

Customer Review Panel

March 28, 2014

Action Plan

Expansion of Street
Sweeping for Water Quality

Street sweeping for water quality: Action Plan request

Expand street sweeping program

➤ Cost:

- \$770K non-labor 2016-2020
- + \$47K monitoring 2017-2019
- + \$345K new sweeper 2015
- = \$4,336K 2015-2020**

- ### ➤ Benefit: **40% more stormwater pollutants removed** over current sweeping program



Background

- Long sweeping history
- Sweeping for **water quality** new: program started in 2011
- SPU only pays for streets that drain to receiving waters
- Seeking to expand program as part of SPU's Integrated Plan under the CSO Consent Degree

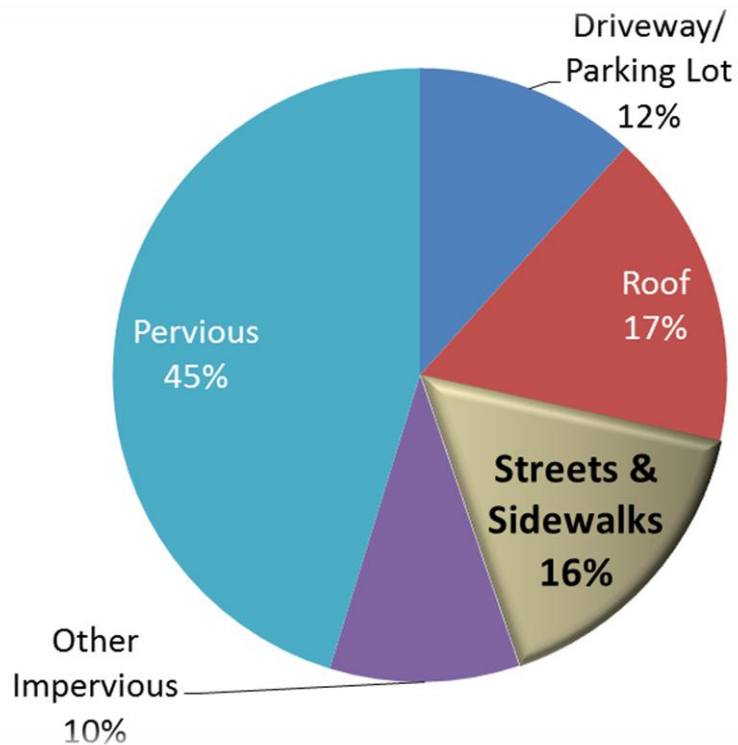


Hand broom sweeping in Seattle, 1906.

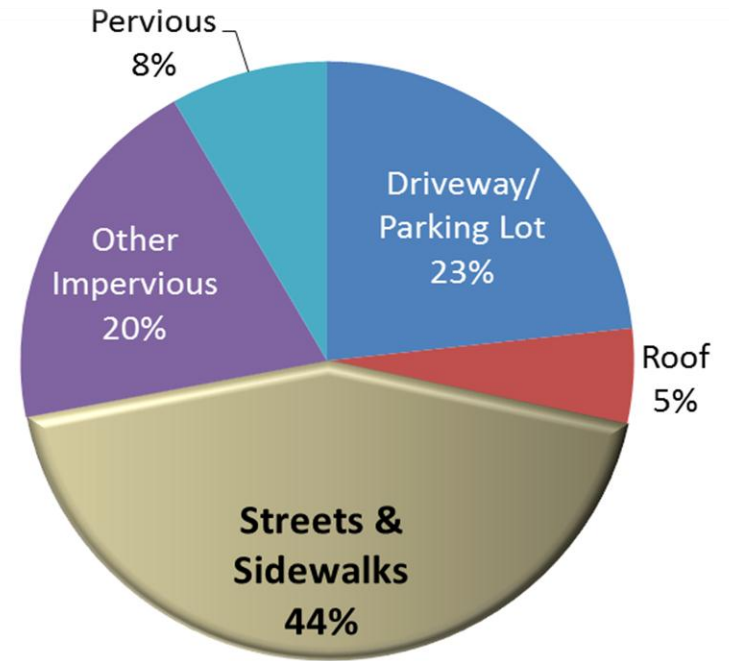


Regenerative air in Seattle, 2013.

Why focus on streets?



Land use area distribution in MS4 (storm drain).



Pollutant load from MS4 (storm drain).

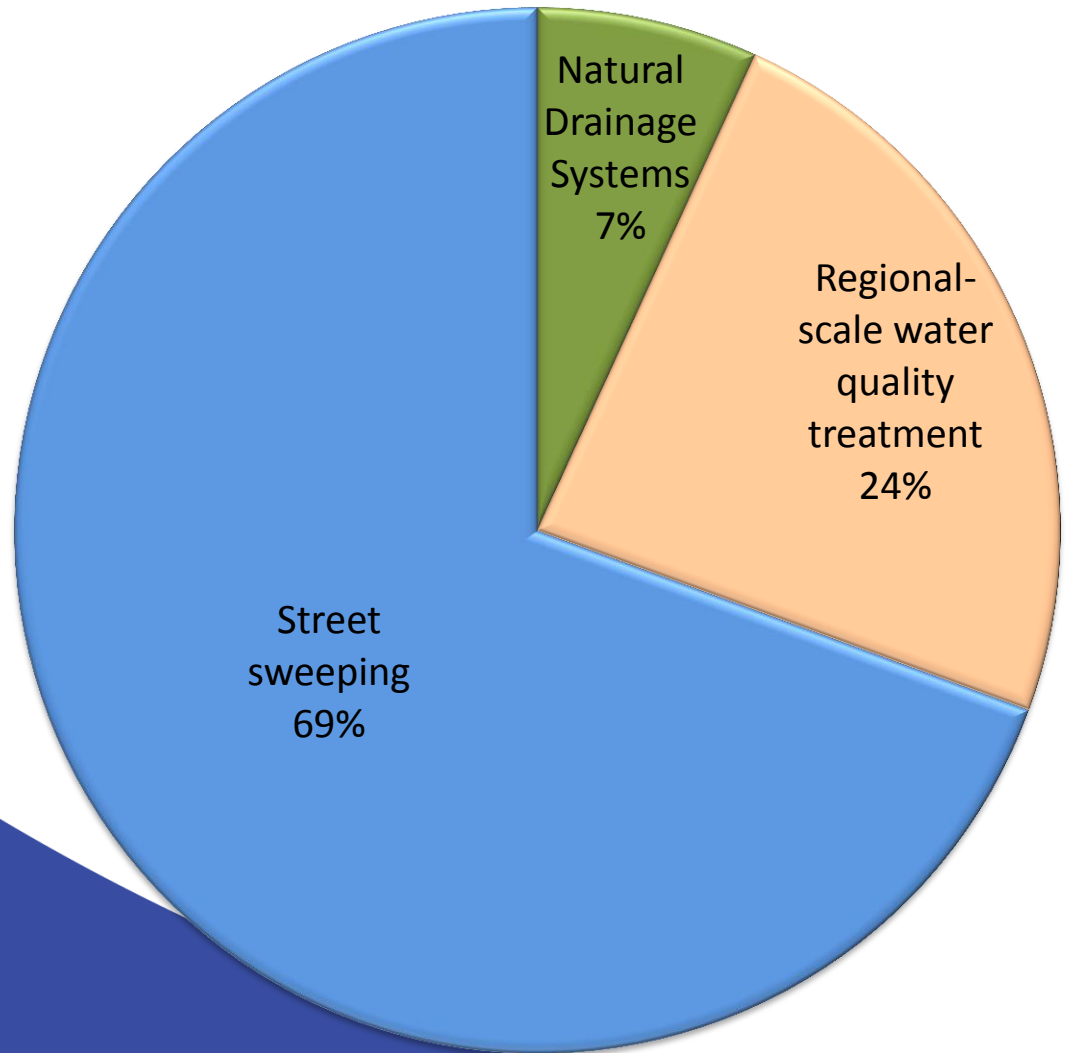
Street sweeping is an alternative in the Integrated Plan(IP)

- IP sought more WQ benefit by delaying smaller CSO projects, advancing other WQ projects
- Convened “Expert panel” to guide technical process
- Street sweeping was high on the list (cost-effective, benefits to all major water bodies)
- Helps meet regulatory requirements (NPDES stormwater permit, NPDES wastewater permit, Consent Degree)

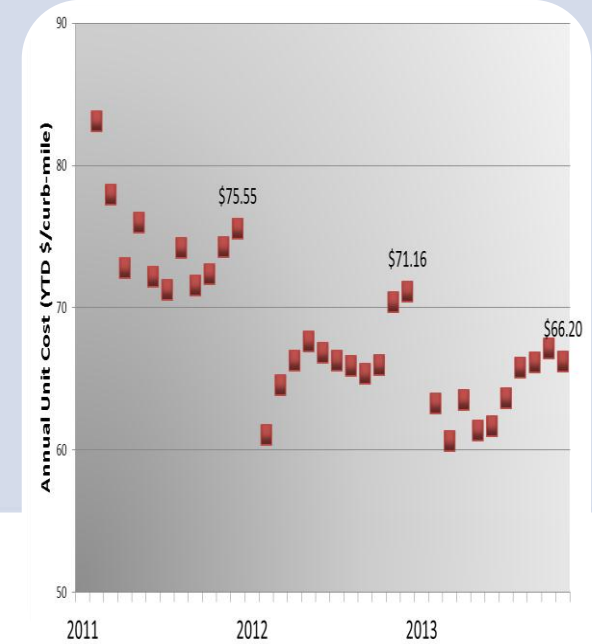
**Pollutants removed from City-owned streets
may present risks to aquatic life.**



Street Sweeping complements SPU's pollutant reduction efforts



Performance-based partnership with Seattle Department of Transportation



Performance based, payment for services based on meeting criteria.

Multiple benefits, clean water, clean streets, clean air and flood reduction.

Efficiency improvements, unit costs reduced 5% per year.

Street sweeping for water quality: Phase 1 Expansion Action Plan request

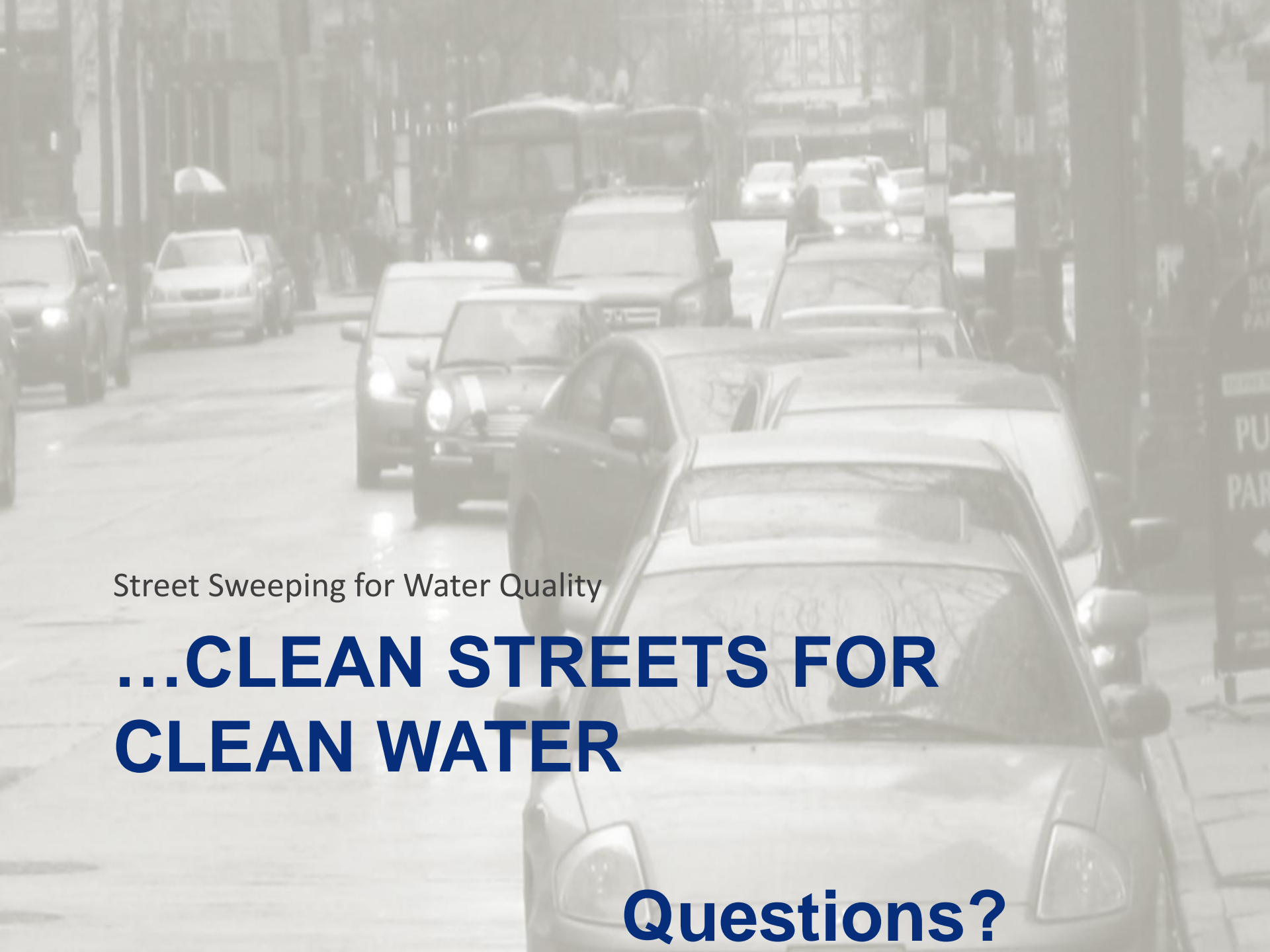
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Street Sweeping for Water Quality

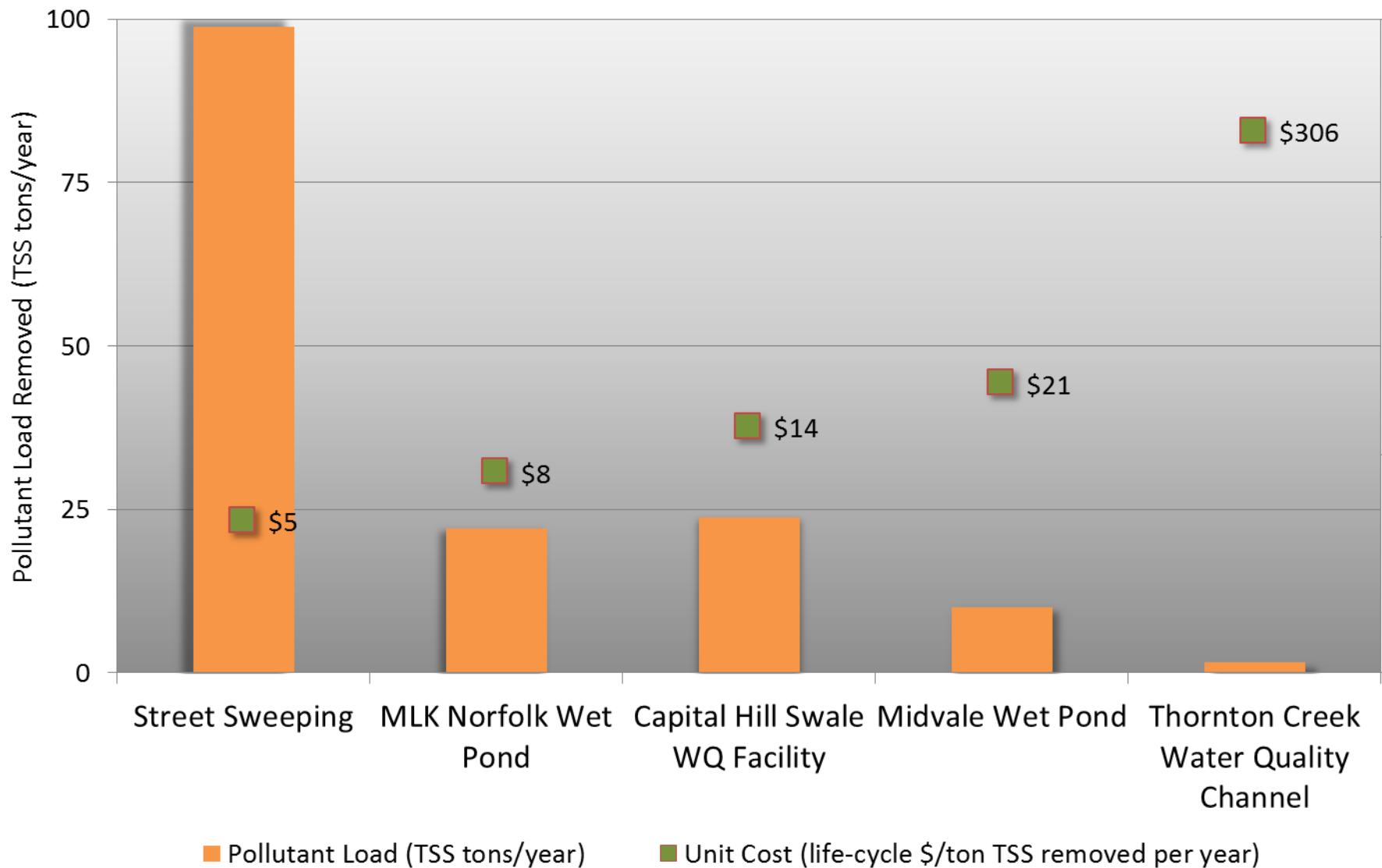
**...CLEAN STREETS FOR
CLEAN WATER**

Questions?

The logo for Seattle Public Utilities is located in the bottom-left corner of the page. It features a blue curved background on the left side of the page. The text "Seattle Public Utilities" is written in white, serif font. The word "Seattle" is on the top line, "Public" is on the second line, and "Utilities" is on the third line. A circular icon containing a stylized globe is positioned between the words "Seattle" and "Public".

Seattle
Public
Utilities

Sweeping provides a cost-effective option to stormwater pollutant reduction in Seattle



Mechanical Broom: broom to dislodge street dirt, conveyor belt to capture.

Vacuum: broom to dislodge street dirt, vacuum to capture.

Regenerative Air: broom+forced air to dislodge street dirt, vacuum to capture. Air recycled.



Hand broom sweeping in Seattle, 1906.



A mechanical broom, 1917.



Regenerative air sweeping in Seattle, 2013.

Street sweeping for water quality: Phase 1 Expansion Action Plan request



Expand street sweeping program

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The proposal cost estimate

		2013 (\$k Baseline)	2015 (\$k)	2016 (\$k)	2017 (\$k)	2018 (\$k)	2019 (\$k)	2020 (\$k)
Capital	New Sweeper		345					
O&M (SPU Program Costs)	Program	330						
	Monitoring	93			47	47	47	
	Total	423			47	47	47	
O&M (SDOT Services)	Labor FTEs	2.5		2.5	2.5	2.5	2.5	2.5
	Labor	380		377	377	377	377	377
	Equipment	\$293		362	362	362	362	362
	Disposal Charges	\$50		31	31	31	31	31
	Total	\$723		770	770	770	770	770
	O&M Subtotal	\$1,146	\$0	770	817	817	817	770

The Proposal – cost-effectively capturing a substantial pollutant load from Seattle’s arterials.

This action plan proposes to expand the Street Sweeping for Water Quality Program (sweeping arterials at night).

Focus Area: Environment & Public Health

Strategic Objective: Environmental & Health mandates

Proposed Action: Add 10,700 curb-miles per year to increase the pollutant load removed by 40%



The Street Sweeping for Water Quality Program

- Began in 2011
- Partnership between Seattle Public Utilities (SPU) and Seattle Department of Transportation (SDOT).
- Gained efficiency for the last three years



This action plan supports stormwater quality investments proposed in the Integrated Plan.

- The CSO consent decree provides the opportunity to evaluate the opportunity to improve stormwater quality earlier by investing in stormwater quality projects (the Integrated Plan).
- Street sweeping is a proposed alternative in the Plan.
- If approved, O&M funding will need to be increased to cover the program expansion.



Street sweeping supports Clean Water Act swimmable fishable goals through NPDES permit compliance.



The Opportunity – Supporting regulatory compliance requirements..

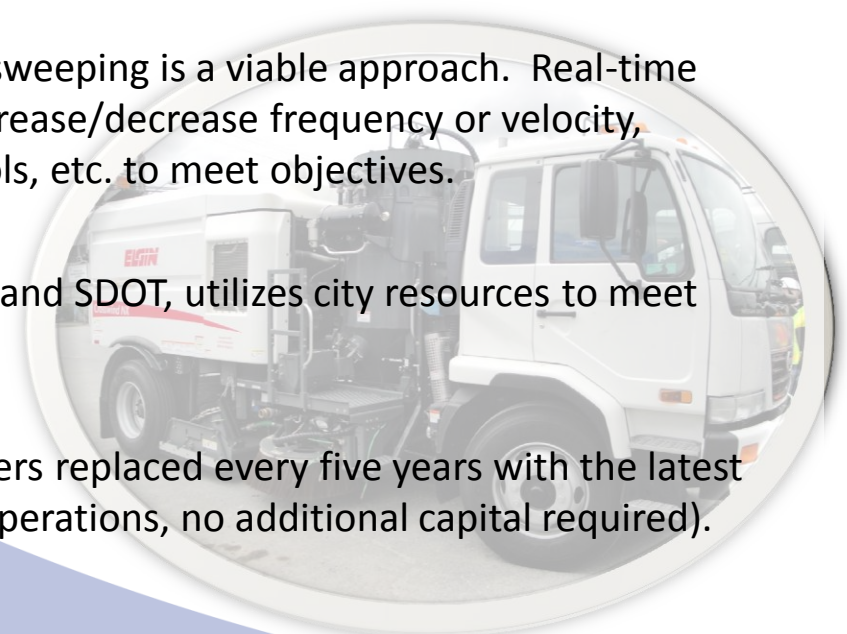
Street sweeping is a selected alternative in the Integrated Plan

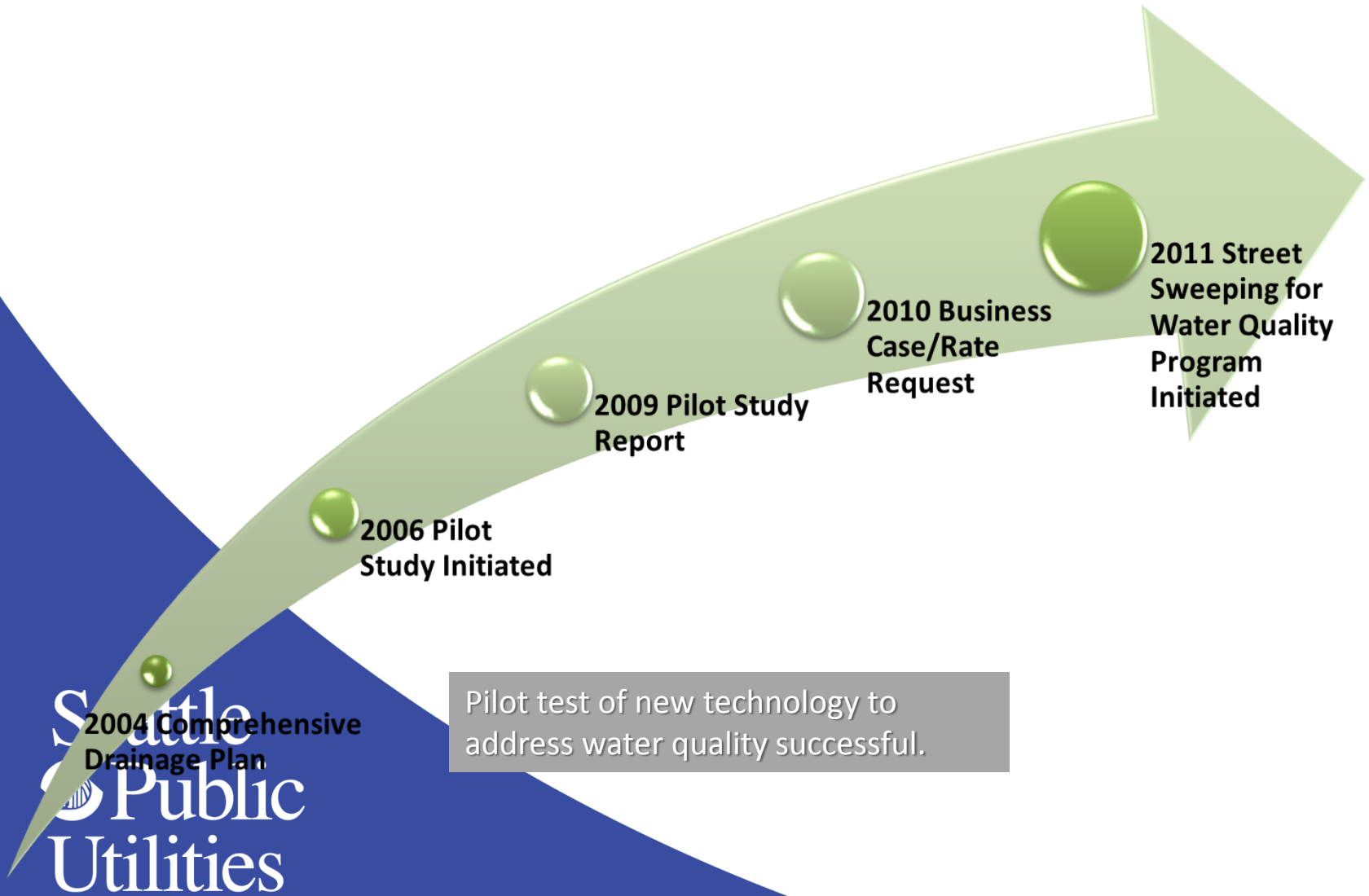
- Evaluate if greater WQ benefit by delaying smaller CSO projects
- Convened Expert panel to guide technical process
- Street sweeping high on the list (cost-effective, flexible, benefits to all major water bodies)
- Helps meet regulatory requirements (NPDES stormwater permit, NPDES wastewater permit, Consent Degree)

Street Sweeping – a practical, proven solution for reducing stormwater pollutant loads discharging to

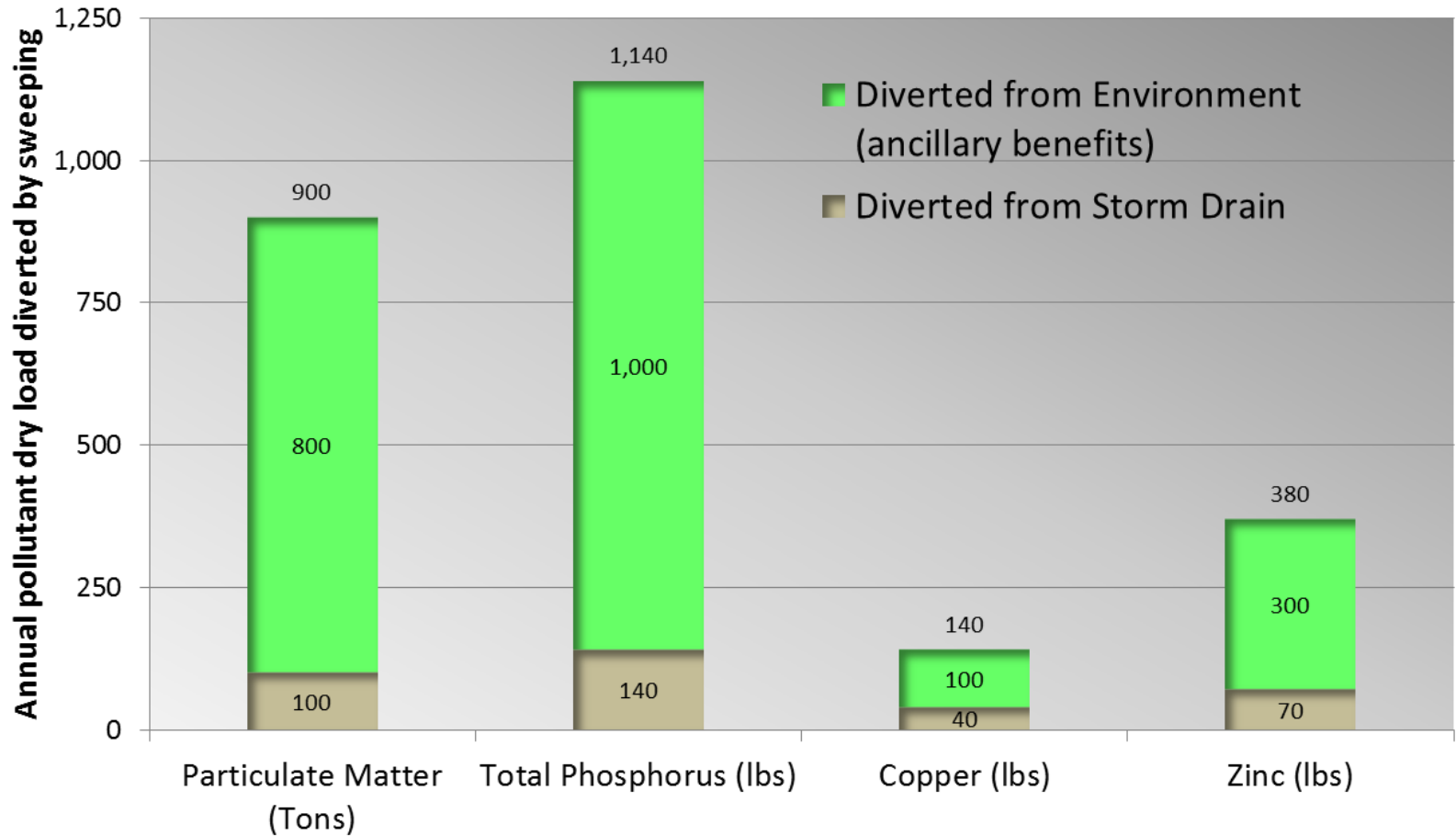
Seattle's waters.

- Follows managing by objectives principles – increasing the odds the program will succeed at meeting water quality benefit targets:
 - **Specific** – Route plan specifies frequency, location, and sweeping velocity to meet target pollutant load reduction.
 - **Measurable** – controls are in place to measure time and miles swept in the MS4, the wet load removed, and the pollutants attached to that load.
 - **Achievable** – 3-year full-scale operations shows sweeping is a viable approach. Real-time information available to adaptively manage – increase/decrease frequency or velocity, expand/change coverage, add curb access controls, etc. to meet objectives.
 - **Realistic** – established partnership between SPU and SDOT, utilizes city resources to meet multiple city-wide objectives.
 - **Time-scaled** – Monthly progress reports. Sweepers replaced every five years with the latest technology (replacement cost accrued through operations, no additional capital required).



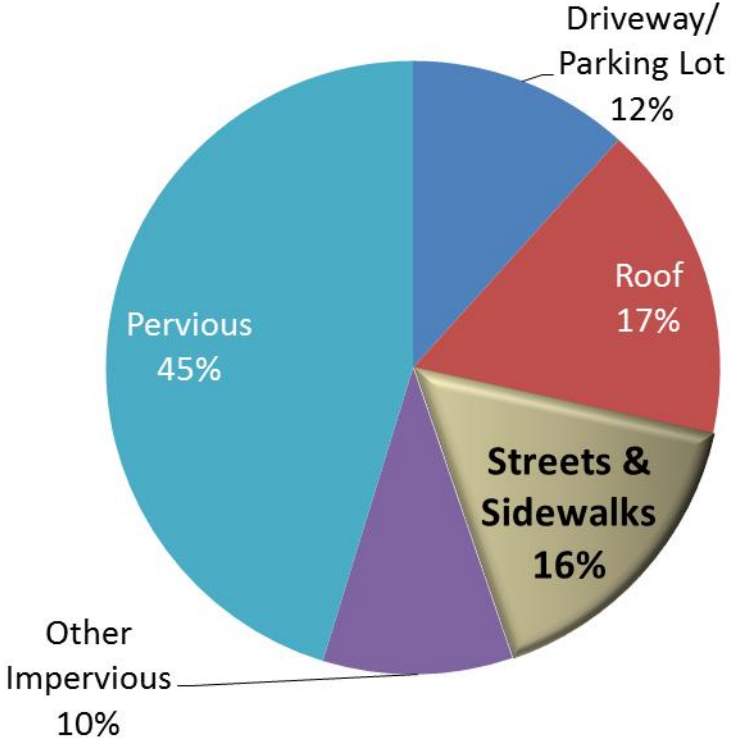


And provides significant ancillary benefits to residents living along arterials.

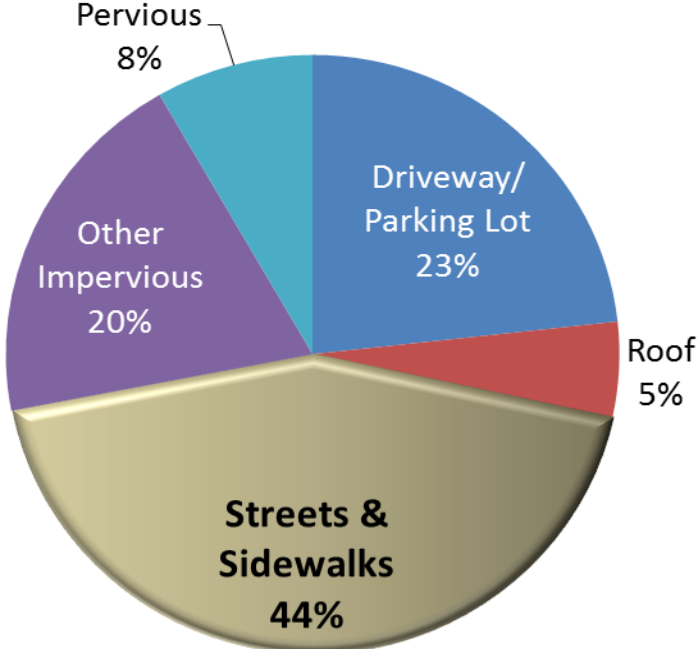


The Opportunity – 57% of Seattle’s arterials are zoned residential.

Land use area distribution in MS4 (storm drain).



Pollutant load from MS4 (storm drain).



Why expand?

- SPU required to monitor performance of all IP alternatives: added assurance that goal met
- Most flexible and cost-effective alternative, ancillary benefits

A few risks:

- Disagreement about how to quantify benefit
- SDOT needs funding as well