

Lake Tahoe West Shore (LTWS) Restoration Project

Road Erosion Analysis

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This ReadMe file describes the contents of the LTWS_RoadAnalysis Directory.

The **LTWS_RoadAnalysis** folder has one folder, **LTWS_MapPackages**; 3 EXCEL spreadsheets; the 2019 Scope of Work for the Water Quality Team; and this Readme file. The three ArcMap 10.5 map packages are in the folder labeled **LTWS_MapPackages**.

1. The three EXCEL spreadsheets contain the inputs for the WEPP Batch Road run, and the estimated sediment delivery from each road segment and its buffer for the following three conditions.
 - a. **LTWS_WEPP-Rd_CurrentCond.xlsx** – contains the input and output information for the Lake Tahoe West Shore roads for the current conditions as described in the ‘Tahoe-cross-walk’ tab within the spreadsheet. All roads, paved or native material, are in these results.
 - b. **LTWS_WEPP-Rd_Logged.xlsx** – contains the inputs and outputs for Lake Tahoe West Shore roads assuming logging conditions for all road segments as outlined on the tab, ‘model_Info_Assump’. No paved roads were analyzed as logging traffic will not affect erosion from these roads.
 - c. **LTWS_WEPP-Rd_Closed.xlsx** – contains the inputs and outputs for the Lake Tahoe West Shore roads for a no traffic scenario as described on the ‘model_Info_Assump’ tab. Again no paved roads were examined for this scenario.
2. **1811 FY19 Scope of Work West Shore Water Quality.pdf** – is the draft of the work proposed for fiscal year 2019 by the West Shore Restoration Science Water Quality Team. The report outlines the state of recent, current and proposed activities for the team, and includes a description of the approach made to modeling sediment delivery from the West Shore road network.
3. **LTWS_RoadAnalysis > LTWS_MapPackages Folder**

This folder contains three ArcMap 10.5 Map packages. If the user has ArcMap 10.5 installed on their computer, the map packages can be downloaded and opened on the users computers, allowing the user to view road sediment delivery spatially, and to modify the symbology or other map attributes to suit their needs. Once opened, the Map Package can be saved as a *.mxd file on the user’s computer.

 - a. **LT_West_Shore_Road_Topo_Analysis.mpk** – this mpk has the GIS layers used to delineate the road segments, and calculate the lengths and steepnesses of every road segment and its respective buffer. It includes the underlying 10-m DEM. Contact Sue Miller for details of the analysis if interested. The output from this analysis was used in the spreadsheets to build input files for the WEPP Road Batch erosion analysis.

- b. **LT_West_Shore_Sediment_Results.mpk** – this mpk is a map that has all the erosion modeling input variables and output sediment delivery estimates:
 - i. Road sediment delivery by segment – for all three climate scenarios: 1800-2100m, 2100-2400 m, 2400-2700 m.
 - ii. Buffer sediment delivery from lowest point on road segment to the nearest ephemeral, seasonal or perennial channel – for all three climate scenarios: 1800-2100m, 2100-2400 m, 2400-2700 m.
 - iii. Difference between the road and buffer sediment delivery (road sedimentation minus buffer sedimentation). A negative value if buffer erosion and a positive value if buffer deposition. This analysis was also done for all three climate scenarios: 1800-2100m, 2100-2400 m, 2400-2700 m.

Note: when downloading this map package, be sure to download the LT_West_Shore_Sediment_Results directory. It will likely be downloaded as a zip file so the user will need to unzip it and put it in the same directory as the map package before opening the LT_West_Shore_Sediment_Results.mpk in ArcMap.

- c. **BW-WS_RoadSedimentResults.mpk** – This map package contains the sediment delivery estimates for the Blackwood watershed only, for comparing to the Cao et al. (2019) Ghost Roads paper once it is made available.

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