

PRACTICAL DESIGN AT WORK — DESIGN



Washington State
Department of Transportation

I-82 – Valley Mall Boulevard – construct roundabout

Background

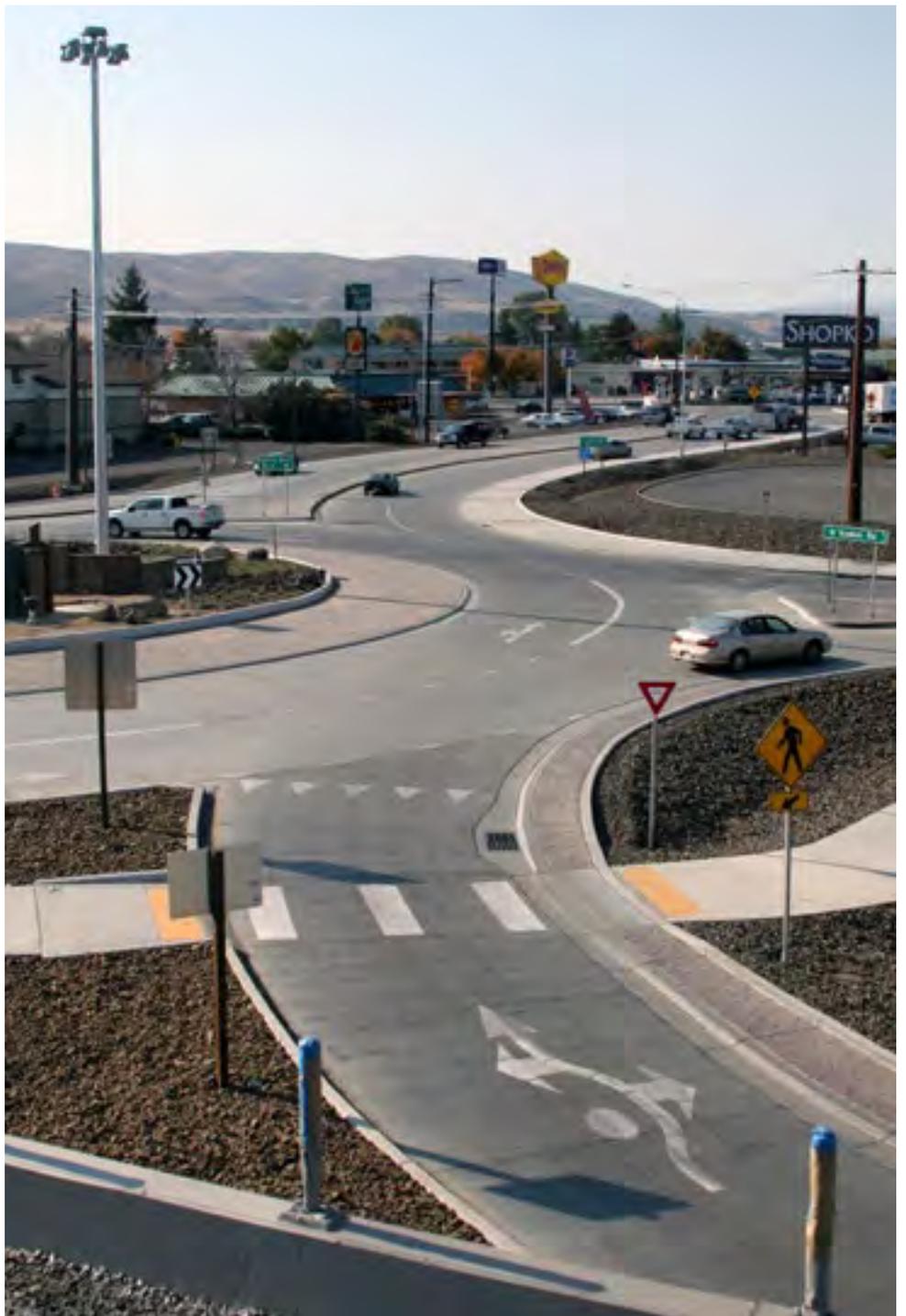
Agriculture and tourism, key industries in the Yakima Valley, increase population and drive congestion along the Interstate 82 corridor. Valley Mall Boulevard, located south of Yakima in Union Gap, connects retail and commercial development to the interstate system and provides a direct route to the Yakima Air Terminal.

In 2011, the Washington State Department of Transportation improved the Valley Mall Boulevard connection to the I-82 corridor by constructing three roundabouts; a modern traffic trend, somewhat new to the northwest.

Practical design solution

The I-82 Valley Mall Boulevard full-diamond interchange was originally built in 1964. Minor improvements including widening ramps were complete in 1997. With three stoplights at the ramp terminal, the interchange configuration and traffic flow was not keeping up with the demands of growing retail and commercial development. Congestion at peak travel times resulted in long delays and an increased risk of collisions as traffic backed up onto the freeway. Engineers worried about safety as T-bone and rear-end collisions increased. Typical design options for the congestion and safety issues would entail costly ramps and bridges.

The final design chosen embodied modern day practical design concepts. The project used three roundabouts to connect the





on-ramps and off-ramps to Valley Mall Boulevard and the adjacent local street, to improve traffic flow, reduce the risk of collisions and accommodate future growth. Construction on the I-82/Valley Mall Blvd interchange was complete in 2011.

Results

Safety: Injury collisions in the new roundabouts are down by 20 percent. Collisions continue to taper off as more motorists understand roundabout driving.

In addition, the Greenway paths for bikes and pedestrians were moved to a safer and more visible location.

Community coordination: Public involvement was key to the success of the project. WSDOT worked closely with

the city of Union Gap, local businesses and the public through design and construction. WSDOT attended city council meetings and hosted two full-scale roundabout demonstrations where semi-trucks and other drivers could experience driving the roundabout.

Economic Vitality: After construction, Union Gap experienced substantial growth along Valley Mall Boulevard. Several large businesses repositioned themselves along the corridor including Lowes, Costco and a Toyota dealership. Several new businesses moved to Union Gap including Cabela's, JC Penney and Famous Dave's.

Freight access to the truck stop on North Rudkin Road has improved with the addition of the slip ramp, and access to Valley Mall Boulevard and adjacent streets has improved.

The diamond interchange had exceeded its service life and was at capacity. The new roundabouts provide at least 20 years of service life.

Cost: The practical design solution reduced the annual maintenance cost by \$12,500 with the elimination of the stoplights. Because wait time at the intersection went from minutes to seconds, drivers are also saving fuel costs.

The final roundabout design saved up to \$24 million compared to other alternatives.