

Concrete bridges are focus of new and replacement projects for all sizes of bridges

Inventory, Six-Year Plan Guides Thurston County

by Dale Rancour, Thurston County, Washington

Maintaining bridges in Thurston County is a critical area of concentration, and that effort requires knowing the status of all of our 112 roadway bridges. To that end, county engineers in Washington State produce an annual written report of findings for the legislature, detailing the county's bridge inspection efforts. The Board of County Commissioners each year then adopts a 6-year plan for transportation improvements based on these reports.

Each bridge receives an intermediate inspection every 2 years and an in-depth inspection every 5 years. We also inspect and rate each bridge at a minimum frequency between the 2-year inspections, with some bridges being inspected more frequently. The more frequent inspections and evaluations are done for aging bridges or those that need more attention due to their history or environmental exposure.

This approach has served the citizens of Thurston County well, because maintenance needs have been identified sufficiently early so that costs of repair have remained relatively economical. Also, the more timely inspection program is thought to be one of the major reasons that bridges in need have been identified as early candidates for the bridge replacement program.

Eighty-nine of our bridges were built with concrete components, most using precast concrete girders. The county also has 11 steel bridges, six timber bridges, and six culverts that are classified as bridges.

Most bridge construction, whether for new locations or replacement structures, are made of concrete. The reason for that is simple: in our Pacific Northwest climate, everything else rusts or rots, causing higher maintenance costs. In addition, the county contains many waterways that serve as salmon spawning grounds or sensitive wetlands. These areas require one-span structures to avoid disrupting the waterway, and concrete designs have proven very effective in these situations.

We expect this approach will increase in coming years, as we are finding ourselves in the position of providing new bridges in our county without actually building any new waterway crossings. We are currently replacing many old and deteriorated culverts. Many of these consist of 2- or 3-ft-diameter corrugated steel pipes. Because of the spawning grounds and other fish and wildlife regulations, these culverts are being expanded as they are replaced.

As a result, roadways that previously had culverts now have bridges. Unfortunately, these replacements are not eligible for federal bridge replacement funds because they were not previously classified as bridges. Their future replacement, however, will be eligible for funding because they are now considered as bridges. Thus, we will be adding new bridges to our inventory for many years to come.

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A culvert-replacement project over Lackamas Creek reused bridge slabs obtained from the City of Olympia, where they had been used for a temporary bridge.

Sustainability

One type of bridge project we have been doing more often involves reusing precast concrete bridge slabs. This approach speeds construction and reduces costs significantly, while creating a durable design that will need little maintenance during its life.

An example is the culvert replacement project at Lackamas Creek in 2006. The plan consisted of removing existing culverts and constructing a single-span concrete bridge approximately 29 ft long and 39 ft wide using bridge slabs. The slabs were acquired from the City of Olympia, where they had been used for a temporary detour bridge for the 4th Avenue Bridge project. The slabs were removed from the temporary bridges, shipped to the new bridge site, and re-erected.

Additional bridges were constructed using recycled bridge slabs to replace failing culverts this past summer. These included bridges over Allen Creek along the Case Road Extension and over a creek along 128th Street. More replacements are planned for 2008.

Old Highway Bridge No. O-9, originally built in 1923, was replaced in 2007 with a 110-ft-long, 42-ft-wide precast, prestressed concrete bridge.



EDITOR'S NOTE

If your county has a high percentage of concrete bridges or some interesting and innovative concrete bridges and would like to be featured in ASPIRE,™ please let us know at info@aspirebridge.org.