BLUE WATER BRIDGE
PORT HURON, MICHIGAN

AESTHETIC DESIGN GUIDE

June 24, 2009
# Aesthetic Design Guide

**June 24, 2009**

## CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Summary</td>
<td>2</td>
</tr>
<tr>
<td>Orientation Map</td>
<td>5</td>
</tr>
<tr>
<td>1 Blue Water Bridge Plaza</td>
<td>6</td>
</tr>
<tr>
<td>Constraints &amp; Opportunities, Design Program Influences &amp; Design Development</td>
<td></td>
</tr>
<tr>
<td>Hancock Street</td>
<td>10</td>
</tr>
<tr>
<td>Streetscape Concept Layout, Perimeter Concrete Masonry Unit (CMU) Brick Wall with Wave Panel</td>
<td></td>
</tr>
<tr>
<td>Hancock Street &amp; Pine Grove Avenue</td>
<td>13</td>
</tr>
<tr>
<td>Perimeter CMU Brick Wall with Wave Panel Height Options, Perimeter Ornamental Metal Fence, Colors</td>
<td></td>
</tr>
<tr>
<td>10th Avenue &amp; Hancock Street</td>
<td>20</td>
</tr>
<tr>
<td>Landscape Concept, Raingarden Examples</td>
<td></td>
</tr>
<tr>
<td>10th Avenue</td>
<td>22</td>
</tr>
<tr>
<td>Streetscape Concept Layout, Mechanically Stabilized Earth (MSE) Brick Wall, Sculptural Insets</td>
<td></td>
</tr>
<tr>
<td>Pine Grove Overpass</td>
<td>26</td>
</tr>
<tr>
<td>Grading Concept, Bridge Prototype, Materials &amp; Colors, Entrance Landmark Alternatives</td>
<td></td>
</tr>
<tr>
<td>Pine Grove Overpass/Water Street Bridge</td>
<td>37</td>
</tr>
<tr>
<td>Wave Railing</td>
<td></td>
</tr>
<tr>
<td>Pine Grove Overpass/Overall Project</td>
<td>39</td>
</tr>
<tr>
<td>Ornamental Lighting</td>
<td></td>
</tr>
<tr>
<td>Pine Grove Overpass Landscape Concept</td>
<td>40</td>
</tr>
<tr>
<td>Pine Grove &amp; Scott Avenue Landscape Concept</td>
<td>41</td>
</tr>
<tr>
<td>Plant Gallery and Plant Lists</td>
<td>42</td>
</tr>
</tbody>
</table>
CONTENTS

2 Black River Bridge .................................................................................................49
   Constraints & Opportunities, Design Program Influences &
   Design Development
   Pathway, Wave Railing, Lighting Fixture

3 & 4 Water Street and Lapeer Connector .................................................................55
   Constraints & Opportunities, Design Program Influences &
   Design Development
   Roundabout Concept

5 Welcome Center .....................................................................................................59
   Constraints & Opportunities, Design Program Influences &
   Design Development
   Landscape Concept

Materials Color Chart & Application .........................................................................62

Appendix ......................................................................................................................63
   List of Participants, Reproduction of Presentation Display Boards
As part of their commitment to applying Context Sensitive Solutions (CSS) principles to all projects, the Michigan Department of Transportation (MDOT) established a Community Advisory Group (CAG) for the Blue Water Bridge Plaza and I-94/I-69 project.

Recognizing that this large project can influence and create beneficial improvements to the greater community as well as the adjacent neighborhoods, the CAG was charged to work with the design team to develop an Aesthetic Design Guide.

The CAG was convened for four meetings between December 8, 2008 and April 30, 2009.

The designs in this Guide reflect the aesthetic recommendations of the CAG.

(See Appendix pg. 63 for list of CAG participants.)
**CAG PROCESS**

At the *December 2008* meeting, the CAG provided input about their aesthetic vision for the community. They agreed that a successful project should:

- create a unique and inviting perception of Port Huron
- compose aesthetic elements that create a sense of place
- acknowledge the region’s rich history while framing a future vision
- leave a positive legacy within Port Huron
- create a “wow” statement.

The CAG received a detailed update from MDOT regarding the design of the plaza, roadway alignments and bridges, and reviewed Inventory and Analysis boards providing orientation to existing conditions and critical issues. (See Appendix, pgs. 64-71).

Five distinct priority areas were identified (see map pg. 5):
1. Blue Water Bridge (BWB) Plaza;
2. Black River Bridge;
3. Water Street;
4. Lapeer Connector; and
5. Welcome Center.

The *January 2009* meeting involved an examination of opportunities and constraints for each of the five areas (see Appendix pgs. 72-75 for display boards) and an exercise to define the character and identity of Port Huron.

CAG comments and responses were collected in a list that became the Design Influences shaping design work for each of the five areas.

At this point, the CAG determined two clear priorities for the project:

1. the perimeter fencing and walls around the BWB Plaza should blend-in with the surrounding neighborhood as much as possible, and;

2. an inviting gateway at the Pine Grove Overpass is needed to greet international visitors as they exit the BWB Plaza and encourage them to visit Port Huron.

At the *March 2009* meeting, CAG members reviewed and responded to conceptual alternatives presented by the designers including elements for the five priority areas:

1. Blue Water Bridge Plaza.
   Streetscape layouts, perimeter and MSE retaining walls, and landscape concepts for Hancock Street and 10th Avenue; Pine Grove Overpass and Local Entrance grading and landscape concepts, Port Huron marker/landmark, parapet/railing, and ornamental lighting.

2. Black River Bridge.
   Pedestrian pathway with overlook, decorative railing and lighting.

   Landscape concept for roundabout and parapet/railing.

4. Welcome Center.
   Landscape concept.

At the *April 2009* meeting, the CAG examined design development of the conceptual alternatives they selected at the March 2009 meeting.

The elements depicted in this Guide are supported by the consensus of the CAG.
The designs in this Guide convey the overall spirit of the aesthetic design for the Blue Water Bridge Plaza and I-94/I-69 projects and establish the template for aesthetic recommendations for the project.

The designs are subject to change. They require further development and refinement that will occur during the project’s final design phase.

For example, detailed engineering analysis and soil investigations are required for some elements. Long-term maintenance by local agencies of any architectural, landscaping and lighting concepts also must be addressed and all MDOT and U.S. Customs and Border Protection (CBP) operational and security requirements must be met. These considerations may affect the overall design and consequently, design modifications may be necessary.

AESTHETIC DESIGN GUIDE ORGANIZATION

The Guide is organized according to the five priority areas considered by the CAG: 1. Blue Water Bridge Plaza; 2. Black River Bridge; 3. Water Street; 4. Lapeer Connector; and 5. Welcome Center.

Each of the following chapters begins with an orientation map and a section detailing:

- **constraints and opportunities** that realistically define the area’s potential,
- **design program influences** that emerged from the CAG meetings in December 2008 and January 2009 that affected the design program and formed the basis for design work, and
- **design development** list identifying the specific design elements considered and supported by the consensus of the CAG and depicted in this Guide.
A unified impression is created through conceptual designs for an ensemble of compatible elements including bridges, plaza perimeter walls, retaining walls, street furnishings, landforms and plantings.

The ensemble is punctuated by a vertical wayfinding marker that becomes a landmark welcoming residents and visitors. Attractive compatible plantings accent and tie together the overall design.

The conceptual designs in this Guide express a dignified civic character suitable for public infrastructure that is in the midst of the City of Port Huron.
ORIENTATION MAP

PORT HURON, MICHIGAN

Blue Water Bridge
Aesthetic Design Guide
June 24, 2009
Aesthetic Design Guide

BLUE WATER BRIDGE
PORT HURON, MICHIGAN

June 24, 2009

CONSTRAINTS

- Roadway geometrics and traffic flow patterns are set.
- Plaza layout, structure and building footprints are set.
- Right of way property acquisition limits have been determined.
- Plaza must be elevated at approach spans over 10th Avenue.
- No screening vegetation is allowed against perimeter fencing/walls.
- Sightlines must be kept open within the secure perimeter – no tall vegetation is allowed.
- Perimeter fencing/walls must not be scalable.
- All CBP building and site operational and security requirements (sightlines, setbacks, heights, etc.), must be maintained.

OPPORTUNITIES

1.1 Perimeter Fencing/Wall
Provide a non-scaleable secure and durable perimeter fence or wall that is pleasing and neighborhood-appropriate.

1.2 Boulevard Landscaping
Retain existing street trees on edges. Infill trees behind curbs where feasible and necessary.

1.3 Perimeter Landscaping
Use low native plantings to soften edge of perimeter fencing/walls.

1.4 Pine Grove Overpass
Craft a portal to frame traveler’s views, creating a visual gateway.

1.5 Artwork and Iconography
Create a setting for artistic and historical expressions.

1.6 Local Entrance/Local Exit
Create a physical access point that visually fits within the surrounding neighborhood context.

1.7 Pavement/Hardscape/Ground Plane
Incorporate various surface treatments for marking and delineating driving surfaces, parking stalls and lanes.

1.8 Stormwater Management
Employ innovative infiltration systems and/or permeable pavement surfaces where feasible for water discharge south of the plaza.

1.9 Signage Structures
Create context appropriate signage structures integrated with the site to complement architecture and simplify driver’s wayfinding experience.

1.10 Building Architecture
Create attractive and inviting structures that combine function with appropriate scale and design vocabulary.

Design options include material, form, color, texture and pattern.

Design variables include paving materials, scoring patterns, color and texture.

Opportunities Contingent upon GSA/CPB Design Process

Design options include materials, form, style, finish and color.

Design variables include massing, form, style, materials and color.
# DESIGN PROGRAM INFLUENCES

## PINE GROVE OVERPASS & LOCAL ENTRANCE

**CONCEPTS**
- Vertical statement
- Lighting controlled for “dark sky”
- Blue or other color; water imagery
- Horizontal structures
- Compatible with/complements downtown
- Art-type forms
- Iconography about the city

**MATERIALS**
- Glass
- Plants

**FUNCTIONS**
- International gateway greets people, inviting them to visit Port Huron
- Wayfinding/directions; “virtual” and “physical”
- Green areas act as buffers
- Pedestrian/human scale at walkways
- Bicycle connections/official routes

## PERIMETER FENCING/WALLS

**CONCEPTS**
- Solid walls/fencing where there is nothing to see
- Variety of solid and transparent sections
- Water imagery
- Earthtone colors
- Landscaping at plaza entrances/ exits

**MATERIALS**
- Cast in place concrete, MSE, CMU block, post & panel
- Low plantings

**FUNCTIONS**
- Meet security requirements
- Sound/noise protection
- Shield views in and out
- Green areas soften/buffer edge with neighborhood

## STREETSCEAPE

**CONCEPTS**
- Assists wayfinding
- Softens edges
- Earthtone colors
- Wide boulevards and sidewalks

**MATERIALS**
- Pavers, stamped concrete

**FUNCTIONS**
- Paving for wayfinding; i.e., “Yellow Brick Road”
- Pedestrian/human scale
- Bicycle connections/official routes
DESIGN DEVELOPMENT

PERIMETER WALL
CMU Brick Wall with Wave Pattern Cap Panel 8’ to 10’ (H) to screen plaza functions. Base is pre-cast cast stone; middle panel is CMU Brick; and cap (top) panel is pre-cast cast stone with Wave Pattern.
Pre-cast Major and Minor Posts with Bulk Head Light on Major Post.
Ornamental Metal Fence transitioning to CMU Brick Wall with Wave Pattern Cap Panel.

HANCOCK STREET
Scored/Stamped Colored Pavement Strip.
No back of curb or behind the curb trees and shrubs on south side of street because of security criteria.

Existing trees at back of curb or behind the curb on north side of street retained and protected.
Lawn groundcover between sidewalk and perimeter wall.
Holophane Ornamental Lights.

10TH AVENUE
Park-like Landscape Planting, or rain gardens by agreement of MDOT and city, at south-west corner of Hancock Street and 10th Avenue.
Scored/Stamped Colored Pavement Strip.
MSE Wall including base panel with larger blocks and cap and mid-panels to simulate brick and stained to match CMU Brick of the perimeter wall.
Ornamental Metal Fence transitioning to CMU Brick Wall and Wave Pattern Cap.

PINE GROVE OVERPASS
Scored/Stamped Colored Pavement Strip.
Vertical markers/landmarks for Port Huron identity and wayfinding – Alternative 1: Lighthouse Alternative 2: Great Lakes boat forms.
Wave Metal Railing.
Landscaping with evergreens and deciduous species; Plant Gallery and Lists include selections from the Low Impact Development Manual for Michigan and other MDOT guidelines as well as Roadside Use of Native Plants, Bonnie Harper-Lore and Maggie Wilson, Eds., 2000.
Native plants where site conditions, hydrology, maintenance and appearance allow.
PAVEMENT STRIP
(Medium Brown)
For detailed information on Materials, see pg. 62.
HANCOCK STREET
Perspective –
Perimeter
CMU Brick Wall
and Wave Pattern
Cap Panel
HANCOCK STREET
Perspective – Perimeter CMU Brick Wall and Wave Pattern Cap Panel
Sketch of Perimeter CMU Brick Wall, Wave Pattern Cap Panel and Bulk Head Lights
Aesthetic Design Guide

BLUE WATER BRIDGE
PORT HURON, MICHIGAN

June 24, 2009

HANCOCK STREET & PINE GROVE AVENUE
Elevations – Perimeter
CMU Brick Wall and Wave Pattern Cap Panel
8’ and 10’ Height Options
HANCOCK STREET & PINE GROVE AVENUE
Perimeter Ornamental Metal Fence
8'-0" (H) Wall transitioning to 10'-0" (H) Wall
HANCOCK STREET & PINE GROVE AVENUE
Ornamental Metal Fence and CMU Brick Wall and Wave Pattern Cap Panel – Colors

MATERIALS & COLORS

B
METALS ALTERNATE 2 (Dark Brown)

C
CONCRETE & CAST STONE (Warm Grey)

CMU BRICK - SMALL BLOCK (Orange Brown Blend)

For detailed information, see pg. 62.
HANCOCK STREET &
PINE GROVE AVENUE
Elevations and Sections –
Perimeter CMU Brick Wall and
Wave Pattern Cap Panel
HANCOCK STREET & PINE GROVE AVENUE
Elevations and Sections – Perimeter CMU Brick Wall and Wave Pattern Cap Panel
Section and Elevation Details - Ornamental Metal Fence

HANCOCK STREET & PINE GROVE AVENUE
Elevations and Sections – Perimeter Ornamental Metal Fence
Note: Port Huron will meet with MDOT during final design to discuss the potential for developing rain gardens and educational exhibits in this location. Any proposals will require agreement upon the subsequent maintenance and use of proposed improvements.
Biofiltration swales at H.B. Fuller Corporation, Roseville, MN handle runoff from parking lots. Knowledge about watershed and site hydrology, careful engineering to accommodate runoff, selection of appropriate native plants, and ongoing care to maintain its cultivated appearance make this stormwater design a success.

A series of rain gardens at the Ramsey Washington Metro Watershed District office building, Little Canada, MN, has a less cultivated, more natural, appearance in part due to the entirely native plant palette.

Rain garden in a residential setting, before (left) and (above) just after construction. Note curb cut and the use of retaining walls to create the basin and stabilize the slope.

Interpretive signage explains the design and function of the rain gardens.
10th AVENUE

Plan – Streetscape Concept Layout

For detailed information on Materials and Colors, see pg. 62.
10th AVENUE
Perspective – MSE Brick Wall, Coping and Low Railing
For detailed information on Materials and Colors, see pg. 62.
For detailed information on Materials and Colors, see pg. 62.
Port Huron Entrance Landmark

Decision Point

Note: During final design, a loop ramp alternative will be evaluated to see if additional room can be provided between leaving the plaza and the local Port Huron ramp.

CMU Brick Wall with Ornamental Metal Fence, see pgs. 15, 16 & 19.

PINE GROVE OVERPASS
Grading Concept – Showing Visibility to the Port Huron Entrance Landmark
Elevation - Pine Grove Avenue Bridge East Elevation

Detail Elevation - Pine Grove Avenue Bridge East Elevation

For detailed information on Materials and Colors, see pg. 62.

PINE GROVE OVERPASS
BRIDGE PROTOTYPE
Elevations
For detailed information on Materials and Colors, see pg. 62.

PINE GROVE OVERPASS
BRIDGE PROTOTYPE
Plan, Sections, Elevations
For detailed information on Materials and Colors, see pg. 62.

PINE GROVE OVERPASS
BRIDGE PROTOTYPE
Plan, Sections, Elevations
For detailed information on Materials and Colors, see pg. 62.
Note: Both metal color alternatives A & B for the railings are shown for your reference and comparison. One color will be selected.

For detailed information, see pg. 62.
The Fort Gratiot Lighthouse is the oldest lighthouse in Michigan and an icon worthy of celebrating in a Port Huron entrance marker.

Rather than creating a replica of the lighthouse, we have used its mass and volume as inspiration and reveal the interior stairway and structure in a sculptural way.

A series of human silhouettes are cut into perpendicular plates of steel creating a three dimensional illusion of ascending figures.

When viewed against the sky and landscape this dynamic form will create interesting shadow patterns as well as offer great potential for lighting effects.
Plate Steel Fort Gratiot Intersecting Lighthouse section silhouettes.

Structural design, wind loading factors to be developed further with advancement of design.

Cut-out figures to be placed to eliminate scaling opportunities. Poses to be varied to suggest movement. Use Lighthouse Keeper figure.

Retaining wall with raised metal letters cowed to retaining wall. Wall face to be illuminated.

Marker at high point on Pine Grove Avenue visible from toll plaza, from new Black River Bridge, from Pine Grove Avenue and to serve as a neighborhood landmark.

Monument to have hawthorn tree backdrop.

Front Elevation 25'
Views of 3-D Model

PINE GROVE OVERPASS
Alternative 1 – Lighthouse
Port Huron Entrance Landmark
PINE GROVE OVERPASS
Alternative 2 – Boat Forms
Port Huron Entrance Landmark
PINE GROVE OVERPASS
Alternative 2 – Boat Forms
Port Huron Entrance Landmark
Elevation – Wave Railing

Note: The railing also applies to Water Street.

MATERIALS & COLORS

METALS ALTERNATE 1 (Dark Blue)

METALS ALTERNATE 2 (Dark Brown)

For detailed information, see pg. 62.

PINE GROVE OVERPASS/
WATER STREET BRIDGE
Elevation – Wave Railing
For Information on Materials and Colors, see pg. 62.

Note: These railing alternatives also apply to Water Street Bridge.

PINE GROVE OVERPASS/
WATER STREET BRIDGE
Details – Wave Railing
Ornamental Lighting is inspired by nautical/maritime forms and features mast-like poles.

Light fixtures have been reviewed by Detroit Edison. Exact locations for lights will be determined during the final design phase.

Lights can also provide locations for permanent Port Huron wayfinding signage.

Holophane Port Dickenson Series, Drawing #TSG004775 for Detroit Edison
150W Ceramic Metal Halide

For detailed information, see pg. 62.
Native grasses & wildflowers in distinct bands of mixed species

For more information, see Plant Gallery and Plant Lists, pgs. 42-48.
For more information, see Plant Gallery and Plant Lists, pgs. 42-48.

Native grasses & wildflowers in distinct bands of mixed species

Roadway turfgrass mix

Low shrubs

Hawthorn grove and lawn

Port Huron entrance marker

Native grasses & wildflowers

Fill in new street trees

Buffer trees on slope: masses of evergreen and deciduous

Preserve existing street trees to the extent feasible (locations approximate)

New street trees

Low-height plantings

PINE GROVE & SCOTT AVENUE
Landscape Concept
PLANT GALLERY

TREES
Deciduous and Evergreen

* = native plant species
** = cultivar of native plant species

Red maple, Acer x freemanii ‘Autumn Blaze’**

River birch, Betula nigra

Austrian pine, Pinus nigra

Eastern red cedar, Juniperus virginiana*

Honeylocust, Gleditsia triacanthos

Black tupelo, Nyssa sylvatica*

Swamp white oak, Quercus bicolor*

Hawthorn, Crataegus crus-galli*

Ohio buckeye, Aesculus glabra

Crabapple, Malus ‘Prairie Fire’

Serviceberry, Amelanchier x grandiflora ‘Autumn Brilliance’**

Littleleaf linden, Tilia cordata ‘Greenspire’**
BLUE WATER BRIDGE
PORT HURON, MICHIGAN

Aesthetic Design Guide
June 24, 2009

PLANT GALLERY

SHRUBS Deciduous and Evergreen
* = native plant species
** = cultivar of native plant species

2.4 FEET

Blue rug juniper, *Juniperus horizontalis 'Wiltonii'**

Fragrant sumac, *Rhus aromatica 'Gro-Low'**

Dwarf bush honeysuckle, *Diervilla lonicera*

4.8 FEET

Yew, *Taxus canadensis*

Michigan holly, *Ilex verticillata (winter)*

Winged euonymous, *Euonymous alata 'Compactus'**

Smooth sumac, *Rhus glabra*

Meadowsweet, *Spiraea alba*

Black chokeberry, *Aronia prunifolia*

Common witch hazel, *Hamamelis virginiana*

Red-twig dogwood, *Cornus sericea 'Cardinal'**

** = cultivar of native plant species

* = native plant species
**PLANT GALLERY**

**MOIST TO WET**
- Great blue lobelia, *Lobelia siphilitica*
- Blue vervain, *Verbena hastata*
- Woolgrass, *Scirpus cyperinus*
- Boneset, *Eupatorium perfoliatum*

**MOIST TO DRY**
- Catmint, *Nepeta faassenii ‘Walkers Low’*
- Shrub rose, *Rosa x ‘Nearly Wild’*
- Black-eyed susan, *Rudbeckia fulgida*
- Azure aster, *Aster oolentangiensis*
- Showy goldenrod, *Solidago speciosa*
- Wild bergamot, *Monarda fistulosa*
- Lance-leaf coreopsis, *Coreopsis lanceolata*
- Gray-headed coneflower, *Ratibida pinnata*
- Rough blazingstar, *Liatris aspera*

**DRY**
- Prairie dropseed, *Sporobolus heterolepis*
- Switchgrass, *Panicum virgatum*
- Little bluestem, *Schizachyrium scoparium*
- Prairie brome, *Bromus kalmii*

* = native plant species

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**Aesthetic Design Guide**

**BLUE WATER BRIDGE**

**PORT HURON, MICHIGAN**

**June 24, 2009**
## PLANT LIST OF TREES — Deciduous and Evergreen

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Salt Tolerance</th>
<th>Drought/Flooding Tolerance</th>
<th>Michigan Native?</th>
<th>Culture/Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acer x freemanii ‘Autumn Blaze’ and/or Acer ‘Autumn Radiance’</td>
<td>Red maple</td>
<td>moderate</td>
<td>moderate/moderate</td>
<td>no</td>
<td>wet to dry soils, orange-red fall color</td>
</tr>
<tr>
<td>Aesculus glabra</td>
<td>Ohio Buckeye</td>
<td>very tolerant</td>
<td>moderate/yes</td>
<td>yes</td>
<td>pumpkin-red fall color</td>
</tr>
<tr>
<td>Amelanchier x grandiflora ‘Autumn Brilliance’ multi-stem form</td>
<td>Serviceberry</td>
<td>sensitive</td>
<td>moderate/high</td>
<td>no</td>
<td>sun/shade, dramatic blooms, burgundy/orange fall</td>
</tr>
<tr>
<td>Betula nigra</td>
<td>River Birch</td>
<td>unknown</td>
<td>yes/yes</td>
<td>no</td>
<td>papery, salmon-orange bark, fast growth rate</td>
</tr>
<tr>
<td>Celtis occidentalis</td>
<td>Hackberry</td>
<td>moderate</td>
<td>yes/no</td>
<td>yes</td>
<td>corky bark texture, tough</td>
</tr>
<tr>
<td>Crataegus crus-galli</td>
<td>Hawthorn</td>
<td>moderate</td>
<td>yes/moderate</td>
<td>yes</td>
<td>flowers May, dark red/purple fall</td>
</tr>
<tr>
<td>Gleditsia triacanthos ‘Shademaster’</td>
<td>Shademaster honeylocust</td>
<td>tolerant</td>
<td>yes/moderate</td>
<td>species yes, cultivar no</td>
<td>yellow fall</td>
</tr>
<tr>
<td>Juniperus virginiana</td>
<td>Eastern red cedar</td>
<td>moderate</td>
<td>yes/no</td>
<td>yes</td>
<td>evergreen</td>
</tr>
<tr>
<td>Malus ‘Prairie Fire’</td>
<td>Prairie Fire crabapple</td>
<td>sensitive</td>
<td>moderate /no</td>
<td>no</td>
<td>dry to wet soils, pink-red blooms spring</td>
</tr>
<tr>
<td>Nyssa sylvatica</td>
<td>Black tupelo</td>
<td>moderate</td>
<td>yes/moderate</td>
<td>yes</td>
<td>orange-red fall</td>
</tr>
<tr>
<td>Pinus nigra</td>
<td>Austrian pine</td>
<td>very tolerant</td>
<td>yes/no</td>
<td>no</td>
<td>evergreen</td>
</tr>
<tr>
<td>Quercus bicolor</td>
<td>Swamp White Oak</td>
<td>moderate</td>
<td>yes/yes</td>
<td>yes</td>
<td>wet to dry soils, yellow fall</td>
</tr>
<tr>
<td>Quercus imbricaria</td>
<td>Shingle Oak</td>
<td>moderate</td>
<td>yes/moderate</td>
<td>yes</td>
<td>varied reds in fall</td>
</tr>
<tr>
<td>Taxus spp.</td>
<td>Yew</td>
<td>tolerant</td>
<td>yes/moderate</td>
<td>no</td>
<td>evergreen</td>
</tr>
<tr>
<td>Tilia americana &amp; Tilia cordata ‘Greenspire’</td>
<td>Linden</td>
<td>sensitive</td>
<td>yes/yes</td>
<td>species, yes cultivar, no</td>
<td>Fragrant flowers, yellow fall</td>
</tr>
</tbody>
</table>
## PLANT LIST OF SHRUBS — Deciduous and Evergreen

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Salt Tolerance</th>
<th>Drought/Flooding Tolerance</th>
<th>Michigan Native?</th>
<th>Culture/Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aronia prunifolia</td>
<td>Black chokeberry</td>
<td>tolerant</td>
<td>moderate/high</td>
<td>yes</td>
<td>sun/part shade &amp; wet to dry, showy fruit, orange-red fall</td>
</tr>
<tr>
<td>Cornus racemosa</td>
<td>Gray dogwood</td>
<td>sensitive</td>
<td>yes/high</td>
<td>yes</td>
<td>sun to shade &amp; wet to dry</td>
</tr>
<tr>
<td>Cornus sericia ‘Cardinal’</td>
<td>Redtwig dogwood</td>
<td>sensitive</td>
<td>yes/high</td>
<td>species yes, cultivar no</td>
<td>sun &amp; moist/wet, red stems winter, stoloniferous</td>
</tr>
<tr>
<td>Diervilla lonicera</td>
<td>Dwarf Bush honeysuckle</td>
<td>tolerant</td>
<td>yes/moderate</td>
<td>yes</td>
<td>sun/part shade &amp; wet to dry, bronze fall color</td>
</tr>
<tr>
<td>Euonymous alata ‘Compactus’</td>
<td>Winged euonymous</td>
<td>very tolerant</td>
<td>yes/moderate</td>
<td>no</td>
<td>rosy fall color, corky branches catch snow</td>
</tr>
<tr>
<td>Hamamelis virginiana</td>
<td>Common Witch Hazel</td>
<td>sensitive</td>
<td>moderate/yes</td>
<td>yes</td>
<td>sun to shade &amp; moist to wet, fragrant yellow flowers in fall</td>
</tr>
<tr>
<td>Illex verticillata</td>
<td>Michigan holly</td>
<td>sensitive</td>
<td>moderate/yes</td>
<td>yes</td>
<td>sun to shade &amp; moist to wet, need male and female plants for fruiting</td>
</tr>
<tr>
<td>Juniperus horizontalis ‘Wiltonii’</td>
<td>Blue rug juniper</td>
<td>sensitive</td>
<td>yes/no</td>
<td>no</td>
<td>sun &amp; wet to dry</td>
</tr>
<tr>
<td>Physocarpus opulifolius</td>
<td>Ninebark</td>
<td>moderate</td>
<td>yes/high</td>
<td>yes</td>
<td>sun &amp; moist/wet, not flashy, but tough</td>
</tr>
<tr>
<td>Rhus aromatica ‘Gro Low’</td>
<td>Gro Low fragrant sumac</td>
<td>moderate</td>
<td>yes/no</td>
<td>no</td>
<td>sun &amp; moist to dry, orange-red fall</td>
</tr>
<tr>
<td>Rhus glabra</td>
<td>Smooth sumac</td>
<td>moderate</td>
<td>yes/no</td>
<td>yes</td>
<td>sun &amp; wet to dry, orange-red fall</td>
</tr>
<tr>
<td>Spiraea alba</td>
<td>Meadow Sweet</td>
<td>sensitive</td>
<td>yes/very tolerant</td>
<td>yes</td>
<td>sun to part shade, wet to moist soils, white flower spikes</td>
</tr>
<tr>
<td>Taxus x media</td>
<td>Spreading Yew</td>
<td>tolerant</td>
<td>no/moderate</td>
<td>no</td>
<td>partial sun/shade &amp; moist/wet, evergreen</td>
</tr>
<tr>
<td>Viburnum dentatum</td>
<td>Arrowwood viburnum</td>
<td>moderate</td>
<td>yes/yes</td>
<td>no</td>
<td>sun to shade &amp; moist/wet</td>
</tr>
<tr>
<td>Viburnum x burkwoodii</td>
<td>Burkwood viburnum</td>
<td>sensitive</td>
<td>no/no</td>
<td>no</td>
<td>sun to shade &amp; moist/wet, pink bud, fragrant white flower</td>
</tr>
<tr>
<td>Viburnum trilobum</td>
<td>American cranberry-bush viburnum</td>
<td>sensitive</td>
<td>yes/yes</td>
<td>yes</td>
<td>sun to shade &amp; moist/wet, white flower followed by berries</td>
</tr>
</tbody>
</table>
### PLANT LIST OF WILDFLOWERS AND GRASSES that add color to seeded areas

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Sun/Shade &amp; Habitat</th>
<th>Michigan Native?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aster oolentangiensis</td>
<td>Azure aster</td>
<td>sun &amp; moist to dry</td>
<td>yes</td>
</tr>
<tr>
<td>Bromus kalmii</td>
<td>Prairie Brome</td>
<td>sun &amp; moist to dry</td>
<td>no</td>
</tr>
<tr>
<td>Carex pennsylvanica</td>
<td>Sun Sedge</td>
<td>sun to shade &amp; moist to dry</td>
<td>yes</td>
</tr>
<tr>
<td>Coreopsis lanceolata</td>
<td>Lance-leaf coreopsis</td>
<td>sun/part shade &amp; dry</td>
<td>yes</td>
</tr>
<tr>
<td>Heliopsis helianthoides</td>
<td>Oxeye</td>
<td>sun/part shade &amp; moist to dry</td>
<td>yes</td>
</tr>
<tr>
<td>Liatris aspera</td>
<td>Rough blazingstar</td>
<td>sun &amp; moist to dry</td>
<td>yes</td>
</tr>
<tr>
<td>Monarda fistulosa</td>
<td>Wild Bergamot</td>
<td>sun/part shade &amp; moist to dry</td>
<td>yes</td>
</tr>
<tr>
<td>Nepeta x faasenni ‘Walkers Low’</td>
<td>Catmint</td>
<td>sun &amp; moist to dry</td>
<td>no</td>
</tr>
<tr>
<td>Panicum virgatum</td>
<td>Switchgrass</td>
<td>sun &amp; wet to moist</td>
<td>yes</td>
</tr>
<tr>
<td>Ratibida pinnata</td>
<td>Gray-headed Coneflower</td>
<td>sun &amp; moist to dry</td>
<td>yes</td>
</tr>
<tr>
<td>Rosa x ‘Nearly Wild’</td>
<td>Wild Rose</td>
<td>sun/part shade &amp; moist to dry</td>
<td>no</td>
</tr>
<tr>
<td>Schizachyrium scoparium</td>
<td>Little bluestem</td>
<td>sun &amp; wet to dry</td>
<td>yes</td>
</tr>
<tr>
<td>Solidago speciosa</td>
<td>Showy Goldenrod</td>
<td>sun &amp; wet to dry</td>
<td>yes</td>
</tr>
<tr>
<td>Sorghastrum nutans</td>
<td>Indian Grass</td>
<td>sun &amp; wet to dry</td>
<td>yes</td>
</tr>
<tr>
<td>Sporobolus cryptandrus</td>
<td>Sand Dropseed Grass</td>
<td>sun &amp; moist to dry</td>
<td>yes</td>
</tr>
<tr>
<td>Verbena hastata</td>
<td>Blue vervain</td>
<td>sun/part shade &amp; wet to moist</td>
<td>yes</td>
</tr>
</tbody>
</table>
### SEED MIXES — Clear Zone and Slope Plantings

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Michigan Native?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-height prairie mix</td>
<td>Incorporating such grasses and wildflowers as sun sedge, little bluestem, Canada wild rye, sideoats grama, wild bergamot, oxeye, nepeta, rough blazingstar</td>
<td>yes</td>
</tr>
<tr>
<td>Stormwater mix</td>
<td>Incorporating such native plants as big bluestem, switchgrass, woolgrass, fringed sedge, swamp milkweed, boneset, ironweed, blue vervain</td>
<td>yes</td>
</tr>
<tr>
<td>Short shoulder edge mix, for mowing</td>
<td>Incorporating such tough, mowable grasses as slender wheatgrass, blue grama, fescues, perennial rye, alkali grass</td>
<td>yes</td>
</tr>
</tbody>
</table>

Slope planting examples

Detention ponds as amenity examples
CONSTRATINTS

- Roadway geometrics and traffic flow patterns are set.
- Longer bridge spans are required due to poor soils.
- Bridge structure type is not intended to be a landmark statement.

OPPORTUNITIES

2.1 Bridge Piers, Abutments, Retaining Walls
Develop a cohesive system of Corridor architectural elements that visually link the Corridor, Welcome Center and Plaza.

Design options include form, shape, color, pattern and surface texture.

2.2 Railings and Parapet
Incorporate decorative railings on top of the concrete parapet for separation and fall protection along the 14’ bi-directional non-motorized path.

Design options include form, shape, color and pattern.

2.3 Lighting
Employ appropriate pedestrian-scale lighting along the path.

Design options include form, style, materials and color.
DESIGN PROGRAM INFLUENCES

RAILINGS & PARAPET

CONCEPTS
Hospitalite environment for pedestrians/bicyclists
Open design for railing; view through railing to river
Gentle curves
Natural or neutral colors

MATERIALS
Concrete parapet with crash-tested steel tube rail
Steel ornamental railing

FUNCTIONS
Walkway with seating/resting point/overlook
Railing with barrier protecting pedestrians/bicyclists
Lighting for safety

PEDESTRIAN LIGHTING

CONCEPTS
All down-lighting for freeway and walkway
Nautical influence
Contrast in color

MATERIALS
Glass and reflective materials

DESIGN DEVELOPMENT

BRIDGE
Open Aesthetic Barrier to separate traffic from path
Wave Railing compliant with AASHTO requirements for bicycle railings
Two overlooks; one in vicinity of marina
Mainline lighting
Holophane Ornamental Lights
BLACK RIVER BRIDGE PATHWAY
Perspective Sketch – Wave Railing
For Information on Materials and Colors, see pg. 62.
BLACK RIVER BRIDGE/MAINLINE
Freeway Lighting Fixture
CONTRAINTS

• Roadway geometrics and traffic flow patterns are set.

OPPORTUNITIES

3.1 Traffic Separation
Local traffic will be separated between the Lapeer Connector and Water Street. See Roundabouts below.

3.2 Roundabouts
Create roundabouts that aid the functional requirements of bike/pedestrian crossing and wayfinding.
Design options include form, shape, color, pattern and surface texture of landscaping, gateway monuments, signage and ground plane.

3.3 & 4.1 Bridge Structure Elements (Piers, Abutments, Wing Walls, Retaining Walls and Railings)
Integrate bridge elements that visually link the Corridor, Welcome Center and the Plaza.
Design options include form, shape, color, pattern and surface texture.

3.4 & 4.2 Corridor Landscaping
Integrate low maintenance native plant material to naturalize the right of way.
Design options include selection and massing of plant material considering species, bloom, texture, form and color.
DESIGN PROGRAM INFLUENCES

ROUNDABOUTS

CONCEPTS
Vary surface textures for crosswalk cues

MATERIALS
Low plantings
Scored concrete/texture

FUNCTIONS
Signage about how to use roundabout and directions for wayfinding
Bicycle connections/official routes

DESIGN DEVELOPMENT

BRIDGES
See Bridge Prototypes, pgs. 27-31 and Wave Railing, pg. 37 & 38

LANDSCAPE PLAN
Landscaping with evergreens and deciduous species; Plant Gallery and Lists on pgs. 42-48 include selections from the Low Impact Development Manual for Michigan and other MDOT guidelines
Native plants where site conditions, hydrology, maintenance and appearance allow

ROUNDABOUT
Pedestrian lighting; Holophane ornamental lights
Layout meets ADA requirements and sightlines

Please Note: If suitable ADA design cannot be achieved for intersection, traditional intersection design may be used.
For more information, see Plant Gallery and Plant Lists pgs. 42-48 and Materials and Colors pg. 62.
CONTRASTS

- Roadway and deceleration/acceleration ramp geometrics are determined.
- Footprint of car and truck parking is set.
- Right of way property acquisition limits have been determined.
- Facility will serve only west bound traffic and not have a local connector.
- The facility will meet MDOT functional service and programmatic needs.

OPPORTUNITIES

5.1 Architecture
Create a functional, welcoming and inviting facility. Architectural character of Welcome Center to fit within its regional context and complement the architecture of the corridor and the new Blue Water Plaza.

Design variables include form, massing, style, materials and color.

5.2 Building and Site Layout
Place the building to best utilize site attributes and to incorporate a pedestrian circulation pattern that maximizes the setting and lessens pedestrian/vehicle conflict points.

Design options include layout of features, form, style, materials and color.

5.3 Site Landscaping
Incorporate low-maintenance native plant material to help define architecture and naturalize berm.

Design options include selection of plants, blooming, texture, form and color.

5.4 Stormwater Management
Incorporate on-site ponding for pavement runoff.

Design variables include edge treatment, form and location of pond and the pattern, color and texture riparian plant material.
**DESIGN PROGRAM INFLUENCES**

**SITE LAYOUT – GROUND**

**CONCEPTS**
Water, flowing curved walkways
Organic patterning

**MATERIALS**
Pavers, stamped and/or colored concrete
Blue/gray colors, reflective materials

**FUNCTIONS**
Wayfinding

**SITE LANDSCAPING & STORMWATER MANAGEMENT**

**CONCEPTS**
Native plants especially ornamental grasses
Shrubs as buffers
Texture
Color

**MATERIALS**
Large stones
Birches, maples
Cattails

**FUNCTIONS**
Rain gardens
Edge treatments
Signage re: native plants for teaching

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**DESIGN DEVELOPMENT**

**LANDSCAPE PLAN**

Landscaping with evergreens and deciduous species; Plant Gallery and Lists on pgs. 42-48 include selections from the Low Impact Development Manual for Michigan and other MDOT guidelines

Native plants where site conditions, hydrology, maintenance and appearance allow
Undulating berm planted with native prairie, provides buffer and visual amenity

Accessible path around rocky berm

Tree massing on berm to maintain sightline for ramp

For more information, see Plant Gallery and Lists pgs. 42-48.
MATERIALS COLOR CHART & APPLICATION

METALS- ALTERNATE 1 (Dark Blue)  
- Ornamental Lights  
- Bridge Railing  

METALS- ALTERNATE 2 (Dark Brown)  
- Ornamental Lights  
- Bulk Head & Sconce Lights  
- Bridge Railing  

CONCRETE & CAST STONE (Warm Grey)  
- Bridge Piers and Caps  
- Bridge Parapets and Coping  
- MSE Large Stone Base and Cap  
- Perimeter Major & Minor Posts, Caps, Wave Pattern Panels and Base Panels.

BRIDGE BEAM/ GIRDER (Medium Warm Grey)  
- Concrete  
- Steel  

CMU BRICK- SMALL BLOCK) (Orange Brown Blend)  
- Middle Panel MSE Panel  
- Middle Section Perimeter Walls  

PAVEMENT STRIP- (Medium Brown)  
- Scored, Stamped & Colored Concrete Band  

COLOR CHART & APPLICATION

A  METALS- ALTERNATE 1 (Dark Blue)  RAL 5013
B  METALS- ALTERNATE 2 (Dark Brown)  RAL 8017
C  CONCRETE & CAST STONE (Warm Grey)  WILL PROVIDE
D  BRIDGE BEAM/ GIRDER (Medium Warm Grey)  FEDERAL
E  CMU BRICK- SMALL BLOCK) (Orange Brown Blend)  WILL PROVIDE
F  PAVEMENT STRIP- (Medium Brown)  WILL PROVIDE
PARTICIPANTS

Community Advisory Committee (CAG)

Joseph Conard, Neighborhood Representative

Dwayne Croff, Port Huron Chamber of Commerce

Shaun Groden, St. Clair County

Kim Harmer, City of Port Huron

William Kaufman, St. Clair County

Robert Lewandowski, Port Huron Township

Paul and Tracy Peacock, Port Huron Chamber of Commerce

James Watson, Port Huron Chamber of Commerce

Ryan Rizzo, Federal Highway Administration

James Sharp and Dana Pionke, General Services Administration

Loraine Shepley, Business and Arts Community

Art Smith, Bridge Plaza Business and Community Coalition

William Vogan, Historic District Commission

Michigan Department of Transportation (MDOT)

Lloyd Baldwin

Sheryl Holcomb

Lynn Lynwood

Paul McAllister

Brad Peterson

Mark Sweeney

Matt Webb

Consultants

HNTB Corporation

Craig Churchward

Regina Flanagan

Peter Kinney

Mark Salzman

Karl Weissenborn

Wilbur Smith Associates

Todd Davis
APPENDIX
Appendix
2 BLACK RIVER BRIDGE

KEY TO OPPORTUNITIES
- Bridge Structures including Piers, Abutments, Retaining Walls, Railings
- Landscaping

CONTRAINTS & OPPORTUNITIES
WELCOME CENTER

Constraints
- Roadway and deceleration/acceleration ramp geometrics are determined.
- Footprint of car and truck parking is set.
- Right of way property acquisition limits have been determined.
- Facility will serve only west bound traffic and not have a local connector.
- The facility will meet MDOT functional service and programmatic needs.

Opportunities
5.1 Architecture
Create a functional, welcoming and inviting facility. Architectural character of Welcome Center to fit within its regional context and complement the architecture of the corridor and the new Blue Water Place.

Design variables include form, massing, style, materials and color.

5.2 Building and Site Layout
Place the building to best utilize site attributes and to incorporate a pedestrian circulation pattern that maximizes the setting and lessens pedestrian/vehicle conflict points.

Design options include layout of features, form, style, materials and color.

5.3 Site Landscaping
Incorporate low-maintenance native plant material to help define architecture and naturalize berm.

Design options include selection of plants, blooming, texture, form and color.

5.4 Stormwater Management
Incorporate on-site ponding for pavement runoff.

Design variables include edge treatment, form and location of pond and the pattern, color and texture riparian plant material.