

PRACTICAL DESIGN AT WORK — DESIGN



Washington State
Department of Transportation

US 2 Bickford Avenue Interchange - Snohomish

Background

The US 2/Bickford Avenue T-intersection was the site of more than two dozen collisions between 2006 and September 2013. More than 20 of those collisions involved drivers turning left from Bickford Avenue onto US 2. WSDOT's Northwest Region began developing designs to build a new overcrossing from Bickford Avenue to westbound US 2 to take traffic over US 2, rather than across it.

In addition, nearby, five metal culverts underneath US 2 were corroded, allowing water to seep under the roadway and cause the material under the highway and in the median to settle. The culverts had reached the end of their useful life and needed to be replaced.

Original plan

The traditional approach to addressing the T-intersection was to build a full-diamond interchange. Staff quickly realized however, that they didn't have the resources to design and build a full-diamond interchange as it was originally planned.

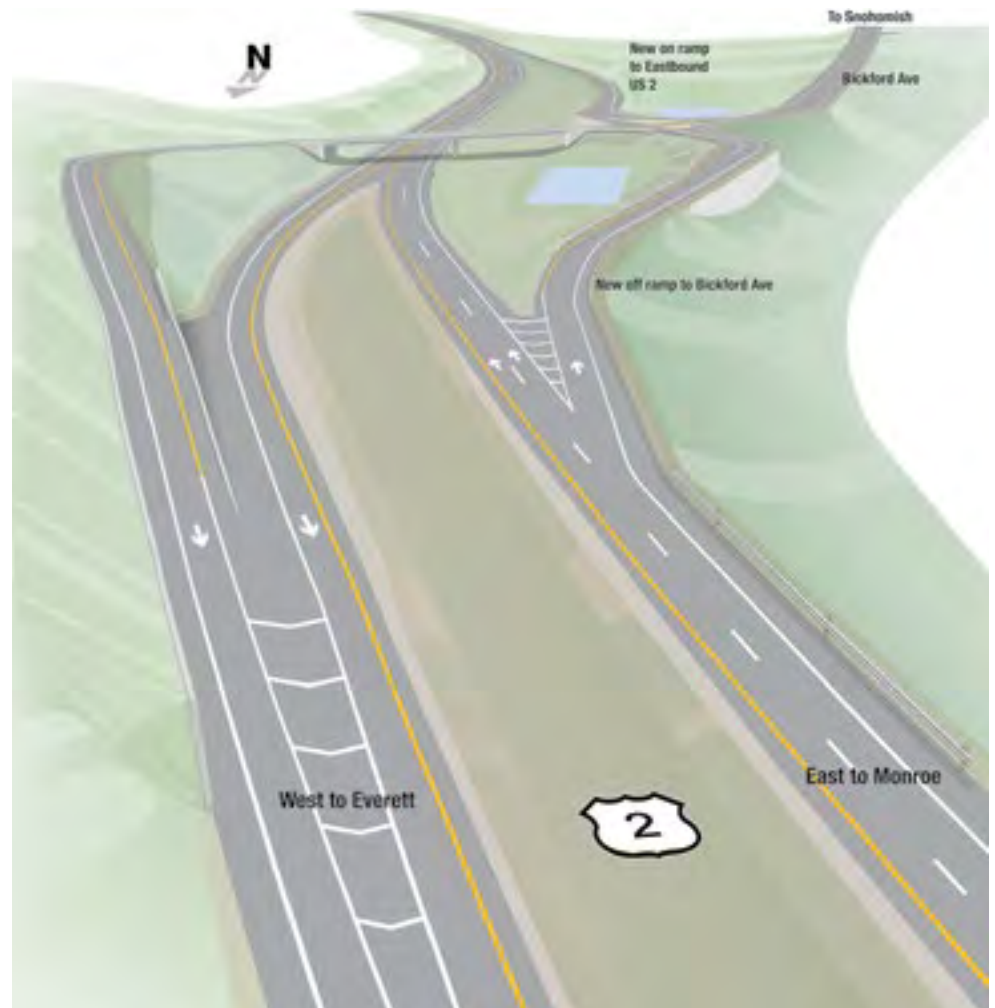
Practical design solution

Using practical design principles, the team focused on the project context and was flexible in developing design solutions for the interchange. They adjusted the plan to reduce the project footprint and construct a modified interchange design.

Results

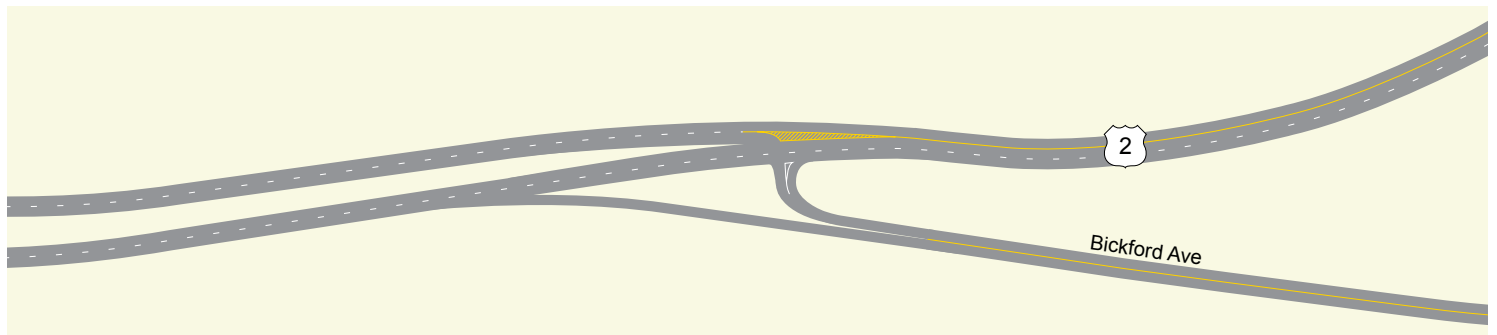
Safety: The new bridge and ramp reduces congestion by eliminating the T-intersection. The overpass will reduce the risk of collisions by taking traffic over US 2 rather than having to cross through traffic. In addition, the new culverts provide proper drainage for water runoff and prevent further damage to the roadway.

Community coordination: The team worked with local stakeholders early in the design process. By getting community feedback, the team was able to accommodate vehicle glare and noise concerns by building an earth berm to shield adjacent property owners. The team also worked with the cities of

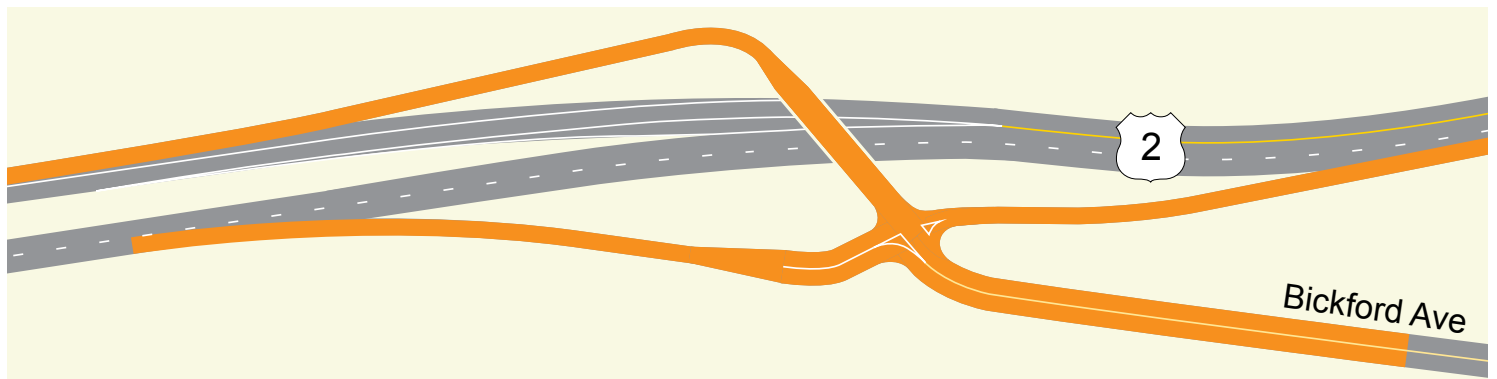


A driver-eye view of the planned Bickford overpass.

Before



After



An overview of the planned intersection improvement.

Snohomish and Lake Stevens to design the project to accommodate possible future expansion of the north side of the overpass into a full interchange.

Economic Vitality: The new overcrossing reduces congestion for commuters and freight entering US 2 by eliminating the need to wait for a gap in traffic to enter US 2.

Cost: Efficiencies in contracting were realized by combining a safety project with a preservation project. The modified interchange design eliminated the need to buy right of way on the north side of the project. In addition, the metal culverts were replaced with pipes made of thick, heavy, rubberized plastic that will last for years to come with minimal maintenance needs.

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