Extract from the August 2008 draft Yamhill County Natural Hazard Plan, Hazard Profiles, Chapter 5, pages 36-37.

The extent of dam failure effects in Yamhill County can be assessed region-wide or by each body of impounded water. Effects depend a great deal on the nature of the failureð for instance, whether a dam fails when retaining a normal level of water, or whether water influx is involved in the dam failure, which then involves a greater-than-usual volume of impounded water. Likewise, whether a dam is overtopped, damaged, or fails will make a great difference in volume of water released, and therefore in effects. An isolated dam failure, even a significant release, may have less significant impact than a series of dam failures caused by region-wide flooding.

The City of Sheridanôs Stony Mountain Impoundment Facility is a spring-fed reservoir, retained by a [reinforced] earthen dam approximately 10 miles outside of town. The emergency spillway empties into La Toutena Mary Creek. The dam embankment, if breached, will spill into a La Toutena Mary Creek tributary, and the flood hydrograph will travel 3.37 miles to the La Toutena Mary Creek and East Creek confluence, with an additional 3.15 miles to East Creekôs confluence with Willamina Creek. Based on a clear day piping failure stimulated by the City of Sheridan, if the dam embankment was breached, it would take approximately 35 minutes for the dammed water to travel the 3.37 miles to the East Creek confluence and an additional 100 minutes to travel to the Willamina Creek confluence. Under normal conditions, the flood wave would start with approximately 10,670 cubic feet per second (cfs) at the dam and end with approximately 1,090 cfs at Willamina Creek. Due to the limited size of the watershed, the limited inflow to the reservoir, and the height of the dam compared to the emergency spillway (1657 feet vs. 1653 feet), an overtopping failure is unlikely. Thus, a catastrophic failure of the dam would not present a threat to human life downstream. Neither the road nor any residential structures would likely be inundated by the flood wave generated by a piping failure.

Even when the clear-day scenario was tested using more extreme assumptions, such as increased water levels, a dam failure still did not pose a threat to residential structures. Possible developments that could cause piping failure include rapid drawdown, seismic activity, or slope failure. As water flows through the dam, the passage could continue to grow as material is eroded away. Eventually the size of the passage could compromise the structural integrity of the dam and cause it to collapse. (City of Sheridan Dam Failure Analysis, 2007)

The City of Willaminaôs Dam is an earthen dam located approximately 12 miles north or town. It is expected that a dam failure would affect the city by causing a mud flow down Willamina Creek. There is also a moderate concern of debris flowing down the Willamina Creek in the case of a dam failure of the City of Sheridanôs Stoney Mountain Impoundment Facility. (City of Willamina Hazard Profile)