10,000
Architectural & Engineering Services (10%)		LS	$51,201	$51,201
ARCHITECTURAL AND ENGINEERING SERVICES SUB-TOTAL				$61,201

TOTAL SOFT AND HARD COSTS	$573,207
CONTINGENCY (25%)	$143,302
2010 EST. COST BASED ON PRELIMINARY ENGINEERING	**$716,509**

Project: Traverse City Bayfront 2010 Preliminary Engineering Estimate

Phase: HOLIDAY INN

Drawing Sheet: C8-B

Description	Quantity	Units	Cost/Unit	Totals	Assumptions
DEMOLITION AND CLEARING					
Miscellaneous	1	LS	$5,000.00	$5,000	Allowance for misc.
DEMOLITION AND CLEARING SUB-TOTAL				**$5,000**	
EARTHWORK					
Soil Erosion & Sediment Control	1	LS	$3,000.00	$3,000	Allowance
EARTHWORK SUB-TOTAL				**$3,000**	
WALKS AND PAVEMENTS					
Concrete Stairs	1	EA	$6,000.00	$6,000	
WALKS AND PAVEMENTS SUB-TOTAL				**$6,000**	
SITE LIGHTING					
Allowance	1	EA	$20,000.00	$20,000	
SITE LIGHTING SUB-TOTAL				**$20,000**	
SITE AMENITIES					
Wayfinding / Information Signs	1	EA	$2,000.00	$2,000	
SITE AMENITIES SUB-TOTAL				**$2,000**	
SPECIAL ITEMS					
Seawall	680	LF	$2,400.00	$1,632,000	See assumptions and cost breakdown below
SPECIAL ITEMS SUB-TOTAL				**$1,632,000**	
TOTAL SITE CONSTRUCTION COSTS				$1,668,000	
SOFT COSTS					
ARCHITECTURAL AND ENGINEERING SERVICES					
Geotechnical & Surveying Services		LS	$20,000	$20,000	
Architectural & Engineering Services (10%)		LS	$166,800	$166,800	
ARCHITECTURAL AND ENGINEERING SERVICES SUB-TOTAL				$186,800	
TOTAL SOFT AND HARD COSTS				$1,854,800	
CONTINGENCY (25%)				$463,700	
2010 EST. COST BASED ON PRELIMINARY ENGINEERING				**$2,318,500**	

HOLIDAY INN SEAWALL: The proposed Holiday Inn promenade as shown on the plans illustrates a 10-foot expansion of the existing seawall. Preliminary cost projections for the promenade seawall are conditioned on assumptions made without design wave conditions analysis, soil borings and determination of regulatory constraints. For estimating purposes the new seawall will consist of a new 40-foot long steel sheet piling bulkhead (PZ-27 or equivalent). For a new 10 ft wide fill, CA and 8" reinforced concrete cap, he estimated per foot cost for the peir may be in the range of $2400 per linear foot.

Project: Traverse City Bayfront 2010 Preliminary Engineering Estimate

Phase: SUNSET PARK

Drawing Sheet: C8-B

Description	Quantity	Units	Cost/Unit	Totals	Assumptions
DEMOLITION AND CLEARING					
Tree Removal and Clearing	1	LS	$800.00	$800	Allowance
Tree Protection	10	EA	$250.00	$2,500	Allowance
Remove Curb and Gutter	80	LF	$2.50	$200	Allowance
Remove Asphalt	125	SY	$5.00	$625	
Remove Concrete	1,250	SF	$1.50	$1,875	
Miscellaneous Structures	1	LS	$2,000.00	$2,000	Existing Playground equipment
DEMOLITION AND CLEARING SUB-TOTAL				**$8,000**	
EARTHWORK					
Soil Erosion & Sediment Control	1	LS	$1,000.00	$1,000	Silt Fence $1.50 / LF plus allowance for misc.
Earthwork	1,600	CY	$6.00	$9,600	Assumes 0.5' cut/fill over a 2 Acre site
EARTHWORK SUB-TOTAL				**$10,600**	
STORMWATER MANAGEMENT					
Stormwater Treatment Structure	1	EA	$40,000.00	$40,000	
STORMWATER MANAGEMENT SUB-TOTAL				**$40,000**	
WALKS AND PAVEMENTS					
Curb and Gutter	80	LF	$20.00	$1,600	
Poured in Place Flush Curb Wall	260	SF	$150.00	$39,000	
Asphalt HMA (330 LB/SY w/ Agg base)	1	LS	$6,000.00	$6,000	Included Surface, Leveling, sub-grade and base
Standard Duty Concrete (6-inches)	1,300	SF	$5.00	$6,500	Included Surface, Leveling, sub-grade and base
Pavement Marking Striping	2	LS	$1,000.00	$2,000	
Promenade	180	LF	$650.00	$117,000	Incl. walls, footings, benches, and walk
Sidewalk Ramps w/ Detectable Warning	5	EA	$500.00	$2,500	
Mobility Mat	1,100	SF	$12.00	$13,200	
WALKS AND PAVEMENTS SUB-TOTAL				**$187,800**	
LANDSCAPING					
Topsoil (4" depth), Seed, Fert, Mulch	1,200	SY	$5.00	$6,000	Assume 1/4 acre area
Irrigation - Lawn (Large Area)	10,800	SF	$0.30	$3,240	
Planted Beds	1,000	SF	$4.00	$4,000	
Irrigation - Planted Beds (Sm/ Med Area)	1,000	SF	$0.65	$650	
Deciduous Tree	5	EA	$425.00	$2,125	Assumes 4-inch caliper
Ornamental Tree	2	EA	$330.00	$660	Assumes 3-inch caliper
Evergreen Tree	2	EA	$320.00	$640	Assumes 10-foot Height
LANDSCAPING SUB-TOTAL				**$17,315**	
SITE LIGHTING					
Allowance	1	LS	$10,000.00	$10,000	
SITE LIGHTING SUB-TOTAL				**$10,000**	
SITE AMENITIES					
Manufactured Bench (Metal)	4	EA	$2,000.00	$8,000	Allowance
Picnic Table	6	EA	$2,000.00	$12,000	Allowance
Bike Rack	10	EA	$400.00	$4,000	Assume upside down U as preferred by TART
Waste / Recycling Receptacle	4	EA	$1,000.00	$4,000	
Drinking Fountain	1	EA	$3,000.00	$3,000	
Wayfinding / Information Signs	1	EA	$2,000.00	$2,000	
Street Signs	4	EA	$500.00	$2,000	Stops Signs, Pedestrian Crossing, Parking etc.
SITE AMENITIES SUB-TOTAL				**$35,000**	
BUILDINGS					
Picnic Shelter	1	LS	$40,000.00	$40,000	25' X 40' with Open Sides on a concrete slab
BUILDINGS SUB-TOTAL				**$40,000**	
SPECIAL ITEMS					
Playground	1	LS	$70,000.00	$70,000	
SPECIAL ITEMS SUB-TOTAL				**$70,000**	
TOTAL SITE CONSTRUCTION COSTS				$418,715	
SOFT COSTS					
ARCHITECTURAL AND ENGINEERING SERVICES					
Geotechnical & Surveying Services		LS	$6,000	$6,000	
Architectural & Engineering Services (10%)		LS	$41,872	$41,872	
ARCHITECTURAL AND ENGINEERING SERVICES SUB-TOTAL				$47,872	
TOTAL SOFT AND HARD COSTS				$466,587	
CONTINGENCY (25%)				$116,647	
2010 EST. COST BASED ON PRELIMINARY ENGINEERING				**$583,234**	

Project: Traverse City Bayfront 2010 Preliminary Engineering Estimate

Phase: **SENIOR CENTER**

Drawing Sheet: C9-B

Description	Quantity	Units	Cost/Unit	Totals	Assumptions
DEMOLITION AND CLEARING					
Tree Removal and Clearing Allowance	1	LS	$2,400.00	$2,400	
Tree Protection	4	EA	$250.00	$1,000	
Remove Curb and Gutter	100	LF	$2.50	$250	
Remove Asphalt	110	SY	$5.00	$550	
Remove Concrete	2,000	SF	$1.50	$3,000	
DEMOLITION AND CLEARING SUB-TOTAL				**$7,200**	
EARTHWORK					
Soil Erosion & Sediment Control	1	LS	$600.00	$600	Silt Fence $1.50 / LF plus allowance for misc.
Earthwork	800	CY	$6.00	$4,800	Assumes 1' cut/fill over a 1/2 Acre area
EARTHWORK SUB-TOTAL				**$5,400**	
STORMWATER MANAGEMENT					
Stormwater Treatment Structure	1	EA	$40,000.00	$40,000	
STORMWATER MANAGEMENT SUB-TOTAL				**$40,000**	
WALKS AND PAVEMENTS					
Curb and Gutter	100	LF	$40.00	$4,000	
Asphalt HMA (330 LB/SY w/ Agg base)	1	LS	$6,000.00	$6,000	
Standard Duty Concrete (6-inches)	7,500	SF	$5.00	$37,500	
Sidewalk Ramps w/ Detectable Warning	8	EA	$500.00	$4,000	
WALKS AND PAVEMENTS SUB-TOTAL				**$51,500**	
LANDSCAPING					
Topsoil (4" depth), Seed, Fert, Mulch	1,200	SY	$5.00	$6,000	Assume 1/4 acre area
LANDSCAPING SUB-TOTAL				**$6,000**	
SITE AMENITIES					
Wayfinding / Information Signs	1	EA	$2,000.00	$2,000	
Street Signs	4	EA	$500.00	$2,000	Stops Signs, Pedestrian Crossing, Parking etc.
SITE AMENITIES SUB-TOTAL				**$4,000**	
TOTAL SITE CONSTRUCTION COSTS				**$114,100**	

SOFT COSTS

ARCHITECTURAL AND ENGINEERING SERVICES				
Geotechnical & Surveying Services		LS	$4,000	$4,000
Architectural & Engineering Services (10%)		LS	$11,410	$11,410
ARCHITECTURAL AND ENGINEERING SERVICES SUB-TOTAL				**$15,410**

TOTAL SOFT AND HARD COSTS	$129,510
CONTINGENCY (25%)	$32,378
2010 EST. COST BASED ON PRELIMINARY ENGINEERING	**$161,888**