

TABLE OF CONTENTS

DESIGN NARRATIVE

0.1	PROJECT SUMMARY	SCAPE
1.0	CIVIL	LANGAN
2.0	LANDSCAPE	SCAPE
3.0	STRUCTURAL	FAST + EPP

0.1 PROJECT SUMMARY

The Shoreline Trail, as currently designed, is an approximately 2-mile stretch of the Fjord Trail, connecting the Breakneck Connector / Bridge to Little Stony Point and Dockside Park along the Hudson River in New York. The design phase for the Shoreline Trail follows completion of the Master Plan phase for the entire nearly 8 mile stretch from Cold Spring to Beacon, NY.

The project area is located along the shoreline of the Hudson River and on the west side of the Metro-North Railroad (MNR) tracks. For design and analysis purposes, the project area for the Shoreline Trail was divided into six identifiable reaches (Fig. 1):

1. Dockside
2. Causeway
3. Little Stony Point
4. Shoreline – South
5. Shoreline – North
6. Lower Overlook

Fig. 1 Project Reaches



The 30% Design for the Shoreline Trail responds to the unique site conditions of each reach and was developed with the understanding of parameters established by stakeholders and members of the Shoreline Design Committee. The design team developed additional design criteria to further refine decision-making in more challenging areas based on (1) Shoreline Stability (2) Ecological Integrity and (3) Climate Change Vulnerability.

The alignment and design, to the greatest extent possible under site constraints, minimize pile disturbance below Mean Higher High Water (MHHW 2.06' NAVD88) and maintain the minimum setback from the centerline of the nearest track of MNR. In the challenging areas, called pinch points, the design incorporates conceptual ecological shoreline design strategies to offset in-water disturbance, structural solutions to maximize the distance of the trail piles from MHHW, and in cases where the minimum 25' setback from MNR cannot be met, maintains a minimum 15' setback from the outer edge of tie of the nearest MNR track.

The main components of the Shoreline Trail 30% Design are:

- A pile supported, elevated trail structure
- An on-grade trail at Little Stony Point
- Modified rip rap revetments with planted shelves at challenging, pinch point areas and MNR utilities

- Trail banks (programmed areas along the main elevated shoreline trail) including: Elevated Hollow Trail Banks, View Spurs, and a pile supported get down structure.
- The Lower Overlook: An expanded area at Breakneck Ridge that provides expansive views of the Fjord. The design team is currently holding two alternates for the Lower Overlook for review and costing:
 - Alternate I: Lower Overlook On-Grade
This alternate looks at adding fill to the area at the lower overlook and stabilized with a stone block revetment. At moments, the revetment is interplanted with plantings adapted to the floodplain.
 - Alternate II: Lower Overlook On-Structure
This alternate includes a pile supported structure with a get-down to allow access to the shoreline.

THE LOWER OVERLOOK ALTERNATIVES

PREFERRED OPTION PENDING GEOTECHNICAL INFORMATION



The 30% Design uses the most current survey conducted by Badey + Watson and other publicly available data. Geotechnical borings and analysis have not yet been conducted.

1.0 CIVIL

A. Site Protection and Removals:

a. Protection of Existing Utilities

- i. A pre-construction and post construction survey of the condition of all utilities to remain in operation during construction shall be performed.
- ii. Accurately record actual locations of capped utilities, utilities to remain and utility lines encountered during construction.
- iii. Notify affected utility companies before starting work and comply with their requirements.

b. Selective Site Demolition

- i. A mandatory pre-bid inspection of the site will be scheduled by the Owner to familiarize prospective bidders with site conditions. The inspection will include a walkthrough of the buildings as well as the entire site followed by a question and answer period.
- ii. Conditions existing at the time of inspection for bidding purposes will be maintained by the Owner insofar as practicable. The bid affirms the acceptance of the site, building and its interior "as-is" unless specifically otherwise stated by the Owner at the pre-bid inspection.
- iii. Conduct all operations so as to prevent damage to adjacent property and injury to persons. This shall include but shall not necessarily be limited to the installation and maintenance of protective structures when necessary.
- iv. Execute work in a manner that is safe for workers and persons in and around the job site and ensure free and safe passage of the persons around the area of demolition. Correct any possible hazards resulting from demolition activities prior to continuation of work in that specific area. The Owner reserves the right to stop work at any time in cases where the safety of the work operation is in question or is in conflict with the Contract Specifications.

c. Site Clearing

- i. Clearing site of debris, stockpiles, grass, trees or vegetation in preparation for site excavation and utility work.
- ii. Demolition and removal of structures, pavements, curbs and gutters, or drainage structures, in preparation for site excavation and utility work.
- iii. Protection of existing structures, site features, utilities to remain.
- iv. Disconnecting and capping or removal of identified utilities. Consult with Owner and servicing utility company regarding any in-service unidentified utilities encountered during demolition.
- v. Dispose of excess material off-site in accordance with all applicable City, County, State, and Federal Codes and authorities having jurisdiction.
- vi. Backfilling voids in subgrade created as a result of removals or demolition.

d. Trench Excavation and Backfill

- i. Excavating trenches for the installation of utilities.
- ii. Backfilling trench with bedding aggregate as specified and finish filling trenches with suitable material to proposed subgrade.

- iii. Compacting subgrade, bedding, and backfill materials in an acceptable manner.
 - iv. Compliance with all environmental and health and safety regulations.
- B. Soil Erosion and Sediment Control
 - a. Erosion and Sediment Controls
 - i. Filter Stone
 - ii. Silt Fence
 - iii. Stabilized construction access
 - iv. Temporary mulches
 - v. Straw bales

2.0 LANDSCAPE

A. Soils:

- a. Soil Depth – All planting areas will require a minimum 18” soil depth. Planting areas with trees and shrubs shall require a minimum 36” soil depth.
- b. Amendment – Planting soil shall be amended on-site to meet proposed grades and achieve soil property design requirements.
 - i. Prior to amending on-site soils, invasive plants (as per the NYS Prohibited and Regulated Invasive Plants List dated September 10, 2014: https://www.dec.ny.gov/docs/lands_forests_pdf/isprohibitedplants2.pdf) shall be treated and removed, the planting area shall be cleaned and grubbed and large stones or debris shall be removed and disposed of according to local regulations.
 - ii. Planting soil amendment shall be a mix of 80% clean medium sand (meeting ASTM C-33 concrete sand) and 20% woodchips applied to a 6” depth and mixed into the top 12” of soil.
- c. On-site Re-use – Soil removed from areas of the site as “cut” generated through proposed earth moving activities shall be stored and reused onsite where proposed earth moving activities require additional “fill”.
 - i. Soil removed from areas of the site shall be stockpiled according to appropriate sediment and erosion control standards. Soils shall not be stockpiled and handled such that they are not compacted.
- d. Imported Planting Soil – Where additional soil is required to meet proposed planting elevations and adequate soil volumes are not available for on-site reuse, supplemental planting soils shall be imported.
 - i. Imported planting soils shall meet the following standards:
 - ASTM D 5268, pH range of 6.5 to 8
 - 3-5 percent organic material content
 - free of stones 1 inch or larger in any dimension and other extraneous materials harmful to plant growth.
 - ii. Soil test results must be submitted to the Engineer or certified wetland scientist for approval before soil can be used.

B. Planting:

- a. Trees and Shrubs– All trees and shrubs shall be field selected by the landscape architect prior to being dug. Tree planting shall be scheduled to meet the specified tree planting windows identified by the landscape architect. Contractor required to account for the spring and fall planting windows. Trees shall be B&B with rootball sizes meeting nursery industry standards per tree caliper size. All tree plantings shall include tree stabilization.
 - i. Trees shall be a mix of sizes with 85% at 6’-8’ height and 15% at 12’-14’ height in the proposed tree locations shown on contract documents within Upland and Floodplain Planting Zones. Trees shall not be planted within the Intertidal Planting Zone. Tree size and spacing assumptions within Restoration Planting Zone are described within this section below under item “e”.

- ii. Shrubs shall be #5 container spaced 36" on center for 60% of the planting area in Riparian and Upland Planting zones, Shrub planting in Intertidal and Restoration Planting Zones are described within this section below under item "e" and "f".
 - b. Live Stakes - All Live Stakes shall be approved by the Landscape Architect prior to being installed on-site. Live stake planting shall be scheduled to meet the specified planting windows identified by the Landscape Architect. Contractor required to account for the spring recommended planting windows.
 - i. Live stakes shall be 42" length by 1" dia. Installed 36" O.C. for 5% of the Intertidal Planting Zone and 20% of the Floodplain Planting Zone.
 - ii. Live stakes shall be soaked in clean water for 3 to 5 days before installation into the ground. The live vegetation shall be placed in clean, leak proof, large plastic storage containers or similar, which are at least 12 inches longer in length than the cut vegetation. Reused or new metal drums or drums used for the containment of hazardous wastes or chemicals shall not be used. The containers shall be placed in organized lines in a shaded location separated by a sufficient distance to allow access of a vehicle to the containers for the placement and removal of the vegetation. The water levels in the containers shall be checked twice daily and water shall be added as needed to ensure the containers are filled with sufficient water to completely cover the contained vegetation with a minimum of 2 inches of water. Rust proof weights or clean cobbles or boulders may be used to weight down the vegetation and retain it under the water surface. These weights shall not crush or damage the vegetation. Water in the containers shall be completely replaced with fresh and clean water every 3 days without exception. Vegetation that remains in water that has not been replaced as required shall be deemed defective and shall not be accepted by the Owner. Water replacement schedule may be adjusted to compensate for weekends and holidays with the notification and approval of the Owner/Engineer.
 - iii. A water and planting soil slurry mixture shall be applied while installing live stakes in order to maintain adequate soil to root contact.
 - c. Plugs
 - i. Plugs shall fully rooted, healthy and vigorous
 - ii. Plugs shall be provided at 2" diameter x 5" depth container size spaced 12" on center for 30% of the planting area within Upland and Floodplain planting zones and for 85% of the area within intertidal planting zones.
 - d. Seeding
 - i. Overseed shall be installed within all planting areas above MHHW
 - ii. Seed shall be applied at a rate of 20 lb per acre for zone specific species mixes plus an additional 30 lb. per acre grain rye.
 - iii. Seeding preparation: invasive plants (as per the NYS Prohibited and Regulated Invasive Plants List dated September 10, 2014: https://www.dec.ny.gov/docs/lands_forests_pdf/isprohibitedplants2.pdf)

f) shall be treated and removed prior to seed installation., soil to be hand raked immediately prior to seeding to scarify soil. Seed mix to be applied at specified rate by hydro-seeding or hand sewing and covering with light straw mulch. After seeding, soil is to be hand-raked to ensure seed to soil contact.

e. Intertidal Planting

- i. Intertidal plantings shall consist of shrubs and herbaceous plugs of the size and spacing described above.
- ii. Intertidal planting shall be protected from predation by the provision of temporary waterfowl exclusion fencing throughout the duration of the establishment period.

f. Restoration Planting

- i. Restoration planting shall include trees, shrubs, and over-seed to supplement the existing vegetation within the limit of work.
- ii. Restoration planting areas shall be seeded at the seeding rate described above in this section under item "d".
- iii. Trees shall be 6'-8' height and and shrubs shall be #5 container. Tree and shrub plantings shall be located on-site by landscape architect for up to 50% of the planting zone area.

g. Plant Maintenance

- i. Tree and Shrub Maintenance: Begin maintenance immediately after planting. Maintain plantings by pruning, cultivating, watering, weeding, fertilizing, restoring planting saucers, and resetting to proper grades or vertical position, as required to establish healthy, viable plantings. Remove only dead, dying, or broken branches. Do not prune for shape. Spray or treat as required to keep shrubs free of insects and disease.
- ii. Maintain waterfowl exclusion fencing within Intertidal Planting Zones throughout the establishment period.
- iii. Protect exterior plants from damage due to landscape operations, operations by other contractors and trades, and others. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged plantings.

C. Stone:

a. Stone Block Revetment

- i. Medium size range: Width: 12"- 36", Length: 24"-72", Height: 12"-30"
- ii. Large size range: Width: 20" -24" Length: 72" and more, Height: 12"-30"
- iii. For Boulders to be installed on a concrete base, roughen surface and use a bonding agent or mortar and grout between boulder and concrete for adequate bond.
- iv. Clean boulder and riprap stone surfaces that have become dirty and stained prior to setting. Remove soil, stains, and foreign materials. Clean stones by thoroughly scrubbing stones with fiber brushes

followed by a thorough drenching with clear water. Use only mild cleaning compounds that contain no caustic or harsh filler or abrasives.

- b. Modified Rip Rap Revetment
 - i. Riprap armor layer: 18-inch median (13- to 22-inch stone)
 - ii. Bedding layer: 2- to 6-inch stone
 - iii. Bedding shall be spread uniformly on the filter fabric on the slope
 - iv. Riprap stone shall be placed in a manner that will produce a poorly graded mass of rock with minimum practicable percentage of voids.
 1. Riprap bedding layer thickness can be thicker by 3 inches or can be thinner by 1 inch.
 2. Riprap slope lines and grade +/- 6 inches.
 3. Riprap layer thickness +/- 6 inches.
- c. Milled Stone Tide Pool: Milled stone tide pools to provide water retaining elements in the intertidal zone. Basis of design for milled stone tide pools shall be the tidal deck at Pier 26 in Hudson River Park.
<https://hudsonriverpark.org/locations/pier-26/>
 - i. Size: MINIMUM 36" x 36" x 36"; MAXIMUM 48" x 48" x 96"
 - ii. Finish: Provide natural split faced finish on 3 sides and 1 side milled to provide water retainage 4" depth minimum.
 - iii. Stone type shall be Granite Gneiss.
- d. Boulder Embankment: Provide and install boulder embankments to stabilize steeper sloped areas.
 - i. Basis of Design / Reference Documents:
 - a. Breakneck Connector 60% Design drawings.
 - b. Breakneck Connector 60% Specification Section 32 32 20.
 - ii. Size Range: MINIMUM 18" x 24" x 36"; MAXIMUM 48" x 48" x 96"
 - iii. Finish: All faces shall be natural split faced.
- e. Stone Quarry Block: Stone quarry block to be used as seating elements at the Lower Overlook.
 - i. Basis of Design / Reference Documents:
 - a. Breakneck Connector 60% Design drawings.
 - b. Breakneck Connector 60% Specification Section 32 32 20.
 - ii. Stone type shall be Granite Gneiss
 - iii. Size: 24" x 24" x 96"
- f. Stacked Stone Wall: Stacked stone walls shall be dry laid stone stacked a maximum of 4' high and serve as retaining walls to minimize earthmoving and disturbance at Little Stony Point.
 - i. Stone type shall be Granite Gneiss.
- g. Stacked Landscape Boulders: Stacked landscape boulders are intended to be used adjacent to planted areas to function as borders or seating elements.

Boulders may be stacked 1 -3 courses high. Stacked boulders shall be provided with mortar-packed joints.

- i. Basis of Design / Reference Documents:
 - a. Breakneck Connector 60% Design drawings.
 - b. Breakneck Connector 60% Specification Section 32 32 20.
 - ii. Size Range: MINIMUM 18' x 24" x 36"; MAXIMUM 48" x 48" x 96"
 - iii. Finish: All faces shall be natural split faced.
 - iv. See plans for placement.
- h. Landscape Boulder: Stone boulders are intended to be dry laid. No sides shall be sawn, the finish of all faces shall be natural.
- i. Basis of Design / Reference Documents:
 - a. Breakneck Connector 60% Design drawings.
 - b. Breakneck Connector 60% Specification Section 32 32 20.
 - ii. Size Range: MINIMUM 18' x 24" x 36"; MAXIMUM 48" x 48" x 96"
 - iii. Finish: Boulders shall be semi-angular with smooth to round edges.
 - iv. See plans for placement.
- i. Gabions
- i. 3'h x 3'w x 6'l (2 cy.) galvanized baskets
 - ii. 6-inch nominal sized angular stone

D. Pavements

- a. Crushed Stone Surfacing on Compacted Aggregate Subbase: Provide and install crushed stone surfaces in compliance with Outdoor Recreation Access Route (ORAR) accessibility standards.
 - i. Basis of Design / Reference Documents:
 - a. Breakneck Connector 60% Design drawings.
 - b. Breakneck Connector 60% Specification Section 32 15 43 Crushed Stone Surfacing.
 - ii. Provide 8" thick compacted aggregate subbase.
- b. Gravel Shoulder: Provide and install 18" wide gravel shoulder along the main trail on-grade.
 - i. Basis of Design / Reference Documents:
 - a. Breakneck Connector 60% Design drawings.
- c. Flagstone pavers over Compacted Aggregate Subbase: Provide and install 4" thick stone slab pavements in compliance with Outdoor Recreation Access Route (ORAR) accessibility standards.
 - i. Basis of Design / Reference Documents:
 - a. Breakneck Connector 60% Design drawings.

- ii. Provide 8" compacted aggregate subbase.
 - d. Shoreline Restoration: Provide and install 6" thick sandy gravel or like material where needed in designated areas on plans. Material to match existing shoreline material on site.
 - i. See plans for location.
 - e. Compacted Gravel: Provide firm and stable walking surface at existing trail locations. Compacted gravel to match existing trail material on site at Little Stony Point.
 - f. Precast Concrete Plank Trail Landing: Provide and install precast concrete plank pavers at transition points where elevated shoreline trail meets grade.
 - i. Basis of Design / Reference Documents:
 - a. Breakneck Connector 60% Design drawings.
- E. Fences and Railings:
 - a. Metro-North Fence: Provide and install chain link fence at Metro-North safety setbacks.
 - i. See plans for location.
 - ii. Basis of Design / Reference Documents:
 - a. Breakneck Connector 60% Design drawings.
 - b. Breakneck Connector 60% Specification Section 32 31 00.
 - b. Metro-North Fence Attached to Structure: Provide and install galvanized steel posts and assemblies 8' O.C. with braided stainless steel mesh infill.
 - i. Fence posts shall attach to trail deck.
 - ii. See plans for location.
 - c. Trail Guardrail: Provide and install guardrail at edge of elevated shoreline trail structure.
 - i. Finish: Stainless or Galvanized Steel posts and top rail.
 - ii. Rail posts shall attach to trail deck.
 - iii. Provide and install stainless steel braided cable mesh infill.
- F. Trail Bridge: Provide and install bridge at drainage area in Little Stony Point.
 - a. Basis of Design / Reference Documents:
 - i. Breakneck Connector 60% Design drawings.
 - b. See plans for location.
- G. Furnishings & Amenities
 - a. Timber Platform on Structure
 - b. Seating Element
 - c. Trash Cans: Provide and install trash cans at Little Stony Point.
 - i. Basis of Design / Reference Documents:

- a. Breakneck Connector 60% Design drawings.
 - b. Breakneck Connector 60% Specification Section 32 33 00.
 - ii. Assume (4) ea.
- d. Bike Racks: Provide and install bike racks at Little Stony Point.
 - i. Basis of Design / Reference Documents:
 - a. Breakneck Connector 60% Design drawings.
 - b. Breakneck Connector 60% Specification Section 32 33 00.
 - ii. Assume (10) ea.
- e. Bike Repair Station: Provide and install bike repair station at Little Stony Point.
 - i. Basis of Design / Reference Documents:
 - a. Breakneck Connector 60% Design drawings.
 - b. Breakneck Connector 60% Specification Section 32 33 00.
 - ii. Assume (1) ea.

3.0 STRUCTURAL

A. Key Design Parameters

a. Resilience:

- i. Bottom of structural deck members are designed to be 4'-0" above freeboard of the FEMA 100-year base floor elevation, at El. 11'-3".
- ii. This provides substantial freeboard above mean high water, include 7' freeboard with 30" SLR and over 3'-0" with 75" SLR.
- iii. Additionally, design considerations assume the structure may be flooded for a 24-hour period. Structural materials were selected to provide resilience and will be detailed and protected such that they are not expected to rot or corrode, and connections are concealed and allowed adequate space for airflow.

b. Agency Requirements:

- i. All trail structure maintains a minimum 25' offset from the centerline of the nearest MNR rail where possible. At locations where the project area is constrained and narrow, the trail structure maintains a minimum 15' setback from the edge of the outermost tie of the nearest MNR rail.
- ii. Pile foundations are located to minimize in-water installation at the elevation of Mean High Water (MHW).

c. User Design:

- i. Minimum 42" high railings at all elevated areas, in compliance with pedestrian rail requirements.
- ii. Maximum 5% slope to maintain an ADA compliant path per Forest Service Outdoor Recreation Accessibility Guidelines (FSORAG) section 2.0 Outdoor Recreation Access Routes (ORARS).
- iii. All walking surfaces in this zone will comply with FSORAG requirements for surface texture and cross slope.

d. Constructability:

- i. The current erection planning anticipates all material and personnel being brought to site by barge from the Hudson River.
- ii. Installation of the central precast girders to be coordinated with GC based on capacity of transportation mode.
- iii. Assembly of major components are assumed to be prefabricated and lifted into position via cranes along the Hudson River. Connections design is intended to limit crane time. Cantilevers are limited to eliminate the need for hold downs to prevent overturning in the construction load case, UON.
- iv. The design assumes flexibility in the girder to pile location to account for uncertainty of as-built pile locations (assumed approx. 4" deviation).

- v. Confirmation of this approach shall be confirmed per bathymetry reports and discussions with the contractor. Sequencing of erection to be developed in CDs.

B. Design

- a. Codes and Guidelines: The following codes govern the structural design of the Hudson Highland Fjord Trial site:
 - i. New York State DOT Bridge Manual, 4th Ed.
 - ii. NYSDOT LRFD Bridge Design Specifications
 - iii. AASHTO LRFD Bridge Design Specifications, 2012
 - iv. AAASHTO LRFD Guide Specifications for the Design of Pedestrian Bridges, 2nd Edition, 2009
 - v. AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaries, and Traffic Signals, 1st Edition, 2013
 - vi. Building Code 2015 of New York State (adopts IBC 2015 with Amendments)
 - vii. American Concrete Institute Building Code Requirements for Structural Concrete (ACI 318-11), 2011
 - viii. American Institute of Steel Construction (AISC) Load and Resistance Factor Design Specification for Structural Steel Buildings, 14th Edition, 2010
 - ix. American Society of Civil Engineers' Minimum Design Loads for Buildings and Other Structures (SEI/ASCE 7-10), 2010
 - x. Forest Service Outdoor Recreation Accessibility Guidelines (FSORAG) 2013
 - xi. Americans with Disabilities Act (ADA)
- b. Design Loading
 - i. Design dead load allows for 5psf superimposed load + self-weight of the structure, U.O.N.
 - ii. Design live load is 90psf, per AASHTO design guidelines for pedestrian bridges.
 - iii. Design lateral loads are governed by 130mph design wind speeds based on local atmospheric design load requirements.
- c. Superstructure:
 - i. Precast concrete girders span 50'-60' between cantilevered piles, with closer spacing as required for tight curvature based on trail alignment. Final span to be coordinated based on pricing feedback and geotechnical review.
 - ii. The trail surface provides a 10' wide min. path and relies on replicable prefabricated elements, the current design provides the option for precast concrete or glulam timber members.
 - iii. TIMBER ALTERNATE:

- iv. Preservative treated southern yellow pine will be used for its durability to weather.
 - v. Timber surface provides a warm, aesthetic finish along the elevated structure, and will wear naturally over time.
 - vi. Glulam members can be delivered to site by barge and set down over the central girder or alternate laydown area for construction. Once on site, members can be handled on site without the requirement for a crane.
 - vii. Timber elements are lightweight and can be removed and replaced as needed.
 - viii. Swelling of timber has been studied and incorporated into the design and detailing of the structure, assuming a worst-case flood event.
 - ix. Timber connections are detailed below the wearing surface to prevent pooling of water.
 - x. Alternate options for wider glulam planks or larger panels can be explored with a timber fabricator.
- d. PRECAST CONCRETE PLANK ALTERNATE:
- i. Precast planks can be fabricated in larger sections to limit the number of connections required to the precast girder.
 - ii. Plank width can be optimized in coordination with manufacturer.
 - iii. Custom sections can allow for curved members as required.
 - iv. Connection tabs or epoxy anchors can be cast into precast elements, simplifying connections and allows welding where applicable.
- e. Foundations
- i. The final geotechnical report has not been provided due to the scheduling of borings at the site. Foundation design for the 30% Design set is based on preliminary assumptions. Design relies on cantilevered piles to be designed by the geotechnical engineer.
 - ii. Steel piles were selected based on recommendations for pile driving through the existing revetment. Alternate options may be explored based on the results of the geotechnical report.

C. MAINTENANCE

- a. General Trail Structure Maintenance
- i. A general maintenance agreement shall be coordinated with the design team and be put in place by Scenic Hudson.
 - ii. Current planning assumes limited plowing of the elevated trail deck and road salt will not be used.
 - iii. Elevated structure will require periodic inspections to assess wear of the structural components and to determine if replacement / repair of components is necessary.