

BANGERTER

9800 SOUTH 

EXECUTIVE SUMMARY



Executive Summary

The Utah Department of Transportation (UDOT) is proposing to construct a grade-separated Tight-Diamond Interchange at the existing intersection of Bangerter Highway (SR-154) and 9800 South in South Jordan, Utah. The project is state-funded and requires a State Environmental Study (SES) to analyze the improvements and document environmental resources, permitting, and mitigation, if required.

ALTERNATIVES

Alternatives were developed through a process that utilized current regional and local transportation plans, existing conditions and future (2050) conditions traffic analysis, coordination with jurisdictional agencies including cities, school districts, and utility companies.

The current regional transportation plan for the area is the Wasatch Front Regional Council 2019-2050 Regional Transportation Plan (RTP). The plan indicates that Bangerter Highway will be converted to a freeway system by changing the remaining at-grade intersections into grade-separated interchanges. The 2019-2050 RTP includes proposed bike lanes on 9800 South from Dunsinane Drive to Bangerter Highway to connect existing bike lanes west of Dunsinane Drive to east of Bangerter Highway. These existing and future active transportation plans are also included in the Salt Lake County West General Plan Draft.

The South Jordan General Plan, Appendix B Transportation Master Plan identifies an interchange at Bangerter Highway and 9800 South as a future UDOT project. It also identifies future bike routes with buffered bike lanes along 9800 South within the study area. The traffic analysis and preliminary design used these regional and local transportation plans to inform the traffic projections and accommodate identified future plans. As a result, the project incorporates planned bike lanes and sidewalks in addition to replacing the pedestrian bridge over Bangerter Highway at 9800 South.

Coordination began early in the environmental process with South Jordan City staff and the city council, the Jordan School District, and the Jordan Valley Water Conservancy District. Input from these meetings helped inform the alternatives development process by identifying design preferences, resources to avoid, and acceptable mitigation for impacts. See *Coordination and Communication* in Appendix C.

The public had opportunities to provide input and receive information throughout the duration of the project. Input received by the public shaped the type of alternatives the team evaluated, specifically the Overpass Only alternative. The main public events included Public Scoping Meeting opportunities held online on July 28, 2021, and in-person on July 29, 2021; In-Person Business and Neighborhood Meetings held Jan. 10 and Jan. 12, 2022; and Public Hearing opportunities held in-person on Jan. 26, 2022, and online on Jan. 27, 2022.

Existing conditions traffic analysis for Bangerter Highway and 9800 South showed that intersections within the study area operated at acceptable level-of-service (LOS) conditions for AM peak hour but during the PM peak hour, the intersection of Bangerter Highway and 9800 South operated at unacceptable conditions (LOS E) (see Figure 1). However, individual turning movements at Bangerter

Bangerter Highway at 9800 South

Highway and 9800 South during AM peak hour show six of the twelve turning movements at LOS E or F and seven of the twelve during PM peak hour.

Location	AM LOS / Delay ¹	PM LOS / Delay ¹
9000 South & Bangerter Highway	D / 40	C / 29
9800 South & 4000 West	B / 18	C / 27
9800 South & Bangerter Highway	C / 31	E / 66
9800 South & 3200 West	B / 12	C / 21
10400 South & Bangerter Highway	E / 57	F / 148
1. Average delay reported in seconds/vehicle		

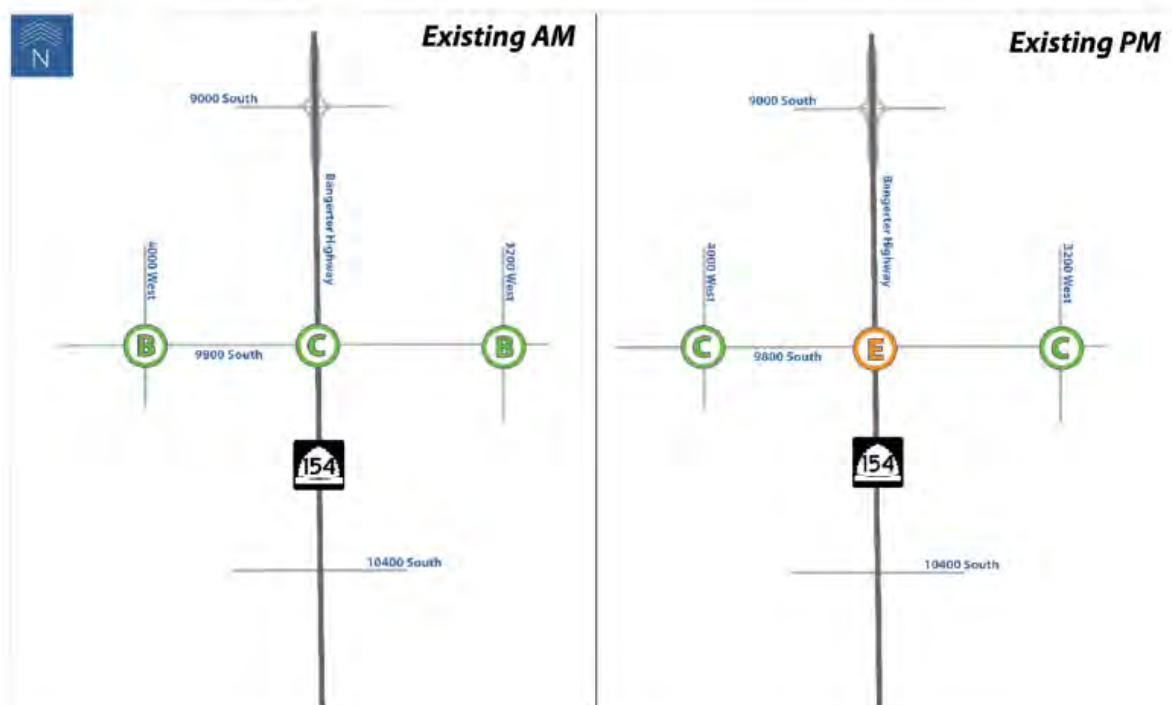


Figure 1. Existing Conditions: AM and PM Peak Hour Intersection LOS

Future (2050) No Build conditions show that these existing conditions are expected to deteriorate further without improvements at Bangerter Highway and 9800 South. AM and PM peak hours show that along 9800 South the 4000 West, Bangerter Highway, and 3200 West intersections are expected to operate at LOS E and F except for 3200 West during AM peak hour. Turning movements are expected to worsen at Bangerter Highway and 9800 South with eleven of the twelve turning movements operating at LOS E or F during AM peak hour and all of them operating at LOS E or F during PM peak hour (see Figure 2).

These conditions will cause extensive queuing that affects the operations of adjacent intersections and interchanges on Bangerter Highway and 9800 South.

Bangerter Highway at 9800 South

Location	AM LOS / Delay ¹	PM LOS / Delay ¹
9800 South & 4000 West	E / 69	F / 113
9800 South & Bangerter Highway	F / >180	F / >180
9800 South & 3200 West	B / 15	E / 58

1. Average delay reported in seconds/vehicle

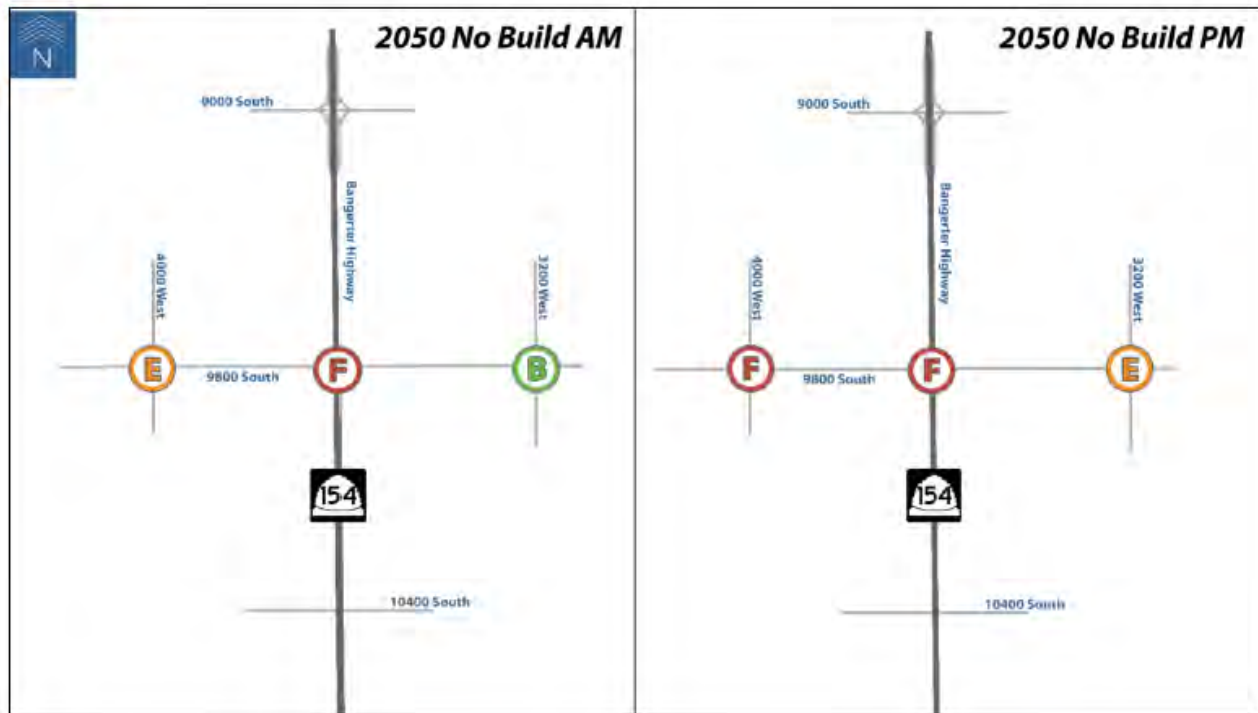


Figure 2. Future (2050) No Build Conditions: AM and PM Peak Hour Intersections LOS

INTERCHANGE ALTERNATIVES

The Future (2050) Build conditions traffic analysis evaluated four interchange alternatives: a Tight Diamond Interchange, a Single Point Urban Interchange (SPUI), a Right-In/Right-Out Interchange with roundabouts on 9800 South located 700 to 900 feet east and west of the interchange, and an Overpass Only alternative with no access to or from Bangerter Highway at 9800 South. Traffic operations, design, anticipated costs, constructability, impacts to residents and businesses along with other considerations were taken into account when selecting the Proposed Action.

The Overpass Only alternative was eliminated because of traffic volume impacts to nearby interchanges and intersections creating delays up to a 35% increase in 2050 PM peak hours. These traffic volume increases would cause three intersections to operate at failing conditions (LOS E): 9000 South and Bangerter Highway, 10400 South and Bangerter Highway, and 10400 South and 3200 West. Annual user costs due to the delay resulted in an increase of \$2.4 million for the Overpass Only alternative in 2050 with a cumulative increase of \$50 million from 2025 to 2050.

Bangerter Highway at 9800 South

The Right-In/Right-Out interchange alternative was eliminated because it results in LOS F conditions at Bangerter Highway and 9800 South during 2050 PM peak hour (see Figure 3).

Location	2050 AM Peak Hour			2050 PM Peak Hour		
	Diamond ¹	SPUI ¹	RIRO ¹	Diamond ¹	SPUI ¹	RIRO ¹
9800 South & 4000 West	B / 20	B / 20	B / 20	C / 34	C / 30	C / 24
9800 South & Bangerter Hwy	C / 27	B / 17	B / 20	D / 38	C / 22	F / 96
9800 South & 3200 West	B / 12	B / 11	A / 8	B / 16	B / 16	B / 11

1. Average delay reported in seconds/vehicle

Figure 3. Future (2050) Build Conditions: AM and PM Peak Hour Intersections LOS

The Tight Diamond Interchange and SPUI both operated well at the Bangerter Highway and 9800 South intersection and they both improved intersection operations at the adjacent intersections along 9800 South at 4000 West and 3200 West (see Figure 3 and Figure 4). However, the SPUI would require additional costs to construct, therefore the Tight Diamond Interchange was selected as the Proposed Action.

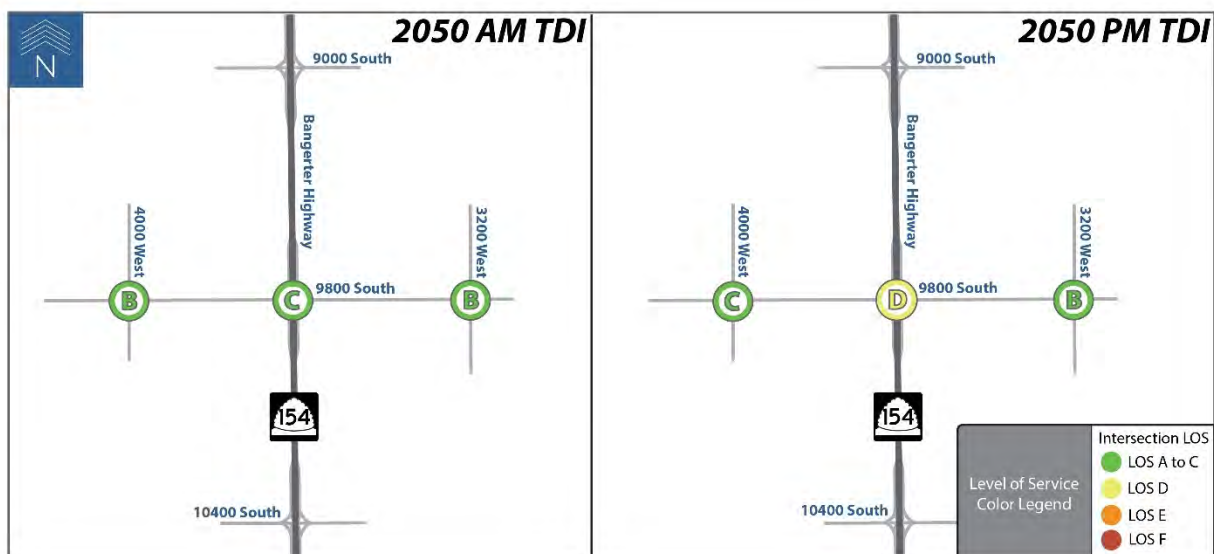


Figure 4. Tight Diamond Interchange 2050 AM and PM Intersections LOS

HORIZONTAL ALIGNMENT

Horizontal alignment alternatives were determined by evaluating impacts to businesses, residents, schools, the Jordan Valley Aqueduct, and the cell phone tower. The team analyzed the following

horizontal alignment alternatives; east shift, hybrid (both sides) shift, and west shift. The west shift was selected because it minimizes impacts to the Jordan Valley Aqueduct.

VERTICAL ALIGNMENT OPTIONS

Two vertical alignment options under consideration are Bangerter Highway over 9800 South and Bangerter Highway under 9800 South. Both vertical alignment options have similar impacts with the exception of anticipated costs. This decision will continue to be coordinated with South Jordan City and a final decision will be made at a future date. Once a decision is made, UDOT will communicate this decision using various outreach channels. Delays and temporary east/west closures of 9800 South are anticipated to last up to 9 to 12 months during the construction of the project.

PROPOSED ACTION

The Proposed Action is a Tight Diamond Interchange with a west shift horizontal alignment at Bangerter Highway and 9800 South. Some of the improvements identified will not be constructed unless funding is available, this may happen as part of a later phase. These include pavement improvements on Bangerter Highway mainline between improvement locations and construction of a northbound auxiliary lane on the north side of Bangerter Highway and 9800 South.

A summary of the affected environment and mitigation commitments for the Proposed Action are found in Table 1. A full mitigation list for preliminary engineering and construction activities is found in the Mitigation Commitments section.

Table 1. Summary of Affected Environment and Mitigation Commitments

PROPOSED ACTION	MITIGATION
Right of Way	
<p><u>Bangerter Highway Over Option</u></p> <ul style="list-style-type: none"> ● ROW acquisition from 42 parcels ● Approximately 11.54 acres of total property acquisition ● Temporary construction easements and perpetual easements required <p><u>Bangerter Highway Under Option</u></p> <ul style="list-style-type: none"> ● ROW acquisition from 44 parcels ● Approximately 11.95 acres of total property acquisition ● Temporary construction easements and perpetual easements required 	<p>Compensate property owners according to the requirements of the Utah Relocation Assistance Act.</p>

PROPOSED ACTION	MITIGATION
Invasive Species	
<ul style="list-style-type: none"> There is potential to introduce or spread invasive weed species 	Comply with UDOT Special Provision Section 02924S NOXIOUS WEED CONTROL requirements by properly cleaning all earthmoving construction equipment before mobilizing onto the project site and avoiding unnecessary earth disturbances.
Noise	
<p><u>Bangerter Highway Over Option</u></p> <ul style="list-style-type: none"> 8 dBA noise level increase 118 receptors impacted by project noise levels 95 receptors exhibit noise levels greater than 10 dBA above existing noise levels <p><u>Bangerter Highway Under Option</u></p> <ul style="list-style-type: none"> 6 dBA noise level increase 72 receptors impacted by project noise levels 64 receptors exhibit noise levels greater than 10 dBA above existing noise levels 	For both options, three noise walls will be replaced “in-kind”. <ul style="list-style-type: none"> Wall 1: 15 feet tall located on the west side of Bangerter Highway north of 9800 South to tie into the existing 15-foot noise wall Wall 2: 13 feet tall located on the west side of Bangerter Highway south of 9800 South to tie into the existing 13-foot noise wall Wall 3: 14 feet tall located on the east side of Bangerter Highway south of 9800 South to tie into the existing 14-foot noise wall
Visual	
<p><u>Bangerter Highway Over Option</u></p> <ul style="list-style-type: none"> A structure would be constructed over 9800 South and result in visual changes similar to the Bangerter Highway and 9000 South interchange <p><u>Bangerter Highway Under Option</u></p> <ul style="list-style-type: none"> A structure would be constructed under 9800 South and result in visual changes similar to the Bangerter Highway and 11400 South interchange 	Reclaim all disturbed areas per UDOT Standard Specifications.

Bangerter Highway at 9800 South

PROPOSED ACTION	MITIGATION
Relocations	
<p><u>Bangerter Highway Over Option</u></p> <ul style="list-style-type: none"> ● 10 residential relocations ● 11 business relocations ● 9 potential residential relocations ● 3 potential business relocations ● 19 parcels require partial acquisition <p><u>Bangerter Highway Under Option</u></p> <ul style="list-style-type: none"> ● 10 residential relocations ● 11 business relocations ● 11 potential residential relocations ● 3 potential business relocations ● 19 parcels require partial acquisition 	<p>Compensate property owners according to the requirements of the Utah Relocation Assistance Act.</p>
Construction	
<ul style="list-style-type: none"> ● Delays and temporary east/west closures of 9800 South are anticipated to last up to 9 to 12 months during the construction of the project. 	<p>Comply with UDOT 2022 Standard Specifications.</p>

This SES follows UDOT’s Electronic Project Management (ePM) Environmental Study form to remain consistent with UDOT’s Environmental Manual of Instruction. This Environmental Study form is used for different types of environmental documents so some sections may not apply to the project but are included to maintain consistency. The Environmental Study appendix contains all relevant clearance memos, determinations, correspondence, and technical studies.