SECTION 1 INTRODUCTION

What are the primary features of the Tukwila to Renton Project?

WSDOT is proposing to construct the I-405, Tukwila to Renton Improvement Project (I-5 to SR 169 – Phase 2), referred to as the Tukwila to Renton Project, to relieve congestion. The Tukwila to Renton Project extends approximately four and one half miles along Interstate 405 (I-405), from I-5 to State Route 169 (SR 169), and approximately two miles along SR 167, from I-405 to SW 43rd Street. The project will:

- Add capacity to both I-405 and SR 167.
- Replace bridges over the Green River and Cedar River and add one new bridge over the Green River.
- Improve the SR 181 and SR 169 interchanges.
- Reconstruct the SR 167 interchange consisting of new general-purpose direct-connector ramp from southbound I-405 to southbound SR 167, HOV direct-connector ramps from northbound SR 167 to northbound I-405 and from southbound I-405 to southbound SR 167, and a split-diamond interchange at Lind Avenue and Talbot Road with connecting frontage roads.
- Replace the two local street accesses to Renton Hill.

These improvements represent the second phase of the I-405 Corridor Program for this portion of I-405. The first phase consists of improvements in the Renton Nickel Improvement Project.

What is the purpose of this report?

This report determines effects to water resources from the Tukwila to Renton Project. It also details how WSDOT will avoid or minimize effects to water resources.

What topics are included in water resources?

In this report, water resources include surface water flow, surface water quality, floodplains, and groundwater. For the purposes of this report, surface water flow is defined as the water flow or current in a river or stream. Surface water quality is the condition or amount of pollutants in a river or

stream. A floodplain is the area bordering river channels that becomes inundated during flood flows. Groundwater is water located beneath the ground surface in soil pore spaces and in the fractures of geologic formations.

Why are water resources important to consider?

Surface Water Flow and Surface Water Quality

Surface water is an important resource for people, animals, and plants. For this reason, the federal government drafted the Clean Water Act to protect surface waters. This act requires that state water quality standards set limits on pollution in our lakes, rivers, and marine waters to protect water quality for beneficial uses such as drinking water supply, aquatic life habitat, agricultural needs, and recreational purposes.

Within the study area, surface water is an important resource to humans and the environment. Historically, adding impervious surface area has been known to affect water quality and the quantity of runoff. Because the Tukwila to Renton Project will add impervious surface area to the Green River basin, Springbrook Creek basin, and Cedar River basin, this discipline report investigates the effects this new impervious area will have compared to baseline conditions. Existing requirements for stormwater flow control and water quality treatment are considered part of the project description and are not considered mitigation measures.

Floodplains

Floodplains are important because they convey and store floodwater and minimize flood risks during large storm events. These functions reduce flood losses, maintain clean and plentiful water supplies, and generally enhance quality of life in communities. Recognizing the importance and the sensitive nature of these areas is an important first step in planning for this project. By adapting to the natural phenomenon of flooding rather than trying to control floodwaters, we can reduce the loss of life and property, protect critical natural and cultural resources, reduce maintenance and repair costs, and contribute to the sustainable development of our communities. This philosophy is reflected in Executive Order 11988 that requires

agencies to avoid adverse effects and incompatible development in floodplains thereby reserving floodplains as natural floodwater storage areas.

Floodplain management is influenced by federal, state, and local regulations or guidance. However, counties and cities bear the primary responsibility for regulating the activities allowed in floodplains. For example, the cities of Tukwila and Renton have developed specific programs to manage floodplains. Both cities have floodplain restrictions in their zoning and building codes as well as in their sensitive area ordinances. These codes prohibit projects that cause any rise in the base flood elevation for the 100-year flood event within the 100-year floodplains as identified on the Flood Insurance Rate Maps (FIRMs). As the study area has several 100-year floodplains, these regulations will apply to the project. The City of Renton has conducted a recent floodplain study for the Springbrook Creek basin that may eventually be approved by FEMA and serve as the basis for final project permitting within that basin.

Groundwater

Groundwater pertains to the water contained in the soil and bedrock below the ground's surface. Groundwater quality and quantity is important to consider because changes to quality and quantity can affect supplies for drinking water, and water available for surface waterbodies such as lakes, streams, and wetlands. When reviewing potential effects to groundwater quality and quantity in the study area, we considered federal, state, and local regulations.

Groundwater is also an important factor to consider for the project design because it is a factor in determining the types of foundations, pavement sections, subsurface drainage, retaining walls, and bridges that are required for the project.

What studies were completed?

The I-405 Team conducted a field investigation on July 13, 2006 to examine surface water resources along the project corridor to verify and update drainage mapping. Aerial photographs, topographic survey data, and drainage maps were used to help the I-405 Team identify flow pathways, outfalls, and existing stormwater facilities.

The I-405 Team determined the existing surface waterbody conditions using data provided by the Washington State Department of Ecology (Ecology), including Watershed Resource Inventory Area (WRIA) maps. WRIAs are the major watershed drainage areas that Ecology uses to track water quality data and to plan and manage water resources.

Other relevant data that the I-405 Team reviewed included Ecology's 2004 303(d) list of impaired waterbodies. Every two years, states are required to prepare a list of waterbody segments that do not meet state water quality standards. The Ecology 2006 303(d) list is expected to be approved in 2008.

The Total Maximum Daily Load (TMDL) list, which is prepared by Ecology, was also reviewed. A TMDL establishes the mechanisms to implement water quality standards for an impaired waterbody. The TMDL establishes the allowable loadings of pollutants to a waterbody so that it achieves state water quality standards.

Additional water resources information was collected during a series of site visits where experts in the fields of fisheries, wetlands, wildlife, road design, drainage design, and permitting reviewed the natural and manmade features located in the study area.

What is the Ecology 303(d) List?

The federal Clean Water Act (CWA), adopted in 1972, requires states to restore their waters to be "fishable and swimmable." The Clean Water Act established a process to identify and clean up polluted waters. Every two years, all states are required to prepare a list of waterbodies that do not meet water quality standards. This list is called the 303(d) list because the process is described in Section 303(d) of the Clean Water Act.

Ecology has prepared a preliminary assessment of water quality in Washington. The assessed waters are listed in categories that describe the status of water quality. For those waters that are in the polluted category, beneficial uses—such as drinking, recreation, aquatic habitat, and industrial use—are impaired by pollution.

At the time research was conducted for the Tukwila to Renton Project, the 2006 list was not yet available.

What is a total maximum daily load (TMDL)?

A TMDL is part of the water clean up plan for each waterbody on the 303(d) list. It is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet State water quality standards. Percentages of the total maximum daily load are allocated to the various pollutant sources.

What are the key messages from this report?

The key points of this report are:

- Runoff from the new pollution generating impervious surfaces or an equivalent area will be treated for water quality. This project will also provide retrofit treatment of some impervious area that is not currently treated. Overall pollutant loading is expected to decrease for total suspended solids, total phosphorus, total zinc, and total copper.
- Runoff increases from the new impervious area will be mitigated using detention facilities in the Green River and Springbrook Creek basins following WSDOT's Highway Runoff Manual (HRM) guidelines. Since the relationship between peak flow and duration is maintained through detention design, no effect on peak flows or flow durations are expected. The Cedar River is exempt from flow control according to the HRM guideline. If the Panther Creek

Watershed Rehabilitation Plan[1] is permitted, about 29 acres of impervious surfaces would be treated and discharged directly into the Panther Creek wetland complex.

- This project will not raise the level of existing 100-year floodplains because any filling within the floodplains will be mitigated for by excavation within the same floodplain, and within the same 1-foot elevation.
- This project is not expected to negatively affect the Delta Aquifer, a subunit of the Cedar Valley Aquifer, because WSDOT will implement several mitigation measures as described in Section 6 of this report.

What measures are proposed to avoid or reduce impacts?

The WSDOT HRM provides guidance on project design to avoid and minimize negative effects on surface water flow, surface water quality, floodplains, and groundwater. According to Ecology, projects meeting the Ecology guidelines or equivalent standards such as the HRM are presumed to meet federal and state water quality requirements. WSDOT will meet the HRM's requirements by implementing an array of treatment BMPs as well as other protection measures. Surface runoff will be treated using ecology embankments, constructed stormwater treatment wetlands, or other enhanced water quality treatment BMPs. WSDOT will also prepare a Temporary Erosion and Sediment Control Plan that will be in place prior to starting construction. This plan will address the specific measures that will be used to manage stormwater during construction. WSDOT will also prepare a Spill Prevention, Control, and Countermeasures Plan prior to construction that will be used to reduce the risk of accidental spills during construction.

What will happen if we adopt the No Build Alternative?

The No Build Alternative assumes that the improvements associated with the Renton Nickel Improvement Project are constructed. Retrofit of stormwater facilities to address existing highway impervious surfaces will not be addressed

[1] *WSDOT 2007*

with No Build Alternative. Only routine activities such as road maintenance, repair, and safety improvements would be expected to take place between 2014 and 2030. This alternative does not include improvements that would increase roadway capacity or reduce congestion beyond baseline conditions. For these reasons, it does not satisfy the project's purpose to reduce congestion on I-405 between I-5 in Tukwila and SR 169 in Renton.