FIGURE 3- Sites of Environmental Concern (MPCA) Minnehaha Creek Reach 20 Restoration St. Louis Park, Minnesota

- DNR_OHW_889.8_Contour
- Proposed_Channel
- 2011_Minnehaha_Creek
- ProjectBoundary
Healthy and vibrant communities link people with the environment. Communities along the Minnehaha Creek corridor, including Hopkins and St. Louis Park, are connected by roads, sidewalks, trails, rails and the creek itself. The long-term vision presented here features new trails that connect to existing walk paths and bring people from multiple communities into close contact with the natural amenities of the Minnehaha Creek corridor.

**Neighborhood connections** - A Minnehaha Creek corridor trail system would allow visually pleasing connections between neighborhoods, and would connect several parks. Cottageville Park, Oakes Park, Edgewood Park and the natural areas at South Oak Pond and Methodist Hospital would all be joined by a river corridor trail that could be used for inking, hiking and canoe access.

A light rail transit (LRT) stop in this area could service the surrounding neighborhoods while giving residents the opportunity to walk along the creek path in either direction. The exact location of the LRT stop is not known, but multiple opportunities exist for a stop along this segment of channel.

**Road crossings** - Crossing busy roads can be dangerous and takes away from a positive trail experience. By installing crossings under new bridges or in elevated walkways, residents and commuters could have safer and more efficient access to the Knollwood Mall/Target area, Blake Road businesses, parks and light rail connections.

The exact nature and location of such crossings is a consideration for the long-term connectivity of the trail system.

**Light Rail Transit** - A rail corridor bisects Minnehaha Creek between Blake Road and Louisiana Avenue. A light rail transit (LRT) stop in the area could service the surrounding neighborhoods while giving residents the opportunity to walk along the creek path in either direction. The exact location of the LRT stop is not known, but multiple opportunities exist for a stop along this segment of channel.
In association with:

PROPOSED CONDITIONS
MINNEHAHA CREEK

Figure 7

Legend:
- Proposed Wetland Area
- Proposed Creek Channel
- Parcel Lines
- Proposed Pools
- Proposed Spawning Riffle
- Fabric Encapsulated Soil Lifts
- Existing Storm Sewer Line and Manholes
- Proposed Optional Trail Segment
- Proposed Trail

Will not be included in final design.

- Retain or rebuild existing canoe launch as needed
- Proposed trail connection
- Precast settlement pool
- Proposed 36" pipe connection
- Proposed 12" RCP storm sewer filtration berm
- Proposed optional trail segment
- Proposed trail connection
- Potential LRT connection

PROPOSED CONDITIONS
MINNEHAHA CREEK
PLAN VIEW PROPOSED CONDITIONS

PROPOSED CONDITIONS MINNEHAHA CREEK SUBREACH 1

In association with:

LEGEND

- PROPOSED WETLAND AREA
- PROPOSED CREEK CHANNEL
- PROPOSED PIPE CONNECTION
- PROPOSED PARCEL LINES
- PROPOSED POOLS
- PROPOSED SPawning RIFLE
- PROPOSED RIPARIAN VEGETATION
- PROPOSED EXISTING PIPES
- PROPOSED WETLAND AREA
- NATURAL LEVEE
- PROPOSED FABRIC ENCAPSULATED SOIL LIFTS
- PROPOSED STAGING AREA
- PROPOSED OPTIONAL TRAIL SEGMENT
- PROPOSED TRAIL

PROPOSED 36" PIPE CONNECTION

ALTERNATIVE TRAIL LOOP SEGMENT

CAPSULE TECHNOLOGIES/ELECTRIC WIRE PRODUCTS

NATURAL LEVEE CONSTRUCTED WITH COTTONWOOD, WILLOW & SILVER MAPLE PLANTINGS

ALTERNATIVE TRAIL LOOP SEGMENT

EXISTING 15" POND OUTLET

ALTERNATIVE TRAIL LOOP SEGMENT

EXISTING 36" POND OUTLET

PROPOSED 36" PIPE CONNECTION

PROPOSED PIPE CONNECTION

PROPOSED FABRIC ENCAPSULATED SOIL LIFTS

EXISTING PIPES

PROPOSED STORMWATER TREATMENT AREA

In association with:
Excelsior Filtration Wetland Design

**General design:** Construct a wetland that allows for drawdown via filtration of captured flows to the adjacent wetland through an enhanced sand filter berm. Note that the following removal rates do not account for removal of soluble phosphorus utilizing the iron-enhanced sand filter technology.

**Model inputs:**
- Average residential lot size = ½ acre
- Drainage Area = 74.1 acres
- Average Watershed Slope = 0.6%
- Drainage area Curve Number utilized reflects typical residential development = 81

**Results:**
- Total Phosphorus (TP) Inflow = 69 lb/yr average
- TP reduction = 91%
- Trapped = 41 lbs/yr average
Meadowbrook Wetland Design

General design: Construct a wetland that allows for drawdown filtration of captured flows to the adjacent stream over a berm. Note that the following removal rates do not account for removal of soluble phosphorus utilizing the iron-enhanced sand filter technology.

Model inputs:
- Land use is high density residential.
- Drainage Area = 5.1 acres
- Average Watershed Slope = 11.3%
- Drainage area Curve Number utilized reflects high density residential development = 92

Results:
- Total Phosphorus (TP) Inflow = 8 lb/yr
- TP reduction = 48%
- Trapped = 4 lb/yr

Louisiana Circle Wetland Design

General design: Construct a wetland that allows for drawdown filtration of captured flows to the adjacent constructed wetland through an enhanced sand filter berm. Note that the following removal rates do not account for removal of soluble phosphorus utilizing the iron-enhanced sand filter technology.

Model inputs:
- Land use is industrial/medical.
- Drainage Area includes 3.0 acres direct commercial and 2.1 acres from medical/industrial via the Louisiana Avonco storm sewer connection.
- Average Watershed Slope = 0.25%
- Drainage area Curve Number utilized reflects average land use = 88

Results:
- Total Phosphorus (TP) Inflow = 2.8 lb/yr average
- TP reduction = 23%
- Trapped = 15 lb/yr average

In association with: TYPICAL CROSS-SECTIONS MINNEHAHA CREEK
Recreational Boating Opportunities

Threading through the heart of the west metro area, Minnehaha Creek offers a unique experience for recreational boaters. Making the creek more accessible to canoeing and kayaking is a long-term maintenance goal of the Minnehaha Creek Watershed District and surrounding communities.

The plan for Reach 20 includes replacement of an existing canoe launch with one specifically designed for easy access. The stepped design shown here allows for low water boat entry over a range of water levels, and will be more convenient for people with limited mobility or small children. A trail will extend from the existing canoe launch parking lot, through the floodplain wetland and down to the streambank launch.

This plan preserves the existing canoe launch locations in Reach 20, with some slight modifications. The Creekside Park trail connection will connect the parking lot with the stream, and may run along the main trail for a short distance. We anticipate a portage of no more than 150 feet.
In-stream Habitat Features

Large woody habitat - Logs and fallen wood make up an important part of the woodland stream ecosystem. Wood offers hiding cover for fish, nesting opportunities for waterfowl, perches for wading birds, and resting or hiding places for amphibians and reptiles. The Reach 20 design features low profile wood installation underneath banks on the outside of meander bends. In addition to providing valuable habitat, wood provides long term (10-20 years) stability of the bank, protecting the stream from immediate erosion. The wood will be placed low to the streambed, so that during boatable flows, canoes and kayaks will float over the top of the installed wood. Similar installations can be found just downstream of Louisiana Avenue in the restored section of the Methodist Hospital wetland.

Riffles - Reach 20 is currently an important spawning reach for fish using Lake Minnetonka and Minnehaha Creek. These fish include sunfish, bass, suckers and various minnow species. Included in the design are riffles that provide spawning gravel of the size used regularly by these fish.

Natural Levees - Streams that transport fine sediment and sand downstream often deposit this material on banks during floods. These deposits take the form of natural levees that might be a foot or two higher than the adjacent floodplain surface. Our design for Reach 20 repeats the work done in Reach 19 of the Methodist Hospital area project, where we included levee features to provide topographic variability. Levees offer slightly dryer wetland surfaces that promote the establishment of planted cottonwood, silver maple and black willow trees common to the riparian corridor.
Preliminary Not For Construction

1. CROSS-SECTION VIEW:
   3. TYPICAL CHANNEL GEOMETRY
      NOT TO SCALE

2. CROSS-SECTION VIEW:
   3. POOL AT OUTSIDE BEND
      NOT TO SCALE

3. CROSS-SECTION VIEW:
   3. RIFFLE
      NOT TO SCALE
Bituminous Trail and Boardwalk Construction
Concept Design

Figure 7

Typical Sections
and Details

Preliminary Not
For Construction
Appendix A

Historical Topographic Maps

(Courtesy of USGS & http://www.nationalatlas.gov/)
Appendix B

Historical Aerial Photographs

(Compiled by MCWD; Project area delineated by red rectangle)
Minnehaha Creek Stream Channel - 1990s