

## PROJECT PROFILE



### Hosler Dam Monitoring and Emergency Warning System, Ashland, Oregon

**Client:**

*City of Ashland, Oregon*

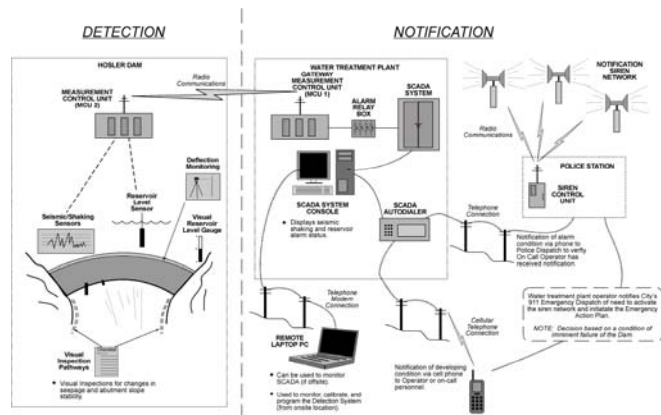
Owned and operated by the City of Ashland, Oregon, Hosler Dam is a 118-foot high concrete arch dam constructed in 1928 impounding approximately 800 acre-feet of water from the East and West Forks of Ashland Creek. The dam has a centrally located overflow spillway with six vertically acting slide gates. A 24-inch steel conduit is used to convey the water through a small power plant to a filtration plant for water supply.

At the request of the Federal Energy Regulatory Commission (FERC), a dam-break study was performed in 2001. The results of that study indicated that a breach failure of the dam would result in inundation of the City of Ashland town center with 25 feet of water within 8 minutes of failure. Based on the results of the study, FERC recommended that an early warning system should be installed

for the dam. The short warning time available following a dam failure event led to the need to initiate the notification/evacuation of the downstream community based on a “failure is imminent” condition.

Using failure modes analysis (FMA) in the design phase of the project enabled the design team to identify the potential modes of failure and to design the system to monitor for conditions of an imminent failure of the dam. Using low power ADAS equipment, the system constantly monitors reservoir level sensors and seismic recorders to determine if the dam is experiencing any conditions that were identified in the failure modes analysis that could pose a problem for the structure.

The monitoring system utilizes radio telemetry to relay any alarm conditions as well as the current reservoir level to the water treatment control facilities 1.2 miles downstream of the dam. The alarm modes and the reservoir level are all tied into the Water Treatment Plant SCADA system and are presented in real time to the operators on a SCADA screen.



## Hosler Dam Monitoring and Emergency Warning System (continued)

Due to the remote location of the Dam, solar power is used to power the monitoring and telemetry equipment at the dam. In addition to data being presented on the SCADA system, the alarm thresholds were also tied into the SCADA's alarm auto-dialer to provide notification to the plant operator if the monitoring system detects an alarm condition.



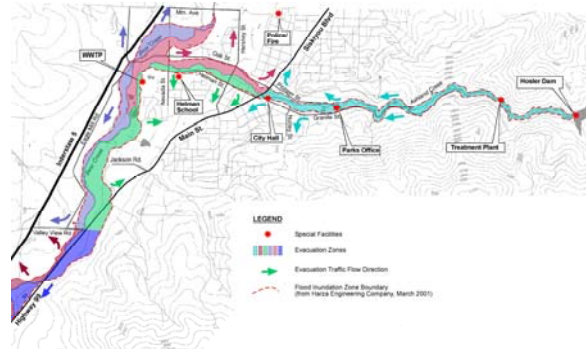
Because of the monitoring system's ability to detect conditions of concern before a catastrophic dam break occurs, the response protocol calls for visual inspection of the Dam before the Notification System is implemented. A detailed decision process was developed to aid the City personnel in deciding when an "imminent failure" condition exists and the community should be evacuated.

To design and implement the Notification System, several notification options were considered and a combination of methods was selected.

Once the decision to evacuate has been made, an outdoor siren warning system will provide notification to the downstream communities to evacuate the flood inundation areas. Controlled via radio telemetry from a control panel in the City's Emergency Police dispatch center, the outdoor siren network

consists of 3 siren locations within the city and 1 siren located within the City's urban growth boundary.

In addition to the outdoor siren system, the notice will be communicated via phone and radio to various City, County and State agencies to allow for proper notification and possible evacuation of additional downstream communities that have more warning time than the City of Ashland.



The system's ability to notify the downstream communities with enough time to allow for an evacuation exemplifies Engineered Monitoring Solutions design capabilities using failure modes analysis and also our ability to implement new monitoring systems while leveraging the City's investment in their existing SCADA system as well.