**AND UPGRADE** . BASIN SEWER STUDY 555

# PL

# We want to hear from you!

# **←** Take this survey!

### **Project benefits**

This project can help provide benefits for:

- Overall water quality in our region, by reducing wastewater overflows.
- Resilience to climate change-related events
- Maintaining the regional wastewater system.
- Local wastewater service reliability.



El condado de King está estudiando formas de realizar mejoras en el sistema de alcantarillado de su vecindario.

El proyecto de estudio y mejora del alcantarillado de la cuenca de Thornton Creek pretende reducir los desbordamientos de aqua para que podamos cumplir nuestras metas de aqua limpia. El alcantarillado de Thornton Creek es una tubería de alcantarillado de aproximadamente 1.2 millas de longitud que recoge las aguas residuales de otras tuberías de nuestro sistema de alcantarillado, incluidas las de su vecindario. Durante tormentas fuertes, las tuberías pueden desbordarse. El condado de King está realizando mejoras en las tuberías de su vecindario para mejorar la calidad del agua y evitar desbordamientos.

Por favor, responda nuestra encuesta y comparta su opinión sobre estas mejoras: https://es.surveymonkey.com/r/ThorntonCreekESP

King 郡正在研究改善您所在社區下水道系統的方法。

Thornton Creek 流域下水道研究和升級專案旨在減少水溢出,以便我們能够實現清潔用水的 目標。Thornton Creek 下水道是一條大約 1.2 英里長的下水道,從我們下水道系統中的其他 管道收集廢水,包括您所在社區的管道。在強風暴雨期間,可能會導致管道溢出。 King 郡正 在對您社區的管道進行改善,以幫助改善水質並防止溢出。

請參加我們的問卷調查,分享您對這些改善措施的反饋 https://zh.surveymonkey.com/r/ThorntonCreekCN\_T

King 县正在研究为您的街区改善污水系统的方法。

Thornton Creek 流域污水管道研究和升级项目,旨在减少水流过量,以便我们能满足清洁用 水目标。Thornton Creek污水管道约 1.2 英里长,能够收集我们污水系统中其他管道的污水。 包括您所在的街区。在风暴肆虐时,管道可能会流量过量。King 县正在尝试改进您街区的管 道,以帮助提高水质并防止流量过量。

请参加我们的问卷调查并分享您对这些改进的反馈: https://www.surveymonkey.com/r/ThorntonCreekCN\_S

### CONTACT US:

Contact Bibiana Ocheke-Ameh, community services lead, at: Bibiana.Ocheke-Ameh@kingcounty.gov | 206-477-5604

Sign up for email updates about this project at our website:

kingcounty.gov/thornton-creek-sewer

Alternative Formats Available / 206-477-5371 / 711 (TTY Relay)

PRSRT STD US POSTAGE **PAID** Seattle, WA Permit No 836





by September 24.

King County **Thornton Creek Basin** Sewer Study and Upgrade

# **About this project**

Through all our projects, King County Wastewater Treatment Division works to protect our region's environment, public health, and waterways by collecting and treating wastewater. The Thornton Creek Basin Sewer Study and Upgrade Project will ensure that the regional Thornton Creek sewer pipe is able to carry wastewater flows so we can meet our clean water goals into the future.

The Thornton Creek sewer is an approximately 1.2-mile-long sewer pipe that collects wastewater from other pipes in our sewer system, serving 9.6 square miles of North Seattle and Shoreline. The pipe carries this wastewater to the Matthews Park Pump Station, where it is then conveyed and treated at the West Point Treatment Plant.

During heavy storms, the sewer pipe sometimes reaches its capacity. In order to avoid possible overflow, King County will need to either reduce the amount of stormwater and groundwater entering the system – known as infiltration and inflow (I/I) – or increase the size of the sewer pipe. Increasing the size of the sewer pipe may also require more costly upgrades to other parts of the regional wastewater system, including Matthews Park Pump Station

# We want to hear from you!

Fill out and mail back the survey inside or take the survey online at:

# www.surveymonkey.com/ r/ThorntonCreekStudy

We appreciate your partnership as we work together towards a clean water future. Please submit your response

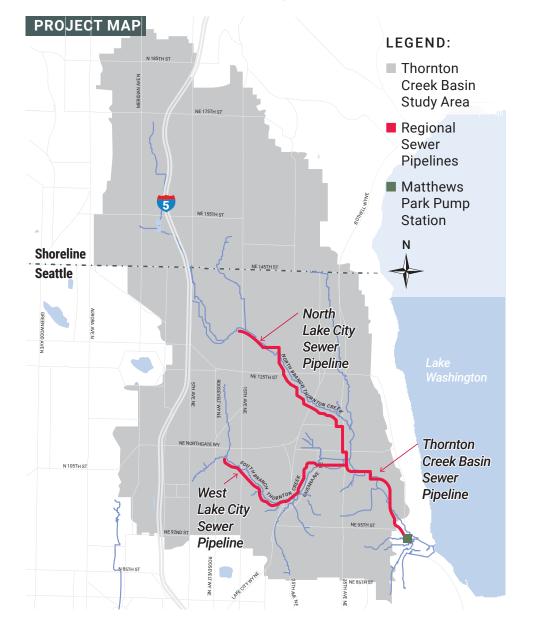
**The Thornton Creek Sewer** Study is helping King County determine where we can make investments to improve our sewer system and reduce overflows. You can help us reach these goals by sharing information about the condition and connection of sewers and drainage on your property and in your neighborhood.



### Infiltration and Inflow Study: What are we doing now?

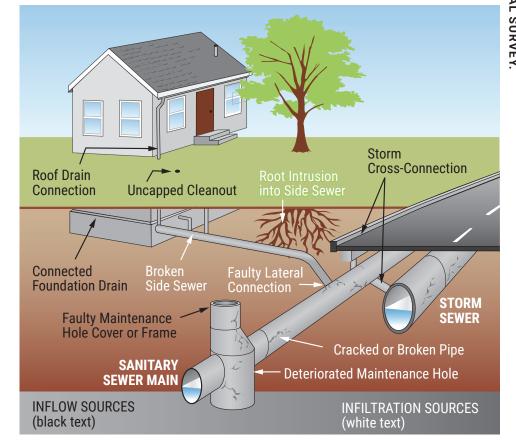
King County is studying the ways that stormwater and groundwater enter the sewer system in the area. Our team will look at local and regional sewer pipes, maintenance hole covers, and drainage connections, and we'll identify the location and type of improvements that have the potential for the biggest impact to reduce I/I. The goal for this phase of the project is to identify and evaluate I/I reduction alternatives that can alleviate capacity constraints in the Thornton Creek sewer pipe.

During this phase, we'll continue to monitor flows in the sewer system, and we'll conduct surveys of residents who live in the project area. A future phase will compare the I/I reduction alternatives identified as part of this study to alternatives that would increase the size of the Thornton Creek sewer pipe, or a combination of I/I reduction and increasing the size of the sewer pipe. Together, these two study phases will help us identify a sustainable and cost-effective approach to manage the regional sewer system.



# Why is this Infiltration and Inflow Study Important?

Sometimes during periods of heavy rainfall or major storms, additional water enters the sewer pipe, which can cause it to overflow. One reason for this problem is called infiltration and inflow (I/I), or excess water that enters into sewer pipes from groundwater and stormwater.



- Groundwater (infiltration), shown in white in the diagram above, seeps into sewer pipes through holes, cracks, joint failures, and faulty connections.
- Stormwater (inflow), shown in black in the diagram above, rapidly enters sewers via roof drain downspouts, foundation drains, storm drain cross-connections, and through holes in maintenance hole covers.

# **Project Timeline**

| INFILTRATION AND INFLOW (I/I) STUDY                    |                     |              |                |                                     |                     |  |  |  |  |  |
|--|---------------------|--------------|----------------|-------------------------------------|---------------------|--|--|--|--|--|
| Spring<br>2021   | Summer<br>2021      | Fall<br>2021 | Winter<br>2022 | Spring<br>2022                      | Summer<br>2022      |  | Winter<br>2023                           |  |  |  |
| Identify<br>project<br>study area;<br>data<br>analysis | Community survey #1 | Field ins    | pections       | Identify I/I reduction alternatives | Community survey #2 |  | Identify preferred I/I reduction methods |  |  |  |
| COMMUNITY ENGAGEMENT                                   |                     |              |                |                                     |                     |  |  |  |  |  |

# **We want to hear from you!** Fill out and mail back the survey below, or take the survey online at www.surveymonkey.com/r/ThorntonCreekStudy by September 24

|   |   |   | •   |                                |                               |  |  |
|---|---|---|---|--------------------------------|-------------------------------|--|--|
| Sewer Conn  | ectivity  |   | <b>Project Benefits</b>   | 5                              |                               |  |  |
| SUMP PUMPS  | are electrical pumps, usual                                   | ly installed at the lowest point in                               | Which of these project benefits are important to you? (Check all that apply)                            |                                |                               |  |  |
| -   |   | d pump out water. Do you have asement of your property?           | <ul> <li>Improving overall water quality in our region by reducing wastewater<br/>overflows.</li> </ul> |                                |                               |  |  |
| ○ Yes   | ○ No ○ Unknown  |   | ☐ Local wastewater service reliability.   |                                |                               |  |  |
| • • • • • • • • • • •   | • • • • • • • • • • • • • • • • •                             | •                           | ☐ Resilience to clima   | ate change-related events.     |                               |  |  |
| If you have a sur   | mp pump, where does it dis                                    | scharge?  | ☐ Maintaining the regional wastewater system.   |                                |                               |  |  |
| Sanitary Side Sewer O Storm Drain Pipe O Unknown  |   |   |   |                                |                               |  |  |
|   | •                       | •                           | Communication   | Preferences                    |                               |  |  |
|   |   | under your basement floor to                                      | What are the best ways to share information with you? (Check all that apply)                            |                                |                               |  |  |
|   | your basement, often carry                                    |   | □ Email □ Flyers delivered to □ Direct mail   |                                |                               |  |  |
| •   | ation drain is a visible drair<br>ve a foundation drain locat | n installed in your basement                                      | ☐ Social media  | , i                            | ☐ Local media                 |  |  |
| ⊝ Yes   | O No  | on your property:  ○ Unknown                                      |   | you nome                       |                               |  |  |
|   |   | Olikilowii  |   |                                |                               |  |  |
|   | undation drain, where does                                    |   |   |                                |                               |  |  |
| •   |   | •   | Are there organizations in your community you would recommend we connect with?                          |                                |                               |  |  |
| -   | Sanitary Side Sewer O Storm Drain Pipe O Unknown              |   | ○ Yes ○ Don't know  |                                |                               |  |  |
|   |   |   |   |                                |                               |  |  |
|   | _   | roof and gutters. Area drains<br>ually covered with a grate) that |   |                                |                               |  |  |
|   | •   | , or outdoor paved areas. Are                                     |   |                                |                               |  |  |
|   |   | ur property that may be routed                                    | Is there anything else you would like us to know about the best way to connect with you?                |                                |                               |  |  |
| to a wastewater   | or sewer pipe?  |   | know about the best   | way to connect with you? _     |                               |  |  |
| ○ Yes   | ○ No  | O Unknown   | Property Ownership  |                                |                               |  |  |
| Side Sewer  | Condition   |   | Do you own or rent the property at the address this survey was sent to?                                 |                                |                               |  |  |
|   |   |   | ○ Own   | ○ Rent                         | Other                         |  |  |
|   |   | stewater from your home or  | • • • • • • • • • • • • •   |                                | • • • • • • • • • • • • • • • |  |  |
|   | replaced within the last 10                                   | et. Have you had your side sewer                                  | Do you currently resid  | le in the property at the addr | ess this survey was sent      |  |  |
| ○ Yes   | O No  | ○ Unknown   | ○ Yes   | ○ No                           | Other                         |  |  |
|   | •                       |   |   |                                |                               |  |  |
|   |   | are about your sewer connection                                   | <b>Contact Informa</b>  | ation                          |                               |  |  |
|   | -   |   | Please provide your contact information:  |                                |                               |  |  |
|   |   |   | r icase provide your  | contact information.           |                               |  |  |
| Surface Wat   | ter Flooding or Storm   | Drainage Issues   | FIRST NAME  | LAST NAM                       | E                             |  |  |
| Have you had any surface water flooding or storm drainage issues on your property or near where you live? |   |   | EMAIL   |                                |                               |  |  |
| ○ Yes   | ○ No  | ○ Unknown   | STREET ADDRESS  |                                |                               |  |  |
|   | •                       | •                           | APARTMENT NUMBER  | CITY                           |                               |  |  |
| f yes, please de  | scribe your flooding or dra                                   | inage issues:   | A A A A A A A A A A A A A A A A A A A   | 0111                           |                               |  |  |
|   | -   |   | ZIP CODE  | STATE                          |                               |  |  |
|   |   |   | ☐ Sign me un for em   | nail undates                   |                               |  |  |
|   |   |   | ☐ Sign me up for email updates  |                                |                               |  |  |