



Interstate 15 and Timpanogos Highway, Lehi, UT

DIVERGING DIAMOND INTERCHANGE

THE PROBLEM

The area experienced increasing population growth and traffic demand, leading to backups and delays at the interchange. Alternatives to reduce congestion had to minimize the footprint of the I-15 bridge over the crossroad and keep the interchange within the existing right-of-way.

THE SOLUTION

Installation of a DDI constructed under the highway overpass.

THE OUTCOME

- Studies show that the renovated infrastructure has resulted in an influx of over 100 new business and 4,000 new jobs.³
- The DDI design allowed UDOT to easily add two signalized crosswalks, providing safer and more convenient pedestrian facilities.
- The DDI design also integrated provisions for bicycles, including a shared use path and wide shoulders.

CONTACT

Jeffrey Shaw, P.E.
FHWA Office of Safety
708-283-3524
jeffrey.shaw@dot.gov

Mark Doctor, P.E.
FHWA Resource Center
404-562-3732
mark.doctor@dot.gov

INTERCHANGE LOCATION

40°25'53.0"N 111°53'26.7"W

Background

Located at the interchange of Interstate 15 and Timpanogos Highway, or State Route 92, the new Diverging Diamond Interchange (DDI) was part of a highway expansion project intended to increase throughput and accommodate expected future growth. Before construction of the new DDI, traffic moved through a conventional diamond interchange. Increasing commercial and population growth created a surge in demand on the local road and interchange. Before long, the limitations of the conventional design became apparent in delays and backups.



View of the Intersection of I-15 and Timpanogos Highway, Lehi, UT
Source: DDI Case Study Video FHWA-SA-14-045

Approach

With the DDI located below the highway overpass, UDOT met its construction challenges by using existing asphalt and eliminating the need for extensive renovations to the I-15 bridge. This design also allowed UDOT to retrofit two signals to provide for pedestrian and bicyclist crossings.

Results

With its improved traffic flow and accessibility to foot and bicycle traffic, studies credit the new interchange with an influx of over 100 new business and 4,000 new jobs.² In addition, the DDI has made travel more efficient and accessible for all users.

“We’re ... happy to see [the interchange] serving many users—bicyclists, pedestrians, cars, and heavy [hauler] traffic.”

— Daniel Avila, P.E.
Deputy Program Director, Access Utah County, Utah DOT

Challenges

Timpanogos Highway runs below I-15. UDOT wanted to maintain the existing I-15 bridge deck, keep the new interchange within the area of the existing roadway, and minimize the footprint that I-15 would need to span.¹ In addition, the new interchange would need to include pedestrian and bicycle facilities, features that were absent in the original interchange.



Pedestrian Crossing at the DDI Interchange
Source: DDI Case Study Video FHWA-SA-14-045

¹ Interview with Smith Siromaskul, St. Louis, MO, November 2, 2013.

² Lee Davidson, “Two years later, SR-92 expansion finally nears end,” *The Salt Lake City Tribune*, (August 21, 2013) Available at: <http://www.sltrib.com/sltrib/politics/56759544-90/udot-project-adams-road.html.csp>

³ Ibid.