



King County

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# Policy Paper: Surface Water Management

## IN BRIEF:

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- ❖ Polluted stormwater runoff harms wildlife and degrades the health of our surface waters (lakes, rivers, and streams); it is the greatest threat to the long-term health of Puget Sound.
- ❖ Significant investments are needed to maintain the County's infrastructure, respond to drainage issues in the rural area, restore and protect aquatic habitat, and comply with clean water requirements.
- ❖ The King County Executive is proposing to increase the Surface Water Management (SWM) fee approximately 50 percent in 2017-2018, from the current fee of \$171.50 per year to \$258 per year for a single family residence. This would be the first increase in three years.

## OVERVIEW

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King County is committed to protecting water quality and the health of Puget Sound for environmental as well as public health and safety reasons. However, managing polluted stormwater runoff, both its quantity and quality, poses a major policy challenge for King County and constitutes the greatest threat to the long-term health of Puget Sound.

In an effort to better address the significant challenges posed by the adverse impacts of stormwater runoff, King County is proposing to increase its Surface Water Management (SWM) fee in 2017.

### Impacts of Stormwater Runoff


Polluted stormwater runoff degrades water quality and adversely impacts ecosystems in receiving water bodies where it flows. Stormwater runoff is rain that falls on the land and flows directly into nearby lakes, rivers, and Puget Sound. When rain falls on streets, parking areas, sports fields, gravel lots, rooftops, and other developed land, it picks up and mixes with what is on the ground, including pesticides, fertilizers, pet wastes, oils, metals, and many other chemicals. In addition, less of it is infiltrated or otherwise retained by the spongy ground cover and vegetation that existed prior to development. The result is polluted runoff that then rushes into nearby gutters and storm drains and into Puget Sound's streams, lakes, rivers, and bays. In most areas, the stormwater runoff enters these surface waters without being cleaned or absorbed into the ground. This leads to erosion of stream beds, loss of fish habitat, disruption of ecosystems, and increased flooding that can threaten public safety and cause damage to public and private properties.

The Washington Department of Ecology estimates that about one-third of the state's surface waters, including numerous creeks, rivers, and lakes in King County, are polluted by stormwater runoff. Polluted stormwater runoff has contributed to closing thousands of acres of productive shellfish growing beaches and can also close swimming beaches and contaminate drinking water supplies.

### Programs for Managing Stormwater Runoff and Surface Water

King County's Water and Land Resources Division is responsible for managing stormwater runoff and surface water in unincorporated King County. This responsibility is carried out primarily by the Division's Stormwater Services program and Rural and Regional Services program.

The Stormwater Services program provides technical assistance to landowners and government agencies, among others, to help resolve drainage and water quality problems, prevent pollution, and comply with county, state, and federal regulations. The program also develops, maintains, and regulates the infrastructure used to manage stormwater runoff and surface water in unincorporated King County. The Rural and Regional Services program implements habitat restoration projects for protecting and



**“TOXIC ROAD  
RUNOFF KILLS  
ADULT COHO  
SALMON IN HOURS,  
STUDY FINDS”**

*The Seattle Times* reported in fall 2015 about a study that proves that stormwater that runs off of roads is toxic to salmon.  
[\(Oct. 8, 2015\)](#)

improving aquatic and riparian habitat conditions toward conserving threatened species; implements Watershed Salmon Recovery Plans; and works with landowners, including agriculture and forestry landowners, to promote projects that provide habitat restoration while supporting the long-term sustainability of rural working lands.

The top priorities for these programs in 2017 and 2018 are to:

- ❖ **Keep existing infrastructure functioning properly** through inspections, maintenance, repair, and replacement of facilities such as pipes, ponds, culverts, and catchbasins.
- ❖ **Support local agriculture and rural residents** through the agriculture drainage assistance program (ADAP) and by responding to natural flooding events.
- ❖ **Restore critical habitat** by supporting salmon recovery forums and continuing basin stewardship to improve water quality.
- ❖ **Improve performance**, including complying with regulations and assisting businesses and residents with their stormwater management.

To pay for these services, King County assesses a fee on property owners in unincorporated King County, as authorized under state law (RCW 36.89).

In addition to the the Water and Land Resources Division, the King County Road Services Division also plays a role in managing stormwater runoff and surface water. The County's roads network is a major conveyor of stormwater runoff and surface water in unincorporated King County. It is also a significant source of polluted stormwater runoff that contributes to the degradation of water quality and other adverse impacts to the health of our surface waters. The Road Services Division is significantly underfunded and struggles to maintain the infrastructure to manage stormwater and surface water in its rights-of-way. Both divisions are working together to address this challenge.

## TAKING ACTION TO PROTECT OUR WATERWAYS

There are additional challenges that King County needs to address to maintain the health of the Puget Sound basin. Addressing these challenges will require an increase in the surface water management fee.

### PREVENTING COSTLY FAILURES

A number of County-owned assets, including stormwater facilities and the drainage system in the right-of-way on County roads, are at risk of failure and will require investments to maintain. Below is a table detailing the asset types and quantity that Water and Land Resources and Roads are responsible for maintaining.

Drainage Asset	Roads Inventory	Water and Land Resources Inventory
Pipes (≥24 inches)	39 miles	10 miles
Pipes (<24 inches)	503 miles	40 miles
Roadside Ditches	919 miles	0
Catch Basins	23,858	2,550
Ponds	24	680
Tanks	61	200
Vaults	16	50
Bioswales	56	250

### Stormwater Assets

The Stormwater Services program manages about 1,100 stormwater facilities across unincorporated King County, including stormwater ponds, vaults, tanks, and swales that control the quantity and quality of stormwater runoff discharging from developed land. Also included are pipe systems, channels, and ditches that provide for the safe conveyance of stormwater runoff and surface water.

Within the next 10 years, approximately 590 of these facilities have critical components that will reach the end of their expected life and threaten failure of the facility. About 250 of these facilities already have components that are at the end of their expected life. Based on recent experience with component failures, waiting for them to fail and replacing them under emergency conditions costs about 4.5 times more than replacing them before they fail.

To avoid these costs and other damages associated with facility failure, the new SWM fee will provide funding for inspection and maintenance of these assets and preserving (replacing and/or rehabilitating) those that pose the greatest risk to the County if they failed. The majority of this funding will go toward the 72 facilities that pose the greatest risk.

### Drainage System in the Right-of-Way

Recognizing the important role that roads play in the conveyance of stormwater, King County's Water and Land Resources and Road Services divisions (Roads) partnered on an assessment of the county's



drainage system in the right-of-way. Since the largest and most costly components of this aging network are the pipe systems and metal culverts 24 inches or larger in diameter and failure of these large assets would cause the greatest impact, the study focused on these assets. Drainage facilities of this size serve a regional conveyance function, moving water out of neighborhoods and open space, not just conveying stormwater that falls on the road surface. If these assets fail, they impair mobility: short term in the case of flooded roadways, and long-term if there is a major washout of a road or a sinkhole that would cause road closures.

A study by HDR, Inc., a private engineering firm, found that about 4 percent of the ~6,000 drainage assets in unincorporated King County's road right-of-way are projected to be in critically poor condition and at imminent threat of failure.

For the next 10 years, the study estimates that the cost to maintain drainage assets in unincorporated King County ranges from \$335 million to \$500 million, depending on level of service provided. The lowest level of service (\$335 million over 10 years) assumes that all failing assets are replaced as they fail. If this level of service is not funded, responses will range from posting warning signs about unsafe roads to road and/or lane closures.

For the approximately 900 assets (15 percent) that have been mapped and inspected, \$25.7 million in ongoing and one-time actions will be required over the next 10 years to mitigate risk. This includes \$6.5 million in immediate preservation actions (i.e., asset replacement or rehabilitation) for 33 mapped and inspected assets at critical risk. Risk is determined by the likelihood and consequence of an asset failing. A failed drainage asset could result in flooding, road closure, and/or costly damage to public and/or private infrastructure in addition to the greater risks to public safety and environmental impacts.

## **Supporting Local Agriculture and Rural Residents**

King County's Agricultural Drainage Assistance Program (ADAP) helps farmers improve drainage of their agricultural lands by providing both technical and financial assistance. About 123 farms in the Agricultural Production District (APD) have requested assistance with cleaning their ditches. Based on a recent assessment of farm ditches, close to 98 out of about 248 miles of agricultural ditches—or nearly 40 percent—are in need of cleaning. An increase in the SWM fee will allow over 10,000 linear feet of ditch to be cleaned each year.

### **Natural Drainage Flooding**

A key function of the Stormwater Services program is to address chronic drainage and flooding problems associated with the natural drainage system, including streams, lakes, wetlands, and other natural surface waters. This system continuously changes over time through variations in rainfall, groundwater levels, ongoing erosion, sedimentation, vegetation growth, and beaver activities. These natural processes change the behavior of surface water during storms, which can lead to flooding of roads, homes, pastures, and businesses. In some cases, the flooding is worsened by increased runoff from developed land.

The new SWM fee will allow Stormwater Services to better respond to threats of flooding in rural areas.

### **Beaver Management**

The population of beavers in King County has been growing since 2000, when new laws made it more difficult and costly to trap beavers and the market for beaver pelts reached a low point. Greater numbers of beavers has led to more incidents of flooding from beaver dams, affecting roads, homes, agriculture, and businesses. This has resulted in financial losses from property damage and lawsuits and has increased the demand for landowner assistance from King County.

There is currently no coordinated or consistent beaver management strategy among King County agencies, nor is there wide understanding of what management strategies are effective. With the expanded SWM fee, the Water and Land Resources Division will work to develop and implement an effective beaver management strategy that responds to multiple problems and program needs associated with beavers.

## **RESTORING HABITAT AND IMPROVING WATER QUALITY**

### **Farm Fish Flood Implementation**

In 2012 the King County Council, through Comprehensive Plan Policy R-650, directed the Executive branch, working with community members, to undertake a watershed planning process to resolve long standing conflicts between salmon recovery and agricultural interests in the Snoqualmie River Valley.

The Fish, Farm, Flood (FFF) stakeholder process was launched in 2013, and the FFF taskforce has made a number of recommendations to support better coordination and collaboration among fish, farm, and flood interests in the Snoqualmie Valley, and more broadly in the County. Water and Land Resources staff have developed a plan to use existing staff and resources to implement many of the recommendations included in the final FFF report, including staffing a Buffer Task Force to develop

optimum sized buffers in agricultural zones, a strategic plan for the Snoqualmie Agricultural Production District, and administration of a grant to develop a GIS based land-use planning tool. The 2017-2018 Proposed Budget includes a position to staff a regulatory reform taskforce and support continued work on the FFF process over the next two years.

### **Habitat Restoration Projects**

The Water and Land Resources Division implements habitat restoration projects to protect and improve aquatic and riparian habitat conditions toward conserving threatened species. It also implements the Watershed Salmon Recovery Plans and works with landowners, including agriculture and forestry landowners, to promote projects that provide habitat restoration while supporting the long-term sustainability of rural working lands. Additional funding is needed to maintain the current rate of development and implementation of habitat restoration projects, including staffing levels needed for project design. In addition, it provides leverage for an additional \$250,000 in grant funding, allowing construction of one more project in 2018 and starting design on two more habitat restoration projects.

### **Fish & Habitat Effectiveness Monitoring Project**

Degraded water quality and changes to habitat and are significant threats to aquatic resources—especially salmon—in King County. Bull trout were listed under the Endangered Species Act in 1998, Chinook salmon in 1999, and steelhead in 2007. Since these listings, King County has spent (and continues to spend) millions of dollars on ecosystem restoration projects, land protection projects, stormwater controls, land use regulations, and other salmon recovery efforts and associated projects.

A new monitoring program will provide information on habitat and fish population status and trends that will allow King County to demonstrate the effectiveness of its investments, evaluate where to further invest resources, and assess whether changes should be made to recovery strategies and projects.

## **IMPROVING PERFORMANCE**

In addition to its work to prevent failure of its assets, restore habitats, and support local agriculture and residents, the Water and Land Resources Division is undertaking projects to better serve residents, improve its information management, and ensure regulatory compliance.

The division will:

- ❖ Implement a low-income discount program to help mitigate the impacts of a rate increase for low-income property owners in unincorporated King County.
- ❖ Implement a new program to offer small grants to support community projects that improve water quality.
- ❖ Develop a new information management system to meet its business needs and ensure state and federal permit compliance.
- ❖ Map stormwater facilities in number of basins and areas of the County by the end of 2017 in order to remain in compliance with its NPDES permit. The rate increase will allow the division to complete this work.

## SURFACE WATER MANAGEMENT RATE PROPOSAL







King County is proposing a rate increase to the Surface Water Management (SWM) fee for 2017-2018. The SWM fee is paid by residents and businesses in unincorporated King County to manage surface water, prevent localized flooding, and protect water quality.

The current single-family residential rate is \$171.50 per year and has remained the same since 2014. Commercial property owners pay based on the amount of impervious surface (i.e., hard surfaces such as parking lots, roofs, and driveways) on a parcel. The more impervious surface a property has, the more stormwater runoff it will have during rainstorms and the higher its SWM fee.

The current fee generates \$24 million annually. King County is proposing additional funding to:

- ❖ Prevent failure of stormwater assets (\$3 million)
- ❖ Support agriculture and rural residents (\$1.5 million)
- ❖ Restore habitat (\$1 million)
- ❖ Improve performance (\$1 million)
- ❖ Respond to failure of stormwater assets in the road right-of-way (\$3.3 million)

The table below outlines the impact of the rate change on property-owners in unincorporated King County. If approved by the Metropolitan King County Council, the new SWM rates will go into effect on January 1, 2017.

Rate Category	% Impervious Surface	2015-2016 Rate	2017-2018 Rate	Number of Billable Parcels	% Revenue Generated
1 Residential 	N/A	\$171.50 / parcel	\$258 / parcel	80,484	55%
2 Very Light 	≤ 10	\$171.50 / parcel	\$258 / parcel	2,612	2%
3 Light 	10.1 ≤ 20	\$ 413.38 / acre	\$ 695.28 / acre	538	4%
4 Moderate 	20.1 ≤ 45	\$ 905.92 / acre	\$ 1,343.00 / acre	657	5%
5 Mod. Heavy 	45.1 ≤ 65	\$ 1,546.40 / acre	\$ 2,289.61 / acre	1,509	4%
6 Heavy	65.1 ≤ 85	\$ 2,116.79 / acre	\$ 3,171.86 / acre	1,113	3%
7 Very Heavy 	85.1 ≤ 100	\$ 2,638.96 / acre	\$ 3,937.85 / acre	560	4%



## CONCLUSION

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Polluted stormwater runoff harms wildlife and degrades the health of our rivers and streams; it is the greatest threat to the long-term health of Puget Sound. Significant investments are needed to maintain infrastructure, respond to drainage issues in the rural area, restore and protect aquatic habitat, and comply with clean water requirements.

The proposed SWM rate will better address the significant challenges posed by the adverse impacts of polluted stormwater runoff.