

## Introduction

The *Kimball Junction and S.R. 224 Area Plan* identifies and evaluates future transportation improvements at the interchange of Interstate 80 (I-80) and State Route (S.R.) 224 and through the two at-grade intersections on S.R. 224 (Ute Boulevard and Olympic Parkway) in Summit County, Utah. The Utah Department of Transportation (UDOT), in partnership with Summit County, conducted this detailed transportation study using UDOT's *Solutions Development Process*.

## Solutions Development

Solutions Development is an innovative planning process developed by UDOT that seeks to capture the unique context of an area or corridor and develop a set of solutions to meet its transportation needs. Solution sets could include things such as roadway improvements for cars, transit and/or active transportation, travel demand management, Intelligent Transportation Systems improvements, and land use and other policy changes that would be implemented by local government partners.

The Solutions Development process integrates with the work of other UDOT divisions such as environmental, operations, and performance management to help ensure holistic solutions that match the area's unique context and needs. UDOT initiated the *Kimball Junction and S.R. 224 Area Plan* to develop a range of improvements to reduce congestion and improve multimodal travel and connectivity through the Kimball Junction area, including the two at-grade intersections on S.R. 224.

## Study Goals

UDOT and Summit County wish to accomplish the following:

- Create a community vision for improvements that address the problems and opportunities
- Identify mobility problems and opportunities at the Kimball Junction area
- Determine stand-alone surface street improvements and larger, more-complex transportation solutions for the Kimball Junction area
- Position the study area for successful and streamlined implementation of improvements
- Generate an environment of collaboration and communication between the study partners that lasts beyond the timeframe of the study

## Benefits

While it's not possible to study all the solutions in depth in order to determine one preferred option, using UDOT's Solutions Development process, the Area Plan analysis can be used to inform future environmental studies.



## Problems in the Study Area

The transportation problems in the study area are based primarily on (1) existing system deficiencies, including traffic backups at on and off ramps and intersections that are close together; (2) potential impacts to the existing system caused by a changing level and type of travel demand associated with projected growth in population, employment, tourism, and development in the Kimball Junction area; and (3) failures in the existing system with regard to mobility, congestion, access, and travel time reliability that have prompted the study partners' desire for changes to accommodate and encourage livability and a multimodal transportation system for the efficient movement of people, goods, and services.

Specifically, the *Kimball Junction and S.R. 224 Area Plan* study is a result of the following conditions:

- Traffic congestion during peak periods limits mobility to and from I-80 through Kimball Junction.
- Traffic congestion ebbs and flows depending on time of year and special events.
- Vehicles on the I-80 interchange ramps queue onto the I-80 and S.R. 224 mainlines.
- Travel time on S.R. 224 through the Kimball Junction area is unreliable.
- Transit vehicles don't have exclusive transit priority on S.R. 224 through the Kimball Junction area.

- The increase in travel demand from forecasted job, residential, and recreational growth might lead to decreased mobility.
- Safety, regional air quality, and quality of life might decline due to increased traffic.
- East-west mobility is lacking on S.R. 224 through the Kimball Junction area for all travel modes.
- Residences and businesses along S.R. 224 through the Kimball Junction area are often difficult to access.
- The current interchange and S.R. 224 shoulders don't adequately accommodate snow storage for snow plows, which affects safety and mobility.

## Opportunities in the Study Area

The intent of the *Kimball Junction and S.R. 224 Area Plan* study is to identify and analyze multimodal improvements to address congestion, mobility, safety, access, and travel time reliability for efficient movement of people, goods, and services at the Kimball Junction interchange and on S.R. 224 in the Kimball Junction area.

The Area Plan is specifically intended to improve capacity and multimodal transportation options in the Kimball Junction area and address the existing and long-term mobility needs of residents, commuters, and visitors between the I-80 interchange and the two at-grade traffic signals at Ute Boulevard and Olympic Parkway on S.R. 224.

## Alternatives Development and Screening Process

After defining the problems, opportunities, and goals of the desired study, the study team developed the universe of alternatives during an alternatives development workshop with the study partners. The universe of alternatives was then evaluated using a two-level screening process to ensure that only the most promising alternatives were carried forward for detailed analysis in a subsequent phase of study.

**Level 1** (initial) screening determined whether the alternatives had a “fatal flaw” or whether they did not meet the problems and opportunities of the study. The alternatives that had a fatal flaw or did not meet the problems and opportunities were dismissed from further consideration.

**Level 2** screening of the remaining alternatives included more-quantitative objectives as well as a comparative evaluation of technical screening criteria.

## Universe of Alternatives

Over 30 alternatives were developed and evaluated including bypass lanes, new interchange locations and configurations, intersection improvements, new transit/HOV-only vehicle (HOV)-only access, and intersection and access point changes in the study area.

## Partner and Public Outreach Process

Partner and public outreach included six project partner meetings or workshops, updates to the Summit County Council, and two public surveys. The first public

meeting and survey covered the Area Plan process, transportation problems, opportunities, and goals in the study area. The comments received generally indicated that traffic congestion is the top issue in the area.

The second public meeting and survey reviewed the Level 1 screening results and asked the public for their feedback on the four alternative bundles moving into Level 2 screening. In addition, ongoing coordination with the study partners and other stakeholders occurred at key milestones during the life of the study.

## Level 1 Screening Results

Based on the Level 1 screening evaluation, four alternatives were moved forward into Level 2 screening. The four alternatives comprise “bundles” of the remaining alternatives that passed Level 1 screening.

## Level 2 Screening Process

During Level 2 screening, the partners evaluated the four alternatives against criteria that focus on how well each alternative meets the problems and opportunities for the study from a traffic perspective, the alternative’s impacts to the natural and built environment, public sentiment, estimated project costs, logistical considerations, and overall feasibility.

Based on the initial Level 2 screening traffic evaluation, Alternative 2, a transit/HOV-only bypass road through the interchange area’s southwest quadrant was removed from further study because it would not relieve the existing or forecasted future traffic problems in the study area. Alternatives 1, 3, and 4 are recommended for further study.

## Alternative 1: Split-diamond Interchange with One-way Frontage Roads

About 50% of interchange traffic uses Kimball Junction to access commercial, residential, and recreational locations. Alternative 1 consists of a split-diamond interchange with one-way frontage roads. The existing single-point urban interchange (SPUI) at Kimball Junction would be converted into a tight-diamond configuration, and the interchange would be split between the existing location at S.R. 224 and a new intersection with a bridge crossing I-80 to the west of S.R. 224. One-way frontage roads for both eastbound and westbound directions would connect the two intersections and tie into the on and off ramps for I-80. The one-way frontage roads along I-80 and the intermediate intersection would further disperse traffic and provide easier access to residential and commercial locations. Also, a pedestrian tunnel at Ute Boulevard and intersection improvements along S.R. 224 are proposed to move all users more efficiently through the area. This alternative is estimated to cost between \$54.2 million and \$74.4 million, depending on whether any stand-alone surface street improvements (shown below with Alternative 4) are implemented in conjunction with this alternative.

## Benefits

- The new split-diamond interchange provides direct access to Kimball Junction.
- One-way frontage roads separate local traffic.
- One-way frontage roads and the proposed intersection that crosses I-80 provide new access points and better traffic dispersion into Kimball Junction on the south side of I-80.
- Optional transit/HOV-only ramps are included in this alternative.
- A pedestrian tunnel is proposed under S.R. 224 at Ute Boulevard (similar to the existing tunnel at Olympic Parkway) to increase connectivity and comfort.





## Alternative 3: Grade-separated Intersections with Enhanced Pedestrian Crossing Facilities at Ute Boulevard and Olympic Parkway and Alternative Connections to the I-80 Interchange

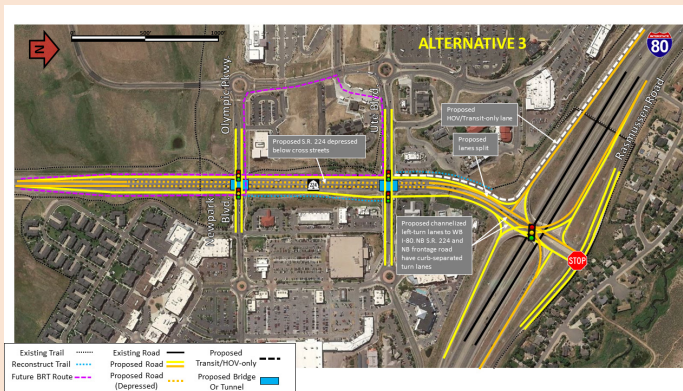
Traffic analysis shows that increased travel times are related to the lack of capacity of the intersections at Ute Boulevard and Olympics Parkway on S.R. 224. With Alternative 3, grade-separated intersections at Ute Boulevard and Olympic Parkway would help separate local and through traffic in the area.

Northbound S.R. 224 would remain at or close to its current location horizontally but would be depressed below the surface streets through Kimball Junction. Ramps would diverge from S.R. 224 south of Olympic Parkway to create a one-way frontage road system. Olympic Parkway and Ute Boulevard would tie into the frontage system at intersections, crossing over S.R. 224 on bridges.

Vehicles heading northbound on the frontage road to I-80 westbound would have a curb- or barrier-separated left-turn lane, a through lane, and a right-turn lane to access the existing I-80 eastbound on ramp. Vehicles heading northbound from S.R. 224 to I-80 eastbound would exit onto the northbound frontage road south of Olympic Boulevard to continue north and use the existing on ramp. This alternative is estimated to cost \$116.5 million. \$20 million of the construction cost is for a trench cover to prevent snow from building up in the depressed roadway.

## Benefits

- Vehicles on mainline S.R. 224 connect directly to and from I-80, while ramps provide a bypass and maintain or improve east-west connectivity on Olympic Parkway and Ute Boulevard.
- Vehicles on the new S.R. 224 frontage roads have full access to turn onto Olympic Parkway, Newpark Boulevard, and Ute Boulevard to access the surrounding businesses and have full access to I-80.
- By depressing the roadway through Kimball Junction, there would be fewer visual impacts.



## Alternative 4: Combination of Stand-alone Surface Street Improvements

Alternative 4 combines the stand-alone alternatives that passed Level 1 screening. The solution could be built as one project, as a suite of projects, or incrementally in a phased approach. If built as one project, the estimated cost is \$29.8 million. This alternative would minimize infrastructure changes by improving traffic flow at existing facilities. In addition, Alternative 4 adds active transportation, transit, and HOV elements to offset the larger footprint required with Alternatives 1 through 3. Alternative 4 consists of the following:

- D-1** Expand the I-80 eastbound off ramp for transit/HOV only. Include triple northbound left turns at the I-80 interchange
- D-7** Include dual left turns at Ute Boulevard and Olympic Parkway  
*A variation would be an outside northbound left-turn lane at Olympic Parkway, which would be used by HOV/transit vehicles only*
- D-9** Add an additional northbound left-turn lane at the existing single-point urban interchange for transit/HOV
- D-10** Build a pedestrian tunnel under Ute Boulevard
- D-11** Widen the northbound lane on S.R. 224 from Olympic Parkway to Ute Boulevard
- D-12** Widen the southbound lane on S.R. 224 from Olympic Parkway to Ute Boulevard  
*A variation would be to widen only for an HOV-only lane*
- D-14** Add a new connection and possibly a traffic signal at Bear Cub Drive
- D-15** Add a transit/HOV-only, right-turn lane from the eastbound I-80 off ramp to Ute Boulevard
- D-16** Extend the westbound-to-northbound right-turn lane on Newpark Boulevard
- D-16A** Close left turns at McDonalds and the Richens building to extend the left turn from Ute Boulevard to S.R. 224 (This is a new alternative suggested by a partner participant at the October 16, 2020, Level 1 screening workshop.)

