



2012 OR213 Bridge over Washington Street (Jughandle)

Description

Meta Fields

Project Location :

Cascade Highway South (OR213) over Washington Street in the city of Oregon City in Clackamas County

Mobility Impact Time : ABC: 100-hr closure of OR 213 over 5-day period (4 hrs ahead of schedule); Conventional: 12-16 months of continuous closures of two or more lanes

Impact Category : Tier 3 (within 2 weeks)

Dimensions : 130-ft-long and 140-ft-wide single-span steel plate-girder bridge; 800-ton lateral slide

Average Daily Traffic At Time Of Construction : 76000

Traffic Management : Traffic management alternative, if constructed conventionally: staged construction with 12-16 months of continuous 24-hrs a day, 7-days a week closures of at least two OR213 traffic lanes.

Replacement Or New Bridge : The new bridge has three traffic lanes in each direction and two shoulders. It is wider than what is currently needed, to reflect an ODOT standard cross section (12-ft-wide lanes, 4-ft-wide inside shoulders, and 10-ft-wide outside shoulders / bike lanes). However, the new striping has varying lane width (11-12 feet) and shoulder width (6-10 feet) across the bridge. The cross-section consists of nine 55-inch-deep steel plate-girders at 13-ft on-center with a 10-inch-thick cast-in-place reinforced concrete deck. The reinforced concrete abutments were each founded on sixteen 24-inch-diameter pipe piles with conical tips. The bridge was needed to relieve congestion at the existing signalized OR213 / Washington Street-Clackamas River Drive intersection. OR213 was reconstructed into a divided highway from Redland Road to Interstate 205 (I-205), with east-to-west Washington Street traffic traveling under the new OR213 Bridge. By dividing the highway and eliminate east-west cross movements, the signalized intersection was changed to a two-phase signal (north-south throughs and right-turns only), reducing congestion. All left-turns at this intersection were eliminated, with drivers in all directions turning right onto new road connections with the realigned Washington Street, with the appearance of a jughandle, which passes under OR213.

Construction Method : The contractor built the new bridge on temporary foundations next to the existing OR213. The bridge deck was cast in three placements (two with the main sections and one for the closure pour) prior to the lateral slide. The reinforced concrete rail was also completed prior to the closure. The permanent foundations for the new bridge were constructed on the existing alignment while maintaining the five existing travel lanes of traffic on OR 213 during day time. Temporary lane closures occurred between 8:00 pm and 5:00 am during night time. Prior to the lateral slide, the contractor performed a test bridge move and then conducted a second move for the media. At 8:00 pm on Thursday, March 22, OR213 traffic was detoured onto two-lane city streets (Washington Street and 14th Avenue), and OR213 was closed. The public used alternate routes through the transportation system to avoid the construction area. During the 104-hour closure, the contractor removed a 130-ft-long section of the OR213 highway, which involved excavating 900 cubic yards of asphalt and 6,000 to 8,000 cubic yards of material beneath the roadway. Crews utilized hydraulic jacks to lift the span and lower it onto a system of rollers. Threaded rods and a series of hydraulic jacks were then used to pull the bridge 150 ft to the east into position over the permanent foundations. The lateral move and lowering onto the bearings took a total of 22 hrs. Precast impact panels were installed during the closure along with asphalt paving of roadway approaches. All lanes of OR 213 traffic were opened at 11:40 pm on Monday March 26. After opening OR213, an additional 8,000 cubic yards of earth was removed to complete the Washington Street crossing under the bridge. The contract required the bridge to be closed at 8:00 pm on Thursday, March 22, and to be re-opened by 4:00 am on Tuesday, March 27, for a total closure of 4 days and 8 hours (104 hours). The contractor opened the bridge more than four hours ahead of schedule. No contractual incentives or disincentives were utilized outside of the conventional liquidated damages for missing a contract milestone. The contract special provisions included liquidated damages of \$500 per 15 minutes, or for a portion of 15 minutes, per lane, for any lane closure beyond the limits approved in the contract. At bidding a qualification-based component was included in contractor selection to obtain the best value contractor rather than low bid contractor. The method used was "A+C+D" where A is price, C is technical qualifications and D is

