Overview
Lyon Creek originates in Mountlake Terrace and Brier, flowing through Lake Forest Park and into Lake Washington at Lyon Creek Waterfront Park. With a watershed area of only 2600 acres, it is one of the smallest Lake Washington tributaries. Despite its relatively small size, Lyon Creek causes devastating flooding in Lake Forest Park during large storm events. The flooding is characterized by the creek overflowing its banks near the Town Center and flowing into McAleer Creek. The flooding causes over $4 million in damage to public and private property for each large event. The City endeavors to reduce the severity and occurrence of flooding by constructing a project that eliminates the overflow from Lyon Creek into McAleer Creek.

Original Project Scope
• The City initially thought that diverting Lyon Creek high flows into a 60-inch diameter high-flow bypass pipe under Ballinger Way NE around the floodplain was the best solution to the problem. In 2013, the City found that this alternative was cost prohibitive.

Modified Project Scope
• Keep Lyon Creek from overflowing into McAleer Creek by improving the stream channel and replacing undersized culverts (6’ wide culverts replaced with 20’ wide culverts).

Funding
The City has secured funding from Federal Emergency Management Agency and King County Flood Control District to design and construct this project. The City is contributing the required funding match for this project.

Schedule
Design/Engineering: 2013-15
Construction: Summer 2015 and Summer 2016

Traffic
This project has been thoughtfully designed and phased to reduce impacts to the Town Center area and SR 522 (Bothell Way).
• SR 522 (Bothell Way): The culvert under SR 522 will be replaced during the summer of 2015. The plan is to keep four travel lanes open during high traffic hours and potentially reduce traffic to two lanes during the night.
• Town Center Area: Three culverts on Town Center property will be replaced in order beginning in the most downstream culvert. Only one entrance to the Town Center will be closed at any time during construction. The City will provide detour signage for entrance to the Town Center to reduce impacts to the businesses.
Q: How will the project affect traffic flow along Bothell Way NE/SR 522?
A: Construction activity will limit traffic flow along Bothell Way NE/SR 522 during the summer and early fall of 2015, but will never halt traffic completely in either direction. To minimize adverse traffic impacts, the City is implementing several strategies including careful phasing, day- and nighttime construction, and utilization of bus lanes for regular vehicle traffic. The project will have no long-term effects on traffic flow along Bothell Way NE/SR 522.

Q: Will downstream flooding or erosion occur as a result of increased culvert capacity?
A: No. Although flows through the lowermost channel section will be increased during peak flood events (because they will no longer spill over into McAleer Creek) that section of stream channel will be widened and a floodplain provided along with other improvements to accommodate these flows. The adjacent properties will be protected with set-back berms incorporated into the footpaths. In addition, this farthest downstream channel section is relatively low-energy because it is fairly flat, and therefore less prone to erosion even during high flows. During low-flow conditions, the proposed culvert improvements will have little effect on downstream reaches.

Q: How will the project affect fish passage along Lyon Creek?
A: Upstream fish passage along Lyon Creek will be significantly improved by implementation of the project. First, three concrete box culverts within Town Center and a fourth under SR 522 along Lyon Creek will be replaced, and upgraded in the process to meet WDFW stream simulation criteria. Short of full-blown bridges, stream simulation is the most preferred culvert design method with respect to fish passage and other habitat considerations of three allowable choices. All of these replacement culverts will be 20 feet in width and have streambed gravel and slopes similar to adjacent stream reaches. Ideally, fish are able to pass upstream through culverts designed according to these criteria with a similar level of ease or effort as the overall stream sections which include them.

Second, two weirs presently exist just downstream of the SR 522 culvert which are a partial barrier to upstream fish movements, especially to juvenile fish. These weirs will be eliminated through implementation of the project, enabling fish to move upstream with greater ease as well as allowing a slightly steeper slope to extend along the stream profile for several hundred feet upstream, increasing flow capacity and thereby reducing flooding.

Q: Will businesses within the Town Center be accessible during construction?
A: Construction work in the Town Center will be phased so only one entrance from SR 522 will be closed at a time. The City is working closely with the Town Center and nearby businesses to ensure minimal impacts during construction, including installation of temporary vehicular access where necessary to maintain normal business operations. All existing parking and access will be replaced in-kind following construction.