

# Clark>Dietz

Engineering Quality of Life™



## Village of Shorewood TMDL Stormwater Management Plan - Update



# Guiding Statement

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Swimmable, fishable rivers and  
people enjoying them.



# Background

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- › March 9, 2018 - USEPA Approved the Milwaukee River TMDL Allocations.
- › June 11, 2018 – North Shore WPDES Permit expired
- › 2018 Village was awarded Grant Funding from DNR for update to Stormwater Management Planning.



# WPDES Permit Compliance

- › Public Education and Outreach
- › Public Participation and Involvement
- › Illicit Discharge Detection and Elimination
- › Construction Site Pollutant Control
- › Post-Construction Stormwater Management
- › \*Pollution Prevention (TMDL Compliance)\*
- › Storm Sewer System Map



# Pollution Prevention

- › TMDL Compliance:
  - 58% Reduction of Total Suspended Solids from a No-Controls Condition
  
- › Current Village Practices:
  - 18% Reduction - Modeled No-Controls Condition



# What type of Modeling?

## WinSLAMM

INPUT =

LAND USE AREAS

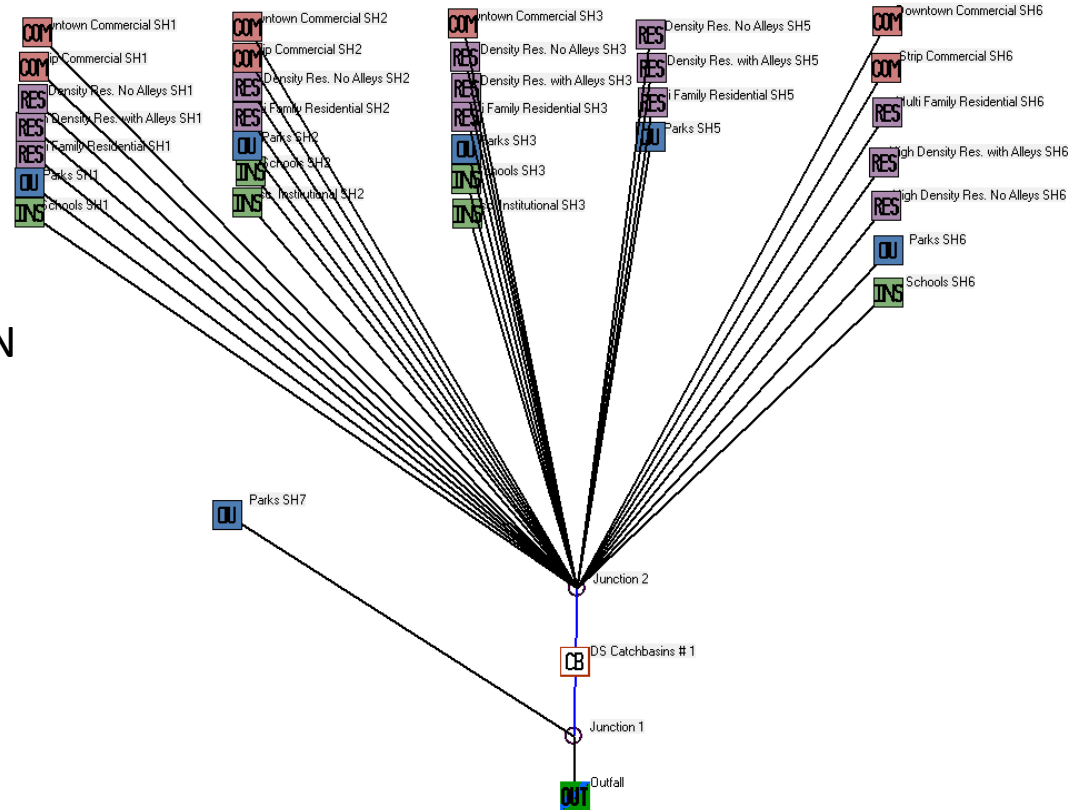
AVERAGE ANNUAL RAINFALL DATA

BEST MANAGEMENT PRACTICES

OUTPUT =

TOTAL SUSPENDED SOLIDS REDUCTION

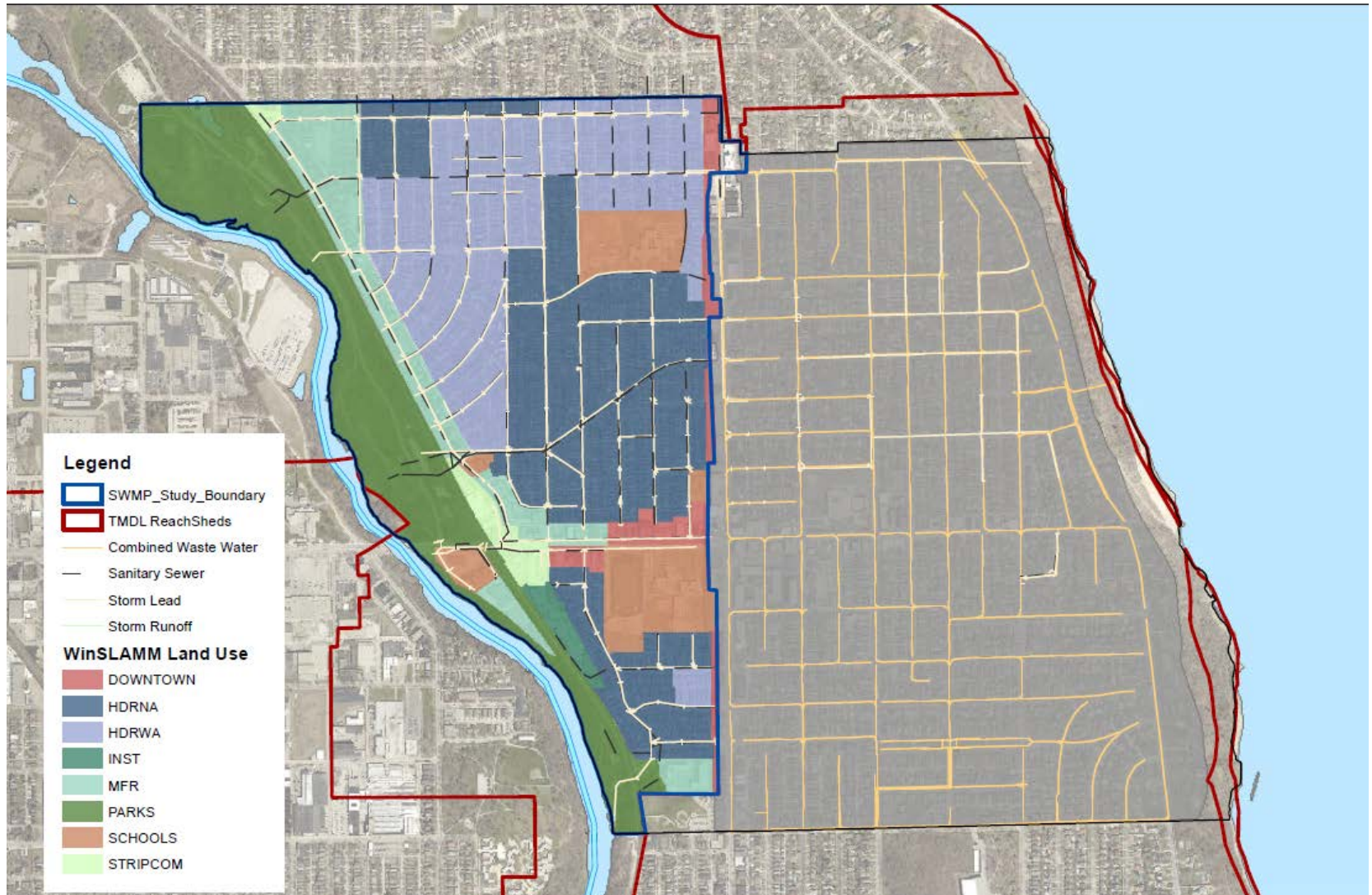
TOTAL PHOSPHOROUS REDUCTION







# LAND USE MAP (Input)





# Existing Village Practices

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- › POLLUTION PREVENTION PRACTICES
  - Street Sweeping
  - Catch-Basin Cleaning
  - Leaf Collection
    - Unable to add to modeling
    - Currently being researched for % reduction credits

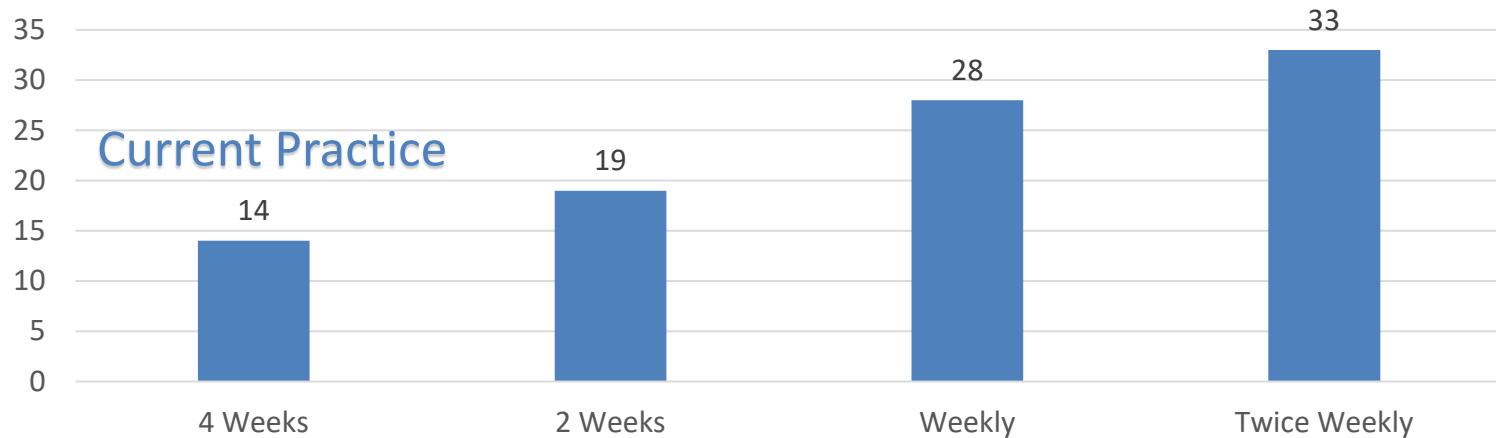




# Street Sweeping

- › Currently sharing vacuum assisted sweeper with Village of Whitefish Bay
  - Frequency: every 4 weeks

## Frequency vs. % Reduction





# Capital Improvement Projects

- › 100% Developed Village
- › Evaluating each project for pollution prevention and stormwater management
  - Utilize Village G.I. Guide
    - Example: Wilson Drive
- › Looking for Practical and Economical Solutions towards Compliance



# Practical and Economical

- › Green Infrastructure requires more than Capital spending
- › Annual Maintenance = Functioning Infrastructure
  - Biofilters require plant maintenance, trash removal, engineered soil replacement
  - Permeable Pavement requires vacuum sweeping



# Redevelopment Opportunity

- › Regulations/Requirements
  - MMSD Chapter 13, WDNR NR.151
  - March 2019 – MMSD Chapter 13 Rule Change
    - Now requires any development or redevelopment over 5,000 SF and less than ½ Acre to use G.I. to capture first ½ inch of rainfall
  - WDNR NR-151 Requires 40% TSS Reduction from any development over ½ acre.
    - Village Ordinance could be more stringent



# Ultimate Goal

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- › De-List the Milwaukee River from the Federal Impaired Waterbodies List
- › 6 other municipalities are permitted with the Village and face the same challenges
- › Opportunities to accomplish regional % reductions as a whole



# Final Thoughts

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- › NR216 compliance in the next 5 years will be a mix of the familiar and the uncharted
- › Evaluating Capital projects for small improvements that demonstrate progress towards compliance is key
- › Maintaining G.I. is and will be a challenge to municipal budgets as sediment reduction practices start to become smaller but more frequent