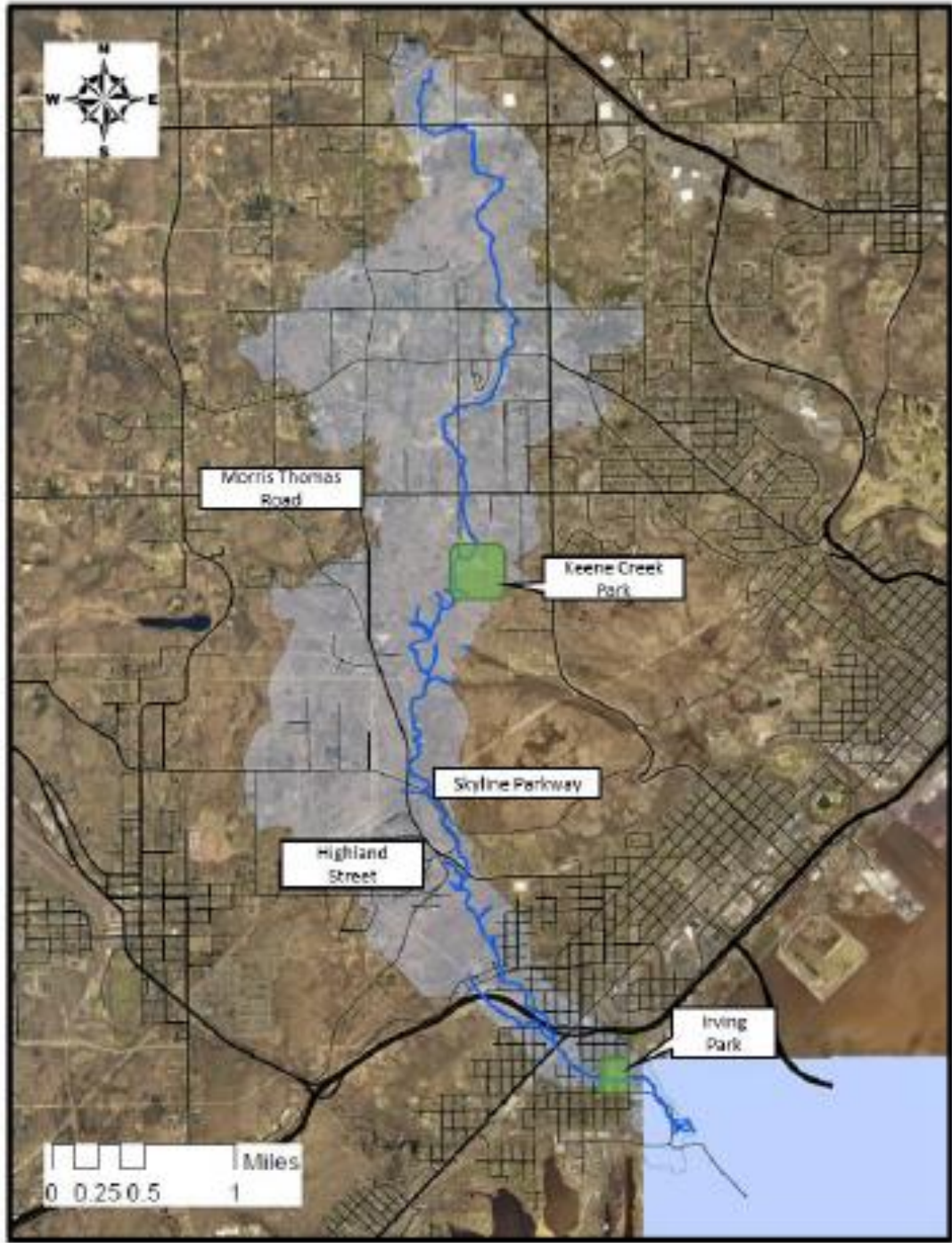


Keene Creek Draft Goal Numbers

Advisory Committee





Watershed Information

- **Located in West Duluth**
- **Flows into the St. Louis River Estuary**
- **5.8 square mile watershed**
- **10.7 miles long**
- **Impaired for E. coli and Chloride**

Surface Water Quality





X% of municipalities with identified bacteria impairments are implementing plans to reduce bacteria in surface waters.

Add map


- **Keene Creek is impaired for aquatic life and aquatic recreation due to E. coli.**

A large red speech bubble graphic is positioned on the left side of the slide. It has a rectangular body and a small triangular tail pointing downwards and to the left.

Who are the “municipalities”?

- **City of Duluth**
- **City of Hermantown**

- **Both Cities must comply to MS4 requirements.**



100% of municipalities with identified bacteria impairments are implementing plans to reduce bacteria in surface waters.



1. Manage chlorides reaching surface and ground water from road salts and water softener salts by ensuring **X%** of municipalities have Smart Salt Certified Staff
2. **X%** Communities achieved Level 2 Certified
3. Education & outreach to **X%** of priority landowners.

Road Authorities

- **City of Duluth**
- **City of Hermantown**
- **St. Louis County**

- **All entities have Smart Salt(or the equivalent) Certified staff.**
- **No entities have staff with Level 2 certifications.**

Priority Landowners for education and Outreach

- Commercial landowners with **more than 3 acres** of land
- X in Duluth
- 4 in Hermantown

- We can reach X of these priority landowners.



1. Manage chlorides reaching surface and ground water from road salts and water softener salts by ensuring **100%** of municipalities have Smart Salt Certified Staff
2. **100%** Communities achieved Level 2 Certified
3. **Education & outreach to X% of priority landowners.**

Keene Creek Goals Chloride

- Prioritize landowners with 3-acres of impervious surface for outreach
- The chloride TMDL is in progress, and it will be a useful tool for implementation and targeting. For example, it will answer questions such as: where is snow currently stored and is it contributing to chloride in Keene Creek? Are private water softeners a factor?
- Consider a fee reductions program for reduced salt usage
- TMDL will follow the statewide chloride reduction plan. This can be found on MPCA website

Land Use





X% of communities have updated their ordinances to promote and implement low impact development techniques to reduce stormwater runoff volume and rate control.

Add map

Who are the “communities”?

- **City of Duluth**
- **City of Hermantown**



100% of communities have updated their ordinances to promote and implement low impact development techniques to reduce stormwater runoff volume and rate control.

Keene Creek Goals – Stormwater

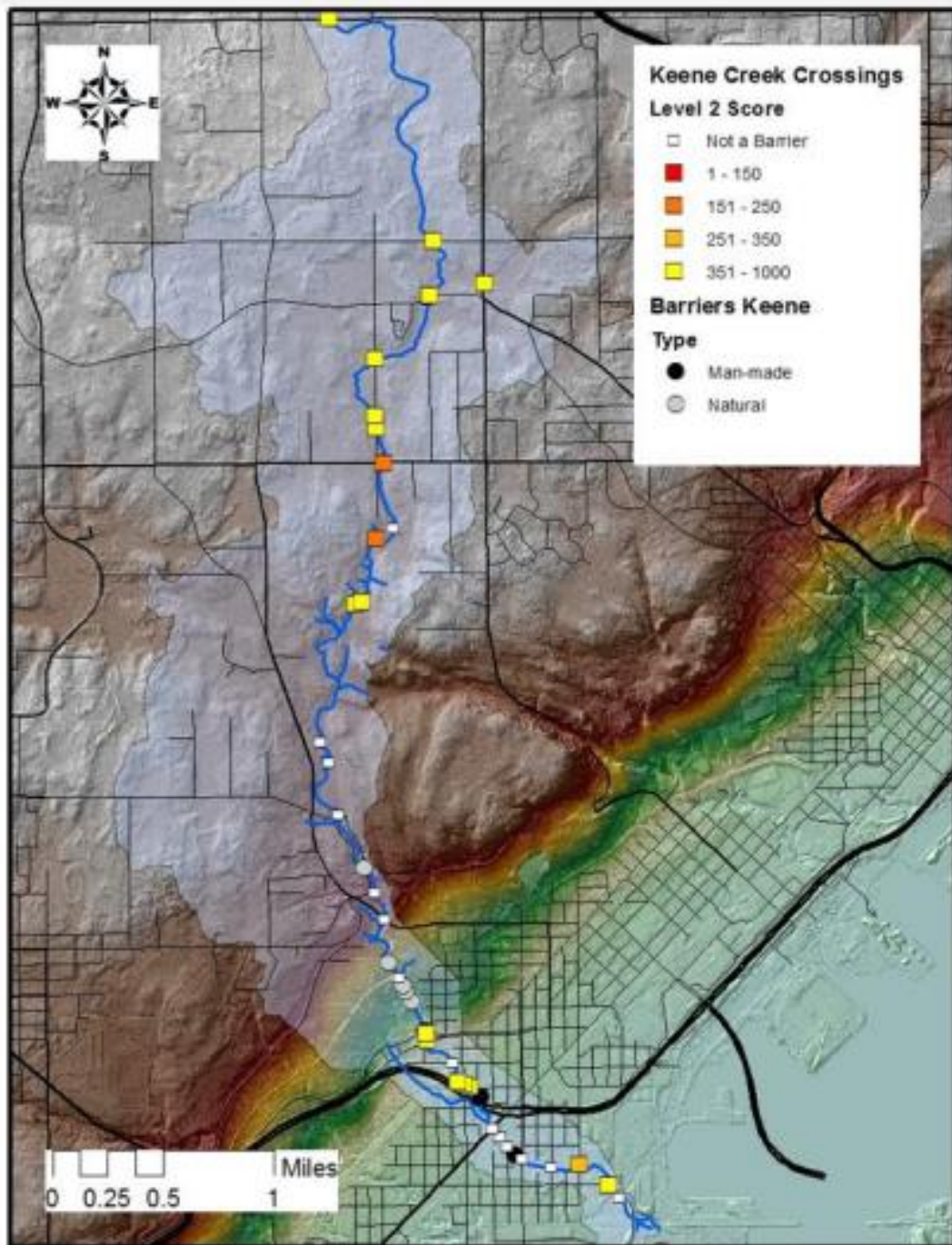
- MPCA has resources are available for municipalities to update their ordinances
- DUWAC has previously applied for a grant to evaluate and update their ordinances to make implementing green infrastructure easier. It was not funded, but it is still something that the group would like to do.
- The group would like to soften the language of this goal to: Promote the implementation of low impact development techniques to reduce stormwater runoff volume and rate control in x% of communities.

Altered Hydrology





Reconnect **X miles** of
priority streams and
tributaries to benefit
aquatic life and improve
water quality.



- Inventoried and analyzed in 2016 by SSL SWCD staff
- Data collected using the DNR data form
- Prioritized based on fish passability (width of culvert, outlet drop, sediment present)

○ Crossing	○ Distance Opened (miles)
○ Okerstrom Road (w/in Keene Creek Park)	○ 0.21
○ South Central Ave	○ 1.35
○ Dog Park – lowhead dam	○ 0.14


Reconnect **1.7 miles (the top 2 crossings and dog park dam)** of priority streams and tributaries to benefit aquatic life and improve water quality.



Restore stream reaches that have been altered by human activity, including impounded, straightened, and incised stream reaches on **X Linear Feet** of high priority streams and tributaries.

- 
- **Geomorphic data collected in 2016 by SWCD staff, confirmed in 2019**

○ Location	○ Reach Length (linear feet)
○ Within Irving Park, downstream of 57th Ave West (3)	○ 690
○ Between 57th Ave West and Grand Ave (4)	○ 2008
○ Between Grand Ave and Green Street (includes dog park) (5)	○ 1905
○ Between Green Street and Cody Street (6)	○ 760
○ Downstream of Highland Street (8)	○ 732
○ Adjacent to Okerstrom Road upstream of Morris Thomas Rd.	○ 1200
○ Engwall's Pond	○ 1200



Restore stream reaches that have been altered by human activity, including impounded, straightened, and incised stream reaches on **5,000 Linear Feet (addressing 4 priority reaches)** of high priority streams and tributaries.


Keene Creek Goals – Altered Hydrology

- Regarding the dam removal at the dog park, the Dog Park group is very vocal and engaged. No planning efforts have started yet, but DNR Fisheries, AOC and the City of Duluth and have meetings so far. TU is also very involved. Outreach should be an important activity for planning this project. Community outreach is very important, especially in lower Keene Creek.
- NOAA completed modeling to estimate a storage goal for Chester Creek. We could possibly use 1W1P to fund investigations like this for Keene Creek.
- Duluth WRAPS completed a detailed HSPF model, but it did not use actual flow measurements.



Increase **X square feet** of watershed storage by connecting streams to the floodplain in identified priority areas where incision has occurred due to land use changes, ditching or development activities.

○ Location	○ Reach Length (linear feet)
○ Within Irving Park, downstream of 57th Ave West (3)	○ 690
○ Between 57th Ave West and Grand Ave (4)	○ 2008
○ Between Grand Ave and Green Street (includes dog park) (5)	○ 1905
○ Between Green Street and Cody Street (6)	○ 760
○ Downstream of Highland Street (8)	○ 732
○ Adjacent to Okerstrom Road upstream of Morris Thomas Rd.	○ 1200
○ Engwall's Pond	○ 1200



**5,000 linear feet X 50 foot
wide floodplain (average)**



Increase **2,500 square feet (addressing 4 priority reaches)** of watershed storage by connecting streams to the floodplain in identified priority areas where incision has occurred due to land use changes, ditching or development activities.

Habitat





Shoreline ordinances are updated, developed, and enforced for **X%** of municipalities with priority resource shoreline areas.

Add map

Who are the “municipalities”?

- **City of Duluth**
- **City of Hermantown**



Shoreline ordinances are updated, developed, and enforced for **100%** of municipalities with priority resource shoreline areas.



X% of shoreline in prioritized lakes and streams have natural buffers and near shore areas are protected and restored to reduce erosion using bank stabilization, bioengineering, etc. techniques.

○ Location	○ Reach Length (linear feet)
○ Within Irving Park, downstream of 57th Ave West (3)	○ 690
○ Between 57th Ave West and Grand Ave (4)	○ 2008
○ Between Grand Ave and Green Street (includes dog park) (5)	○ 1905
○ Between Green Street and Cody Street (6)	○ 760
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○ Adjacent to Okerstrom Road upstream of Morris Thomas Rd.	○ 1200
○ Engwall's Pond	○ 1200



Protect/Restore **X%** of high priority wild rice stands/populations (water levels, disturbance, shoreland development).

What We Know

- Currently, there are no rice stands, but soil remediation was just completed.
- A starting point for seeding would be 5 to 10 acres.
 - Let's say this is the amount of high priority area.
 - And say we will address all of it = 100%



Protect/Restore **100%** of high priority wild rice stands/populations (water levels, disturbance, shoreland development).

Keene Creek Goals – Final Notes

- The overarching goal is to improve Brook Trout habitat. There is a great opportunity to restore naturally recruiting brook trout population to lower reaches of Keene Creek. Recreation for swimming too?