



# Dexter-Huron Metropark Stormwater Management Plan

September 2019



## Table of Contents

❖ Stormwater Structure Recommendations	3
❖ Stormwater Structure Maps	5
❖ Streambank Summary and Recommendation Maps	7
❖ Green Infrastructure Concepts and Maps	11
❖ Recommendation Summary Tables	13

## Dexter-Huron Metropark Stormwater Structure Recommendations

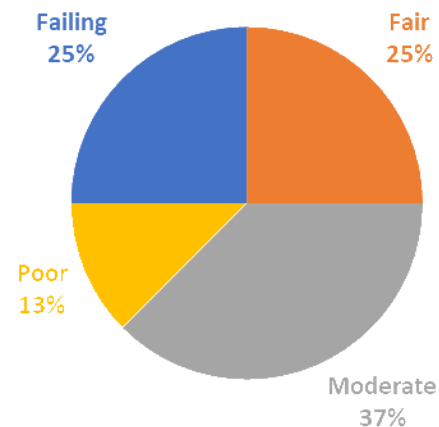
Table 1. Summary of Dexter-Huron Culvert Inspection and Maintenance Needs.

Culvert Rating	Number of Culverts	Culverts Needing Immediate Cleanout	Culverts Needing Future Cleanout	Culverts Needing Replacement or Repair
New	0	0	0	0
Fair	2	0	0	0
Moderate	3	0	2	0
Poor	1	1*	0	1
Failing	2	0	0	2
<b>Total:</b>	<b>8</b>	<b>1*</b>	<b>2</b>	<b>3</b>
<b>Repair Cost:</b>		<b>\$0</b>	<b>\$318</b>	<b>\$20,573</b>

\*Culvert may be replaced before it needs to be cleaned out.



### DEXTER-HURON CULVERTS



Left: Moderate culvert in Dexter-Huron Metropark. Right: Proportion of culverts in each condition category.

Table 2. Individual Culvert Replacement Costs

Culvert ID	Diameter (in)	Length (ft)	Condition	Maintenance Need	Cost Opinion
<b>CUL-DEX-001</b>	12	48	Moderate	Future Cleanout	\$170
<b>CUL-DEX-002*</b>	18	40	Poor	Replacement	\$6,007
<b>CUL-DEX-003</b>	18	37	Moderate	Future Cleanout	\$148
<b>CUL-DEX-005</b>	15	38	Failing	Replacement	\$4,739
<b>CUL-DEX-006</b>	24	49	Failing	Replacement	\$9,827
<b>Total:</b>					<b>\$20,891</b>

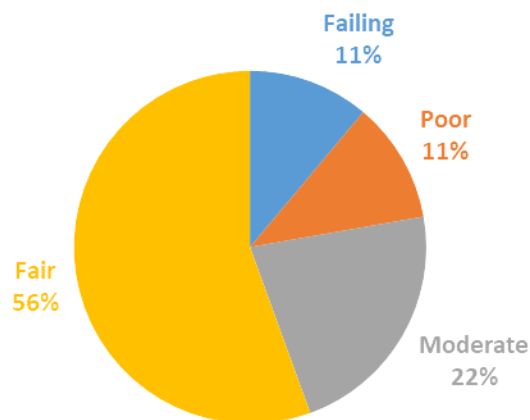
\*Culvert may be replaced before it needs to be cleaned out.

Table 3. Summary of Dexter-Huron Outfall Inspection and Maintenance Needs

Outfall Rating	Number of Outfalls	Outfalls Needing Immediate Cleanout	Outfalls Needing Future Cleanout	Outfalls Needing Replacement or Repair
New	1	0	0	0
Fair	6	0	2	0
Moderate	4	0	1	0
Poor	3	0	0	3
Failing	2	0	1*	2
<b>Total:</b>	<b>16</b>	<b>0</b>	<b>4*</b>	<b>5</b>
<b>Repair Cost:</b>		<b>\$0</b>	<b>\$750</b>	<b>\$47,500</b>

\*Outfall may be replaced before it needs to be cleaned out.

### DEXTER HURON OUTFALLS



Left: Proportion of outfalls in each condition category. Right: Outfall in failing condition in Dexter-Huron Metropark.

Table 4. Individual Outfall Replacement Costs

Outfall ID	Diameter (in)	Condition	Maintenance Need	Cost Opinion
SDC-DEX-001	36	Moderate	Future Cleanout	\$375
SDC-DEX-004	18	Poor	Replacement	\$7,500
SDC-DEX-006	16	Fair	Future Cleanout	\$200
SDC-DEX-008	10	Fair	Future Cleanout	\$175
SDC-DEX-012	18	Failing	Replacement	\$7,500
SDC-DEX-016	30	Poor	Replacement	\$12,500
SDC-DEX-017*	20	Poor	Replacement	\$7,500
SDC-DEX-018	30	Failing	Replacement	\$12,500
<b>Total:</b>				<b>\$48,250</b>

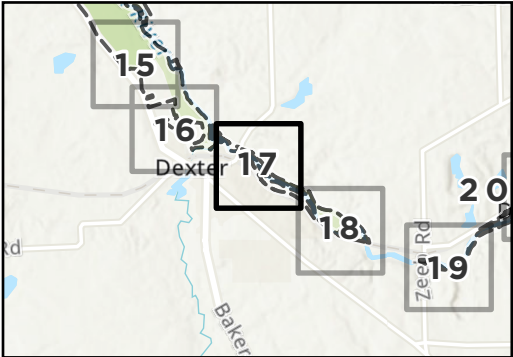
\*Outfall may be replaced before it needs to be cleaned out.



# Stormwater Structure Ratings

Hudson Mills Metropark

Map Sheet: 17 of 48



- Outfalls**  
(Field Rating)

  - Failing
  - Poor
  - Moderate
  - Fair
  - New
- Gravity Main**  
(Pipe Rating Index)

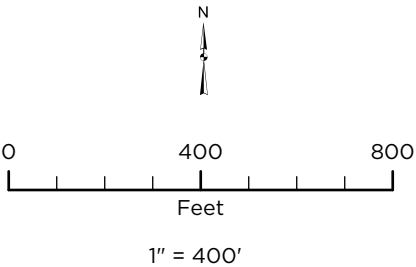
  - 1
  - 2
  - 3
  - 4
  - 5
- Culverts**  
(Field Rating)

  - Failing
  - Poor
  - Moderate
  - Fair
  - New
  - (Not Rated)
- Gravity Main (Other)**

**Culvert (Other)**

**Roads**

  - Roads
  - Park Boundary



**Source:** Data provided by Huron-Clinton Metroparks, State of Michigan, OHM Advisors, NearMap and ESRI. OHM Advisors does not warrant the accuracy of the data and/or the map. This document is intended to depict the approximate spatial location of the mapped features within the Community and all use is strictly at the user's own risk.

**Coordinate System:** NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl.

**Map Published:** October 23, 2019

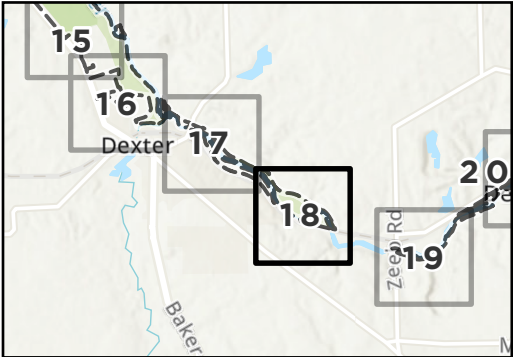




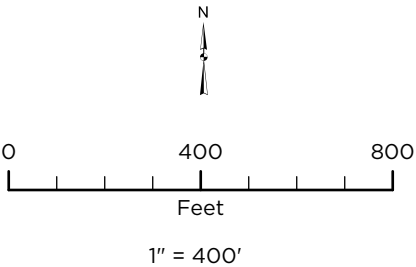
# Stormwater Structure Ratings

Hudson Mills Metropark

Map Sheet: 18 of 48



Outfalls (Field Rating)	Gravity Main (Pipe Rating Index)
Failing	1
Poor	2
Moderate	3
Fair	4
New	5
	Gravity Main (Other)
Culverts (Field Rating)	Roads
Failing	Roads
Poor	Park Boundary
Moderate	
Fair	
New	
(Not Rated)	



Source: Data provided by Huron-Clinton Metroparks, State of Michigan, OHM Advisors, NearMap and ESRI. OHM Advisors does not warrant the accuracy of the data and/or the map. This document is intended to depict the approximate spatial location of the mapped features within the Community and all use is strictly at the user's own risk.

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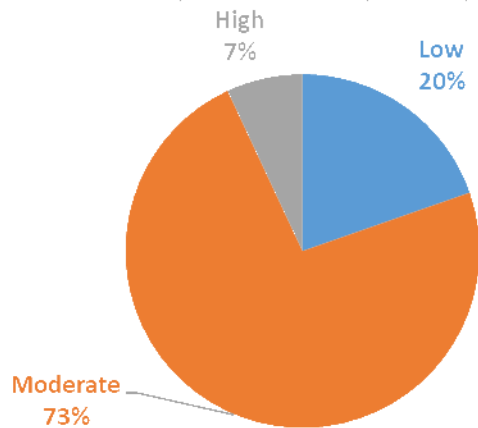


## Dexter-Huron Metropark Streambank Summary and Recommendations

Table 5. Streambank Inspection Summary

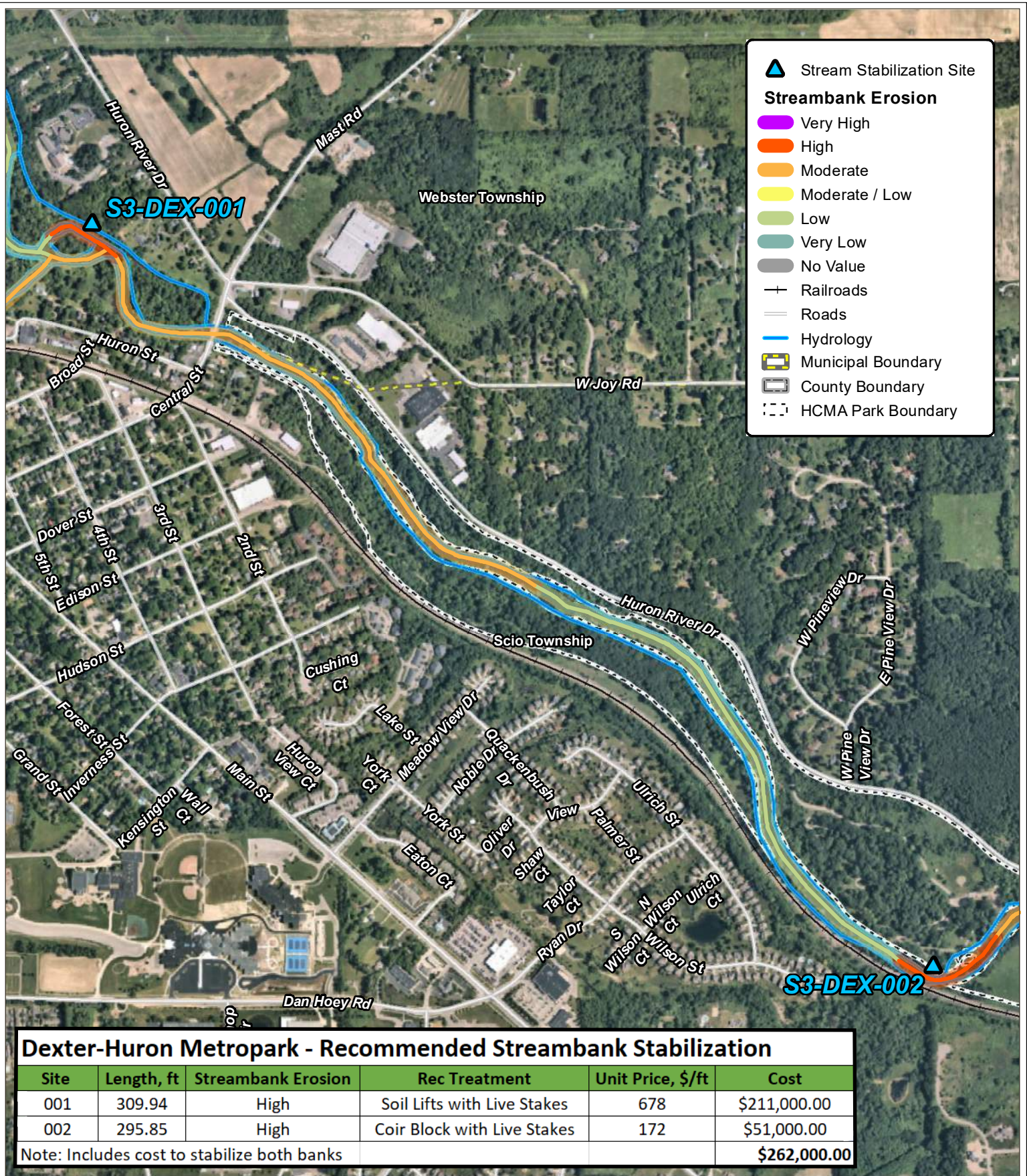
Erosion Condition	Feet of Streambank (miles)	Cost of Restoration
<b>Very High</b>	0.0 (0.0)	
<b>High</b>	1,526 (0.29)	\$262,000
<b>Moderate</b>	16,099 (3.05)	
<b>Low</b>	4,310 (0.82)	
<b>Very Low</b>	0.0 (0.0)	
<b>Total:</b>	<b>21,935 (4.15)</b>	<b>\$262,000</b>

### DEXTER-HURON EROSION SEVERITY

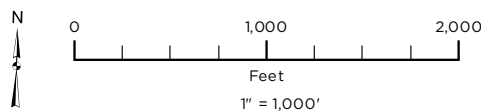


*Left: Proportion of stream bank in each erosion severity category. Right: High erosion on a bank in Dexter-Huron Metropark.*





## Dexter-Huron Metropark Streambank Stabilization Siting



Source: Data provided by OHM Advisors, Huron Clinton Metroparks and Near Map. OHM Advisors does not warrant the accuracy of the data and/or the map. This document is intended to depict the approximate spatial location of the mapped features within the Community and all use is strictly at the user's own risk.

Coordinate System: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl

Map Published: September 4, 2019





### S3-DEX-001

Length: 309.94 ft

Recommended Treatment: Soil Lifts with Live Stakes

Construction Cost: \$211,000

### S3-DEX-001

▲ Stream Stabilization Site

#### Streambank Erosion

Very High

High

Moderate

Moderate / Low

Low

Very Low

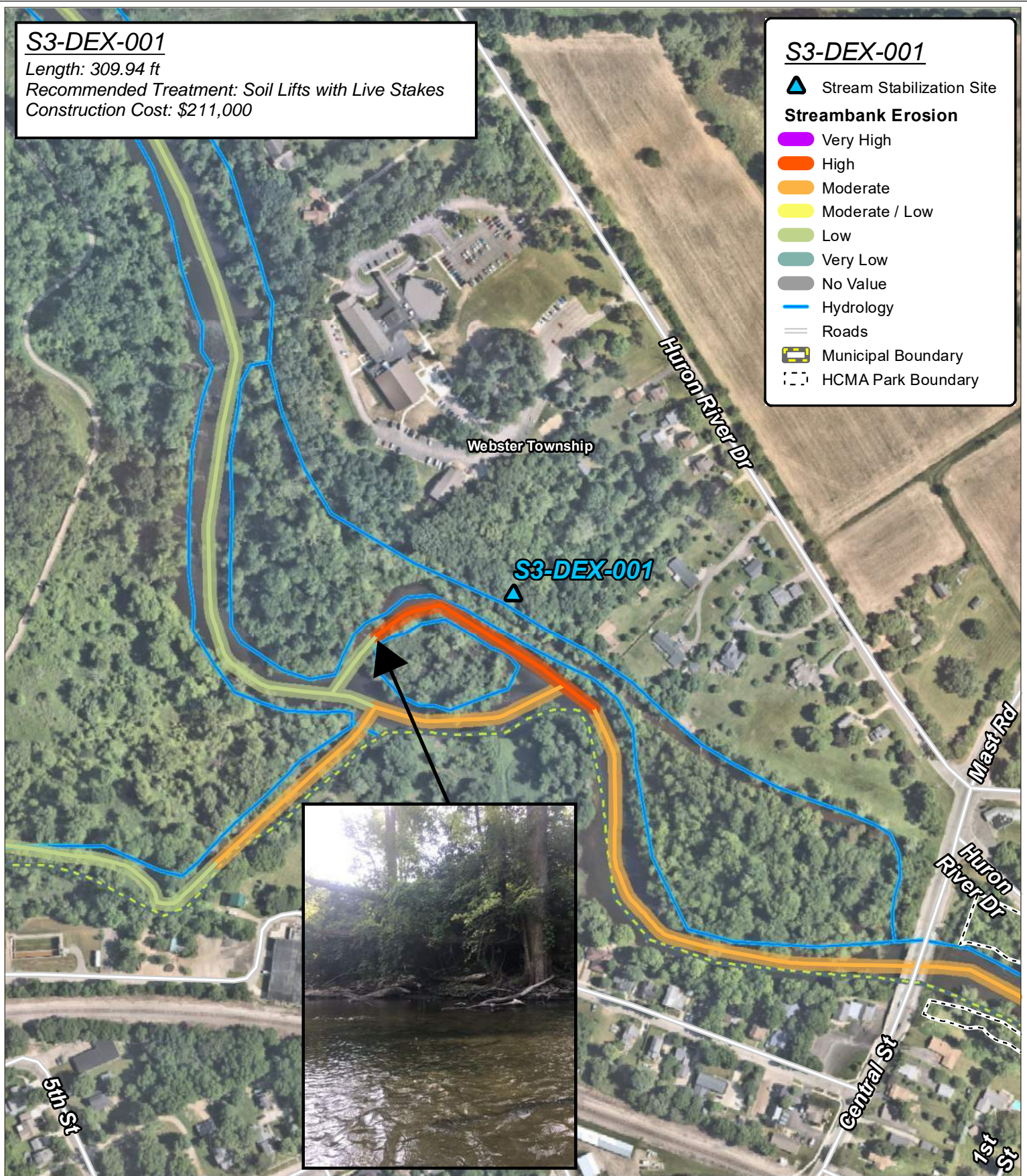
No Value

Hydrology

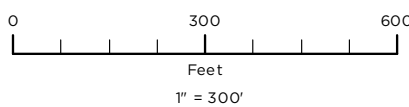
Roads

Municipal Boundary

HCMA Park Boundary



## Dexter-Huron Metropark Streambank Stabilization Siting



Source: Data provided by OHM Advisors, Huron Clinton Metroparks and Near Map. OHM Advisors does not warrant the accuracy of the data and/or the map. This document is intended to depict the approximate spatial location of the mapped features within the Community and all use is strictly at the user's own risk.

Coordinate System: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl

Map Published: September 4, 2019





## S3-DEX-002

Length: 295.85 ft

Recommended Treatment: Coir Blocks with Live Stakes

Construction Cost: \$51,000

## S3-DEX-002

▲ Stream Stabilization Site

### Streambank Erosion

Very High

High

Moderate

Moderate / Low

Low

Very Low

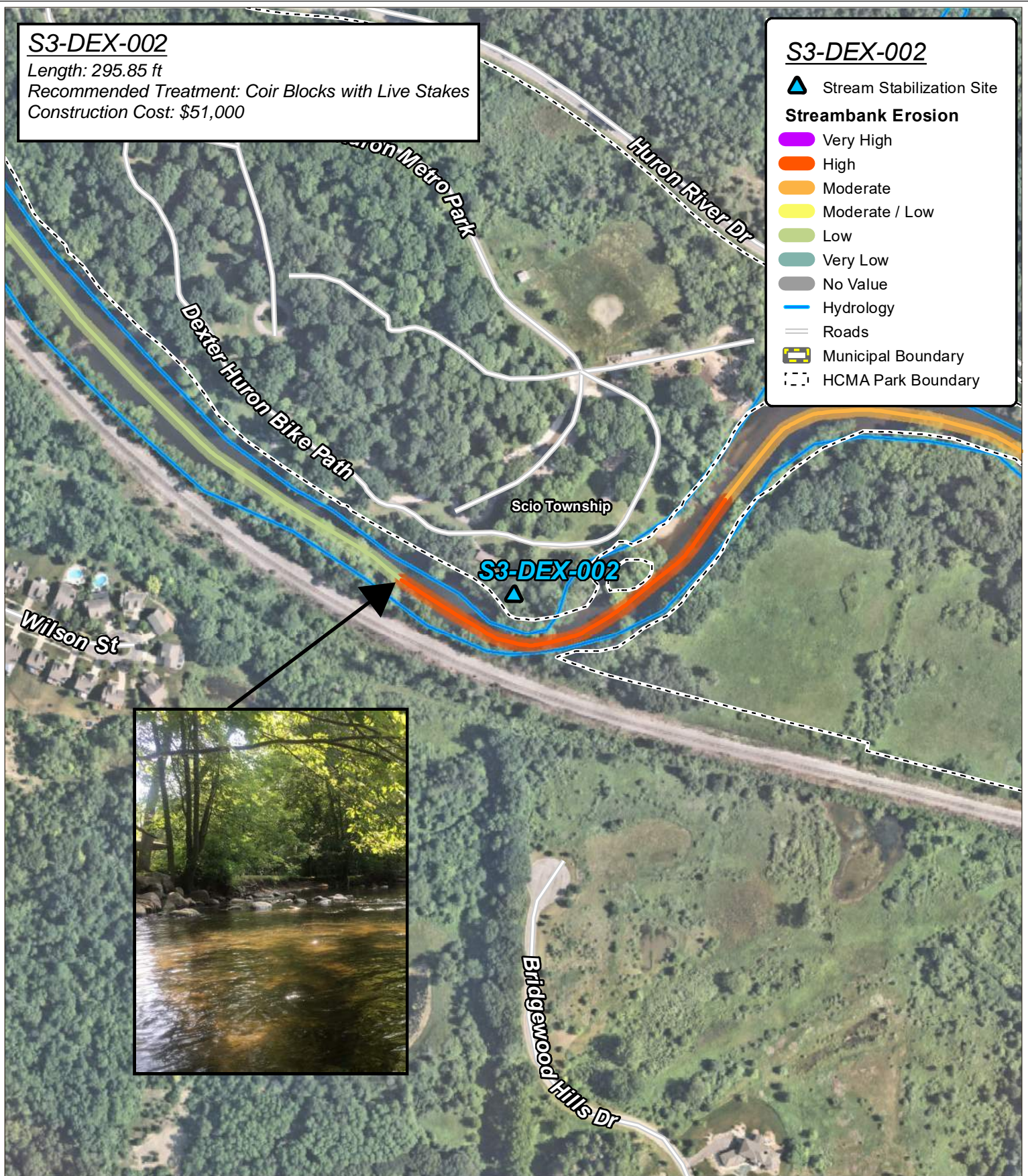
No Value

Hydrology

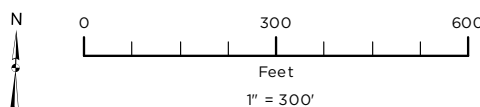
Roads

Municipal Boundary

HCMA Park Boundary



## Dexter-Huron Metropark Streambank Stabilization Siting



Source: Data provided by OHM Advisors, Huron Clinton Metroparks and Near Map. OHM Advisors does not warrant the accuracy of the data and/or the map. This document is intended to depict the approximate spatial location of the mapped features within the Community and all use is strictly at the user's own risk.

Coordinate System: NAD 1983 StatePlane Michigan South FIPS 2113 Feet Intl

Map Published: September 4, 2019



## Dexter-Huron Metropark Green Infrastructure Recommendations

In Dexter-Huron, the green infrastructure practices listed in Table 1 are recommended to improve water quality and ameliorate flooding issues in the park where feasible. These practices are also outlined on the attached green infrastructure maps.

Table 6. Dexter-Huron Green Infrastructure Recommendations

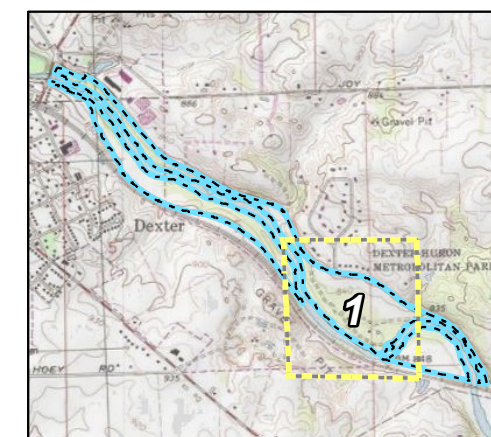
Site ID	Site	Practice Type	Treatment Surface Area (ft <sup>2</sup> )	Cost Opinion	Cost per sq ft of Treatment Area (\$/ft <sup>2</sup> )
<b>GI-DEX-01</b>	East	Bioswale	2,730	\$26,368	\$9.66
<b>GI-DEX-02</b>	West	Bioswale	2,279	\$22,785	\$10.00
<b>GI-DEX-03</b>	East	Native Prairie	68,833	\$68,833	\$1.17
<b>Total:</b>			<b>73,842</b>	<b>\$117,986</b>	



# Dexter-Huron Metropark

Green Infrastructure  
Recommendation Areas

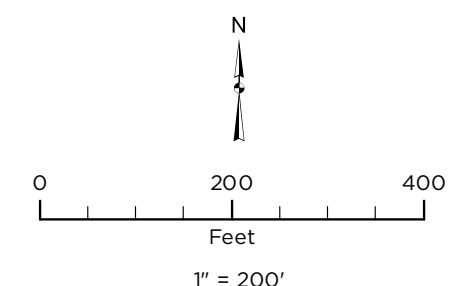
Area: 1 of 1



## Recommendation Area

### GSI Type

-  Bioswale (2)
-  Native Prairie (1)
-  Stormwater Gravity Main
-  Culvert (4)
-  HCMA Park Boundary
-  Roads



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Coordinate System: NAD 1983 StatePlane Michigan South FIPS 2113 IntlFeet

Map Published: October 1, 2019



## Dexter-Huron Metropark Recommendation Prioritization

Each table in this section is prioritized, with the most urgent projects listed first. Projects with **red** Site IDs need immediate attention. Projects with **green** Site IDs can be accomplished by HCMA staff. **Bold** projects may be eligible for grant funding. Underlined projects may be good volunteer or education opportunities. All other projects will likely require annual budget allocations to complete.

Table 7. Dexter-Huron Culvert Repair Priorities

Culvert ID	Diameter (in)	Length (ft)	Condition	Maintenance Need	Cost Opinion
CUL-DEX-006	24	49	Failing	Replacement	\$9,827
CUL-DEX-005	15	38	Failing	Replacement	\$4,739
CUL-DEX-002	18	40	Poor	Replacement	\$6,007
<b>CUL-DEX-003</b>	18	37	Moderate	Future Cleanout	\$148
<b>CUL-DEX-001</b>	12	48	Moderate	Future Cleanout	\$170
<b>Total:</b>					<b>\$20,891</b>

Table 8. Dexter-Huron Outfall Repair Priorities

Outfall ID	Diameter (in)	Condition	Maintenance Need	Cost Opinion
SDC-DEX-018	30	Failing	Replacement	\$12,500
SDC-DEX-012	18	Failing	Replacement	\$7,500
SDC-DEX-016	30	Poor	Replacement	\$12,500
SDC-DEX-017	20	Poor	Replacement	\$7,500
SDC-DEX-004	18	Poor	Replacement	\$7,500
<b>SDC-DEX-001</b>	36	Moderate	Future Cleanout	\$375
<b>SDC-DEX-006</b>	16	Fair	Future Cleanout	\$200
<b>SDC-DEX-008</b>	10	Fair	Future Cleanout	\$175
<b>Total:</b>				<b>\$48,250</b>

Table 9. Dexter-Huron Green Infrastructure Installation Priorities

Site ID	Site	Practice Type	Treatment Surface Area (ft <sup>2</sup> )	Cost Opinion	Cost per sq ft of Treatment Area (\$/ft <sup>2</sup> )
<b>GI-DEX-03</b>	<b>East</b>	<b>Native Prairie</b>	<b>68,833</b>	<b>\$68,833</b>	<b>\$1.17</b>
<b>GI-DEX-01</b>	<b>East</b>	<b>Bioswale</b>	<b>2,730</b>	<b>\$26,368</b>	<b>\$9.66</b>
<b>GI-DEX-02</b>	<b>West</b>	<b>Bioswale</b>	<b>2,279</b>	<b>\$22,785</b>	<b>\$10.00</b>
<b>Total:</b>			<b>73,842</b>	<b>\$117,986</b>	

Table 10. Dexter-Huron Stream Stabilization Priorities

Stream Stabilization Site ID	Length (ft)	Erosion Severity	Recommended Treatment	Unit Cost (\$/ft)	Cost Opinion
<b>S3-DEX-002</b>	<b>295.85</b>	<b>High</b>	<b>Coir Block with Live Stakes</b>	<b>172</b>	<b>\$51,000</b>
<b>S3-DEX-001</b>	<b>309.94</b>	<b>High</b>	<b>Soil Lifts with Live Stakes</b>	<b>678</b>	<b>\$211,000</b>
<b>Total:</b>					<b>\$262,000</b>