

Detroit WWTP NPDES Permit Informational Meeting



Michigan Department of Environmental Quality
October 8, 2015

Framework for Tonight's Public Meeting

6:30 – 8:30 PM

- Introductions
- DWSD and DEQ Presentations
- Open discussion and questions

DEQ Presentation

- Background and National Pollutant Discharge Elimination System (NPDES) requirements
 - NPDES permit compliance during 2014-2015
 - Upcoming NPDES permit requirements
- 
- The background of the slide features a blue gradient with several sets of concentric white circles at the bottom, resembling ripples in water. These circles are of varying sizes and are positioned towards the bottom right and bottom center of the slide.

DWSD Presentation

Wendy Barrott, General Manager





Wastewater Operations Group

Community Meeting “Noise and Odor”



DETROIT WATER & SEWERAGE DEPARTMENT
Wastewater Treatment Plant

Wendy Barrott, General Manager

October 8, 2015

Wastewater Treatment Plant



Noise

Wastewater Operations Group

- History of community noise complaints
- Actions taken to date
 - Noise reduction standards on-site construction
 - Noise reduction standards for new equipment
- Goal - Reduce noise levels both on-site and off-site to generally acceptable levels



Noise Reduction Plan

Wastewater Operations Group

- Action Plan Developed
 - Items were identified for quick success
 - Oxygen pipeline
 - Noise levels in control rooms
 - Burner Air Fans Complex II Silencers
 - Mixers on Aeration Decks
 - Complex II – ID Fans
 - Complex II - air movement on 5th floor
- Items identified for design and incorporation in the CIP



Complex II Incineration – Air Emissions Upgrade

Wastewater Operations Group

- Complex II ID Fans Replaced: 7, 8, 9 & 10
 - Extra Noise insulation
- 7 & 8 – In service
- 9 & 10 – Emissions testing underway
- Remainder by March 2016



Odor

Wastewater Operations Group

- History of community and employee odor complaints
- Actions taken to date
 - Scheduled cleaning of thickeners and tanks
 - Goal – NO storage of stabilized sludge on-site
 - Continue staff awareness of work practices impacting odor
 - Close doors
 - Housekeeping
 - Aerate thickeners well
- No Odor Complaints - 2015



Construction of Biosolids Dryer

Wastewater Operations Group

- Reduce air emissions
- Reduce onsite biosolids storage
- Reduce number of trucks hauling stabilized Biosolids
- Performance Testing phase
- Commercial Operation Dec. 2015



Questions & Complaints

Wastewater Operations Group

General Questions

Wendy Barrott

313-297-4300

Complaints

DWSD Security Desk

313-267-7401

WWTP Control Room

313-297-0326



Detroit WWTP - Background

- One of the largest WWTPs in the US
 - Treats dry weather flow and significant wet weather flow through secondary treatment up to 930 million gallons per day (MGD)
 - Treats wet weather flow through primary treatment up to 1700 MGD

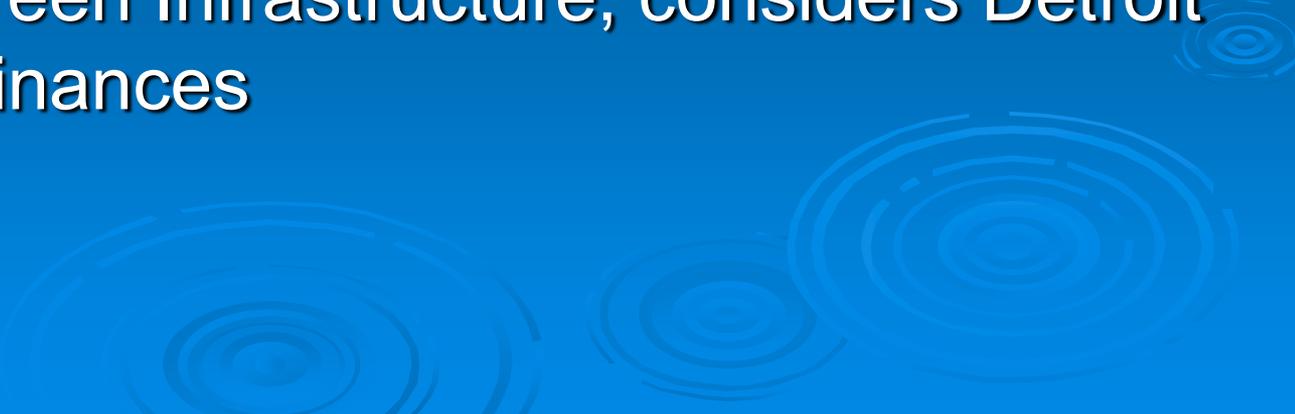
Background

- Under an Administrative Consent Order (ACO) with the DEQ for violations from 2009-2011.

NPDES Permit

- Permit MI0022802 issued March 1, 2013; effective May 1, 2013, modified June 22, 2015
- Expires October 1, 2017
- www.michigan.gov/deq
 - Click on: Water, Surface Water, NPDES Permits
 - Under Information click on Detroit Water and Sewerage Department (DWSD)

3 Key Issues Addressed

1. Sustained compliance with permit requirements
 2. Reductions in authorized total phosphorus loads to help address Lake Erie algae
 3. Adaptive Management CSO Control program; includes Green Infrastructure, considers Detroit residents' finances
- 
- The background of the slide features a blue gradient with several faint, concentric white circles that resemble ripples on water, positioned in the lower half of the slide.

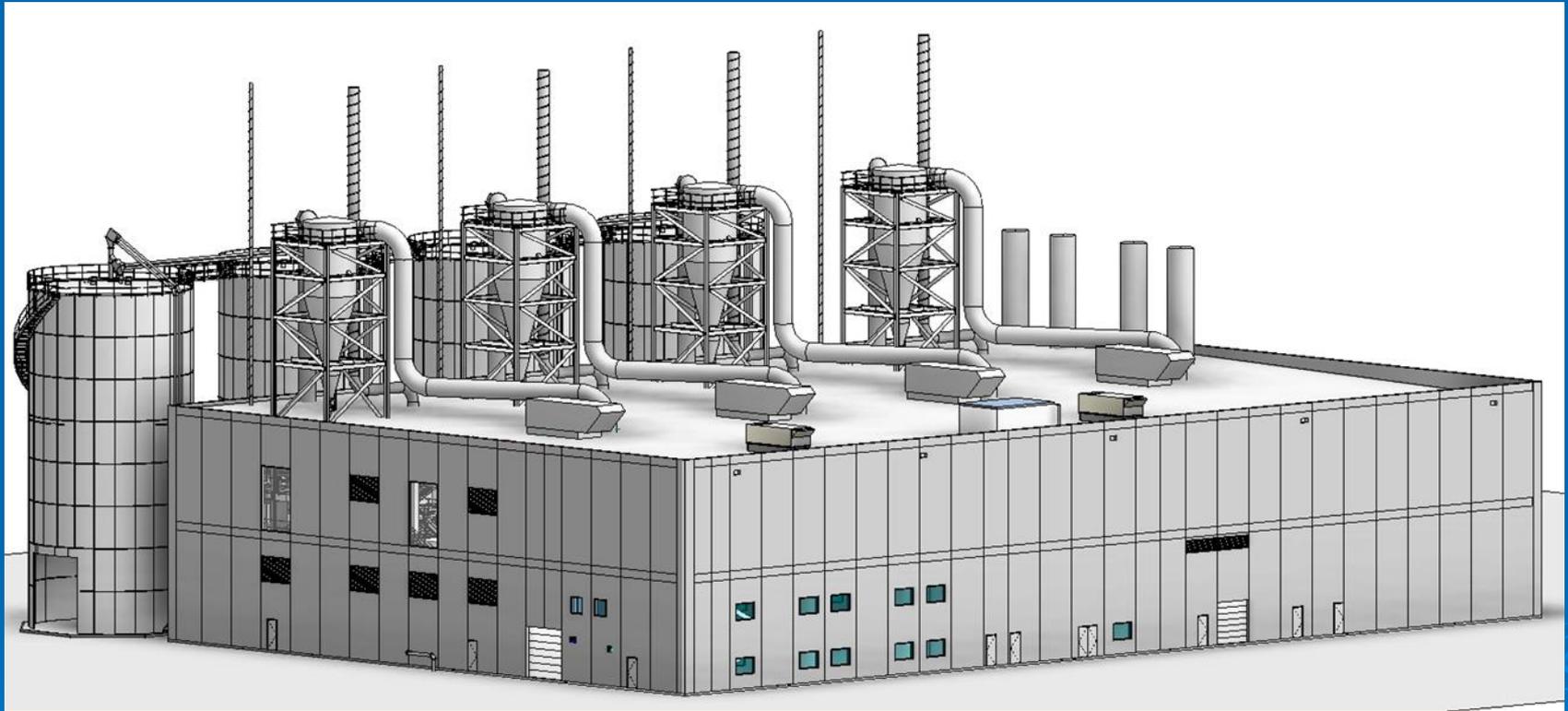
1. Sustained Compliance - Facility Improvement Program

- Includes ACO conditions that control the solids inventories at the WWTP
- Requires construction of new solids dewatering equipment by 2016
- Requires a Long-term Solids Disposal Plan
- Requires Asset Management to address operation and maintenance issues
- Adjust effluent limits based on good operation

Solids Handling – Long Term

- Will Permanently Shut Down Incinerators in Complex C-I
 - 6 incinerators built in the 1940s
- Upgrade Incinerators in Complex C-II
 - 8 incinerators built in the 1970s
 - Necessary to meet more stringent Federal emission standards effective March 2016

Biosolids Dryer Facility (BDF)

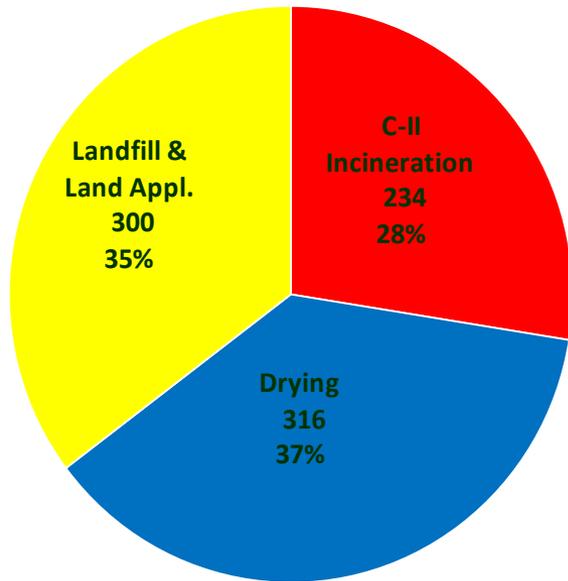


Biosolids Dryer Facility (BDF)

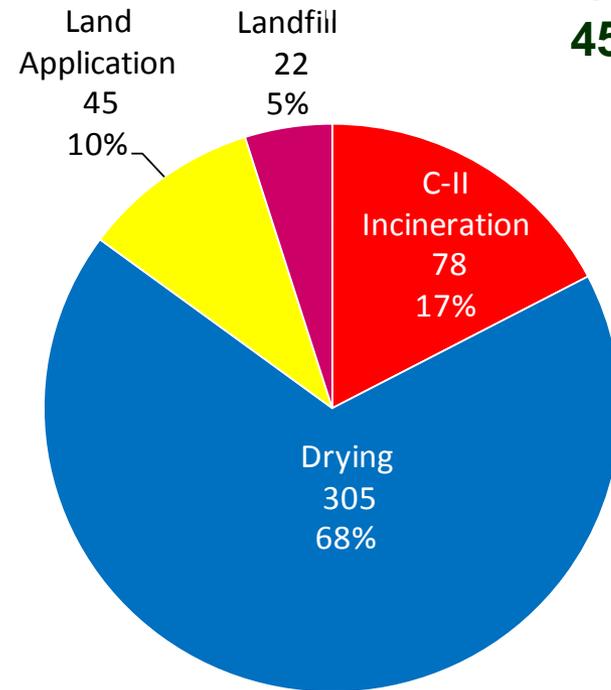


BDF - Future Disposal

**Peak
850 dtpd**



**Average Day
450 dtpd**



Asset Management is...

- The practice of managing infrastructure assets
- Minimizing the total cost of owning and operating them
- Delivering the desired level of service

\$\$\$\$



\$\$



Asset Management

- Program Approved January 17, 2014
- Inventory and Assessment of Fixed Assets
- Preventative Maintenance Program
- Assessment of Criticality and Risk Management
- Considers Capital Planning and Scheduled Replacement
- Annual Reporting

2. Phosphorus Reduction

- Adjustment of Effluent Limits based on good O&M
- Monitoring periods at wet weather outfalls changed to more quickly reflect good WWTP operation and maintenance
- Effluent limits at wet weather outfalls adjusted to require well operated WWTP

Pollutant	Former Limit (30 discharge days)	Current Limit (monthly average)
TSS	100 mg/l	70 mg/l
CBOD5	100 mg/l	40 mg/l
Total Phosphorus	2.5 mg/l	1.5 mg/l

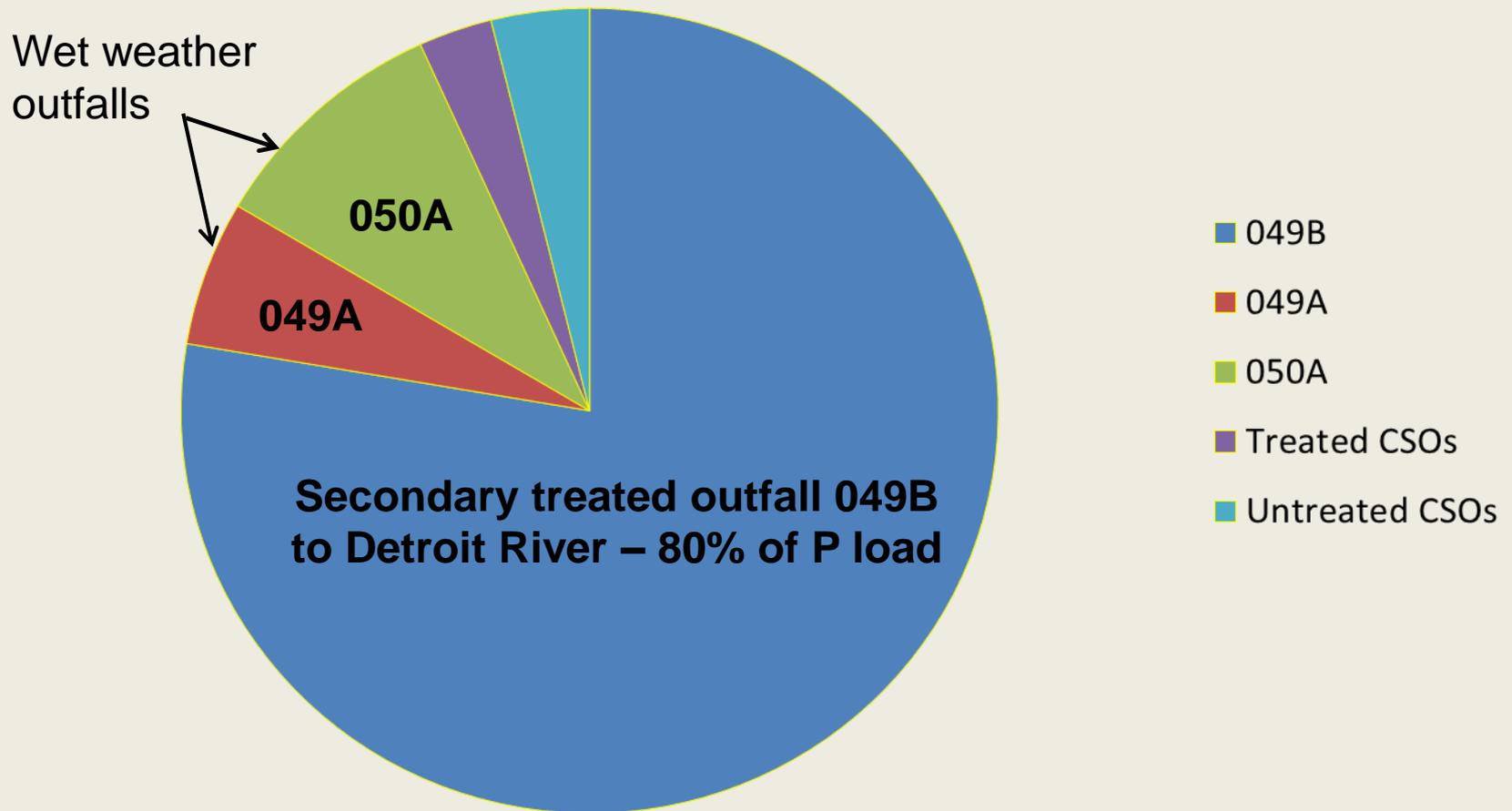
Reduction in Permitted Phosphorus Levels

➤ Beginning 2015

- WWTP secondary treated outfall reduced from 1.0 mg/l to 0.7 mg/l as a monthly average
- Growing season average of 0.6 mg/l (from April – September)

➤ Based on levels the WWTP can achieve optimizing existing facilities

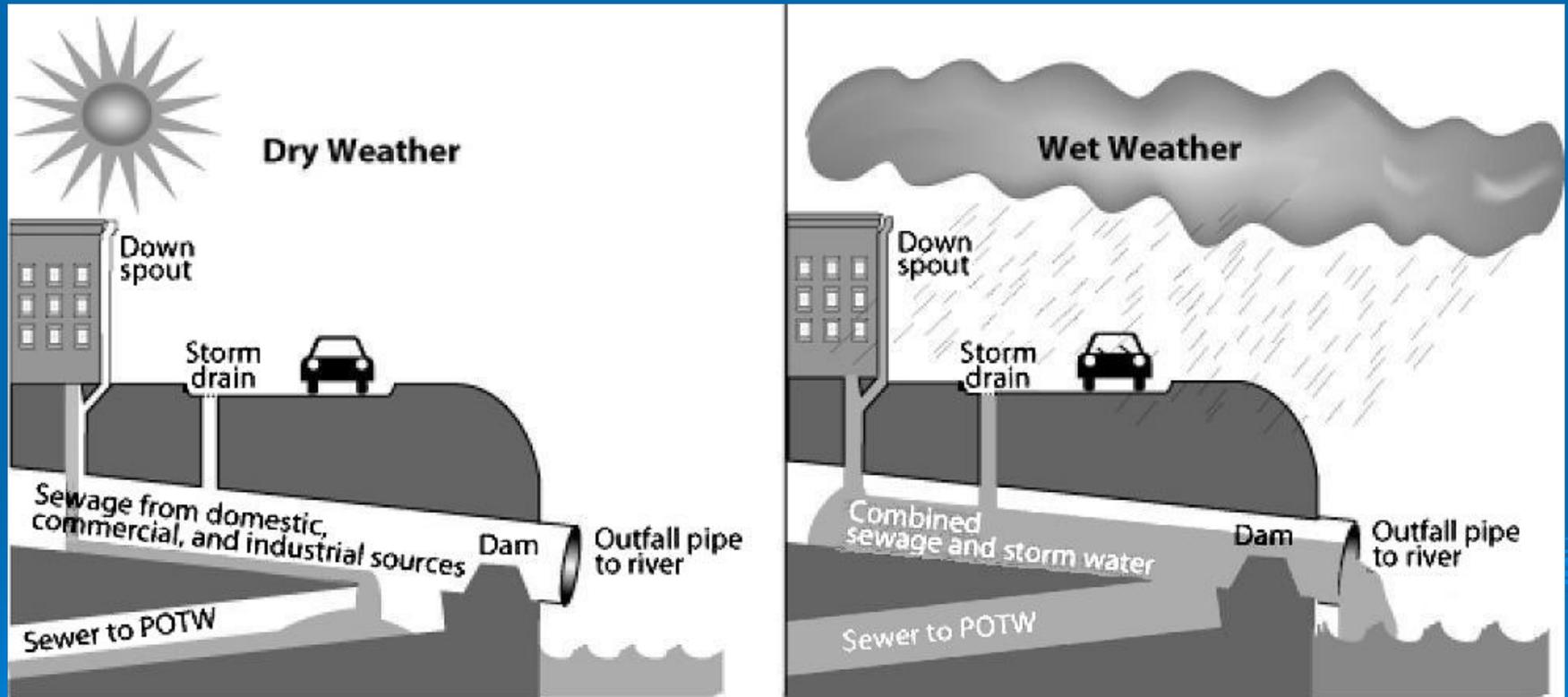
Detroit Total Phosphorus Loads



3. Adaptive CSO Control Program

- Michigan's CSO program started in 1988
- Municipalities must either:
 - eliminate the CSO or
 - provide adequate treatment to meet all water quality standards at times of discharge
- Detroit's collection system consists of basically all combined sewers

Wet Weather – Uncontrolled CSOs



Adaptive Management Program

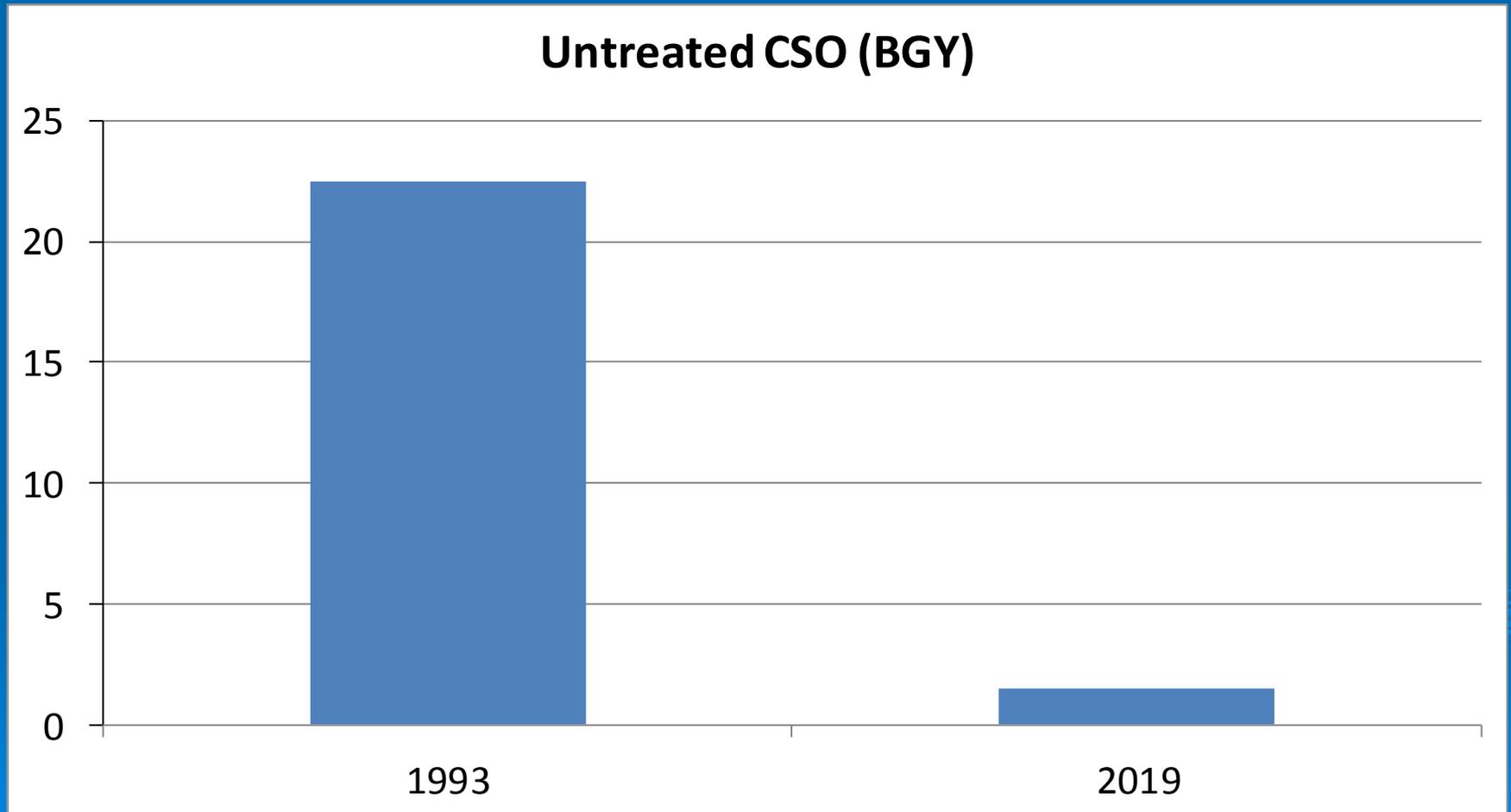
➤ Remaining CSOs (55)

- 17 CSOs remain to the Rouge River
- 38 CSOs to the Detroit River

➤ An adaptive management approach for these will:

- Use lessons learned from previous CSO projects and better discharge data
- Consider the financial capability of DWSD and City residents
- Consider reductions in stormwater flows by using an expanded Green Infrastructure (GI) program

CSO Correction Progress



Green Infrastructure (GI)

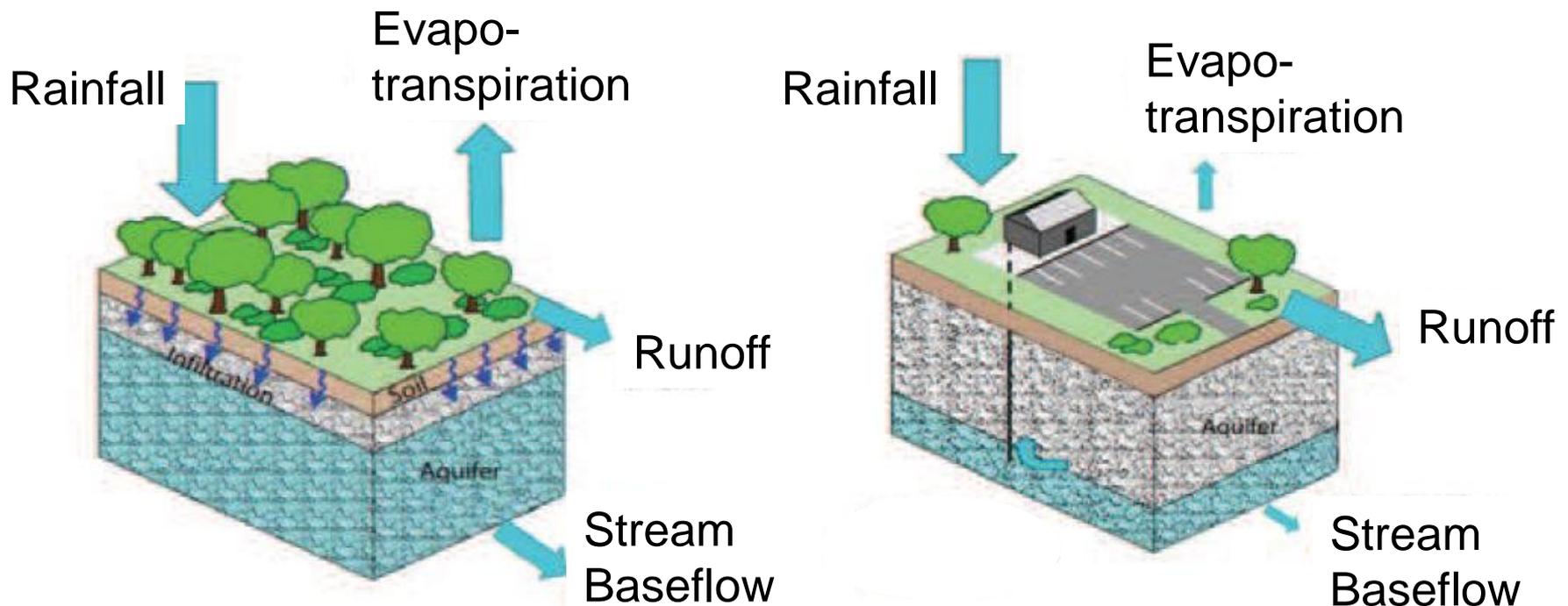
How does Green Infrastructure reduce runoff?

More pathways for water to:

- Soaks into the ground
- Taken up by plants

Hard surfaces

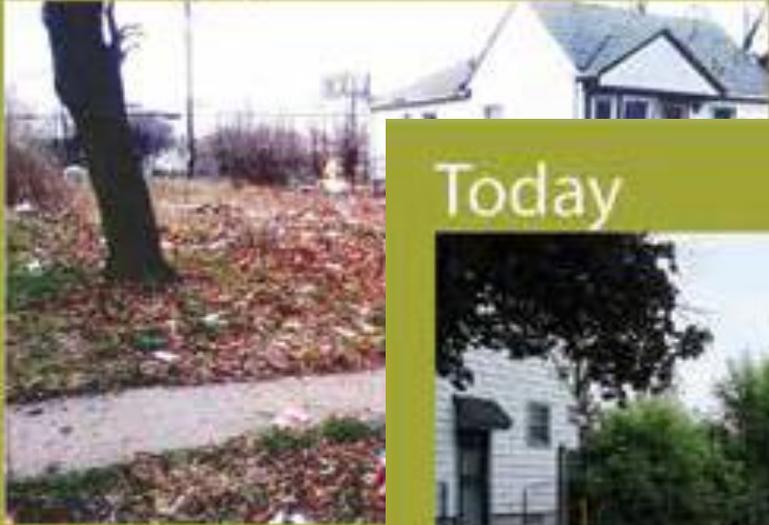
(like pavement and roofs) remove these pathways



Too much runoff → sewer overflows

Green Infrastructure (GI) Vacant lot greening

Yesterday



Winter 2013

Today



spring 2013

Tomorrow



summer 2016

Green Infrastructure (GI) – Roadway Example

Cass Farms Green Alley

This is Detroit's first Green Alley demonstration project.
It represents a new possibility for Detroit's more than 1,000 miles of alleyways.



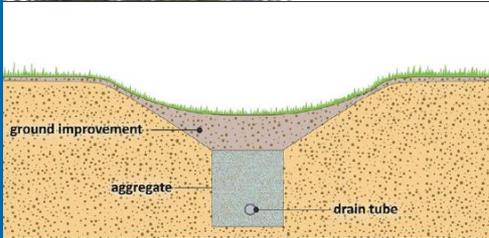
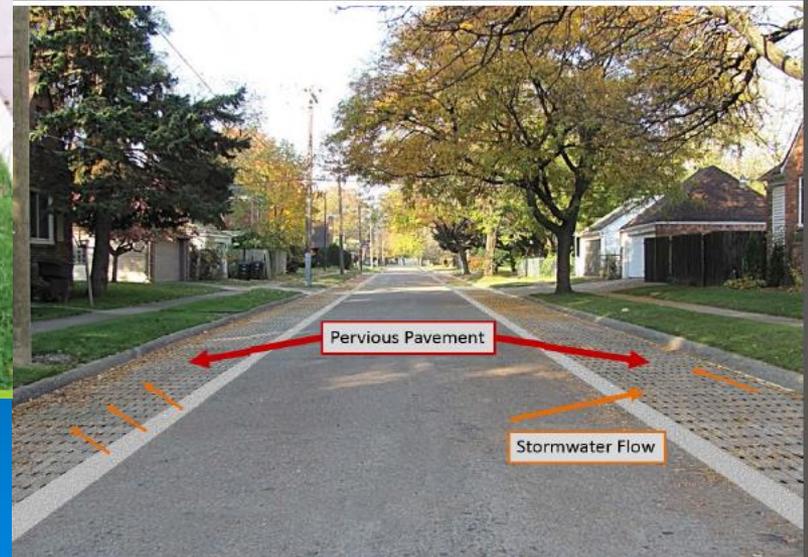
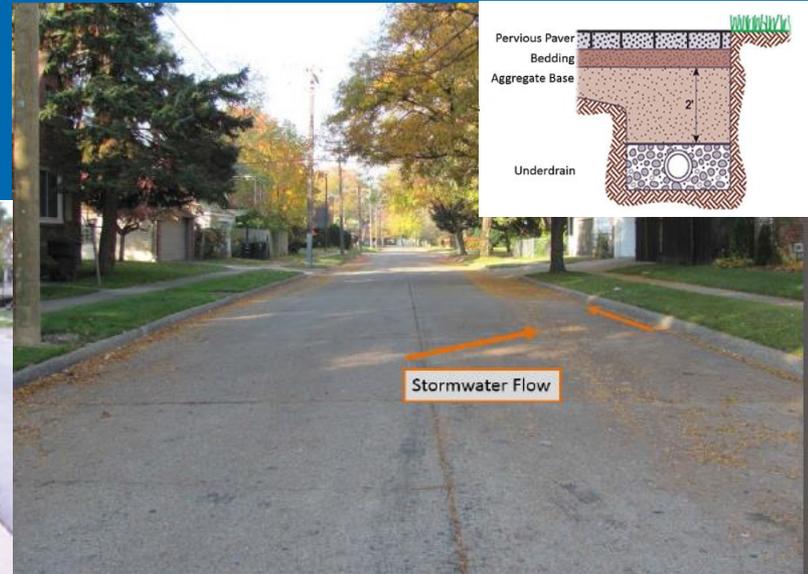
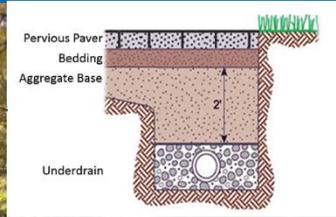
Green Infrastructure (GI) – Parking Lots



Green Streets (under construction)

Keeler St

Tireman Ave



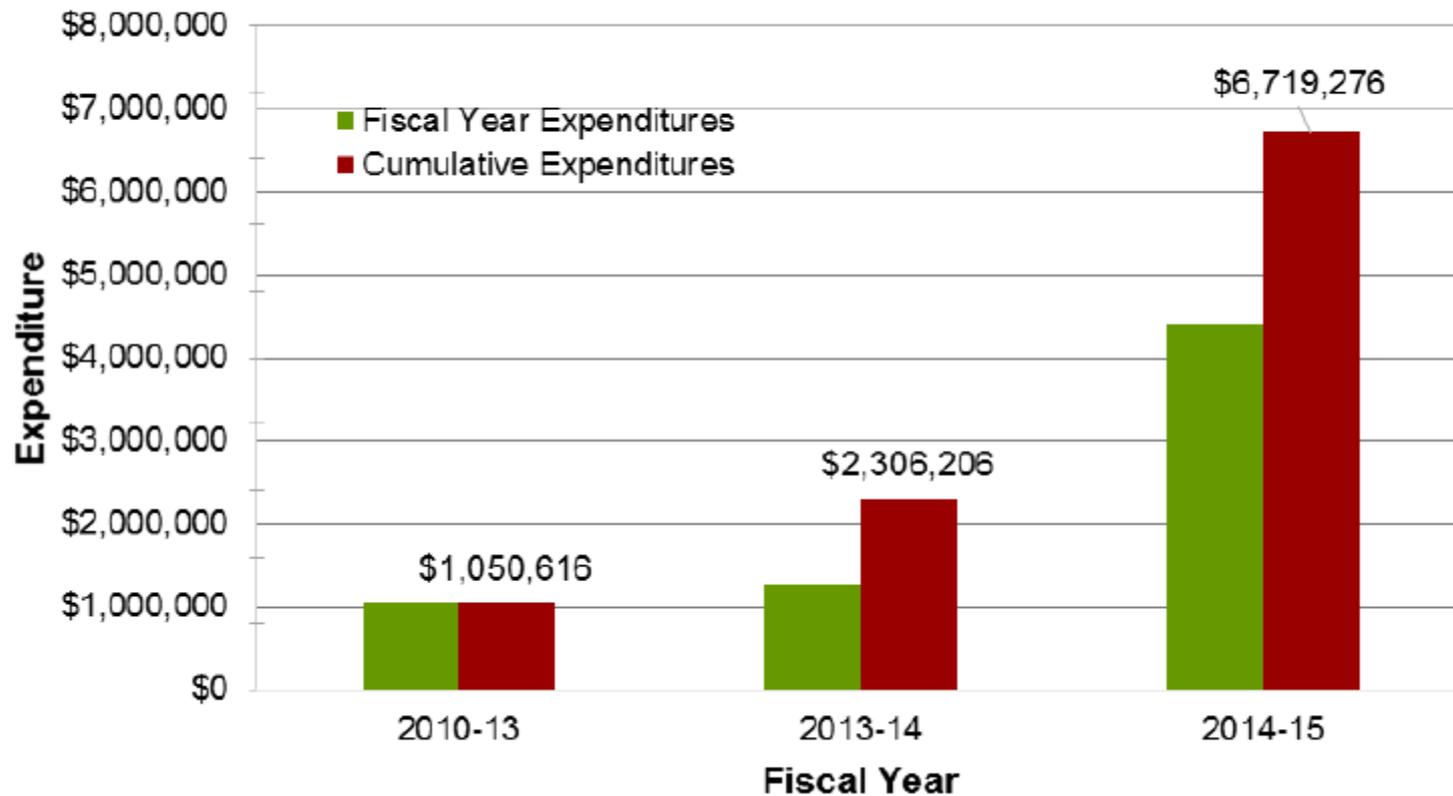
Green Vacant Residential Parcels Bioretention (big rain gardens) (under construction)



Images: DWSD Green Infrastructure Webpage → Fact Sheets

DWSD Green Infrastructure (GI) Program Expenditures

Figure 11 DWSD GI Program Expenditures



Source: DWSD Green Infrastructure Webpage → 2015 Progress Report

Recent Opportunities

Workshop series

Assistance designing, funding and installing rain gardens at selected applicants' homes.



green your neighborhood

Build Rain Barrels | Use Less Water to Save Money | Reduce, Reuse, Recycle | Landscape with Rain Gardens
Make Non-Toxic Cleaners | Disconnect Downspouts | Tour LEED Certified Green Building

WEDNESDAY, OCTOBER 15
5pm Registration | 5:30pm Start | 8:30pm End

WAYNE COUNTY COMMUNITY COLLEGE
NW Campus—8200 West Outer Drive, Detroit

Free Workshops for Adults & Lots of Fun Activities for Children

WIN A RAIN BARREL & OTHER PRIZES!!!



Wayne County Community College District | the Greening of Detroit | ZERO WASTE DETROIT | WAYNE STATE | Friends of the ROUGE



RAIN GARDENS to the RESCUE



SIERRA CLUB FOUNDED 1892 | **KEEP GROWING DETROIT** | **Friends of the ROUGE**

2015 APPLICATION
Supported by The Erb Family Foundation

NPDES Permit Compliance

- National Association of Clean Water Agencies (NACWA)
 - DWSD Wins Silver Peak Performance Award (2013 & 2014)
 - 5 or fewer NPDES Permit violations in a calendar year

NPDES Permit Effluent Violations FY2015

Date	Outfall	Parameter	Limit	Result
October 2014	049A	Total Phosphorus Monthly Average	1.5 mg/l	1.62 mg/l
March 2015	049B	TSS % Removal Minimum Monthly Average	85%	79.7%
April 2015	049B	TSS % Removal Minimum Monthly Average	85%	84.1%
June 23-24, 2015	109A	Fecal Coliform	400 cts/100 ml	1294 cts/100 ml
August 20, 2015	105A	Fecal Coliform	400 cts/100 ml	10483 cts/100 ml

ACO Compliance Violations 2015

Date	Description	Limit	Result
November 23-26, 2014	Prohibited Discharge		822 Million Gallons @ Outfall 054
May 31- June 1, 2015	Prohibited Discharge		16.3 Million Gallons @ Outfall 054
June 10, 2015	Failure to provide secondary treatment 930 MGD during wet weather event.		
November 23-34, 2014 May 30-June 1, 2015 June 14-15, 2015 June 23, 2015 August 3, 2015 August 20, 2015 September 3-4, 2015	Failure to maintain pumping capacity to treat wet weather flow	min 1700 MGD	

2015 Accomplishments

- Biosolids Dryer Facility construction ahead of schedule
- Installation of Belt Filter Presses completed; testing of remaining equipment underway
- Alum Sludge Correction program implemented; looking to optimize disposal process

Upcoming Permit Requirements Annual Reports

- Residuals Management Plan
- Wet Weather Operation Plan
- Asset Management Program
- Green Infrastructure
- Pollutant Minimization Program for Total Mercury and Total PCBs
- Collection System & CSO treatment facility Op Plan

Residuals Management Program (RMP)

- RMP approved April 22, 2008 to authorize land application of bulk biosolids or prepare bulk biosolids for land application
- Revised Program approved to account for disposal and use of product from the BDF

Wet Weather Operation Plan

- Details necessary requirements to maximize wet weather treatment at the WWTP while complying with effluent limits and all other permit conditions
- Minimize untreated combined sewage in the tributary collection system



Pollutant Minimization Program (PMP) for Total Mercury and PCBs

- PMP approved November 9, 1995 and updated October 1996
- The goal of the PMP is to maintain the effluent concentration for total HG at or below 1.3 ng/L
- Implement reasonable cost effective control measures when sources of HG/PCBs are discovered

Collection System & Treatment Facility Operation Plan

- Coordinated with the WWTP Wet Weather Op Plan
- All dry weather flows are conveyed to the treatment facilities without bypass
- Max wet weather flow is conveyed to the treatment facilities to minimize untreated discharges
- Ongoing inspection of the sewer system within the City to reduce I/I and eliminate unauthorized connections

Upcoming Permit Requirement RRO2 Segment 2 Design

- December 1, 2014 submittal of Final Plans and Specifications
- New design proposed to use existing plant infrastructure; permit modified June 2015
- Much less cost
- No extension for final construction completion (April 1, 2019)

Summary

- DEQ WRD and DWSD commitment to meet with stakeholders to discuss WWTP issues
- Provided Information regarding:
 - 1) Noise and Odor
 - 2) NPDES Permit Compliance
 - 3) Upcoming Permit requirements

Questions Discussion Comments

Contact:

Phil Argiroff: argiroffp@michigan.gov
Laura Verona: veronal@michigan.gov