

Culvert Size Classes & Failure Rates Omak Creek Watershed (RMU-13) Colville Indian Reservation, WA

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Summary

Failure rate for 453 culverts was determined for the the 121,000-acre Omak Creek Watershed located on the Colville Indian Reservation. Data were collected during a comprehensive GPS road maintenance and drainage infrastructure inventory throughout the watershed in Summer 2003.

Culvert function was determined in the field and assigned to a function class (0%, 25%, 50%, 75%, 100%), with 100% being fully functional (clear drainage and intact fill). Culvert failure was defined as <50% functional or completely washed out.

The vast majority (85%) of mapped culverts measured 24" in diameter or less. Failure rates were high for these size classes; 1 in 10 were no longer functional. Large culverts - those with diameters of 36" or more - were far less prone to clogging or fill erosion; one in fifty failed.

We recommend that new culvert be sized at 36" or larger for both BIA System Roads and tribally-managed "Resource Roads".

