

TMDL

..... stands for

Total Maximum Daily Loads

An Overview



Created the



Federal



and then Adopted



State



Regulates
Wastewater
Treatment,
Training &
Enforcement



Regulates Water
Rights – Creates
Standards &
Rules



Regulates Water
Treatment,
Training &
Enforcement



Requires review of NPDES Permit every three (3) years.

Requires daily & weekly samples to ensure compliance.

Requires certified operators & continuing education.

Requires Monthly Reporting.



Regulates Water Rights
Power to shutdown water/limit usage/modify rights
Creates Standards & Rules



Performs a Sanitary Survey every three (3) years.

Requires daily & weekly samples to ensure compliance.

Requires certified operators & continuing education.

Requires Monthly Reporting.

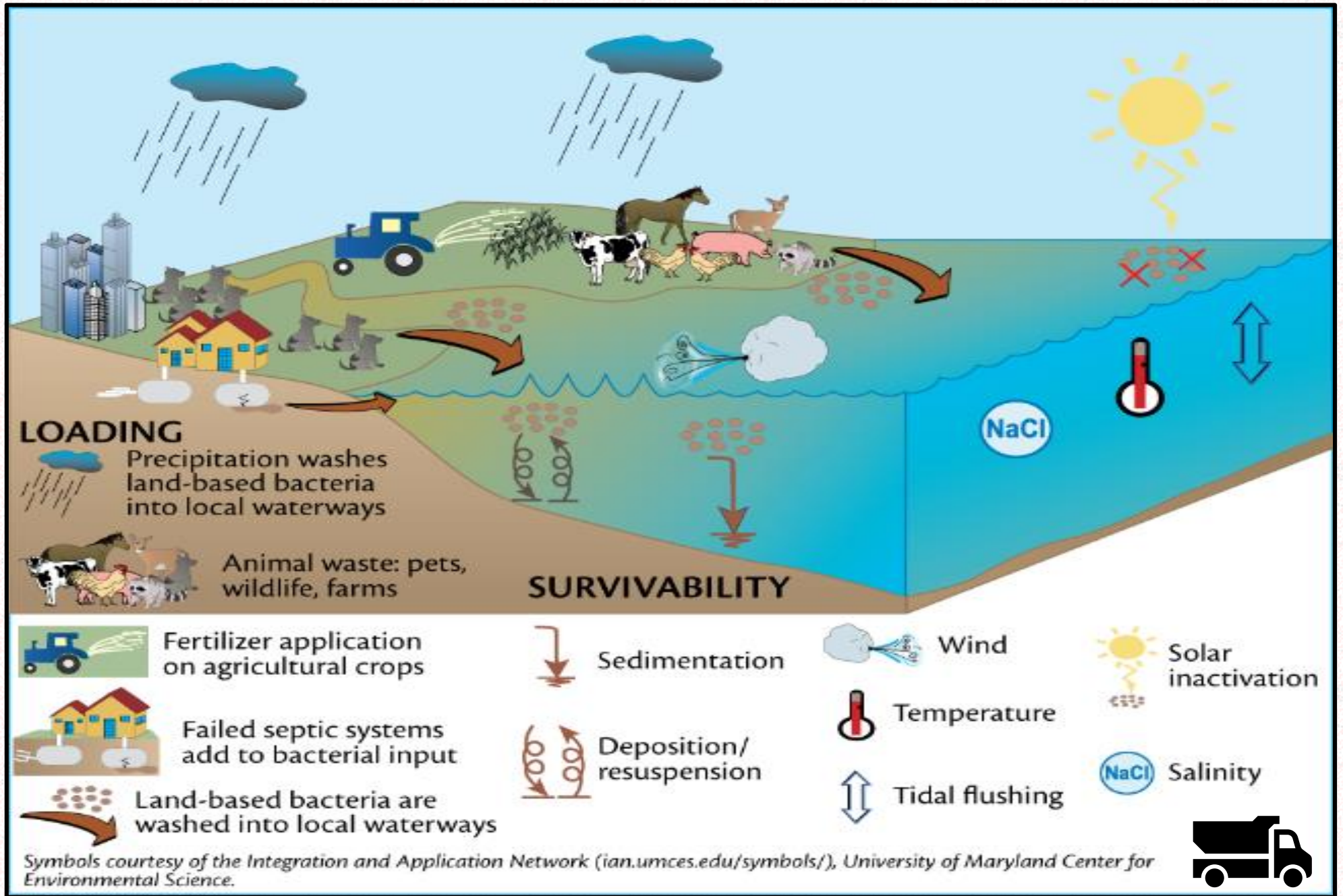


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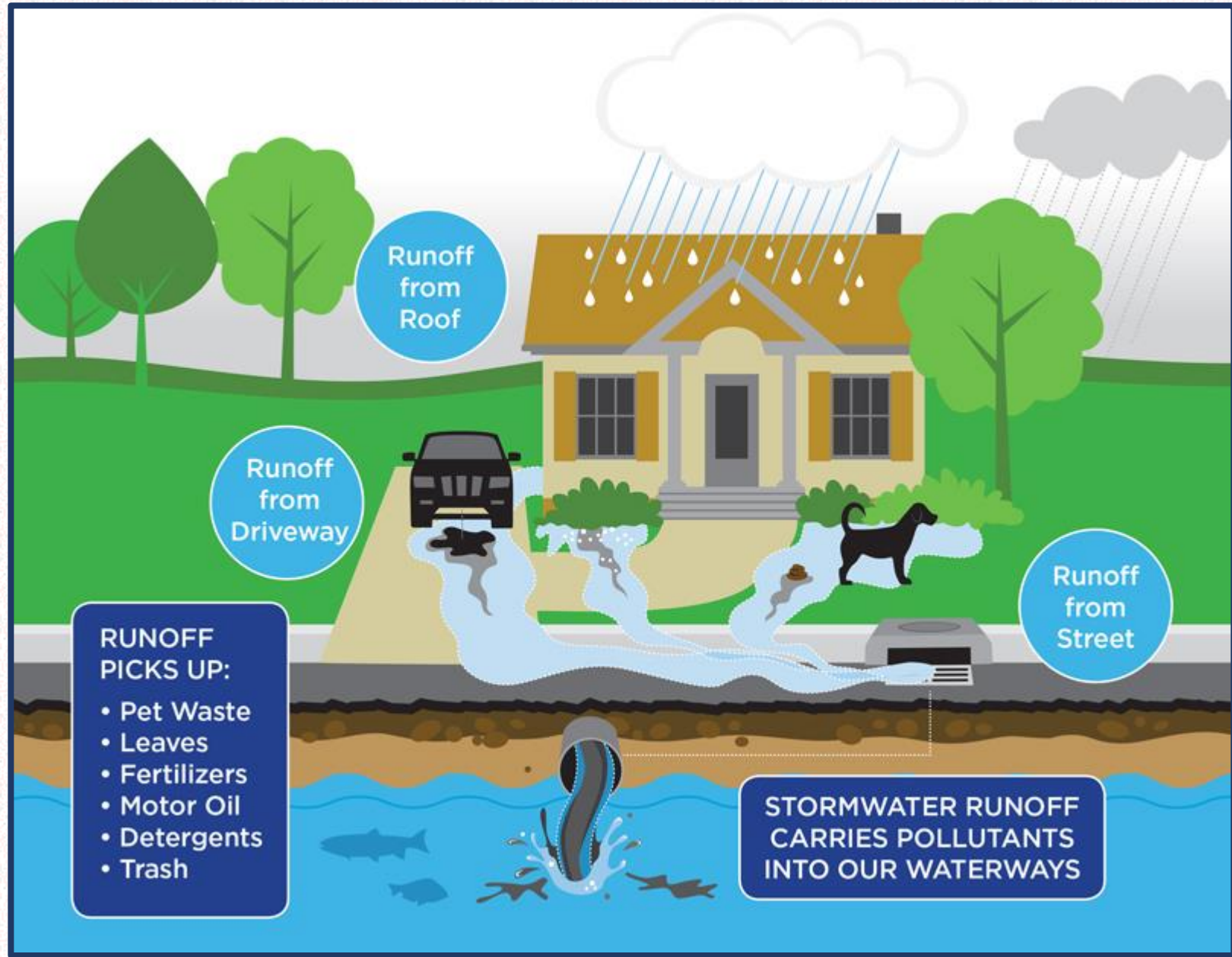


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Forever Requirements

T

Temperature

1. Riparian Vegetation, 2. Public Education, 3. WWTP – NPDES, 4. Tree City, and 5. Park Master Plan*

M

Bacteria

1. Pet & Animal Waste, 2. Stormwater BMP's – Development, 3. I & I - Maintenance & Costs, 4. Erosion & Sediment Control, and 5. WWTP - NPDES

Mercury

1. Erosion & Sediment Control, and 2. Stormwater BMP's – Public Education

D

IDDE

1. Public Reporting & Staff Tracking

L

All Pollutants

1. Housekeeping: Street Sweeping; Leaf Collection, 2. Council Support, 3. Staff Reporting & Promoting, and 4) Watershed Support*

- OAR 340-042-0030 (2): Definition of a DMA
- OAR 340-042-0040 (4)(I): Identifies required elements of the TMDL Water Quality Management Plan
 - The WQMP referenced in OAR can be found on DEQ's TMDL webpage
 - See page 14-9 (PDF page 10) of the Willamette WQMP for a list of DMAs named in the 2008 WBTMDL
 - Excerpt from page 14-9 (PDF page 10) of WB WQMP:

“For nonpoint source pollution, sector- or source-specific TMDL implementation plans will include specific management strategies and timelines. DMAs will be expected to prepare an annual report and undertake an evaluation of the effectiveness of their plans every five years to gauge progress toward attaining water quality standards.”

- OAR 340-042-0080 (4)(A) and (4)(B): Requires DMAs to develop and revise implementation plans, and provide timelines: (4)(B) “Provide a timeline for implementing management strategies and a schedule for completing measurable milestones.”

3.5.4. TMDL Pollutants and Potential Sources of Pollutants

The following pollutants will be addressed in the TMDL. They are temperature, bacterial, and mercury. Suspected sources of the pollutants are:

Temperature

- **Warmer In-stream Temperatures:** Caused by historic removal of shade-producing vegetation along streams. Decreased summer flows are also most likely a result of logging activities throughout the upper watershed as well as long-term climatic changes. Channelization of the river and an increased gravel load have resulted in large areas of shallow riffles and a decrease in the number of deep holes, also contributing to higher summer temperatures.

Bacteria

- **Fecal Coliform:** Likely sources include domestic animal waste carried in stormwater runoff and resulting from livestock being allowed direct access to the river. In addition, septic systems, if leaking, are a source of contamination. The City does not allow septic systems inside the City limits.

Mercury

- **Mercury:** Found in sediments; likely source is erosion from constructions sites not covered by DEQ permit (i.e., sites with disturbed ground surface area of less than 1 acre) as well as seasonal erosion and slides from adjoining soil banks during periods of high flow. Agricultural activities can also contribute sediments and most land around and through Brownsville is used for agricultural purposes. The Calapooia River is not listed as water quality limited regarding mercury.

IDDE

All Pollutants

Construction Practices & Infrastructure Techniques

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M

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Construction Practices & Infrastructure Techniques

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Mercury in the Environment

- Mercury is a naturally occurring element that persists in the environment.
- It becomes highly toxic to humans when converted to organic forms or methylmercury through microbial processes in the water column, or in waterbody sediments.
- Methylmercury becomes more concentrated up the ecological food chain where it can be found in high concentrations in fish tissues.



Why Are Greater Reductions Necessary?

- Oregon's standard to protect fish consumers limits the concentration of methyl mercury in fish and shellfish to 0.040 mg/kg (i.e. allows safe consumption of up to 23 8-oz servings of fish/month)
- This safe consumption level is about 8 times more stringent than what it was in 2006
- The TMDL also needs to meet a total mercury water standard of 0.012 ug/L to protect aquatic life.
- To meet this standard, large reductions of mercury will be needed across the basin.



Where is Mercury Coming From?

- Modeling indicates that the majority of mercury in the Willamette Basin originates from atmospheric deposition of mercury
- Mercury gets to streams via erosion and overland flow
- Some mercury comes from point sources and stormwater discharges

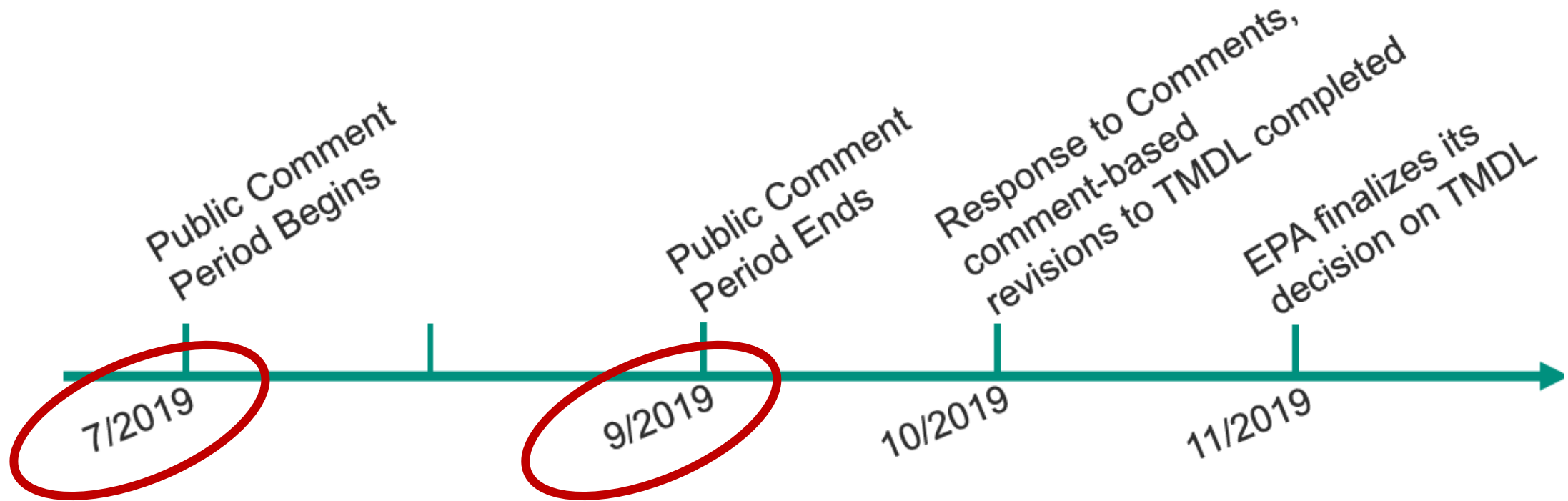


Mercury in Stormwater

- Large communities were required to collect mercury in stormwater (i.e. “MS4 Phase I permit holders”)
 - Median value of total mercury: 4.62 ng/L ($n = 655$)
 - TMDL water column target = 0.14 ng/L
- Modeling indicates that mercury in SW is primarily a function of erosion and runoff from atmospheric dep. of mercury, rather than specific sources in large urban areas
- DEQ concludes mercury is also present in smaller urban communities and could contribute to water quality impairments



Willamette Basin Mercury TMDL 2019



Proposed Approach: Applicability

Small cities and counties should also control stormwater to reduce mercury

- 2006 WQMP required non-permitted MS4 communities greater than 10K to implement stormwater control measures
- DEQ is proposing stormwater control measures for communities greater than 5K.



Proposed Approach: Implement Six Stormwater Control Measures

1. Pollution Prevention and Good Housekeeping for Municipal Operations
2. Public Education and Outreach
3. Public Involvement and Participation
4. Illicit Discharge Detection and Elimination
5. Construction Site Runoff Control
6. Post-Construction Site Runoff for New Development and Redevelopment



What About Communities Less Than 5K?

- DEQ's expectation is that these communities will implement some erosion control practices and stormwater infiltration to control movement of mercury to waterbodies
- Under certain circumstances, DEQ may require cities to implement stormwater control measures



The General Concept



Stormwater fee calculator

Portland is considering a new stormwater fee that would be based on each property's impervious area – total square footage of rooftops, driveways and parking lots. Most properties in the city – 85 percent – are homes that would be charged between \$6 and \$18 a month in the first year. Property owners can now look up their potential fees at www.cleangrowthcleanwater.com/calculator.

400-1,799 sq. ft.

\$6

per month



1,800-2,999 sq. ft.

\$12

per month



3,000-4,199 sq. ft.

\$18

per month



SOURCE: City of Portland

STAFF GRAPHIC | MICHAEL FISHER



OREGON
Lebanon
 THE CITY THAT FRIENDLINESS BUILT

Developed Tax Lots	
Small commercial, industrial, multi-family (1/4 acre & under)	\$11.88 per month
Medium commercial, industrial, multi-family (between 1/4 & 1/2 acre)	\$29.72 per month
Large commercial, industrial, multi-family (1/2 acre & over)	\$65.39 per month
Undeveloped Tax Lots	
Small commercial, industrial, multi-family (1/4 acre & under)	\$3.57 per month
Multi-family (between 1/4 & 1/2 acre)	\$4.75 per month
Multi-family (1/2 acre & over)	\$5.94 per month

Who has to pay?

The storm water utility fee will be charged to all property owners within the city limits. The Federal and State quality permits are issued to the City, and thus the fee is for the properties within the City limits. All residential and businesses within the City will be billed whether or not they currently have other City services.

How much are the fees? (rates effective July 1, 2016)

All single family residential properties both developed and undeveloped within the City Limits shall be charged \$3.28 per tax lot.

All commercial, industrial and multi-family properties including duplexes & triplexes within the City limits shall be charged at the following rates depending upon if the property is developed or undeveloped.



DRAINAGE CHARGE

Austin's drainage charge is assessed on utility bills and pays for solutions to flooding, erosion and water pollution.

Drainage Charge Calculation

The drainage charge is calculated individually for each property, based on the *amount* and *percent* of impervious cover. Less impervious cover means a lower charge.

What is impervious cover? It includes:

- Rooftops
- Patios
- Driveways
- Parking lots
- Other surfaces that do not absorb rainfall.

Impervious cover has a significant impact on stormwater. It increases the amount and speed of stormwater. It also increases the amount of pollutants in stormwater.

To find out more about how the drainage charge is calculated, [view this presentation about the drainage charge calculations](#). To find out more about how impervious cover contributes to problems such as flooding, watch the video farther down the page.



Single-Family Residential (SFR) Bill Calculation

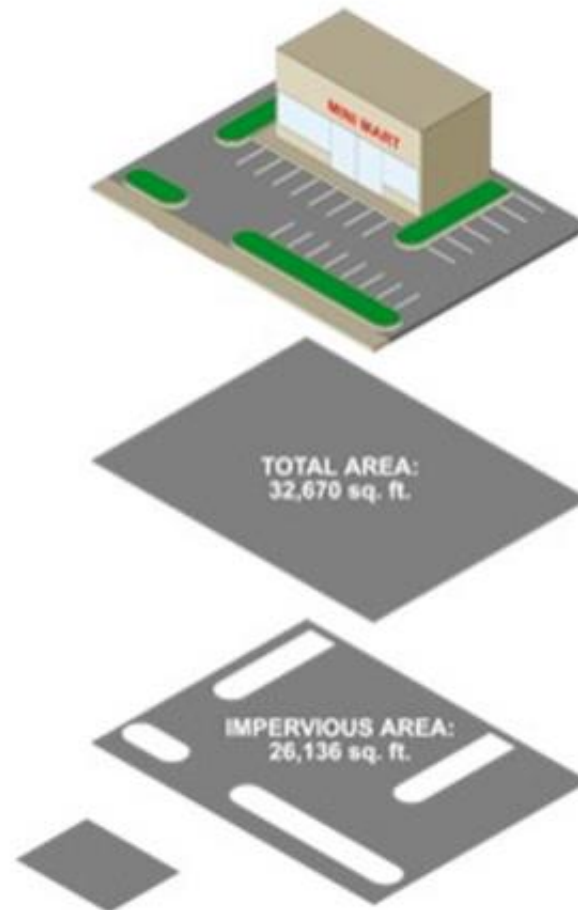
For single-family residential properties, the impervious surface charge is the same for all customers and is based on the typical amount of impervious surface on single-family residential properties (Equivalent Residential Unit or ERU). Rates for single-family residential customers are also tiered where those customers with smaller structures pay slightly less and those with larger structures pay slightly more. In 2018, most single-family customers are in the middle tier and pay \$7.08 per month.

Base Charge	\$5.03
+ Impervious Surface Charge (\$2.05/ERU x 1 ERU)	\$2.05
= Total Stormwater Bill	\$7.08

Non-Single Family Residential (NSFR) Bill Calculation

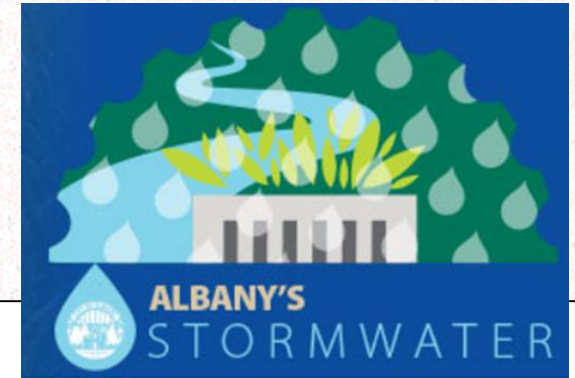
For other properties (businesses, apartment complexes, government properties, etc.), the impervious surface charge is based on the number of Equivalent Residential Units (ERUs) of impervious surface present on the property. The number of ERUs is determined by calculating the amount of impervious surface on the property and dividing it by the typical impervious area found on residential properties in Albany (3,200 square feet). The number of ERUs is multiplied by the impervious surface rate per ERU.

This illustration shows an NSFR bill calculation using 2018 rates for a property that has 26,136 square feet of impervious surface:



26,136 sq. ft. of impervious surface	
÷ 3,200 sq. ft. / ERU*	
<hr/>	
= 8.17 ERUs	
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Impervious Surface Charge: (\$2.05/ERU x 8.17 ERUs)	\$16.75
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+ Base Charge	\$5.03
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= Total Stormwater Bill	\$21.78



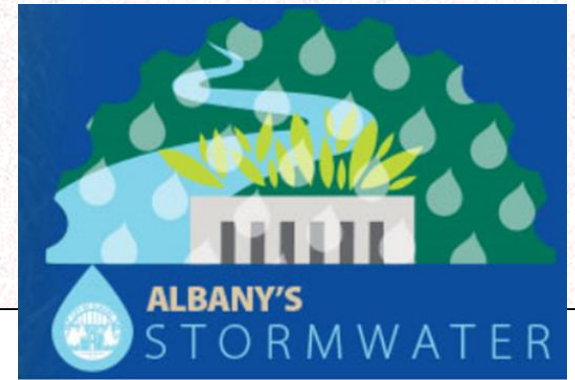


Stormwater Rate Forecast

Albany's stormwater utility was created in 2017. Stormwater fee adjustments in 2018 were limited to inflation (5%, \$0.34 increase for average single-family residential (SFR) bill); adjustments in 2019 will also be limited to inflation (5%, \$0.35 increase for average SFR bill). Adjusting for inflation, however, doesn't address the growing backlog of unfunded system needs. Because of that, the City Council intends to incrementally raise rates beyond what's required for inflation beginning in the spring of 2020.

Every year, the Council evaluates system needs, revenues, expenditures, and potential rate adjustments; sets goals; and considers options for meeting them over time. Each year's evaluation includes a 5-year forecast of anticipated rate adjustments. The Council recently set a goal of generating \$1.4 million more (today's dollars) in annual stormwater rate revenue by 2024. This revenue will be needed for regulatory compliance and to free up street funds that have been used to build stormwater improvements:

- **Regulatory Compliance (\$300,000 to \$1,000,000 per year)** – The Oregon Department of Environmental Quality (DEQ) is expected to impose new stormwater requirements on Albany and other cities our size starting in January 2019. Complying with the proposed regulations could cost Albany rate payers an additional \$1,000,000 per year. Albany staff believes the proposed requirements are unreasonable and we are working with various partners to communicate that to DEQ. We estimate complying with reasonable requirements would cost an additional \$300,000 per year. Compliance with DEQ regulations is mandatory.
- **Stormwater Improvements with Street Projects (\$400,000 per year)** - Albany staff estimate that approximately \$400,000 in street funds is used every year to build stormwater improvements associated with street projects. Stormwater work must be done to meet regulatory requirements for stormwater quality and to replace undersized or aging pipes before streets are paved to avoid cutting through new pavement for pipe work. This is a justifiable expense, but the condition of Albany's streets is declining, and those funds are needed for street maintenance.



The additional \$1.4 million will address some unfunded needs in the stormwater system, but others remain, and they are substantial.

- **Replacing Failing Pipes (\$20,000,000 - \$40,000,000)** – Significant portions of Albany’s piped stormwater systems are failing. With only 50 percent of the system inspected, eight miles of pipe have been identified as failed or anticipated to fail within the next 10 years. Another mile of pipe needs significant maintenance and repair because roots have broken through it. Fixing those nine miles of pipe would cost an estimated \$20,000,000. If the remaining 50 percent of the system is similar, the cost goes up to \$40,000,000. If the work isn’t done, Albany streets will flood more often, sink holes will form and property will be damaged. A funding source for this work has not been identified. If costs for regulatory compliance are less than anticipated, a portion of the \$1.4 million in additional revenue will be used to replace failing pipes.
- **Capacity Increasing Projects (Costs TBD)** – Some of Albany’s stormwater pipes are too small to handle the runoff from storms. The City is working on a stormwater master plan that will identify these pipes and determine how big they should be. The master plan will also identify the cost to install larger pipes. No funding is currently available for this pipe work.

To raise the \$1.4 million, City staff estimates that stormwater rates will need to go up 17% per year, beginning in 2020. However, the City Council will consider actual adjustments annually, based on current revenue and expenditure information. Regulatory requirements alone could significantly impact planned rate adjustments.

If implemented as forecast, in 2024 an average SFR stormwater bill would be \$16.30 per month. This table shows average monthly stormwater bills for a range of Albany customers today and with forecast increases through 2024.





This table shows Albany's 2018 average bills compared to those in Salem, Corvallis and Eugene.

SFR and NSFR Community Comparison of Monthly Bills

	Albany	Salem	Corvallis	Eugene
Single-family resident	\$7.08	\$15.77	\$8.35	\$15.00
Gas Station	\$11	\$28	\$30	\$58
City Hall	\$31	\$83	\$124	\$235
Apartment Complex	\$68	\$187	\$299	\$567
Large Retailer (average)	\$358	\$995	\$1,655	\$3,127
High School	\$480	\$1,341	\$2,253	\$4,253
Large Care Facility	\$802	\$2,240	\$3,775	\$7,126
Medium Manufacturer	\$578	\$1,613	\$2,714	\$5,123
Large Manufacturer	\$1,442	\$4,017	\$6,713	\$12,679