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# Riparian Restoration Plan for Stormwater Flow Control Management

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## Abstract

WSDOT is proposing riparian restoration as an alternative to the construction of large stormwater detention facilities for the State Route 167 Extension Project.

WSDOT is proposing riparian restoration as an alternative to the construction of large stormwater detention facilities for the State Route 167 Extension Project. Buildings, roads, culverts, and other infrastructure will be removed and the land use will be converted back to a riparian forest. Within the 189 acres proposed for riparian restoration: approximately 30 acres of existing impervious surface will be removed; 63 acres of existing wetlands will be restored; 19 stream crossings will be removed or improved; fill materials in the floodplain will be removed; 13,000 feet of stream channel will be protected; 9,350 feet of stream channel will be created; and the area will be replanted with native vegetation.

The RRP is expected to prevent property damage caused from flooding by removing buildings, roads, and infrastructure from flood prone areas. Project implementation with the RRP is predicted to reduce future flooding impacts by 48 percent compared to future conditions without the project. The RRP is expected to provide water quality treatment above and beyond any wet ponds or similar treatment facilities required under the Highway Runoff Manual by removing sediment and nutrients from surface runoff.

The RRP is expected to result in considerable benefits to streams by reestablishing vegetated riparian buffers which increase shade to maintain cooler water temperatures. Establishing woody vegetation increases bank stability and helps form habitat for fish and wildlife, and improves water quality. The RRP will also reduce the amount of inlet structures and drainage piping required to maintain flow control, while at the same time increasing the channel migration area. As the future large woody debris recruitment forces channel migration, the abandoned stream channels will develop into wetlands and off-channel rearing habitats for fish. The RRP includes the restoration of upland habitat within the riparian buffers, and also provides wildlife habitat and migration corridors, and will provide improved wetland buffer functions.

A Net Environmental Benefits Analysis was performed to quantitatively estimate and compare the relative ecological losses and gains between the use of conventional stormwater treatment ponds and the RRP approach. Project wide, the RRP approach was found to have 57 percent greater environmental benefit than the conventional treatment approach.