

Milwaukee River TMDL Update

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4/20/2021

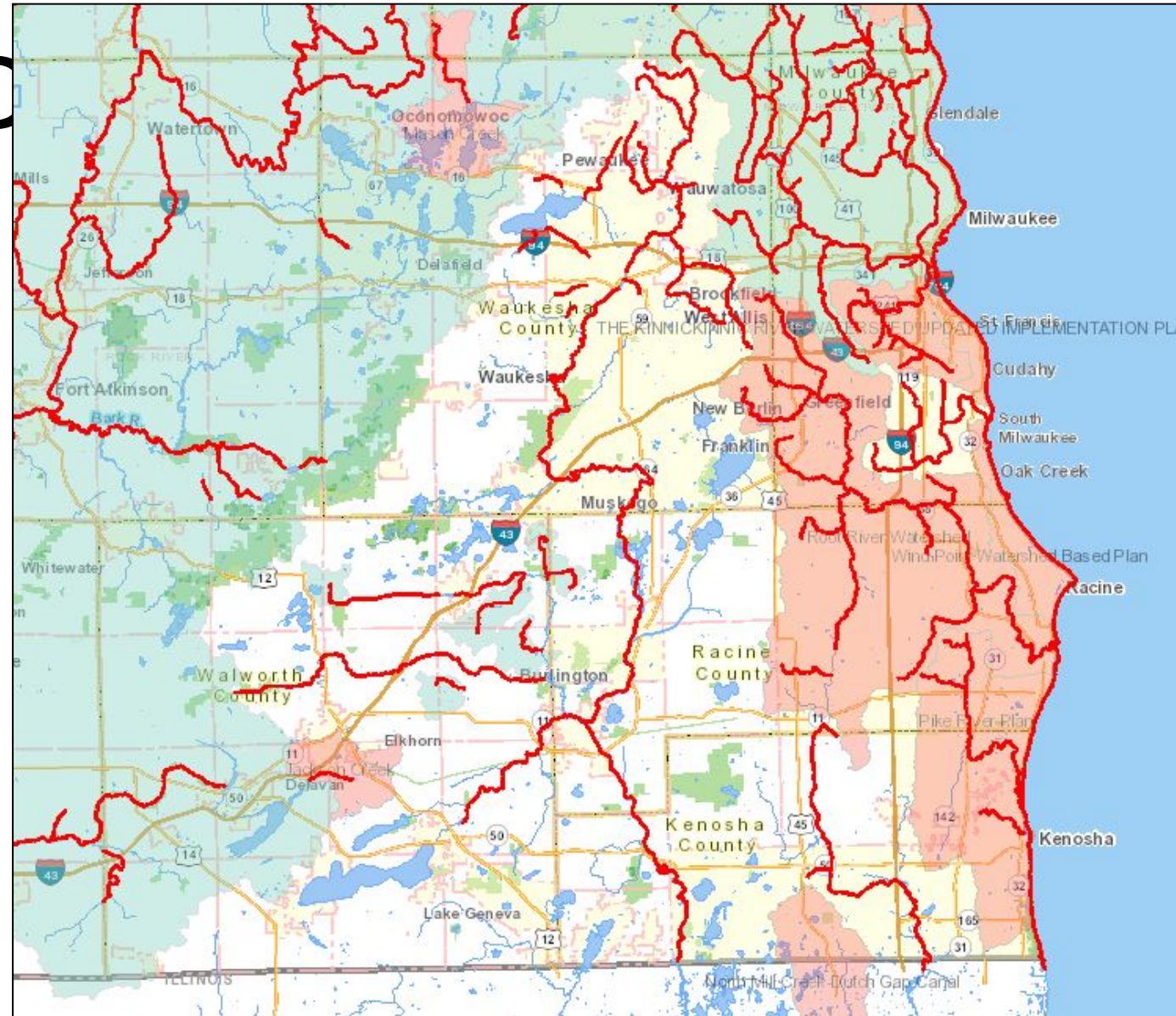
Outline



- Fox-Des Plaines TMDL
- Milwaukee River TMDL Progress
- What to do?
 - Retrofit Ideas
 - Non-Structural BMPs to consider
 - BMP Advancements

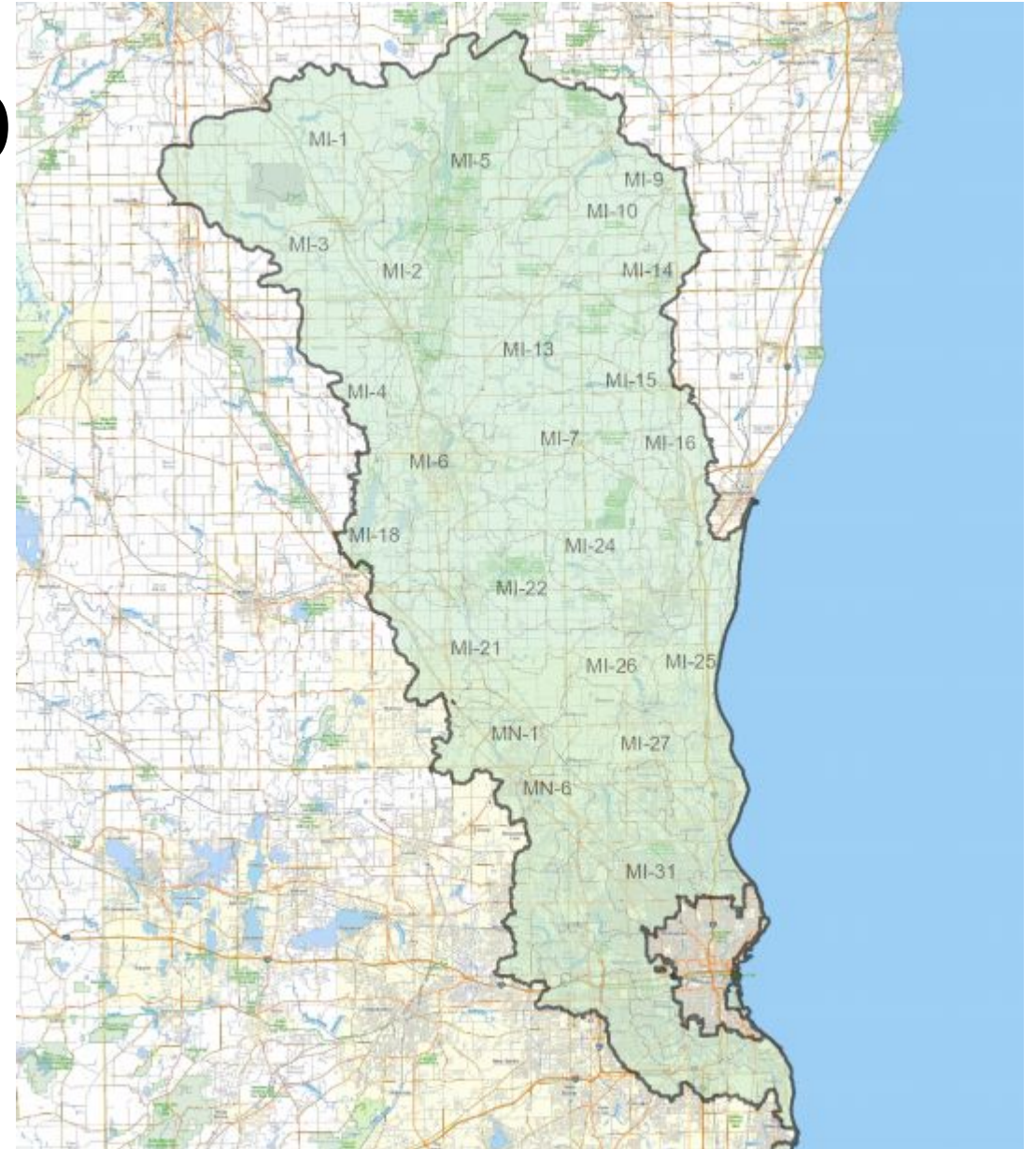
Fox-Des Plaines TMDL

- Monitoring Completed 2019-2020
- TMDL Completion anticipated 2023.



Milwaukee River TMD

- Approved March 2018
- 850 mi² of land in 7 counties
- 400 stream and river miles
- 43 MS4s
- 13 Industrial WWTF
- 12 Municipal WWTF



Wastewater Permits



	# of IPs	Has TMDL	Will have TMDL by October	Still no TMDL*
Industrial	13	4	5	4
Municipal	12	6	1	5
All Individual Permits	25	10	16	9
		40%	64%	

MS4 Permits

- Permits:
 - 23/43 have new permit with Milwaukee TMDL Goals
 - 9/43 additional MS4s covered by July 1
- SWMPs
 - 17 completed
 - Next waves:
 - March 2022
 - March 2023
 - 7 new applications for UNPS Planning Grant



Pollutant Reduction Progress

- November 2019: 19.75% Reduction
 - NR 151 Urban Performance standard is 20% TSS
 - Based upon 2008 modeling
 - Total MS4, not just Milwaukee River Basin
- April 2021: 20.75% Reduction
 - Some data still from 2008
- 1583 Tons of Sediment
 - 3.2 Million Pounds



MMSD Long Term Trends

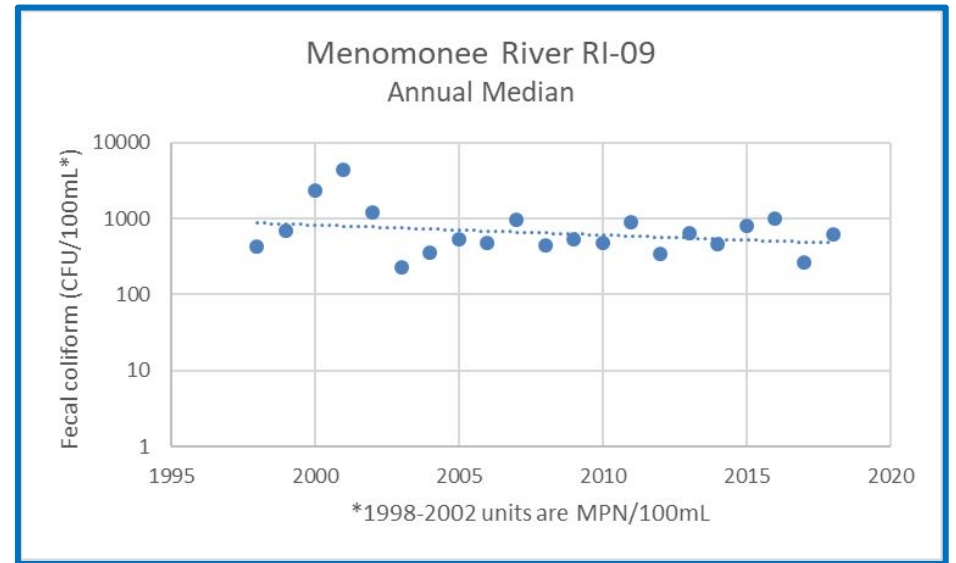
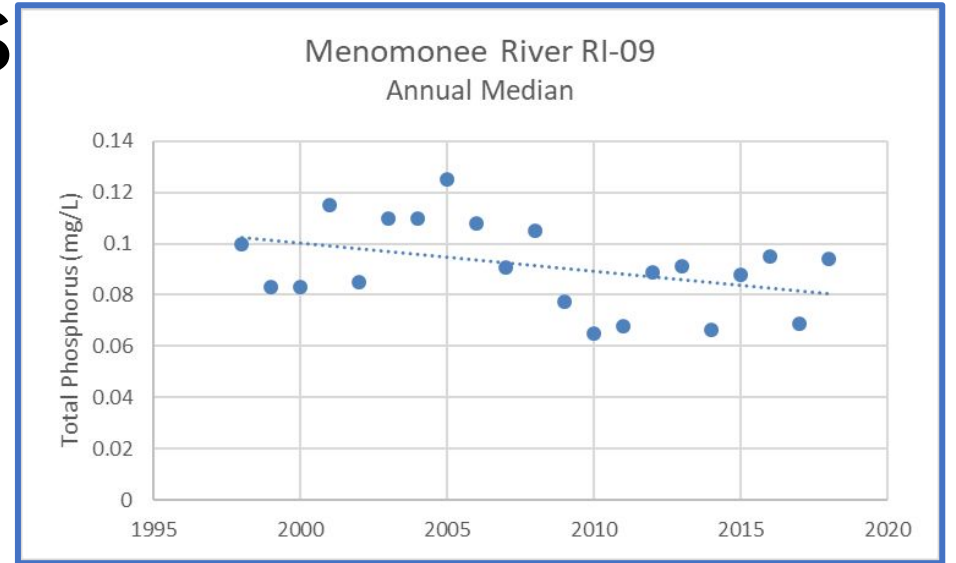
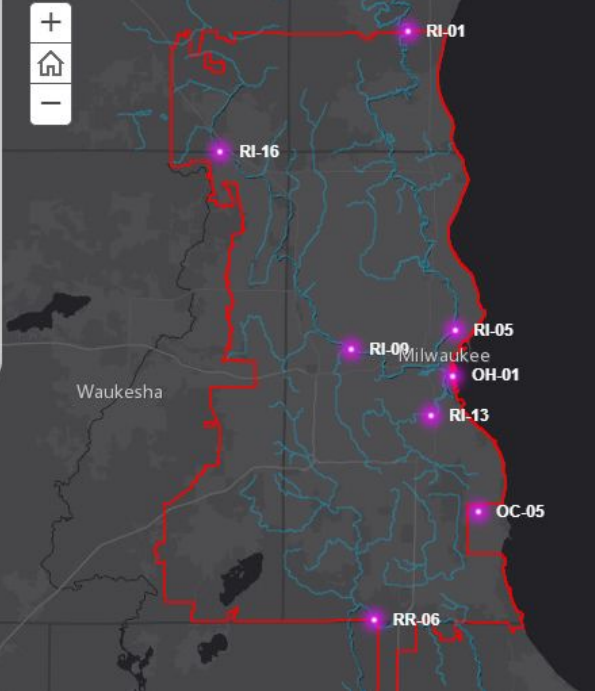
Long-Term Concentration Trends

Total Phosphorus Total Suspended Solids Fecal Coliform E. coli Chlorophyll a

Phosphorus has long been recognized as a controlling factor in plant and algae growth in Wisconsin lakes and streams. Small increases in phosphorus can fuel substantial increases in aquatic plant and algae growth, which in turn can reduce recreational use, property values, and public health. Phosphorus enters waterways from point (e.g. single identifiable source), nonpoint (e.g. storm runoff), and naturally-occurring (e.g. minerals) sources.

- Total phosphorus concentrations have trended downwards over time at all focus sites except RI-16, where they have stayed roughly steady.

- Monthly median total phosphorus concentrations tend to be higher at all sites in summer and fall than in winter and spring. Smaller differences in monthly median are seen in the furthest downstream Milwaukee River site (OH-01). Some winter months at RI-01 and RI-13 are much higher, but note the small sample sizes.



<https://mmsdgis.maps.arcgis.com/apps/MapSeries/index.html?appid=18474483c3644196896db7749994226e>

MS4 Options

- Non-Structural BMPs
- Retrofit Ideas
- BMP Advancements
- Watershed Options



Non-Structural Options: Construction Sites

- Inspection Frequency/Prioritization
 - Inspect high risk sites more frequently
 - Slope, soil type, proximity to storm sewer inlet or receiving water
- Location of Portable Toilets
 - On Pervious Ground
- Sediment Performance Standard
 - 5 tons/acre/year



Non-Structural Options: Post-Construction

- Ordinances:

- Update Development and Redevelopment Standards
- Add TP Standard



Table 2:
Pollutant Reduction Standards

Development Type	TSS Reduction	Phosphorus
New Development	80%	30%
In-fill development	80%	30%
Redevelopment	73% of load from parking areas and roads	30%

- Existing Pond O&M

- Research by Marquette University
- Collect data to be able to model Phosphorus cycling in ponds
- Results can steer O&M and design of new BMPs.

Non-Structural Options: Leaf Management

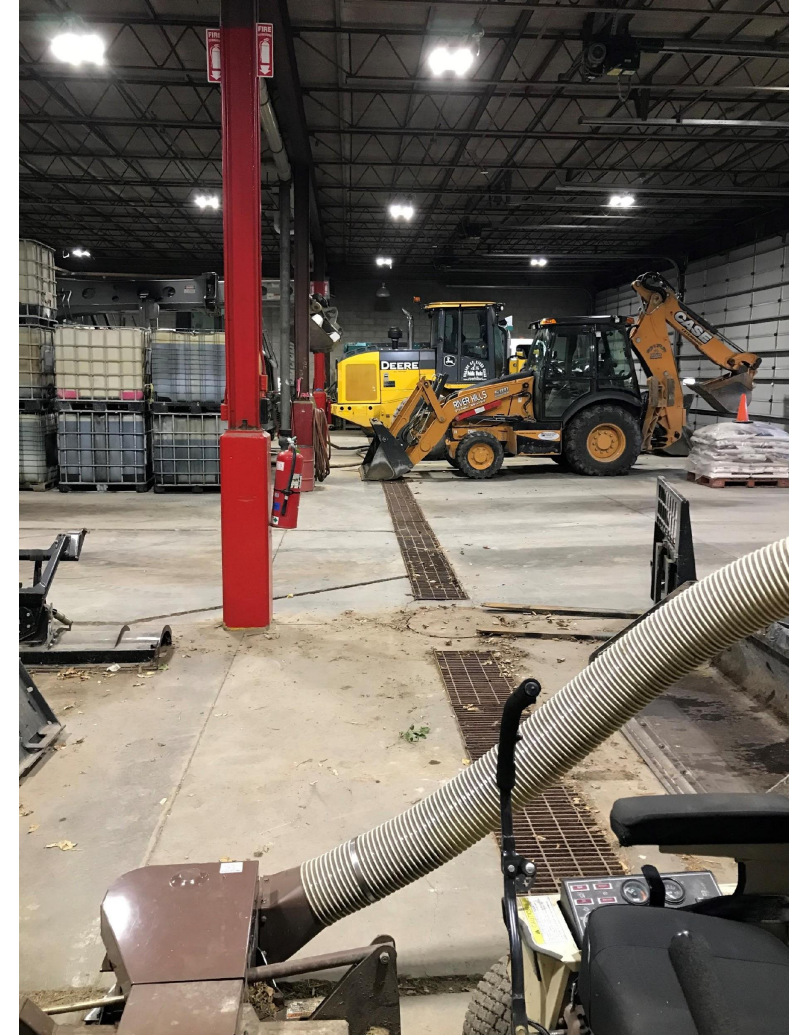
- Guidance Update
 - Additional Methodology
- Key Take Away:
 - Frequency of removal > method or removal



Retrofit Idea: DPW

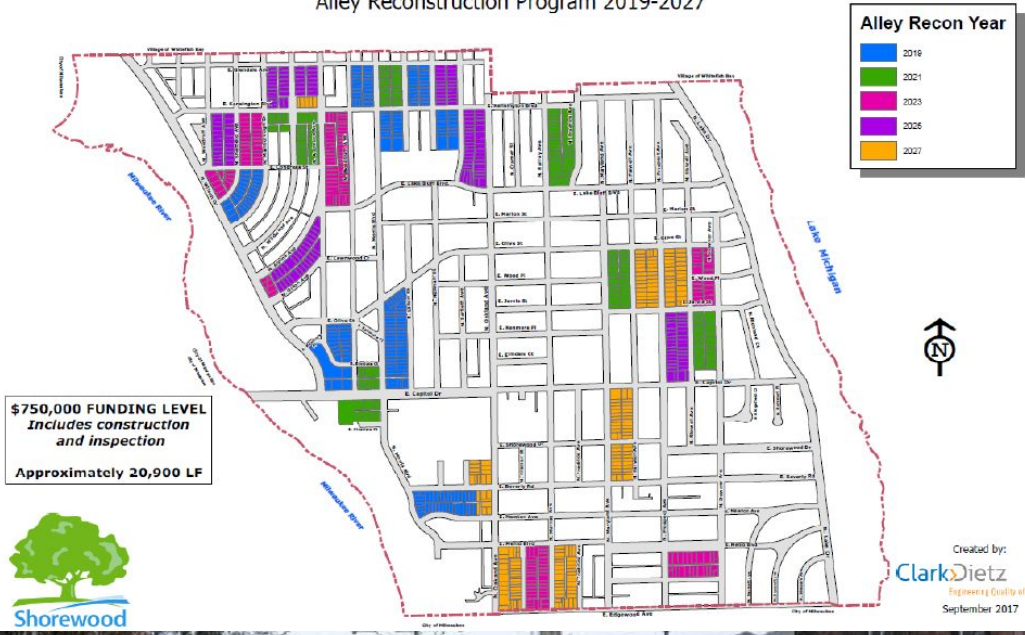
Yard

- Decant Station
- Inlet Protections
- Floor Drains

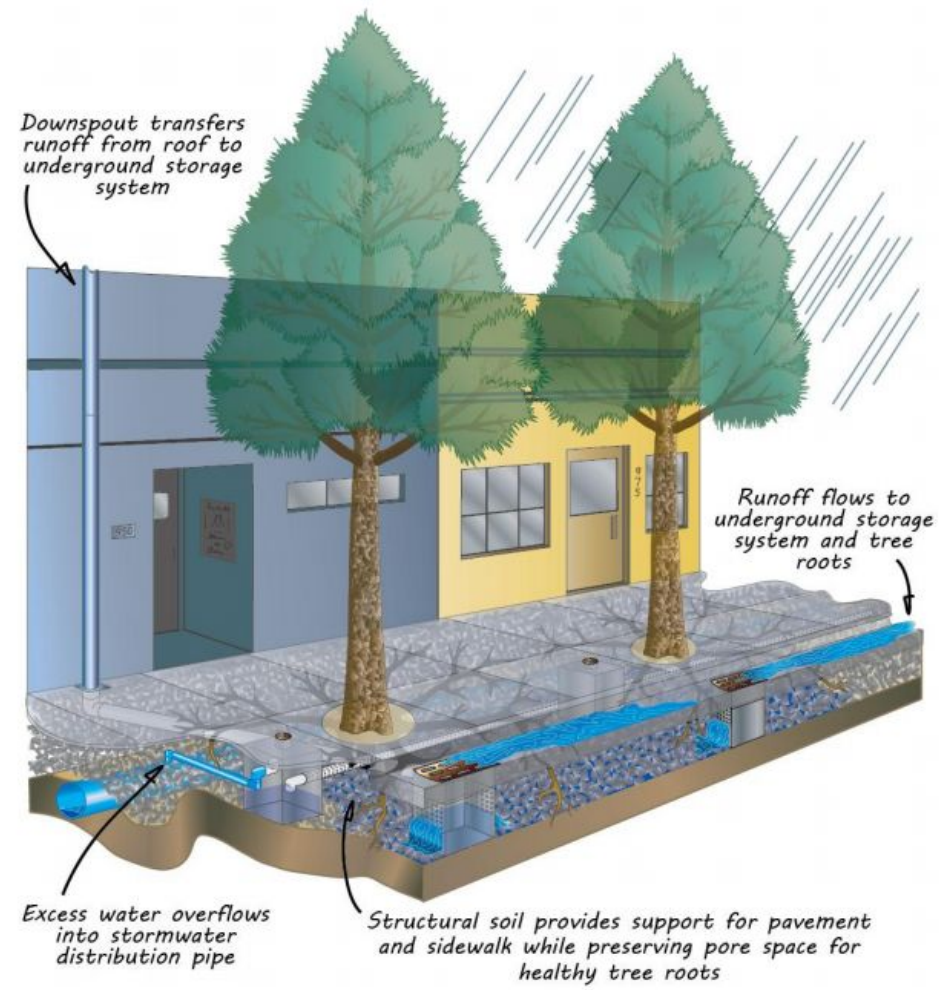


Retrofit Idea: Streets

Alley Reconstruction Program 2019-2027



- Street Trees
- Green Alley



BMP Advancements: RTC



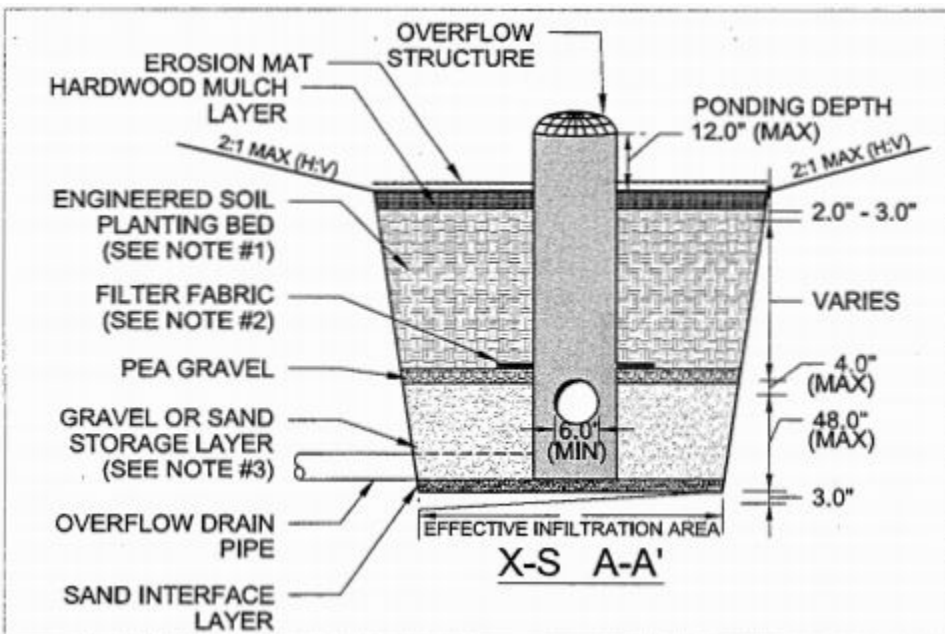
Rain-mX



INFIL-Tracker

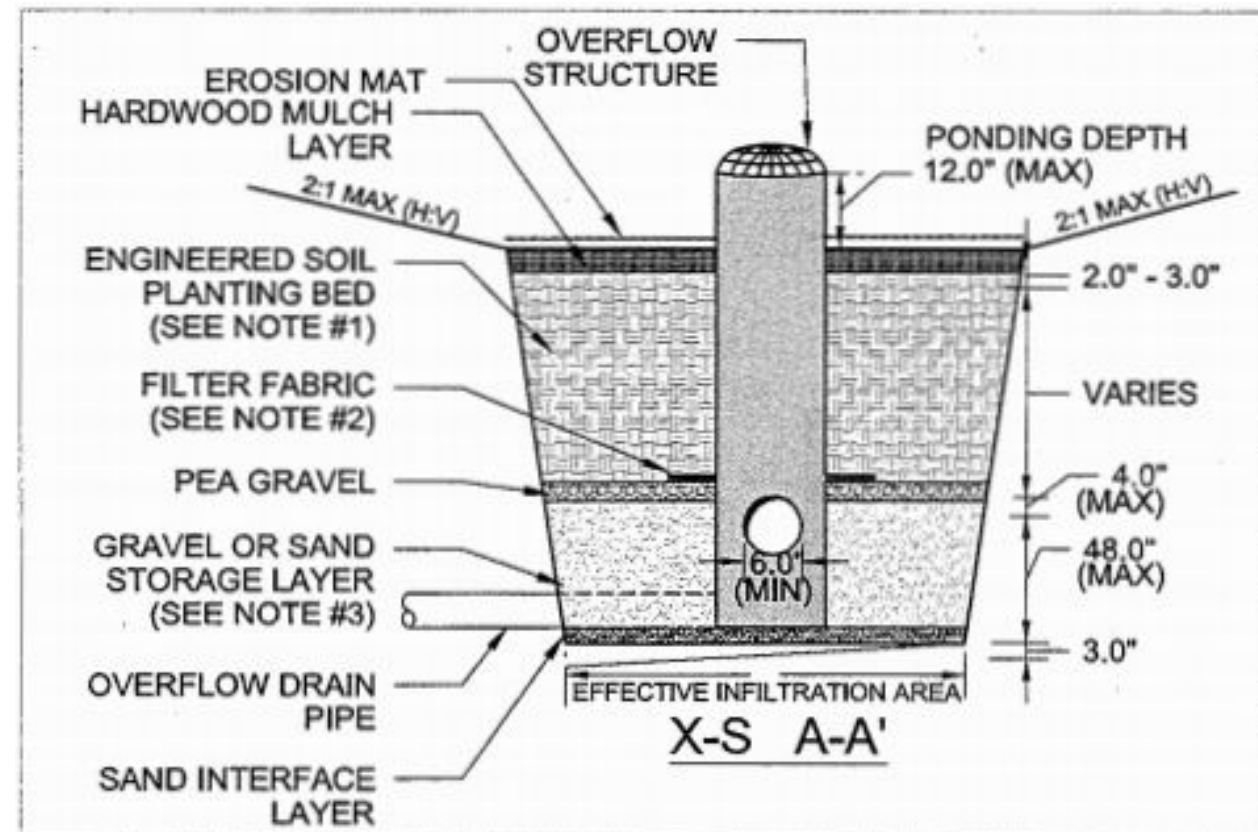


Flow-RTC

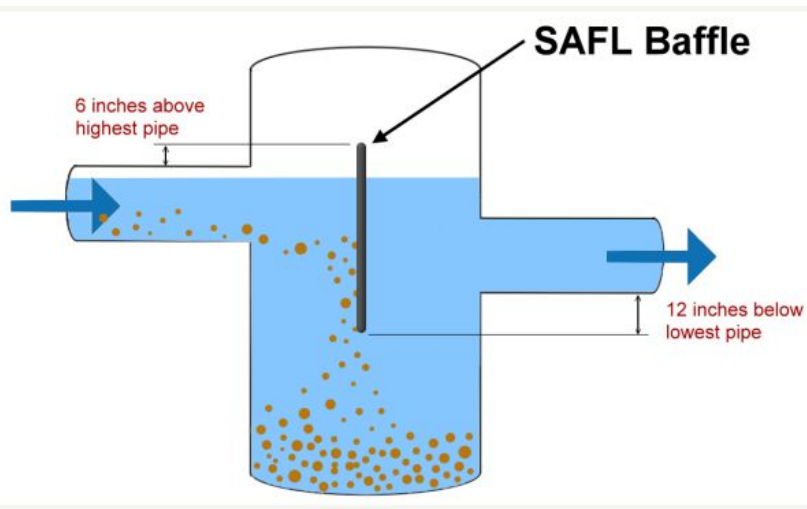


BMP Advancements: Soil Amendments

- Phosphorus Absorbent Materials
 - BioChar
 - Iron Filings
 - Blast Furnace Slag
- For use in Biofilters, Pervious Pavement Subgrade, Pond Perimeter



BMP Advancements: Sumps



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OFF THE RECORD"