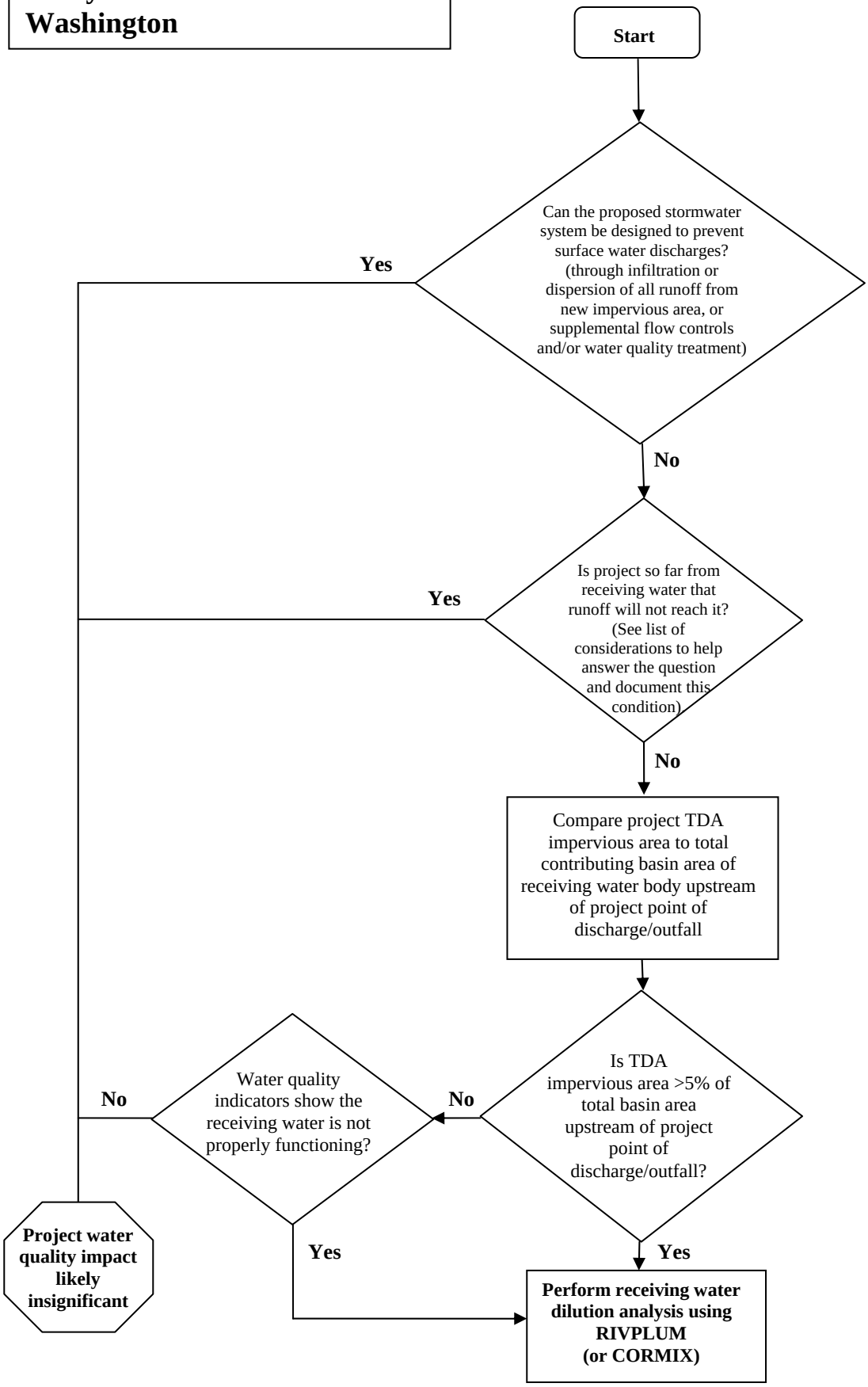
Stormwater Water Quality Analysis Process for Eastern Washington



Stormwater Water Quality Analysis Process for Eastern Washington: Guidance for Completing Question 2 in the Analysis Flow Chart

> "Is project so far from receiving water that runoff will effectively infiltrate before reaching it?"

This may be the case in unlined channel conveyances that have adequate soils, surface area, and contact time to allow for complete infiltration before surface water discharge. Answering yes to this question will require a discussion of the following items for justification:

- Type of conveyance – Conveyance must be an unlined open channel or ditch, not a pipe or lined conveyance ditch. Describe the general configuration.
- Distance to receiving water – This will affect the contact time and the capacity of the channel base to infiltrate runoff.
- Other inputs – Does the unlined open channel or ditch collect and/or convey substantial flow from off-site areas?
- Infiltratability of soil – Soils at the unlined open channel or ditch must have relatively high infiltration rate (Hydrologic Type A or B).
- Depth to groundwater - Seasonal high groundwater table must not meet the unlined open channel or ditch base or be shallow. As a guideline, separation between seasonal high groundwater and the unlined open channel flow line should be 5 feet or greater for acceptable infiltration (criteria for infiltration BMPs-see Section 5-4.2.1 of the Highway Runoff Manual for more information).
- Observations of baseline flow conditions – Document any observations of flow during a storm event or evidence of flow conditions in the unlined open channel or ditch during conditions that could potentially deliver stormwater to receiving waters (e.g. excessive snow melt during seasonally high groundwater period). If surface discharge of runoff to the receiving water is evident, answer "no" to the question.

Stormwater Water Quality Analysis Process for Eastern Washington: Guidance for Completing Question 3 in the Analysis Flow Chart

"Is TDA impervious area > 5% of the total basin area upstream of the project point of discharge/outfall?"

To perform the land-area based dilution analysis, the contributing impervious area for the project is compared to the total contributing basin area for the receiving water upstream of the project discharge. This analysis may be based on a TDA or project wide drainage basin approach depending on the length of the project, and the number and location of the receiving waterbodies. If the project drainage basin represents 5 percent or less of the total upstream basin area, it is assumed that the receiving water will have sufficient dilution capacity to mitigate potential impacts from the project **if** background water quality conditions are not degraded.

1. Using the project's ESA stormwater checklist, determine the project's TDA impervious area or the projects total impervious area.
2. To determine if the project drainage basin is greater than 5 percent of the total basin area (contributing drainage area upstream of project discharge point in receiving water), the total basin area can be delineated using the on-line GIS-based tool StreamStats, developed by USGS:

   < http://water.usgs.gov/osw/streamstats/Washington.html>

3. If the TDA or project area represents:
   a. MORE than 5 percent of the receiving water drainage basin, then a receiving water dilution analysis using RIVPLUM for streams and rivers or CORMIX for lakes must be completed.
   b. LESS than 5 percent of the receiving water drainage basin, then an analysis of the water quality conditions in the receiving waterbody must be completed. Water quality conditions in the receiving water are described by the water quality indicators in the NOAA or USFWS Pathways and Indicators Matrices.
      i. If the water quality indicators show the receiving water is *not properly functioning*, then a receiving water dilution analysis using RIVPLUM for streams and rivers or CORMIX for lakes must be completed.
      ii. If the water quality indicators show the receiving water is *at risk* or *properly functioning*, then water quality impacts are likely to be insignificant.

3.