

Leveraging Minnesota's Stormwater Resources

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and many other collaborators and partners



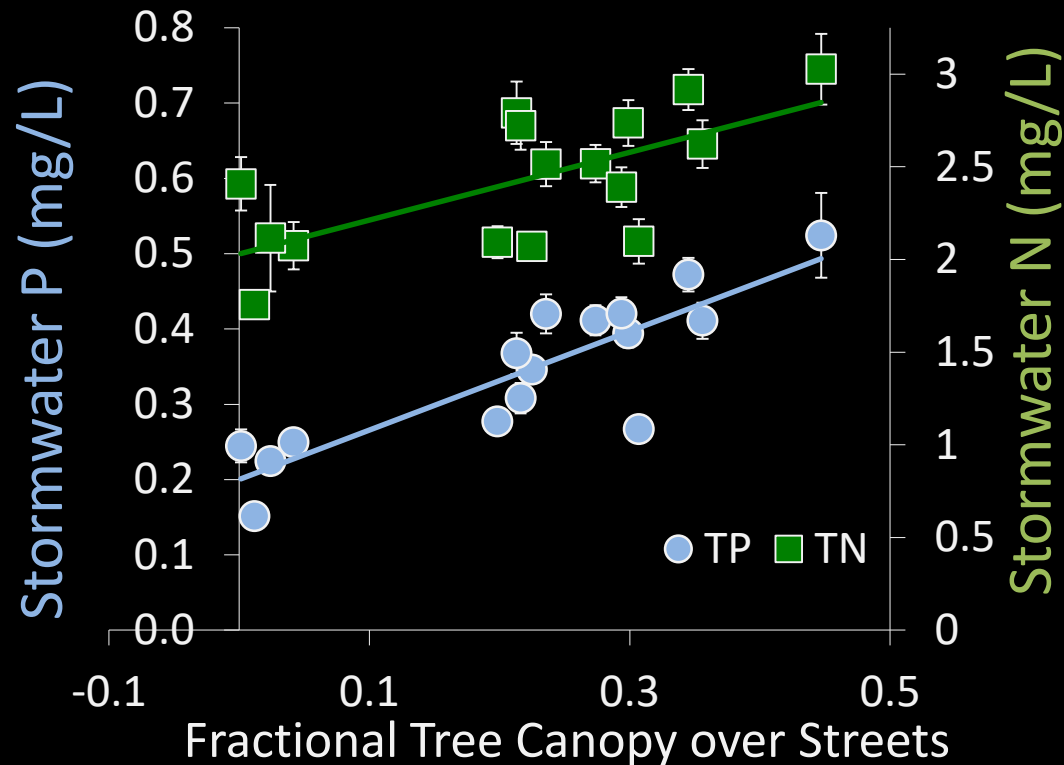
Project Motivations

Urban stormwater is complex & variable

Opportunities use data to better understand and manage

Example: urban vegetation influences on water quality

Janke et al. 2017; 19 sites, 2000 events



Project Objectives

1. **Gather and assess stormwater nutrient and metal data**

collected over the past ~15 years in Minnesota's cities, and incorporate it into a publicly-available, central resource using consistent methods and standards

2. **Summarize and predict pollutant concentrations and loads**

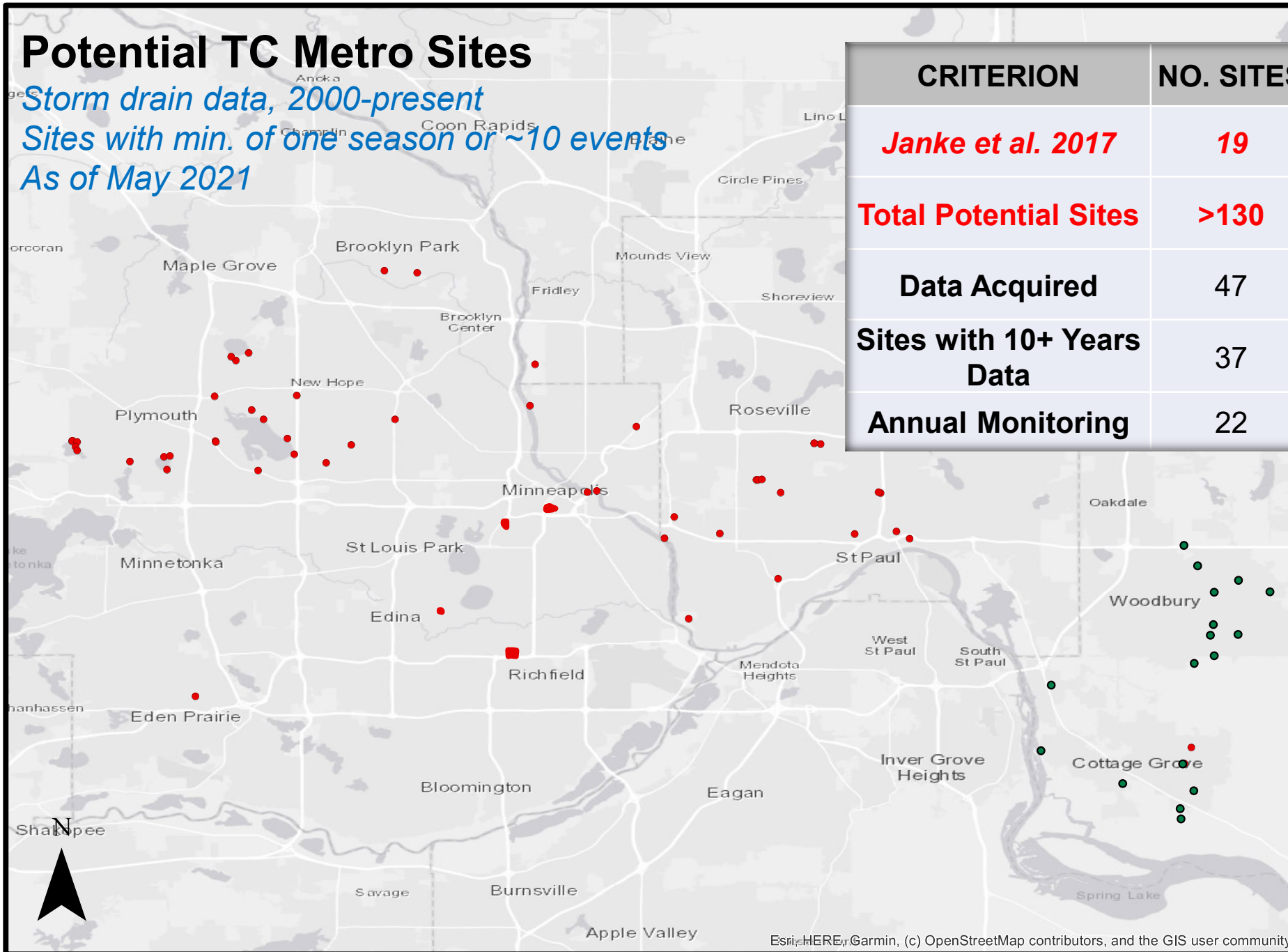
as a function of local landscape features at event, seasonal and annual scales using quantitative relationships of stormwater runoff volume and quality with urban land cover, drainage characteristics, and climate.

3. **Disseminate stormwater pollutant characterization** results via integration and modification of the MIDS Calculator, and Minnesota Stormwater Manual, with MCPA

4. **Demonstrate applications to urban watershed models** (e.g. SWMM)

Potential TC Metro Sites

Storm drain data, 2000-present
Sites with min. of one season or ~10 events
As of May 2021



CRITERION	NO. SITES	NOTES
<i>Janke et al. 2017</i>	19	<i>included in recent study</i>
Total Potential Sites	>130	<i>includes some open channels</i>
Data Acquired	47	<i>data on-hand</i>
Sites with 10+ Years Data	37	<i>long term records for temporal analyses</i>
Annual Monitoring	22	<i>seasonal, annual analyses</i>

Questions? jfinlay@umn.edu

-thank you-

Stormwater Parameters

(constituent: major source)

- **Metals** (Pb, Cu, Ni, Zn, Cd, Cr): vehicles, industrial emissions
- **NO₃ and NH₄**: Atmospheric deposition & vehicles
- **Total N, Total P**: vegetation, soils
- **TSS**: soils and pervious areas; slope
- **PO₄**: snowmelt and leaf litter leaching (also TDP)
- **Chloride/Conductivity**: road salt, groundwater?
- *Other contaminants inventoried but not analyzed*
- **Volume** (temperature, too?) and **flow characterization**: Watershed features (e.g. total or effective impervious, road density, drainage density, storm characteristics, etc.)

