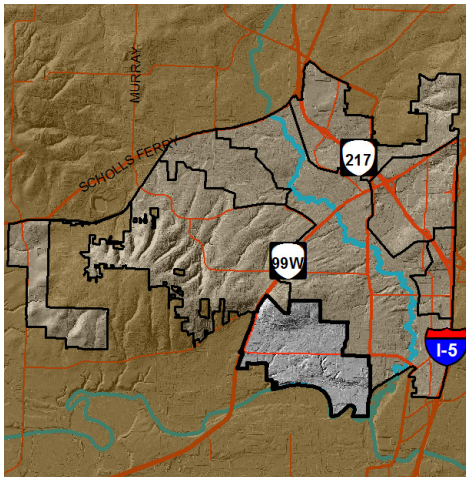
City of Tigard STORMWATER MASTER PLAN

Tualatin River Tributaries Study Area



Existing Conditions

Two main stream systems in southern Tigard drain the Summerfield neighborhood and the neighborhoods south of SW Durham Road directly to the Tualatin River.

Copper Creek, which is often known as Spring Creek on maps, follows SW Copper Creek Drive into Cook Park. An un-named system further west generally follows the Tigard City limits and meets the Tualatin River at Dover Landing.

Another tiny tributary to the Tualatin less than 1/10th of a mile in length originates in Cook Park.

The Tualatin River Tributaries study area is just under 1.5 sq. mi.

In the northern heights of the study area, surface water and stormwater runoff are directed to piped storm sewers. These neighborhoods were developed in the 1960's through 1980's before stream setbacks and water quality regulations took effect.

Headwater streams in the Summerfield community and golf course have been piped as they head south toward SW Durham Road.

Open stream channels flow south from approximately SW Durham Road. Fast, constrained flows through culverts under

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Issues and Risks

The Stormwater Master Plan assessed the risk of erosion in Tigard's streams. The assessment analyzed the likelihood of erosion based on stream geology and the consequence of erosion based on the stream's proximity to important features such as roads, sewer lines, and buildings.

Approximately 90% of Copper Creek is classified as moderately high to high overall risk of erosion. Approximately 50% of the western-most tributary system is classified moderately high to high, while about 25% is moderate.

As tributaries to the Tualatin River, water quality is a concern in these streams. The Tualatin River is water quality limited under the Clean Water Act for phosphorus, bacteria, dissolved oxygen, and temperature.

Urban runoff from the types of land uses in this study area tends to contain:

- Excess nutrients from lawn care and golf course maintenance practices;
- Metals from high-use roads such as SW Durham Road;
- Bacteria from animal waste, including pet dogs, water fowl, and beaver; and
- Particles and sediment from roads and landscaping as well as from erosion in the channels themselves.

Lack of trees to shade streams in developed areas without adequate stream setbacks can increase summer stream temperatures.

Proposed Strategies and Solutions

Strategies in the tributaries to the Tualatin River include dissipating energy downstream of eroding culverts and using retaining walls, bioengineering, and grade controls to stabilize unstable banks.

The City's recent investments in solutions for erosion in several locations just below SW Durham Road have stabilized some of the worst problems that were occurring in these tributaries.

Creeks in this area flow mostly through privately-owned property. There are few opportunities to provide solutions on public property, where long-term maintenance can be better assured, and where the general public benefits more.

Analysis for the Stormwater Master Plan led to the development of several potential projects in this study area. None of the potential projects ranked highly enough to appear in the Capital Improvement Program. The City will continue to monitor problem spots and plans to re-evaluate CIP ranking on a regular basis.

The Tualatin Tributaries study area may benefit from roof drain extensions. They could reduce erosion of private property into creek channels by extending residential rain drains that discharge at the top of steep stream banks. Roof drains are extended down the stream banks to the ordinary high water mark. Roof drain extensions may be offered as a part of the Technical Assistance Program.

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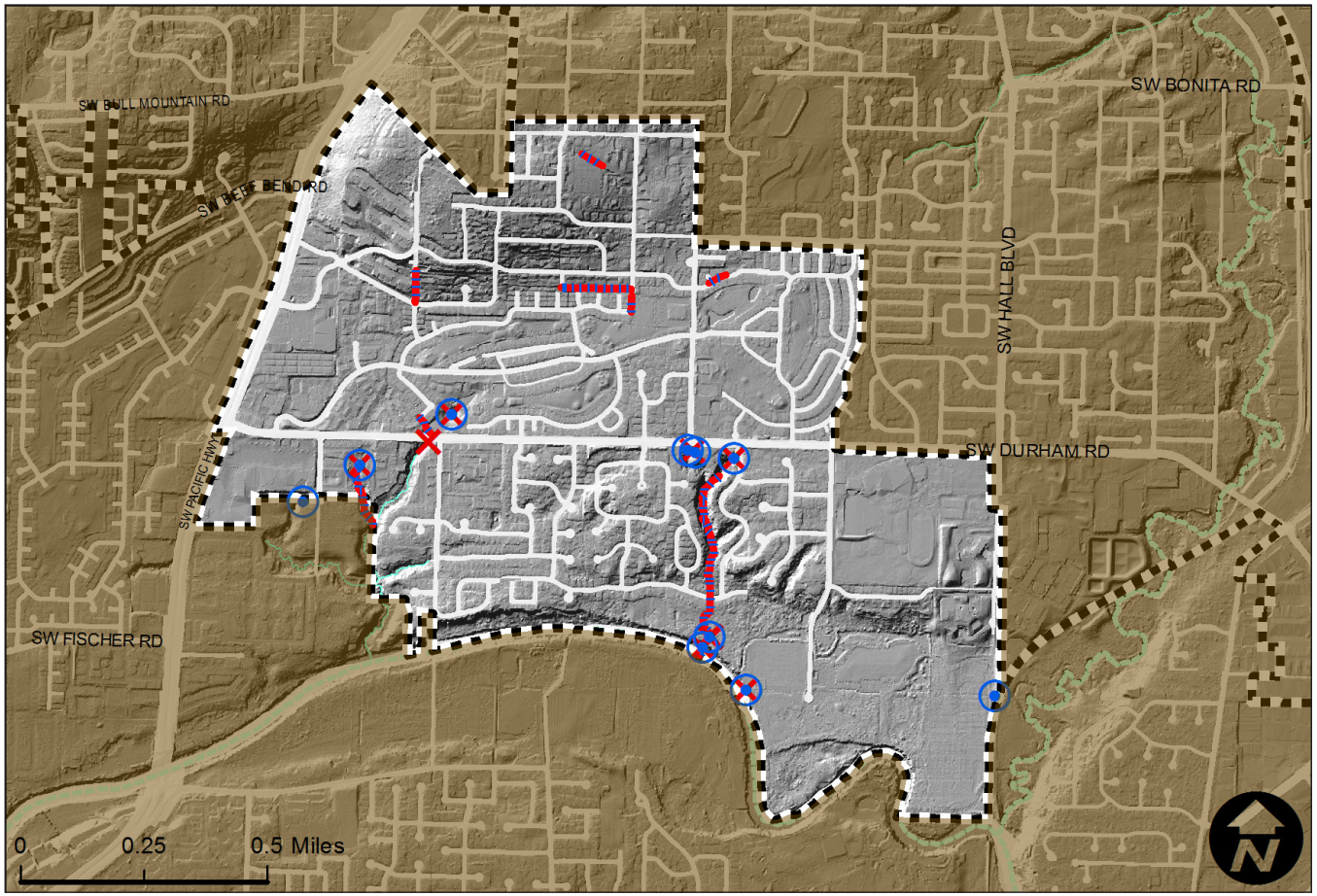

Legend

Known Issues

- Point
- Line
- Area

Potential Projects

- Point
- Line
- Area

CIP no. Capital Improvement Project

Study Area

Durham are eroding the downstream channels in both tributary systems.

Bank instability caused by erosion has threatened buildings and trees on private properties just south of Durham. In recent years, the City has invested in several solutions to address this erosion.

Further evidence of damage from erosive flows are deep headcuts where the tributaries meet the Tualatin River.