UDOT PROJECT: US-89, SR-30; TRAFFIC STUDY, BEAR LAKE

PIN 13814, CONTRACT NO. 168369

Credit: Louis Arevalo

Source: http://www.bearlake.org/events/bear-lake-raspberry-days

Source: http://www.bearlake.org/events/bear-lake-raspberry-days

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PREPARED BY:

FEHR & PEERS AND H.W. LOCHNER

bear lake CORRIDOR STUDY 2015

UDOT Keeping Utah Moving

ACKNOWLEGEMENTS

Stakeholder Group

Melvin Brown	State Representative, District 53
Brian Carver	Bear River Association of Governments (BRAG)
Matt Combs	Utah Forestry, Fire & State Lands
Zac Covington	Bear River Association of Governments (BRAG)
Bill Cox	Rich County Commissioner
Richard Droesbeke	State Parks / Division of Facilities Construction & Management
Sandi Goodlander	Legislative Assistant for Senator Lyle Hillyard
Lyle Hillyard	State Senate, District 25
Robert (Bob) Peterson	Garden City
Mitch Poulsen	Bear Lake Regional Commission
Ed Redd	State Representative, District 4
Deanna Rothlisberger	Rich County Tourism
John Spuhler	Garden City Mayor

UDOT Project Team

Rodney Terry	UDOT Region 1 Project Manager
Kris Peterson	UDOT Region 1 Director
Vic Saunders	UDOT Region 1 Communications Manager
Jeff Harris	UDOT Planning Director
Rex Harris	UDOT Region 1
Darin Fristrup	UDOT Region 1
Todd Findlinson	UDOT Region 1
Kelly Barrett	UDOT Region 1
Kimberly O'Reilly	UDOT Region 1
Danny Erickson	UDOT Region 1

Consultant Team

Kyle Cook	Fehr & Peers
Jon Nepstad	Fehr & Peers
Richard Brockmyer	Fehr & Peers
Andrea Clayton	H.W. Lochner
Gene Cline	H.W. Lochner
Jason Green	H.W. Lochner

Table of Contents

Appendices

Appendix A: Turn Lanes Garden City

Appendix B: SouthWest Beach Access Turn Lanes

Appendix C: Road Shoulder Widening

Appendix D: Garden City Intersection Design

Appendix E: Multi-use Trail Extension

Appendix F: Multi-use Trail Crosswalks

Appendix G: Agency Coordination Memo

Appendix H: Public Comments

List of Exhibits

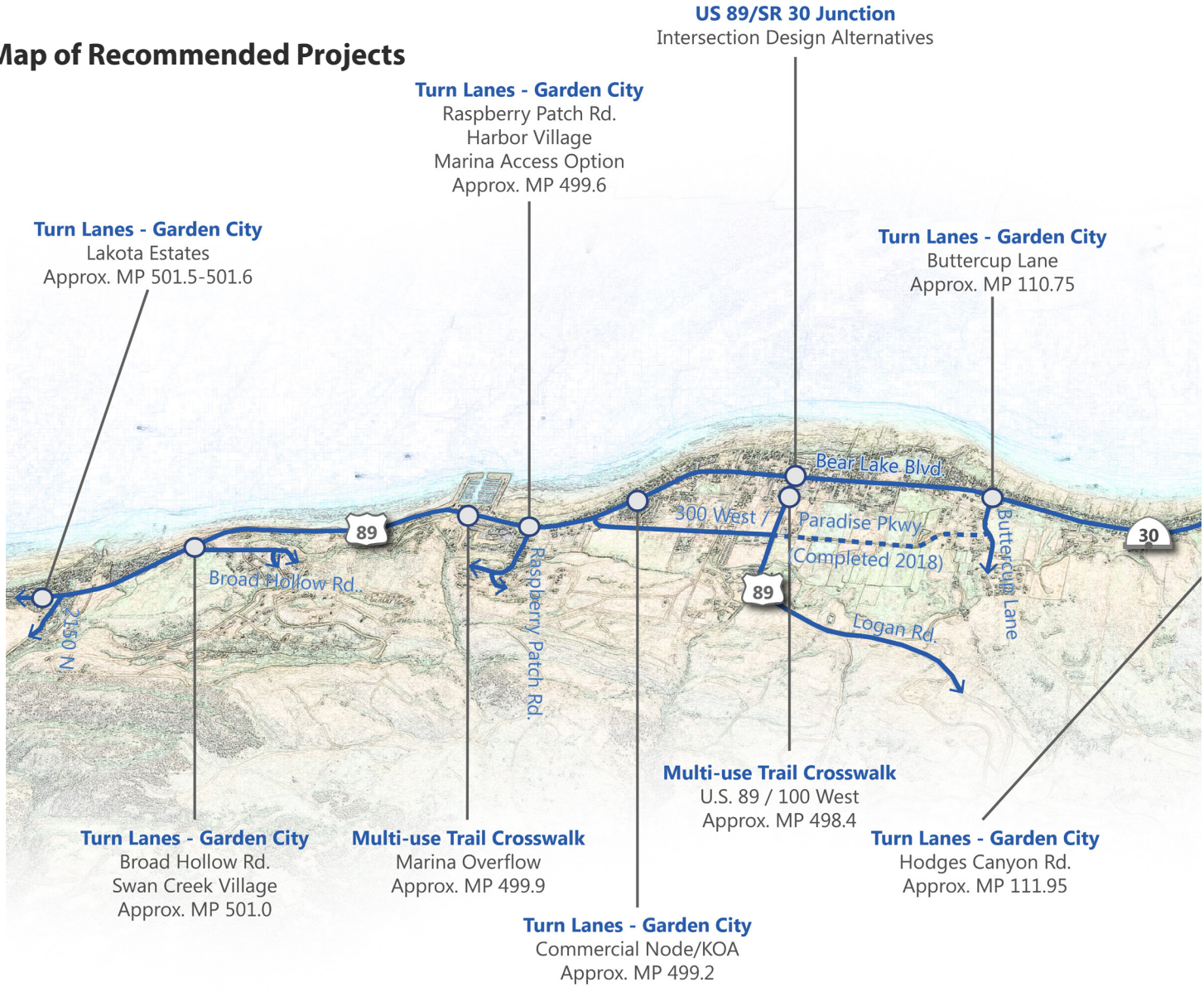
EXECUTIVE SUMMARY

The Bear Lake Corridor Study is an Intermediate Level Corridor Study for the US-89/SR-30 corridor through Garden City, Utah and adjacent to Bear Lake State Park. The corridor serves key recreation destinations and experiences traffic congestion and safety issues during peak visitation periods. The corridor also serves as part of a regional highway network, so solutions must balance local travel, tourism, and inter-regional travel.

The study was carefully designed to execute planning efforts that can be used in subsequent NEPA processes based on FHWA planning guidance. Specifically, a robust in-person and online public engagement process was done to gather feedback that informed preliminary purpose and need statements and helped screen alternatives.

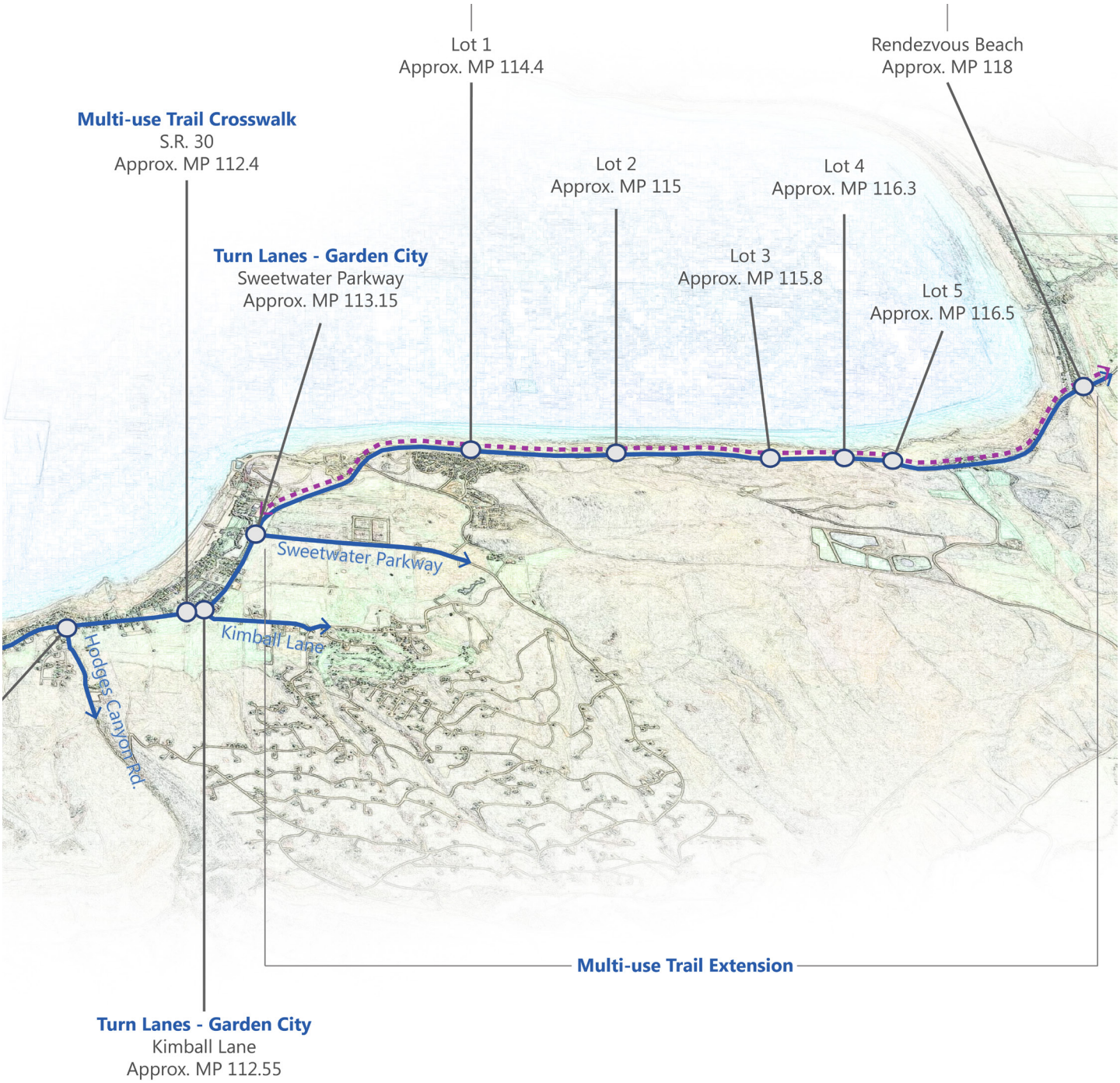
Analysis of seasonal variation suggests that traffic volumes occur often enough within a range where capacity enhancements or traffic management strategies are justified. The region essentially experiences "special event" visitation levels for weekends and holidays throughout the summer. However, the nuances of the situation are complex and evolving, particularly as Garden City expands local streets that provide alternatives to Bear Lake Boulevard. Selection of appropriate strategies should find balance between accommodating peak season travel demand without overbuilding, and considering the values of the community.

Map of Recommended Projects



The Bear Lake Corridor Study identifies a spectrum of issues that includes intersection design, turn lanes, pedestrian mobility, roadway geometry, on-road cycling, and beach access. The study provides recommendations for several priority projects and implementation strategies, and serves as a basis for UDOT and stakeholders to plan improvements. The study was careful to recommend projects that are appropriate given the context of the scale and variability of visitor demand, the context of the semi-rural setting, and public preferences.

Recommendations are provided in the final chapter as "cut sheets" – each project is summarized with information for project description, purpose and need, preliminary costs, environmental screening, outstanding issues, time horizon, and implementation steps. Supporting engineering drawings and cost estimates are provided in the appendices.



INTRODUCTION

PROJECT PURPOSE

The *Bear Lake Corridor Study* is a collaborative effort between the Utah Department of Transportation (UDOT) and numerous stakeholders, including Garden City and the Bear Lake Regional Commission. The purpose of the study is to assess issues along US-89 and State Route 30 (SR-30) within the study limits, develop conceptual solutions or mitigations, and create a plan that can be used to guide future expenditures. On the west and southwest side of Bear Lake, these roads represent the most important – and often only – travel corridors. After accounting for a range of issues, data, and community input, this study provides recommendations for actions or projects with immediate value and ones that can be included in the Statewide Transportation Implementation Program (STIP) or the UDOT Long Range Plan (LRP).

Considered issues include:

- Traffic congestion
- Intersection signalization
- Access management
- Bypass options
- Parking
- Safety
- Pedestrian mobility
- On-road cycling
- Beach access
- Visitor wayfinding
- Economic development

STUDY AREA & CONTEXT

The epicenter of the study area is the intersection of US-89 and SR-30 in Garden City; this junction, locally knows as Raspberry Square, is a confluence of visitor activity. From this junction, the study corridors radiate west, north, and south:

- To the west – US-89 (Logan Road) to approximately 300 West
- To the north – US-89 (Bear Lake Boulevard) to the Utah/Idaho state line
- To the south – SR-30 (Bear Lake Boulevard) to Rendezvous Beach

North and south of the US-89/SR-30 junction, there is little to distinguish SR-30 from US-89 since the roads serve as a continuous "lakefront" corridor and have consistent design features; locally the north-south corridor is locally known as "Bear Lake Boulevard." Exhibit 1 illustrates the study area.

The US-89 corridor is part of the National Highway System and provides an important connection between the Interstate 15 corridor, Cache Valley/Logan City (via Logan Canyon), southern Idaho, and Wyoming.

Within the study limits, US-89 is designated as part of the Logan Canyon National Scenic Byway. SR-30 extends from Garden City south to Rendezvous Beach and Laketown, and provides access to destinations south and east of Bear Lake. In this context, *Bear Lake Corridor Study* acknowledges the important role these corridors serve within the regional highway network and the need to establish solutions that accommodate inter-regional travel for public and commercial purposes.

Bear Lake has become an epicenter of outdoor recreation and tourism. The area is often referred to as the "Caribbean of the Rockies" and is a popular summer-time destination for boating, camping, bicycling, hiking, and ATV use. Visitors consistently converge in large numbers during summer weekends and holidays, often overwhelming the transportation system. However, during many months of the year tourism levels (and resulting travel demand) are relatively low. In this context, one objective of this effort is to determine solutions which are appropriate given the scale and variability of visitor demand, the context of the semi-rural setting, and public preferences.

Exhibit 1: Study Area

STUDY PROCESS

Bear Lake Corridor Study follows guidance established in UDOT's *Corridor / Intermediate Planning Process Guidelines*[1]. One of the goals of the process is to consider the context of the study area in terms of important aspects that are directly and indirectly influenced by the transportation infrastructure within the surrounding influence area. For example, this process considered community values and character, natural environment, and future projects such as the proposed marina expansion and improvements to 300 West from US-89 to Buttercup Lane.

Another important outcome of the corridor study process is to execute planning efforts that can be used in subsequent NEPA processes, and in order to meet FHWA planning regulations, certain conditions must be met[2]. Of these requirements, one of the most critical is providing the opportunity for public involvement and inclusion of interested local governments and state, tribal, and federal agencies. With this objective in mind, the *Bear Lake Corridor Study* relied heavily on input from a stakeholder working group, which is composed of local/regional agency representatives and elected officials with high levels of interest in the study and commitment to volunteer time to aid in decision making. The study also conducted public engagement through public open houses, project website, community surveys, and public hearings.

The study began with an open-ended "crowd-sourcing" of ideas and concerns that yielded useful feedback to develop preliminary purpose and need statements and alternatives. The subsequent outreach focused on screening preliminary solutions, then providing an opportunity to comment on final recommendations. Additional details of these activities can be found in the *"Understanding Issues | Setting Goals"* chapter.

RELATED PLANS

The *Bear Lake Corridor Study* builds on several planning documents that address relevant topics. In some instances, the information was used directly, and in other cases the conclusions/recommendations were evaluated with scrutiny. For example, the UDOT Long Range Plan (LRP) recommends widening 2.5 miles of corridor from two to four lanes to address seasonal congestion. However, adding travel lanes is not in alignment with community goals and could negatively impact other modes.

[1] *Draft Corridor / Intermediate Planning Process Guidelines,* UDOT, September 19, 2015
[2] *Guidance on Using Corridor and Subarea Planning to Inform NEPA*, FHWA, April 5, 2011

The following planning documents were reviewed as part of the study to understand existing conditions as well as community preferences and previously recommended strategies.

- 2016-2021 UDOT Statewide Transportation Improvement Program

This program allocates funds to specific roadway projects in the near-term horizon. Recently completed projects include turn lanes at the intersection of US-89 / 300 West, a pavement rehabilitation project on SR-30 from the US-89 junction to the rest area near Rendezvous Beach, and beach access parking improvements in the Garden City park. The other major anticipated project is related to paving 300 West from US-89 to Buttercup Lane, which is expected to begin construction in 2018.

- 2015-2040 UDOT Long Range Transportation Plan (2015)

This plan proposes to widen Bear Lake Boulevard (US-89/SR-30) roughly one-mile north and south of the Raspberry Square (US-89/SR-30) intersection. The project fact sheet does note the planned 300 West roadway improvement project as a potential bypass to help address seasonal peak traffic.

- Draft Rich County Trails Plan (2015)

This draft plan summarizes current and planned trails in Rich County and implementation goals and objectives for expanding and maintaining the trail system. The plan specifies need for a path connection between Gus Rich Point to the rest area near Rendezvous Beach.

- Marina Expansion Conceptual Layout (2015)

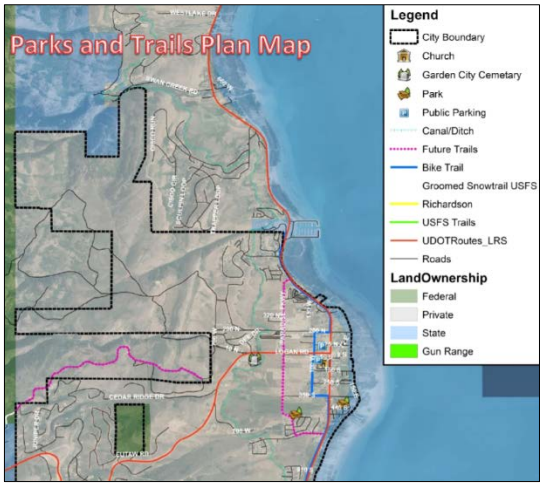
These preliminary engineering exhibits show a potential expansion plan of the Marina that will have major implications for the corridor. The plans include an additional 485 parking stalls and 340 boat slips.

- Garden City General Plan (2014)

The Garden City General Plan is a guide for future land use, infrastructure, and transportation for the city for approximately the next 20 years. It sets goals and strategies specific to transportation, including:

  - Enhance connectivity of streets;
  - Establish facilities of pedestrians and cyclists with connected networks of sidewalks and trails that connect to activity centers;
  - Develop a streetscape beatification plan and traffic calming plan;
  - Promote access management when considering driveway connections;
  - Coordinate with UDOT to make improvements to US-89 and SR-30.

- Garden City Trails & Parks Master Plan (2014)



This plan summarizes strategies and implementation steps for open space and trail development in Garden City. Of note, the plan includes typical cross sections for multi-use trails and bike lanes. The document indicates a planned "future trail" on 300 West (Paradise Parkway) from the northern intersection with US-89 near 600 North to the southern intersection of Buttercup Lane/SR-30.

- Bear Lake Legacy Pathway Concept Plan (2012)

This document sets a vision, goals, and objectives for the development of a non-motorized pathway all the way around Bear Lake to provide increased accessibility and additional recreation opportunities in the area.

- Envision Utah Bear Lake Valley Blueprint (2011)

The Envision Utah Blueprint document provides a guiding vision for the Bear Lake area, highlighting resident and visitor values and concepts for accommodating future growth.

- Garden City Transportation Master Plan (2005)

This document is a companion to the Garden City General Plan and sets short-range and long-range transportation plans for the Garden City area. In many ways this plan is a pre-cursor to this study.

- Logan Canyon Scenic Byway Corridor Management Plan (2002)

In the study area, US-89 is designated as part of the Logan Canyon Scenic Byway. This document provides a vision for the future of the byway and summarizes the intrinsic values of the area and methods to protect these qualities.

- Garden City Parking Plan and Beach Access Plans (date unknown)

These documents provide information on current and future surface parking lot locations in Garden City.

UNDERSTANDING ISSUES

COMMUNITY ENGAGEMENT

The *Bear Lake Corridor Study* included an extensive public engagement process to "crowdsource" issues and opportunities and define a vision for the corridor. The in-person and online public engagement efforts yielded useful feedback that informed preliminary purpose and need statements and helped screen alternatives. The following section describes outreach activities and the input received early in the study process. Comment details are included in Appendix G.

The outreach effort gathered input from people who travel the corridor regularly under a variety of conditions, with two key objectives:

- Broadly sketch desired outcomes, which helps to define the goals and values of the Corridor Study.
- Garner buy-in from constituents and build partnership in the early phase of the study, which is important since some strategies may be championed by organizations or individuals outside of UDOT.

STAKEHOLDER WORKING GROUP

While UDOT is responsible for roadway corridors (US-89 and SR-30), there is strong relationship between mobility, land use, recreation, community character, and economic opportunity. These aspects are inter-related, and are of interest to a spectrum of local/regional agencies and community leaders. As such, the *Bear Lake Corridor Study* engaged several organizations to collaborate on issues and solutions, including: Garden City, Bear Lake Regional Commission, Rich County Office of Tourism, Bear River Association of Governments (BRAG), Utah Forestry, Fire & State Lands, Utah State Parks / Division of Facilities Construction & Management, and representatives from the State Senate, House of Representatives, and County Commission (see Table 1). Stakeholders were engaged through the two in-person stakeholder workshops held in Garden City, as well as several one-on-one interviews.

TABLE 1 STAKEHOLDER GROUP

Name	Agency/Organization
Melvin Brown	State Representative, District 53
Brian Carver	Bear River Association of Governments (BRAG)
Matt Combs	Utah Forestry, Fire & State Lands
Zac Covington	Bear River Association of Governments (BRAG)
Bill Cox	Rich County Commissioner
Richard Droesbeke	State Parks / Division of Facilities Construction & Management
Sandi Goodlander	Legislative Assistant for Senator Lyle Hillyard
Lyle Hillyard	State Senate, District 25
Robert (Bob) Peterson	Garden City
Mitch Poulsen	Bear Lake Regional Commission
Ed Redd	State Representative, District 4
Deanna Rothlisberger	Rich County Tourism
John Spuhler	Garden City Mayor

PUBLIC ENGAGEMENT STRATEGIES

Anyone was allowed to review plan materials, learn about the project, and provide comments throughout the study duration. Several online strategies were used to engage the community, including a project website, an interactive map of alternatives, and two web-maps – one used initially to collect open-ended comments, and the second to gather comments on the draft recommendations.

Two open houses were held in Garden City in conjunction with the stakeholder workshops. The open houses were held in December and February and occurred during the "off-season," meaning few visitors and second-home owners attended meetings in person. For this reason, the online engagement tools were particularly valuable and well-used.

A targeted email distribution list with over 60 individuals was used to distribute project fliers with information about the project, open house dates, and online information. These targeted contacts represent organizations such as the Boy Scouts of America, Idaho Department of Transportation, Chamber of Commerce, Bear Lake Watch, and local home owners associations. In several instances these contacts helped to extend the outreach efforts to notify a broader public audience. As a result, there were numerous phone calls, inquiries, and comments emailed directly to the project team.

MEETING AND WORKSHOP OUTCOMES

Two stakeholder workshops/ open houses were held to provide the public with an opportunity to learn about the study and provide feedback:

December 1st, 2015 | Existing Conditions and Initial Public Input Workshop

Attendees: approx. 20

Meeting Objectives:

- Discuss the broader impact of transportation conditions, such as community mobility, tourism, economic growth, health, recreation, agriculture, and freight
- Define what successful outcomes might look like. How would they be measured?
- Define the values and determine the appropriate policy options/solutions.

Takeaways:

- Pedestrian safety is a concern throughout Garden City town center (between the KOA Campground to 250 South). The pedestrian activity is generally viewed as a positive thing however, so avoid policies that are overly restrictive towards pedestrians.
- The Bear Lake Marina is currently a major activity center and traffic generator. If the proposed expansion occurs, there is concern that it could exacerbate existing problems if vehicle circulation and parking is not done thoughtfully.
- Southwest Beach (Gus Rich Point to Rendezvous Beach) has several issues related to on-street parking, safety, and inadequate visitor amenities.
- The US-89/SR-30 intersection (Raspberry Square) is a stop-controlled intersection that creates a traffic choke-point.
- The planned extension of 300 West between US-89 and Buttercup Lane will help distribute the traffic load and provide emergency response teams with alternate routes. However, there is concern the bypass could have negative impacts to local business that rely on pass-by traffic.
- High levels of tourism activity can have the unintended consequence of making the experience stressful.
- If the road is widened it would be done to improve safety, make it easier to turn off- and onto the road (e.g. turn lanes), and accommodate cyclists, rather than to increase vehicle capacity.
- Through traffic is important since it helps the expansion of economy regionally.

- Local Sheriff does not have resources to handle large seasonal crowds, so the Utah Highway Patrol (UHP) helps during Raspberry Days.
- The lake water level fluctuates depending on precipitation and season, which influences the capacity/availability of beach areas.
- Be thoughtful about overbuilding solutions that are not useful nine months of the year (i.e. off season).

February 9th, 2016 | Alternatives Analysis Presentation and Community Feedback Workshop

Attendees: 35-40

Meeting Objectives: Review preliminary concepts developed to address the goals and concerns expressed by the stakeholders, property owners, and visitors.

Takeaways: This meeting modified some of the proposed alternatives, and affirmed the value of several others. The "Preliminary Strategies" chapter discusses screening of alternatives, and includes feedback from directly from this meeting.

ONLINE FEEDBACK

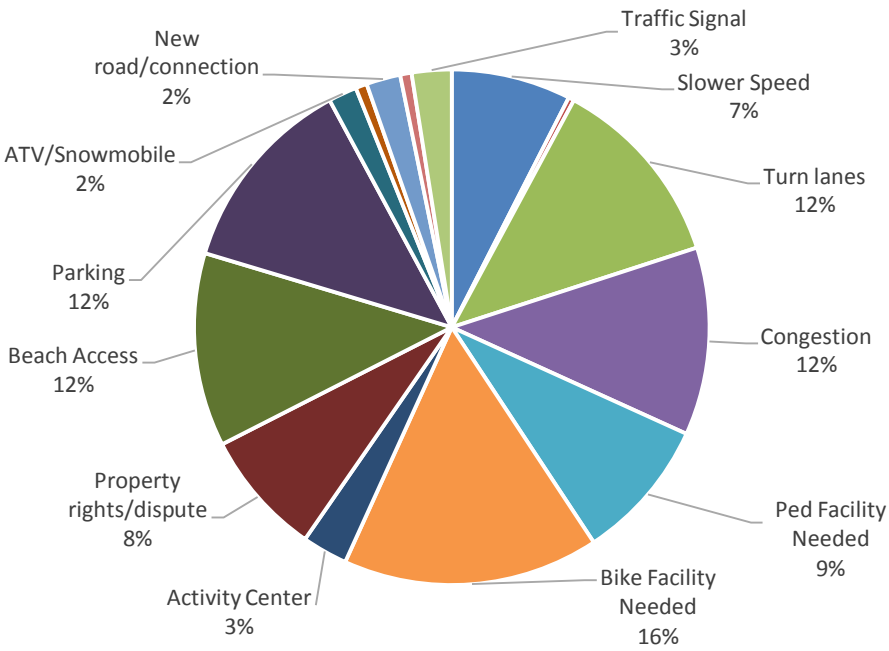
An interactive online web map was administered to collect comments from December 2015 through March 2016. Compared to a traditional open house, this method extends the comment period over a longer time to allow engagement from a variety of constituents.

Exhibit 2: Public Comment Word Cloud

Nearly 200 comments were made via the interactive web map. Several written comments were also submitted to the project. Exhibit 2 illustrates a "word cloud" of the most common words used in the comments, and Exhibit 3 provides a general summary of comment themes.

Safety

Exhibit 3: Public Comment Themes



Safety was a clear concern based on the comments received. Many of the comments focused specifically on improving safety for pedestrians and bicyclists by expanding the off-road path system, providing wider shoulders, and focusing on improving pedestrian crossings. Comments also suggested restricting on-street parking in high-activity areas and the addition of a permanent or temporary traffic signal at the intersection of US-89 and SR-30. Some comment also suggested slower speeds are needed, specifically in high activity areas like the Marina and within Garden City. Many simply do not feel comfortable with speeds higher than 40 miles per hour (MPH) in these high activity areas. A lack of turning lanes was also cited as a safety related issue by not allowing sufficient separation of high speed roadways and access points to key destinations. Overall, safety related comments focused on slower speeds and additional infrastructure for turning vehicles, bicycles, and pedestrians.

Beach Access and Parking

Beach access and parking were also critical issues for commenters. Overall, many commenters suggested an overall lack of parking during the peak season. Many cited a lack of off-street parking for beach access points as a cause for congestion and, in some cases, related safety issues. In addition, many comments reflected a tension between providing additional beach access points and private property rights. Turn lanes were also suggested to improve access to parking and beach areas. Providing additional parking opportunities and beach access points were both key ideas prevalent in the comments.

GOALS AND OBJECTIVES

As part of the study process, goals and objectives for the corridor were developed based on community and stakeholder input. These goals, presented in Table 2, reflect the need to improve transportation infrastructure while maintaining and enhancing the recreational experience which makes the area unique and drives the local economy.

TABLE 2 CORRIDOR PLAN GOALS

Goals	Objectives
Provide integrated multimodal transportation choices for residents, visitors, and employees	• Provide access to a range of destinations (activity centers as well as dispersed recreation) • Increase percent of accommodated by alternate modes • Reduce demand or provide an alternate choice for congested corridors • Create definition and "imageability" to key areas
Ensure the transportation system is reliable and facilitates a positive experience	• Reduce system susceptibility to peak summer traffic congestion • Manage parking to provide reliable user experience • Solutions are scalable to accommodate seasonal fluctuations in demand
Ensure the transportation system is safe	• Positive influence on high-accident locations • Make activity areas safe for all users ("family safe") • Accommodate and encourage safe bike and pedestrian use • Ensure emergency response capability
The transportation system supports the values of the Bear Lake Region	• Solutions are compatible with community master plans • Support economic development • Mitigate need to expand surface parking in sensitive natural areas • Avoid negative impacts to priority environmental areas

TRANSPORTATION SYSTEM

ROADWAY CHARACTER

The following chapter provides an overview of the existing conditions along the corridor. These conditions underscore both challenges and opportunities along the corridor to improve operational conditions in the short and long term future. These observations, in conjunction with public input, were used to identify issues and develop goals and strategies for the corridor.

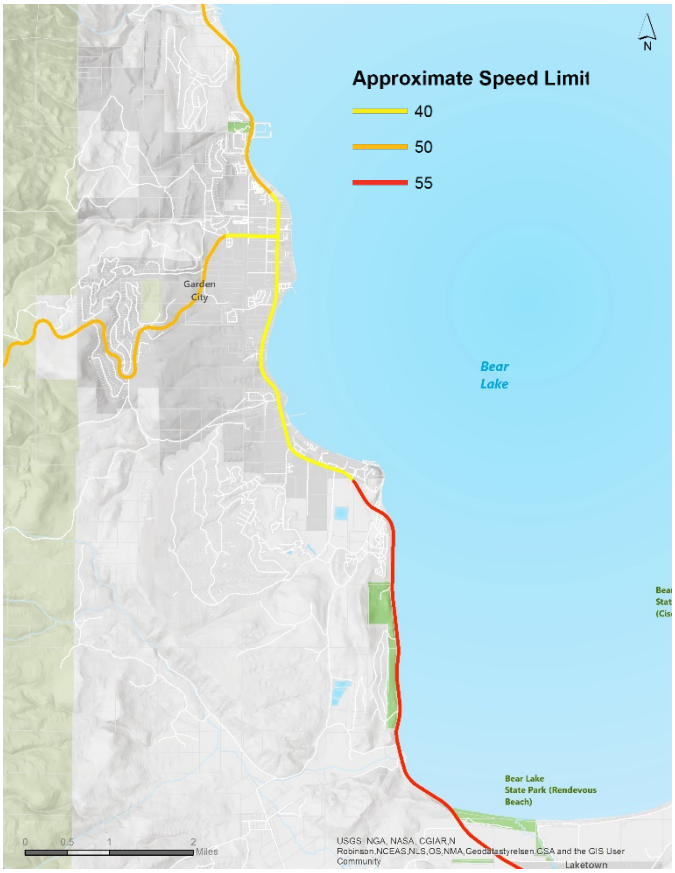
ROADWAY CROSS SECTION

The corridor is primarily a two-lane roadway with a rural character. Typical lane widths are 11-12 feet, and the paved road shoulder is usually less than two feet wide. Graded gravel shoulders are common throughout the corridor, and are often used for on-street parking near activity centers.

SPEED LIMITS

Speed limits along the study corridor range between 40 and 55 MPH (Exhibit 4). The 40 MPH segments are within Garden City. It is noted that the speed limit transition from 40 to 50 MPH is within the northern portion of Garden City where there are several lodging, retail, and activity nodes.

Exhibit 4: Posted Speed Limits

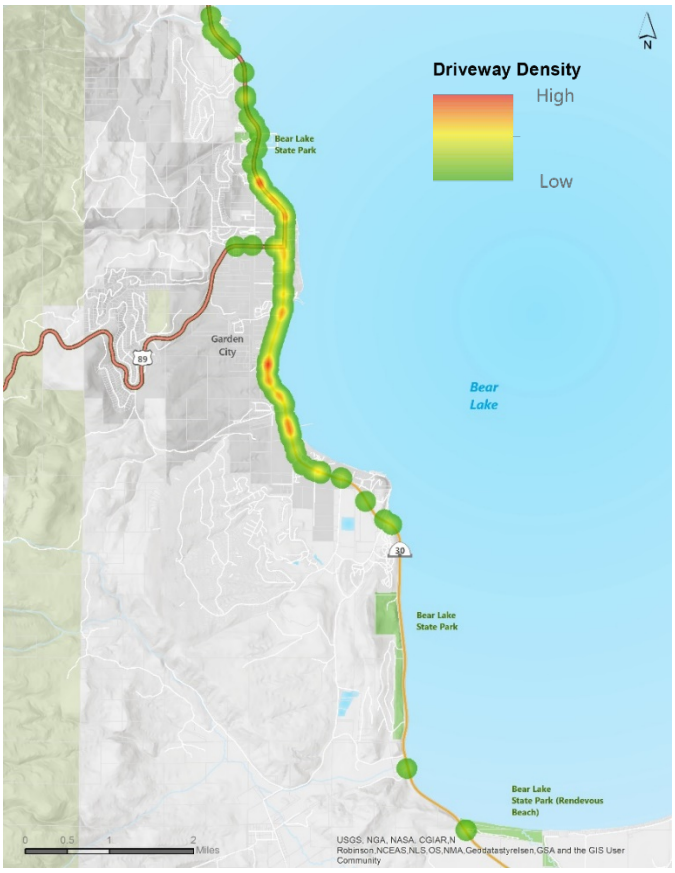


DRIVEWAY ACCESS

From a transportation system perspective, a roadway network ideally offers a range of functional types to balance regional mobility and local access. Outside the Garden City town center there is relatively little road network connectivity, which forces drivers to rely primarily on the Bear Lake Blvd.

Bear Lake Boulevard provides direct access to a multitude of land uses and beach access points. Exhibit 5 illustrates the "density" or spacing of driveways that intersect the corridor; locations with more closely spaced driveways are indicated in yellow and red shading. Numerous driveways can be problematic since turning vehicles can increase crash potential, reduce capacity, and erode the mobility of a corridor. To address this issue, UDOT has established an access management system[3] that defines preferred spacing of driveways and streets based on the classification of the roadway.

Exhibit 5: Access Density Heat Map



- SR-30 between the junction with US-89 to approximately Sweetwater Parkway is categorized as Access Category 7 (Community-rural importance) and states: *"Category 7 is appropriate for use on highways that have the capacity for moderate to low speeds and moderate volumes. This category provides a balance between through traffic movements and direct access. These facilities move both regional and local rural traffic but with emphasis on local movements such as those common on small city Main Streets."*

  In this segment SR-30 has a minimum driveway spacing threshold of 150 feet. The average driveway spacing for the 3.4-mile segment is approximately 170 feet, which is relatively frequent, but on average meets the established threshold. However, there is a higher density of driveway access points on SR-30 north and south of Hodges Canyon Road, indicated by the red color in Exhibit 5.

[3] R930-6 Access Management, UDOT, August 2013

- Elsewhere the study corridor, US-89 is categorized as Access Category 4 (Regional-rural importance) and states: *"Category 4 is appropriate for use on highways that have the capacity for moderate to high speeds (generally greater than 50 mph) and relatively high traffic volumes. These facilities move traffic across multiple communities or jurisdictions, typically connecting facilities of interstate or system importance in rural areas."*

  North of the junction with SR-30 to the Utah State Line, US-89 has a minimum driveway spacing threshold of 500 feet. The average driveway spacing for the 3.5 mile segment in Garden City is approximately 336 feet, meaning there are more driveways than allowed per the UDOT access guidelines.

TURN LANES

Turn lanes enable vehicles to enter and leave the roadway with minimal disruption to vehicle flow. Although there are frequent driveways and side streets, formal turn lanes exist at just a few locations noted below.

- US-89 at 300 West (MP 498.15)
- US-89 at 300 West (MP 499.4)
- Ideal Beach Resort / SR-30 (MP 112.75)
- Blue Water Resort / SR-30 (MP 113.15)
- Sweetwater Park Dr / SR-30 (MP 113.85)

The UDOT Access Management rules also provide guidance for turning volume thresholds used to justify a left or right turn lane.

SIDEWALKS AND PATHS

Sidewalks exist along Bear Lake Boulevard between Rasmussen Lane (MP 498.8) and 350 South (MP 110.4). The existing multi-use pathway represents a key component of the Bear Lake Legacy Pathway Plan, which envisions a continuous pathway system encircling the lake. The existing 4.5-mile pathway extends to the Bear Lake State Park Marina on the north and Ideal Beach Resort to the south. In Garden City between 200 North and 350 South, the pathway is located on 100 West, one block to the west of Bear Lake Blvd. Except at the US-89/SR-30 junction, there are generally no marked crosswalks for the pathway or sidewalk system. There are also no on-street bike facilities.

Exhibit 6 illustrates proposed paths and trails that would significantly increase the active transportation network and allow for connections between paved and soft-surface trails. These paths would also connect activity centers.

Exhibit 6: Trails and Paths

BEACH ACCESS AND PARKING

Access to the lake beach is a key issue along the study corridor. Because much of the shoreline is privately owned, public access is limited to specific locations (Exhibit 7). Garden City manages visitor parking and beach access at several locations in town, and Bear Lake State Park manages a combination of paid and free beach access areas.

Within Garden City, beach access is free for "walk-ins." When lake levels are low, visitors are allowed to park on the beach for $10/vehicle fee, and a $75 annual pass is also available.

Exhibit 7: Beach Access Locations

Exhibit 8: Garden City Beach Access

Source: Garden City

Garden City has several parking areas to accommodate tourism and beach access, as shown in Exhibit 8 and listed below:

- 75 North – 82 stalls
- 50 South – 94 stalls
- 150 South – 68 stalls
- 350 South – 36 stalls
- Garden City Park (420 South) – 90 stalls
- On-beach parking near 150 South – 100-200 vehicles

Garden City operates a shuttle during the peak season that takes visitors directly to the beach from key parking areas on 150 South and 50 South.

Although Garden City provides several public parking areas off of Bear Lake Boulevard, it is common for visitors to park vehicles adjacent to the highway. In many areas a wide gravel shoulder provides sufficient room to parallel park adjacent to the travel lanes, and in some of the wider shoulder locations perpendicular or 45-degree parking is common. State law prohibits angled parking on state highways unless UDOT has determined that the roadway is of sufficient width to permit angle parking without interfering with the free movement of traffic[4], however this rule does not appear to be enforced and there are no signs or striped parking stalls to indicate only parallel parking is allowed.

Many beach-goers seek destinations along the segment of SR-30 between Gus Rich Point and Rendezvous Beach – this area is known as Southwest Beach. This area is very popular because the lake shore is relatively close to the road (i.e. convenient) and there are no day use fees. Exhibit 9 shows an image of parked vehicles on Southwest Beach during a busy day. On the east side of SR-30 (lakeside), there are five semi-improved graded gravel areas that serve as off-street parking. Once these lots fill, visitors often parallel park next to the highway, crowding the road and creating unsafe conditions as beach-goers load and unload cargo from their vehicles adjacent to fast-moving traffic (the posted speed is 55 MPH). UDOT has posted signs along Southwest Beach that prohibit parking within 15 feet of the pavement, however the rule is often ignored.

Exhibit 9: Parking on Southwest Beach

[4] Utah Code 41-6a-1402

PLANS

There are several important things to account for regarding planned changes to the transportation system in the study area. The Garden City General Plan envisions a street network that would provide travel alternatives to SR-30 and US-89 (Exhibit 10). A major step towards the proposed road network is the extension of 300 West (Paradise Parkway) south from US-89 to Buttercup Lane, which is planned for construction in 2019 per the 2016-2021 UDOT Statewide Transportation Improvement Program. Currently, there is relatively poor road network connectivity, which forces drivers to rely primarily on the US-89 / SR-30 corridor for just about every trip. As the region continues to develop, an expanded roadway network of collector and local streets can help distribute traffic, minimize the number of accesses on the arterial roads, and potentially forestall the need for widening Bear Lake Boulevard.

According to the 2015-2040 UDOT Long Range Transportation Plan, there is a planned project to widen Bear Lake Boulevard (US-89/SR-30) between the State Park Marina and Buttercup Lane in Phase 2 of the plan (2024-2034). The purpose of the project is to alleviate seasonal traffic congestion; however, the project fact sheet notes the planned 300 West roadway improvement project could help address seasonal peak traffic and forestall widening.

Exhibit 11: Garden City General Plan Transportation Map

Exhibit 10: UDOT Long Range Plan Map

TRAFFIC AND SAFETY

VEHICLE TRAFFIC DEMAND

This chapter discusses traffic patterns in the study area, reviewing the historic, seasonal, time of day, and peak hour dimensions to define a complex situation - an area that is simultaneously a quite rural town and a crowded summertime destination. Data sources include multi-day vehicle counts using pneumatic tubes on SR-30 and on US-89 in Garden City, collected by UDOT during a representative summer weekend (July 17-19, 2015). UDOT Automatic Traffic Recorder (ATR) data, which is available within Garden City on SR-30 and US-89, was also reviewed to assess monthly and annual traffic partners.

LEVEL OF SERVICE BACKGROUND

The facilitate interpretation of the data, this section will introduce some basic measures and thresholds related to traffic analysis. The Highway Capacity Manual (HCM)[5] defines level of service (LOS) as "a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, comfort, and convenience." LOS is a qualitative measure of the performance with values ranging from LOS A, indicating good operation and low vehicle delays, to LOS F, which indicates congestion and longer vehicle delays. UDOT has established a goal of maintaining roadways in the rural parts of the state at LOS C or better[6].

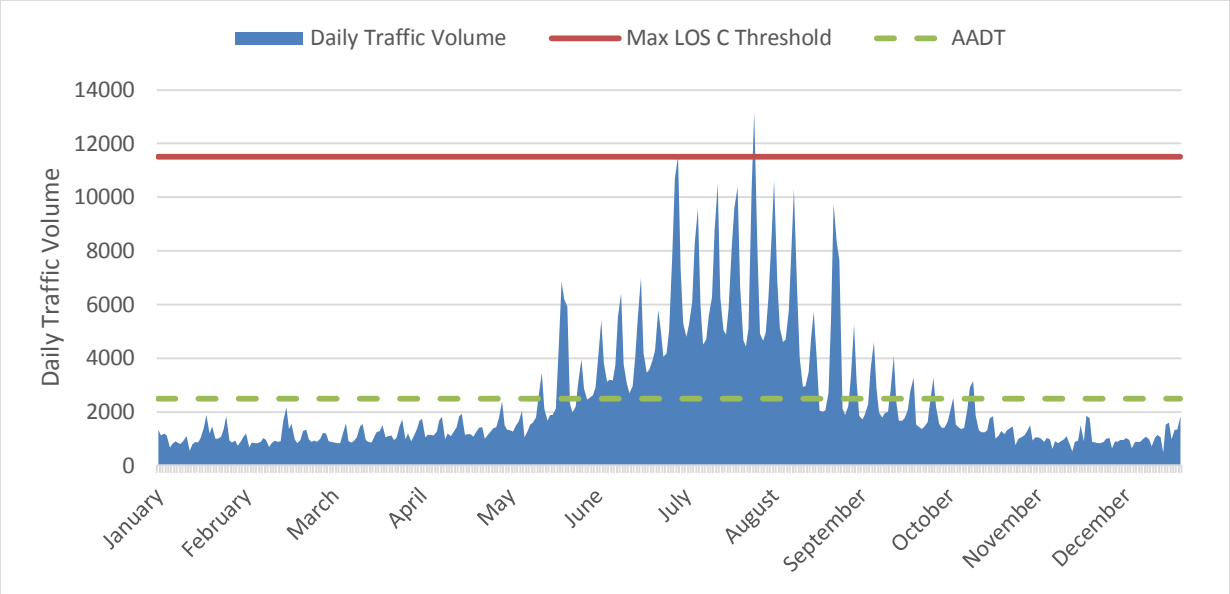
Highway LOS analysis can be calculated using planning-level daily traffic volume, or a design hour volume (usually defined as the 30th highest hour of the year). Both methodologies are reviewed in the following section.

REVIEW AND DISCUSSION OF TRAFFIC DATA

Exhibit 12 illustrates the pattern of daily traffic volumes on US-89 throughout 2014. Traffic volumes on the corridor peak during the summer season, which is roughly Memorial Day (late May) to Labor Day (early September), with the highest days ranging from 11,000 to 13,000 vehicles per day. The exhibit also illustrates the dramatic "peaks and valleys" of weekend/holiday traffic compared weekday summer traffic.

[5] Highway Capacity Manual, 2010, Transportation Research Board
[6] UDOT 2015-2040 Long Range Transportation Plan

Exhibit 12: 2014 Daily Traffic on US-89 (ATR 304)



UDOT has established 11,500 vehicles per day as the planning-level daily threshold for the upper limit of LOS C of for rural two lane arterials. While the corridor did not meet the planning-level LOS goal during two days in 2014, that does not tell the whole story. The planning-level LOS thresholds are generalized for statewide planning and do not account for the unique characteristics of the study area that can impact road capacity and function. In reality there is not a "correct" daily LOS threshold to use; in this context it is more reasonable to examine a range of thresholds, and review the frequency which the thresholds are exceeded.

Table 3 summarizes the number of days in 2014 that exceeded several other thresholds. The annual average daily traffic (AADT), which represents an average over the entire year, is 2,500 vehicles per day (VPD). In 2014 traffic was higher than the AADT 109 days (28% of the year), and often dramatically higher. This analysis suggests that traffic volumes occur often enough within a range where capacity enhancements or traffic management strategies are justified.

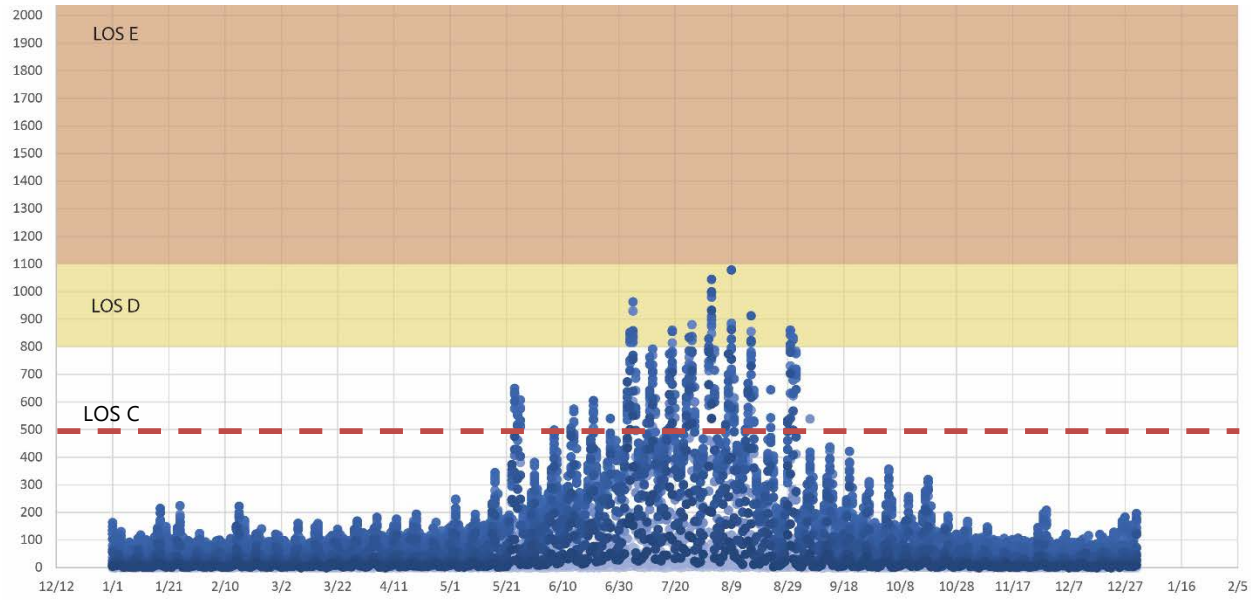
TABLE 3 FREQUENCY OF HIGH VOLUME DAYS IN ON US-89 (2014)

No. of Days Exceeding Threshold	Traffic Volume Threshold Vehicles Per Day(VPD)	Threshold Description
2	11,500	Max LOS C threshold for two lane rural arterial
20	7,500	Max LOS C threshold for two lane rural collector
51	5,000	Mid-point between AADT and LOS C for collector
109	2,500	Annual Average Daily Traffic (AADT)

An analysis using HCM methodology for a representative highway segment was done to establish LOS thresholds[7] for hourly traffic conditions. In Exhibit 13, hourly volume data for each day of 2014 is represented by individual dots. The highest hourly volumes occur in July-August and reach approximately 800-1,100 vehicles per hour. This analysis indicates that the corridor primarily operates at a LOS C or better; excluding overnight hours (10 pm – 7 am) operations are in the LOS C range 6.8% of the year.

LOS D conditions occurred during 48 individual one-hour periods, representing 1.0% of the year (excluding overnight hours). However, in several instances these LOS D conditions persisted for multiple hours in a single day, creating a "worst case" scenario and contributing to the perception of severe traffic congestion.

Exhibit 13: LOS Thresholds and Observed 2014 Hourly Volumes (ATR 304)



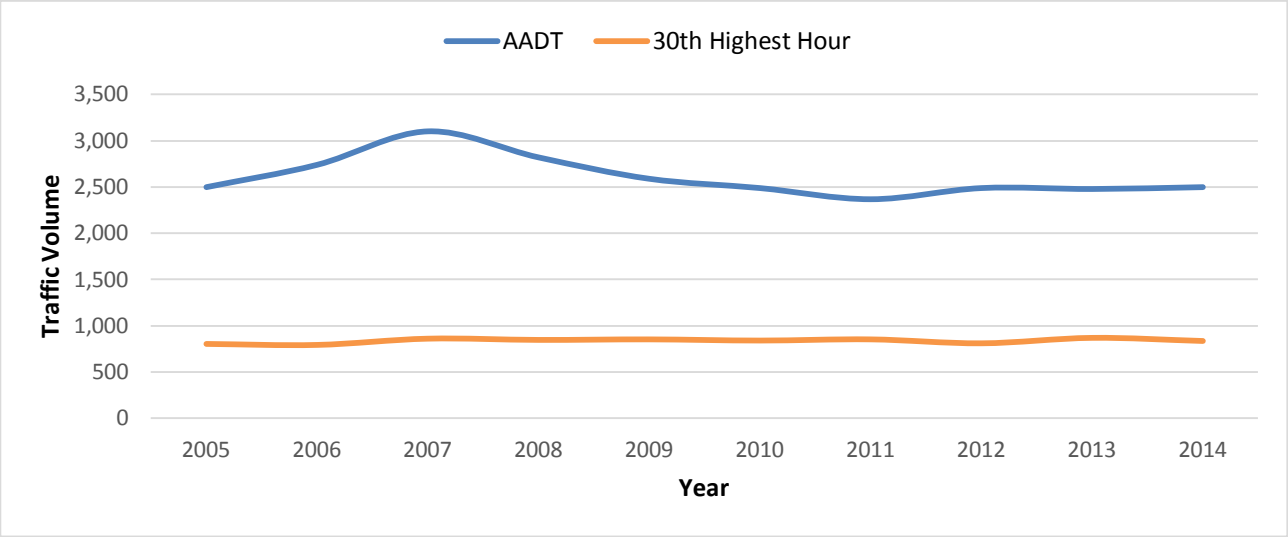
While these hourly volumes are well below the "theoretical" maximum capacity, there is often a lower tolerance when service quality deteriorates in rural areas. This data suggests that capacity enhancement projects are justified, however selection of an appropriate strategy should find balance between accommodating travel demand for most of the year without overbuilding for a few outlier days.

[7] Approx. 480-800 VPH is the calculated LOS C range. Approx. 800-1,100 VPH is the calculated LOS D range

TRENDS

Historic traffic trends were reviewed to document how conditions along the corridor have changed over the past decade. Annual average traffic volumes (AADT) have remained fairly consistent since 2005, oscillating between 2,500 and 3,000 vehicles per day (Exhibit 14). The highest 30th hour traffic volumes have also remained consistent over the past ten years, meaning that the most congested conditions on the corridor are not much different than they were a decade ago (though potentially more frequent than in the past).

Exhibit 14: Historic AADT (ATR 304)



SAFETY HISTORY

To assess potential issues related to roadway deficiencies, UDOT's SafeMap[8] records system was used to review historic collision data for a five-year period (January 2010 – May 2016). During this period there were 96 individual incidents, which have been mapped in Exhibit 15; high frequency accident locations are indicated in yellow and red shading. The following section offers some high-level observations:

- The distribution of incidents along the corridor shows concentrations near major roadway junctions and also a scattering of incidents associated with local driveways;
- 32% of collisions involved wildlife (30), ten of which occurred on SR-30 along Southwest Beach;
- 15% of incidents involved a single vehicle roadway departure or collision with a fixed object;
- There was one pedestrian collision, which occurred in the Garden City town area;
- There were no fatalities, and only one serious injury;
- Only one collision occurred at the US-89 /SR-30 junction, attributed to driver inattention.

Exhibit 15: Crash Heat Map

While this data set includes only reported incidents and does not account for "close calls," the records indicate there are not significant geometric deficiencies along the corridor.

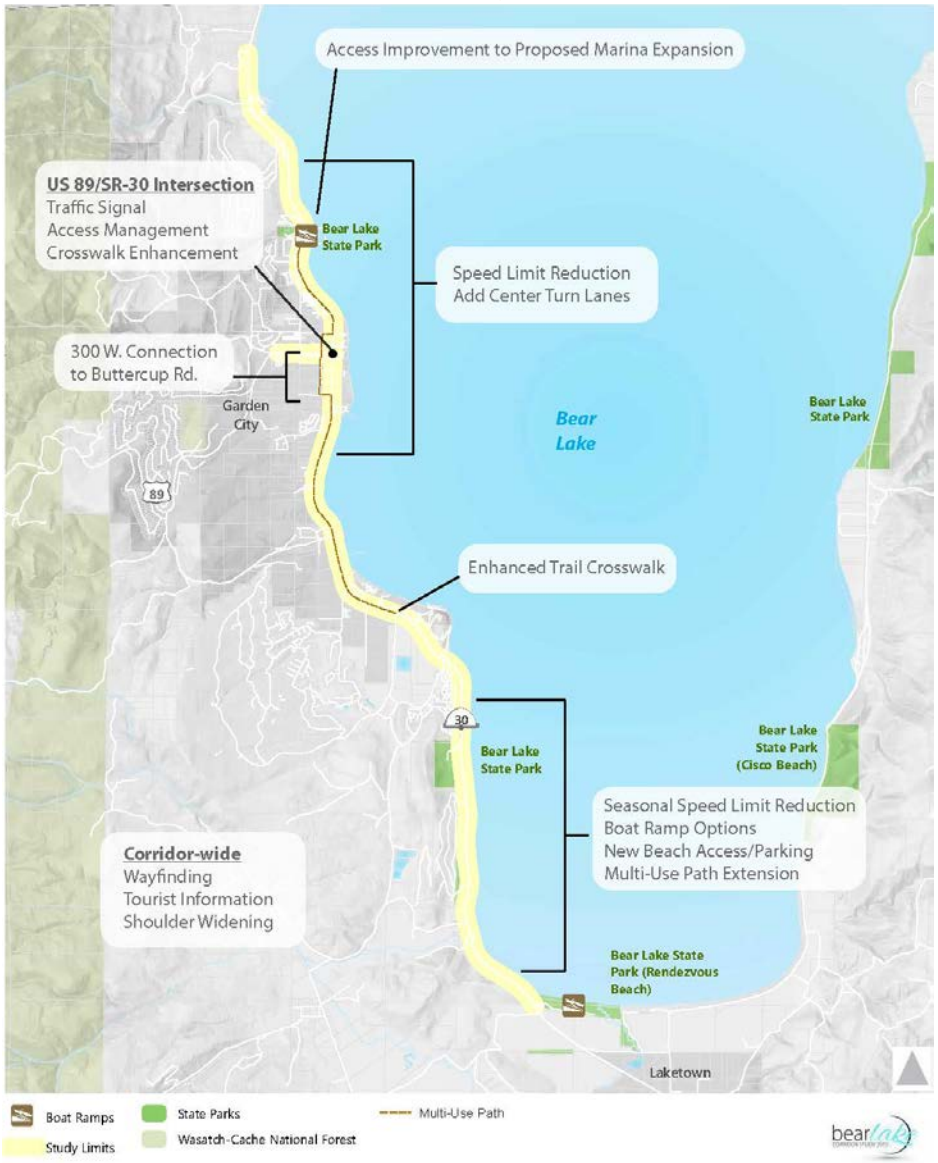
[8] This data is protected under 23 USC 409. Source: UDOT, Jan 1, 2010 through May 31, 2016.

PRELIMINARY CONCEPTS | INITIAL SCREENING

OVERVIEW

Preliminary concepts were developed based on the analysis of current conditions, issues, and public feedback. Exhibits 16 and 17 provide an overview of these initial strategies, as presented to the stakeholders and public.

Exhibit 16: Preliminary Concepts Map



After vetting and refining these preliminary concepts, recommendations are presented in the subsequent chapter with additional detail for project description, purpose and need, preliminary costs, environmental screening, outstanding issues, time horizon, and implementation steps. Supporting engineering drawings and cost estimates are provided in the appendices.

Exhibit 17: Summary of Initial Concepts

Add Center Turn Lanes

Issues:
- Traffic congestion related to left turns

Benefits/Considerations:
- Improved safety and traffic flow
- Opportunity to implement with other street-scape improvements (i.e. center medians, bike lanes/shoulders)
- Impacts to private property

Location:
From marina to 150 S.

Implementation Time Frame:
Medium-term

Shoulder Widening

Issues:
- Narrow shoulders present challenges for turning vehicles and road cyclists

Benefits/Considerations:
- Improved cyclist comfort and safety
- More recoverable space for vehicles
- Could encourage higher traffic speeds

Location:
Corridor-wide

Implementation Time Frame:
Long-term

Speed Limit Reductions*

Issues:
- High speeds in activity area

Benefits/Considerations:
- Improved safety
- Helps activity areas be "family safe"
- Improves comfort for pedestrians and cyclists

Location:
From marina to 150 S.

Implementation Time Frame:
Short-term

* Changes to speed limit will require further study

Speed Limit Reductions on Weekends and Special Events During Summer*

Issues:
- High speeds in seasonal activity areas

Benefits/Considerations:
- Promotes beach destination
- Helps activity areas be more "family safe"
- Higher speeds can be retained during off-season

Location:
Gus Ridge Point to Laketown

Implementation Time Frame:
Short-term

* Changes to speed limit will require further study

Visitor Information

Issues:
- General lack of visitor information

Benefits/Considerations:
- Better leverages parking, beach access, and shuttle system
- Strategies can be road-side signage, visitor kiosks, printed pamphlets, and online maps

Location:
Corridor-wide

Implementation Time Frame:
Short-term

Exhibit 17 cont'd: Summary of Initial Concepts

Alt. 1 Formalize Access to Raspberry Square

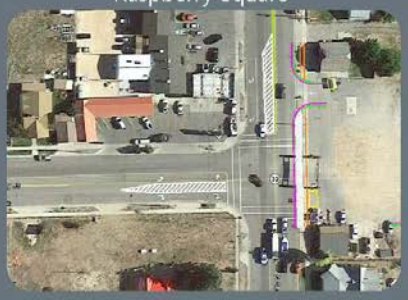
Issues:
- Confluence of traffic at major activity center
- Traffic congestion
- Safety

Benefits/Considerations:
- Clarity on how intersection functions for users
- If traffic signal is utilized, reduced congestion and improved safety

Location:
US 89 SR 30 Intersection

Implementation Time Frame:
Medium to Long-term

Alt. 2 Reconfigure Access to Raspberry Square



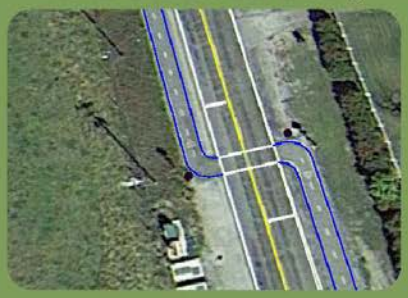
Issues:
- Confluence of traffic at major activity center
- Traffic congestion
- Safety

Benefits/Considerations:
- Clarity on how intersection functions for users
- If traffic signal is utilized, reduced congestion and improved safety

Location:
US 89 SR 30 Intersection

Implementation Time Frame:
Medium to Long-term

Provide Enhanced Trail Crossing



Issues:
- Enhance the multi-use path network

Benefits/Considerations:
- Improved safety
- Near-term opportunity for implementation in conjunction with UDOT pavement overlay project

Location:
SR -30 near Kimball Ln.

Implementation Time Frame:
Short-term

Multi-Use Path Extension

Issues:
- Support active recreation

Benefits/Considerations:
- Expands popular multi-use path
- Constrained corridor between hills and lake

Location:
Gus Ridge Point to Laketown

Implementation Time Frame:
Medium-term

Additional Beach Access & Parking

Issues:
- Popular destination lacks off-street parking to meet existing demand

Benefits/Considerations:
- Improves access to beach recreation

Location:
Gus Ridge Point to Laketown

Implementation Time Frame:
Short-term

Exhibit 17 cont'd: Summary of Initial Concepts

Provide Additional Boat Ramps

Issues:
- Few boat ramps in area
- High concentration of use at existing Marina

Benefits/Considerations:
- Disperse day-boaters and associated traffic

Location:
Gus Ridge Point to Laketown

Implementation Time Frame:
Long-term

OTHER PROJECTS THAT IMPACT THE CORRIDOR

300 W. to Buttercup Ln. Connection

Location:
300 W. to Buttercup Ln.

Implementation Time Frame:
Short-term

Issues:
- No alternative to SR 30 / US 89 corridor

Benefits/Considerations:
- Provides alternative for emergency access
- May mitigate congestion
- Funded for construction in 2019

Marina Expansion

Issues:
- Corridor needs to accommodate increased traffic around the marina

Benefits/Considerations:
- Increased capacity for boat recreation
- Explore strategies to store vehicle queues off highway

Location:
Marina

Implementation Time Frame:
Medium-term

CONSIDERATIONS AND FEEDBACK

This section provides detail about the preliminary strategies and summarizes and feedback received from the Stakeholders and public.

CENTER TURN LANES IN GARDEN CITY AREA

Congestion within the Garden City area is partially attributed to a lack of center turn lanes. During high traffic periods turning vehicles can block through lanes while waiting for gaps in opposing traffic. Center turn lanes within Garden City, particularly between the Marina and 150 South, could help reduce congestion and improve safety by removing left-turn traffic from travel lanes. Installing turn lanes could also provide an opportunity to introduce other streetscape improvements like center medians and widened shoulders.

Feedback: Rather than widening for a continuous center turn lane, many stakeholders preferred a more selective use of left turn lanes, noting that the narrow road cross section helps to deter high vehicle speeds.

Recommendation: Monitor traffic patterns and crash data to determine if locations satisfy warrants. Plan for turn lanes at key locations, such as Swan Creek Village/Camp Hunt, the KOA/retail center, Raspberry Patch Road, and at Buttercup Lane once the 300 West improvement is complete.

The preliminary marina expansion design features a driveway access that aligns with Raspberry Patch Road; intersection improvements at this location should be coordinated with State Parks. To address vehicles queued on the highway near the marina entrance, an interim solution (prior to marina expansion) could relocate the current marina entrance to the Raspberry Patch Road intersection. This option could add vehicle storage capacity, and can eventually be integrated into the marina expansion project.

Additional Considerations: If 300 West is leveraged as a bypass route, wayfinding signage should be placed at decision points. While diverting traffic could help relieve congestion, there are concerns from the business community that this could negatively impact businesses in the commercial core of Garden City. Ideally the diversion strategy would apply specifically to travel markets who do not intend to stop to patronize local businesses. Additionally, it is unclear if the pavement design on 300 West would be able to sustain substantial tractor/trailer traffic.

TURN LANES FOR PARKING AND BEACH ACCESS (SOUTHWEST BEACH)

Forestry, Fire, and State Lands (FFSL), working with UDOT, has identified five locations for enhancements along the Southwest Beach. The locations are informal graded gravel pull out areas where visitors naturally

cluster. As the beach access areas are improved and formalized, turn lanes could improve safety and help clarify the entrances to parking areas, which are planned as linear one-way lots due to the constraints of the shoreline.

Feedback: Increased parking enforcement in this section of the corridor was discussed. Currently there are posted signs that restrict parking within 15' of the highway, however, visitors often park within the distance.

Recommendation: Similar to the Garden City area, plan for left turn lanes at specific parking area access points. Coordinate with FFSL to phase turn lanes in conjunction with parking area improvements. Visitors gravitate to the first beach parking area they encounter, so install signage with distance to next parking area to help disperse visitors.

Additional Considerations: It was noted that these parking areas are being designed to feature a 20-foot clear zone between the roadway and parked vehicles (unless a barrier is used), which could potentially accommodate the path extension.

INTERSECTION TREATMENTS AT US-89/SR-30

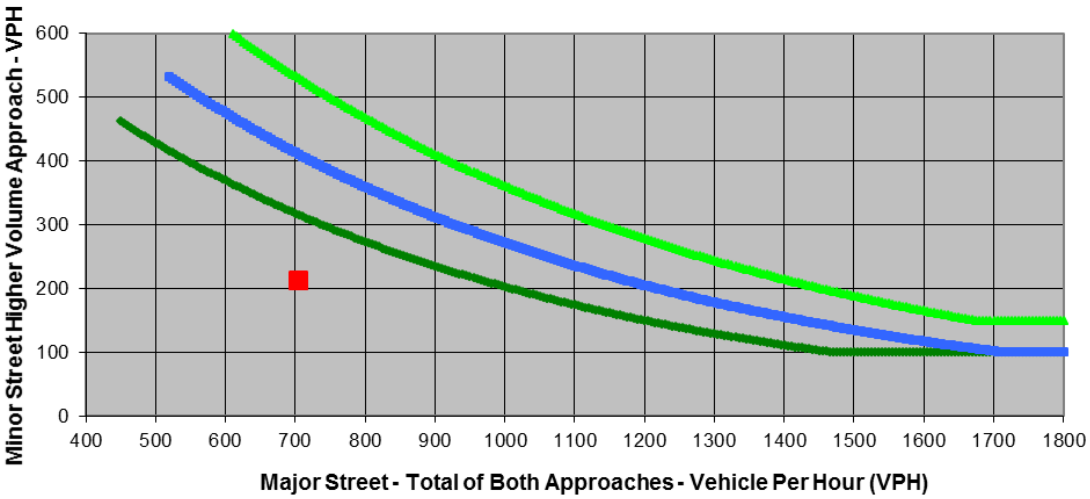
The intersection of US-89 and SR-30 in Garden City is a confluence of traffic and activity. Virtually all local and regional traffic funnels through this stop-controlled intersection. The west leg of the intersection (Raspberry Square) is a private driveway that is not formally signed as a stop-controlled approach, which results in creates confusion about who has the right-of-way. The pedestrian activity is unmetered, so during peak periods there are frequent pedestrians crossing that block vehicle movement and contributes to vehicle queues/delay.

Photo of US-89/SR-30 intersection, looking west from Raspberry Square

Feedback: Stakeholders believe the benefit of a traffic signal is to meter pedestrian crossings and more efficiently move traffic, however most agree that a traffic signal is not needed during the off-season. If a signal were built to handle peak season demand, it could potentially operate in flash mode (4-way stop) during the off-season.

Recommendations: A preliminary signal warrant analysis that used vehicle counts and ATR data to estimate turning movements suggests that signalization of the SR-30/US-89 intersection is not warranted (Exhibit 18). The intersection is not the only element that contributes to congestion along the corridor; however, a traffic signal would provide relief to a key chokepoint to address perceived congestion and forestall road widening for additional capacity. The tradeoffs should be weighed by stakeholders and public.

Exhibit 18: US 89/SR 30 Intersection Signal Warrant



* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *Manual on Uniform Traffic Control Devices*

There are four alternatives to address issues at the SR-30/US-89 intersection that involved additional community input and coordination with stakeholders:

- Alternative 1 is a four leg intersection that formalizes the main entrance to the square by clearly delineating egress/ingress lanes. A raised median on US 89 would eliminate left turns, requiring right-in-right-out movements only. Landscaping would separate the parking lot from the sidewalk along the street frontage.

- Alternative 2 would eliminate the current main entrance to Raspberry Square. A new entrance would be located on 50 South directly behind the Executive Recreational Properties and Bear Lake Cabin Rental offices. The through lane on US 89 would be eliminated, forcing vehicles to proceed north on US 89 or south on SR 30. Similar to Alternative 1, the driveway adjacent to the Quick and Tasty would be modified to eliminate left turn movements. Landscaping would separate the parking lot from the sidewalk along the street frontage. By reducing the vehicle approach lanes, a

simplified 3-way stop controlled intersection would reduce turning conflicts and result in less vehicle delay and thereby forestall the need for more expensive alternatives.

- Alternative 3 could build on alternatives 1 and 2. A traffic signal would be installed to improve traffic operations and pedestrian safety. While a full traffic signal is not currently warranted, an interim strategy may include flashing beacons on overhead mast arms to improve stop compliance.

- Alternative 4 is a roundabout intersection to allow continuous flow of traffic through the US 89 and SR 30 intersection. Commercial truck vehicles, which include large recreational vehicles, make up between 15%-19% of AADT on the corridor. Furthermore, US-89 is part of the National Highway System, so diameter of the roundabout would be sized to accommodate large vehicles (WB-67). As such, a key drawback of the roundabout option is the large physical footprint and property impact. Also, the continuous vehicle flow is not ideal when high pedestrian volumes occur, though there are design strategies accommodate pedestrians safely.

ROADWAY SHOULDER WIDENING

On-road cycling is a popular activity along the corridor; this user group usually does not use the off-street paths since they travel at higher speeds not compatible with other trail users. The typical paved road shoulder is usually less than two feet wide, so cyclists have no choice but to ride very close to the travel lanes with speed limits between 40-55 MPH. The narrow shoulder also provides little recoverable space for automobiles and limited areas for right turning vehicles to slow down safely. Roadway shoulder widening would improve safety for both cyclists and motorist. Wider shoulders could also be used informally for passing left-turning vehicles where turn lanes are not practical or justified.

Feedback: Stakeholders and public are generally supportive of shoulder widening from both the cyclist and motorist perspective. If the shoulders are widened on Southwest Beach, they will likely be used for parking during peak times and block the facility for cyclists.

Recommendation: Road shoulder widening should be advanced as a priority for study corridor.

SPEED LIMIT REDUCTIONS

Garden City Area

Due to the number of driveways and activity centers within Garden City, a reduction in speed limit to slow traffic would improve safety and comfort, especially for pedestrian and bicyclists. Lower speeds may also promote a more "family friendly" atmosphere within Garden City.

Feedback: It was noted that the speed limit transition from 40 MPH to 50 MPH is within the northern portion of Garden City where there are several lodging, retail, and activity nodes. Extending the 40 MPH section north past the marina should be evaluated.

Southwest Beach Area

Since the Southwest Beach area generates little activity during the off-season, the current 55 MPH speed limit is appropriate. However, during the busy summer season visitors often parallel park next to the highway, crowding the road and creating unsafe conditions as beach-goers load and unload cargo from their vehicles adjacent to fast-moving traffic. While there isn't a clear record of safety hazards, anecdotal experiences and public comments suggest there are a lot of "close calls."

Feedback: UDOT is hesitant to implement lower speed limits because drivers will not obey them – motorists tend to drive a speed that feels comfortable based on the road design, sight distance, and past experience. Given the rural nature of the corridor, with long distances between destinations and regional travel, there is a tendency for motorists to travel at higher speeds.

Recommendations: Conduct a spot-speed study in Garden City between the marina and KOA to evaluate if the speed limit transition should be shifted north. To slow traffic during high-activity periods, temporary reduced speed limits should be considered, along with other traffic calming strategies. For example, speed feedback trailers could be used to display lower speed limits, or trailer mounted digital message boards could be used to encourage motorists to slow down. In some areas sheriffs have been known to drive slowly with lights flashing to calm traffic. State Parks staff has also deployed "Congestion Ahead" signs in advance of the beach areas – a low cost strategy that should be continued.

MULTI-USE TRAIL

Extension south to Rendezvous Beach

The trail currently ends just before Sweetwater Parkway at milepost 112.4 on SR-30. A trail extension is preferred on the east side of SR-30 for enhanced scenic quality and to provide pedestrian mobility between parking areas.

Feedback: Essentially all feedback was supportive of extending the trail. This has been a priority for the community and is key component of several trail master plans.

Recommendation: A trail extension totaling approximately 4.5 miles is recommended adjacent to SR 30 from Sweetwater Parkway to Rendezvous Beach. The proposed extension would be a minimum 10-foot trail with 2-foot shoulders on both sides. Continue working with Forestry, Fire, and State Lands and U.S. Army Corps of Engineers to clarify the issues associated with building between the roadway and beach/high water mark.

Enhanced Trail Crossings

The trail (multi-use pathway) should be improved to include marked crosswalks across major roads and driveways.

Feedback: Most of the feedback received was supportive of enhancements to the trail to improve crossing and extend the trail. The stakeholder group suggested that push-button actuated beacons, such as a rectangular rapid flashing beacon (RRFB), are appropriate at where the trail crosses a high speed road. However, UDOT raised concerns that this might create a false sense of security for pedestrians.

Recommendation: Improved trail crossings are recommended. Proposed improvements include pedestrian-actuated control devices with illuminating lights and highly visible/reflective striping to alert oncoming drivers. In addition, advance static signs would be placed in advance of the crossings to warn drivers of the upcoming crossing.

100 West Trail Alignment

In the town center of Garden City from 200 North to 350 South, the trail is located on 100 West rather than Bear Lake Boulevard, effectively detouring trail users around the most prominent activity center and destination areas.

Recommendations: Pave graded gravel areas to formalize on street parking and provide bike lanes. In-street parallel parking could be established adjacent to a curb-side bike lane, creating a physical buffer between the bike lane and automobile traffic.

Photo of trail detour off Bear Lake Blvd at 200 North

NEW BOAT LAUNCH ON SOUTHWEST BEACH

Along the study corridor, the only public boat launch locations are at the Bear Lake State Park Marina north of Garden City and at Rendezvous Beach. The State Park Marina is by far more popular since low water levels complicate launching watercraft at Rendezvous Beach. Another boat launch for day-boaters could help disperse activity away from marina and relieve both traffic congestion and boat congestion within the marina.

Feedback: The Project Team was considering location along Southwest Beach, however local experts indicated the area is not practical due to topography/lake depth.

Recommendation: Based on constructability challenges the concept was screened out.

Additional Considerations: There is boat launch on the east side of the lake (via Cisco Road) reasonably close to Laketown; improved wayfinding/visitor information could be helpful to promote its use and disperse traffic.

ADDITIONAL CONSIDERATIONS

ACCESS MANAGEMENT & DRIVEWAY CONSOLIDATION

Access management is a process of regulating public access to and from properties adjacent to a roadway corridor. Common access management tools include curbed medians, driveway consolidation, and turn restrictions (e.g. right-in-right-out driveway). Where access is managed, driveways and side streets are designed to enable vehicles to enter and leave the roadway with minimal disruption to vehicle flow. Where there is no access management, turning vehicles can increase crash potential, reduce capacity, and erode the mobility of a corridor. The reduction in frequency and severity of crashes is important from a public safety perspective, but crash reduction also improves travel reliability since crash incidents can create substantial traffic congestion. In the context of study area, good access management practices may forestall need for roadway widening and improve safety for cyclists and pedestrians using the multi-use trail that crosses driveways and sidestreets.

Recommendation: Wherever possible, promote multi-parcel shared driveways and consolidate driveways using shared access easements. Raised center medians in Garden City should be considered to restrict turning movements where closely spaced driveways exist.

ROAD WIDENING

This study has developed a range of strategies to manage traffic issues due to seasonal variation. There are several elements that can potentially forestall the need for widening Bear Lake Boulevard, including an expanded network of collector and local streets, access management, turn lanes, promoting walking and biking, and changes to the intersection control at the US89/SR30 junction. It is acknowledged that widening Bear Lake Boulevard within Garden City, as currently proposed in the UDOT Long Range Plan, is a legitimate option to mitigate traffic congestion and accommodate the seasonal travel demand.

Adding travel lanes is not in alignment with community goals[9], though it is acknowledged there is a diversity of opinions on this subject. Visitors and second home owners often tend to support capacity enhancement projects whereas year-round residents prefer to maintain a more rural character. Widening the roadway to add additional travel lanes, wider shoulders, or turn lanes has benefits for vehicle operations, but can have some drawbacks as well:

Benefits:

- Improves traffic flow since turning vehicles can be out of the general through lane;
- Additional travel lanes provide additional maneuverability when parking;
- Provides a de facto acceleration lane in some cases for vehicles turning onto the highway from side streets.

Concerns:

- Additional road width provides a greater level of comfort to the driver through increased sight distance and lateral clearance, which may induce higher travel speeds;
- Potential impacts to private property to accommodate larger road footprint;
- Increase in pedestrian crossing distance.

Recommendation: Implement strategies that help manage traffic and forestall the need for additional travel lanes. Regularly monitor and evaluate the conditions to determine how conditions change as a result.

STREETSCAPE ENHANCEMENTS

As noted in the 2014 Garden City General Plan, there are a variety of improvements that would improve the streetscape environment in the commercial core of Garden City, including both functional elements (e.g.

[9] Envision Utah Bear Lake Valley Blueprint (2011)

crosswalks, curb ramps) or aesthetic elements (e.g. planted medians, gateway features, underground utilities). It is beyond the scope of this corridor plan to develop detailed recommendations.

Recommendation: It is recommended that the project stakeholders plan to initiate a separate effort to plan and design streetscape enhancements focused between approximately 300 North to 150 South. The following are examples of considerations:

- Ensure sidewalks are continuous;
- Provide directional curb ramps at crosswalks and verify adherence to ADA/PROWAG requirements;
- Provide additional crosswalks between parking areas and activity centers and destinations;
- Develop bicycle accommodates on Bear Lake Boulevard within the town center;
- Provide pedestrian-scale lighting.

WAYFINDING

The expansion of 300 West offers alternative routes for northbound/southbound traffic. Wayfinding signs installed in logical locations can help leverage these alternative routes, helping to reduce congestion and traffic volumes in Garden City, specifically at the stop-controlled intersection of US-89/SR-30. Signs should be located in advance of decision points alerting drivers to alternative routes and what destinations they provide access to.

Recommendation: As a pilot project, install temporary signs during the peak visitation periods to leverage 300 West as a bypass. Monitor 300 West and Bear Lake Boulevard to determine if any benefit occurs.

Install beach access wayfinding along SR-30 near Southwest Beach to identify beach access locations and parking lots. This may alert visitors that other facilities are an option if lots are full and also allow for improved coordination for "meet up" locations for larger groups.

RECOMMENDATIONS

PROJECT SUMMARY SHEETS

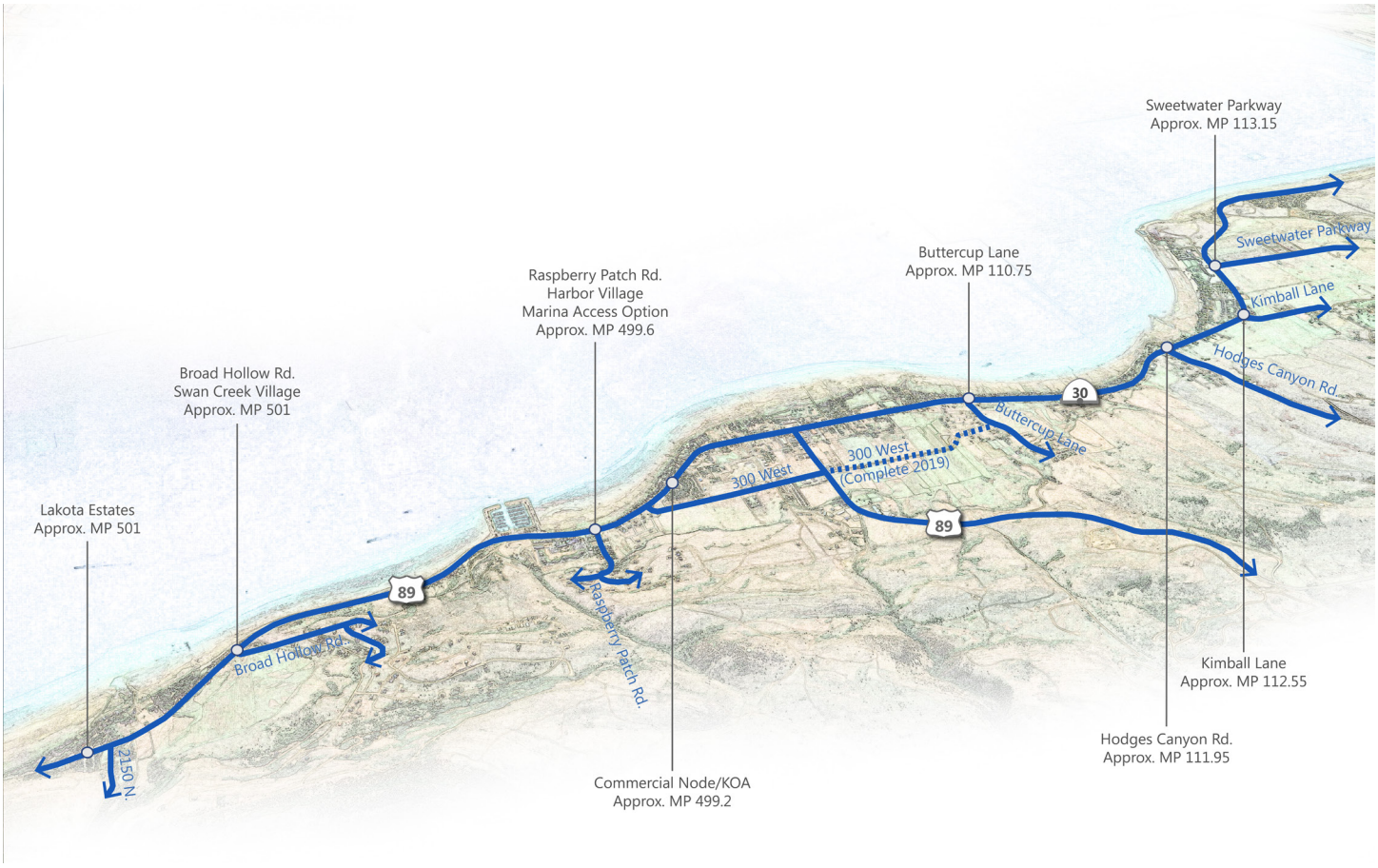
The following section presents recommendations in "cut sheet" summary format. Each project is summarized with information for project description, draft purpose and need, preliminary costs, environmental screening, outstanding issues, time horizon, and implementation steps. Supporting engineering drawings and cost estimates are provided in the appendices.

Garden City

TURN LANES

Turn lanes are proposed for further evaluation at the locations listed below. These locations have been identified through the public process and an overview of the adjacent land uses. Turn lanes would provide room for deceleration prior to turning movements while allowing traffic in both travel lanes to flow more freely.

- Lakota Estates – MP 501.5
- Broad Hollow Road (Swan Creek Village) MP 501.
- Raspberry Patch Road / Harbor Village MP 499.6
- Commercial Node/KOA MP 499.2
- Buttercup Lane MP 110.75
- Hodges Canyon Rd. MP 111.95
- Kimball Lane MP 112.55
- Sweetwater Parkway MP 113.15



PURPOSE & NEED:

The purpose of the project is to improve safety and reduce congestion at key intersections. If warranted, providing turn lanes at the locations listed above would provide deceleration space for vehicles without impeding the flow of traffic. Turn lanes can also improve safety, especially rear-end type collisions.

SR 30 and US 89 provide the only access to the popular destinations in and around Garden City and Bear Lake in general. As development and recreational pressures continue to increase, high speeds, recreational vehicles and line-of-sight issues will continue to compromise safety at locations along US 89 and SR 30. Providing turn lanes at select locations minimizes roadway expansion associated with continuous two-way left turn lanes (TWLTL), although TWLTL may be appropriate where turn lanes are closely spaced.

OUTSTANDING ISSUES:

Need to assess impact of additional storm water run-off resulting from the increase of impervious surface.

The preliminary marina expansion design features a driveway access that aligns with Raspberry Patch Road; intersection improvements at this location should be coordinated with State Parks. To address vehicles queued on the highway near the marina entrance, an interim solution (prior to marina expansion) could relocate the current marina entrance to the Raspberry Patch Road intersection. This option could add vehicle storage capacity, and eventually be integrated into the marina expansion project.

IMPLEMENTATION STEPS:

- While public outreach highlighted the need for center turn lanes at the above locations, additional analysis specifically for turn lane warrants is required to understand the traffic operations along the corridor.
- Consider phasing the turn lanes based on highest vehicle turn activity. Turn lanes may also be combined where geographic proximity allows.
- UDOT standards warrant turn lanes when there are 10-50 turning vehicles per hour, depending on posted speed and roadway access category.

LEVEL OF ENVIRONMENTAL DOCUMENTATION:

In most instances, a Categorical Exclusion (CE) is anticipated for environmental clearance. Additional evaluation beyond a CE may be necessary where there are impacts to sensitive wetlands or beyond the ordinary high water mark (OHWM).

TIME HORIZON:

Short to Long Term implementation would require additional planning, design, possible permitting and significant funding due to additional pavement. However, the project can be phased to implement center turn lanes as the warrants are met.

Garden City Turn Lanes
SUMMARY

COST : With and Without Mill and Overlay

$980,000- $1,950,000* per location (Cost may vary due to topography and available ROW)

PURPOSE: Improve safety and reduce congestion

NEED: Compromised safety due to increase of traffic flow in immediate area

RESULTS: Increase safety while minimizing unnecessary roadway expansion

* In 2020 $'s

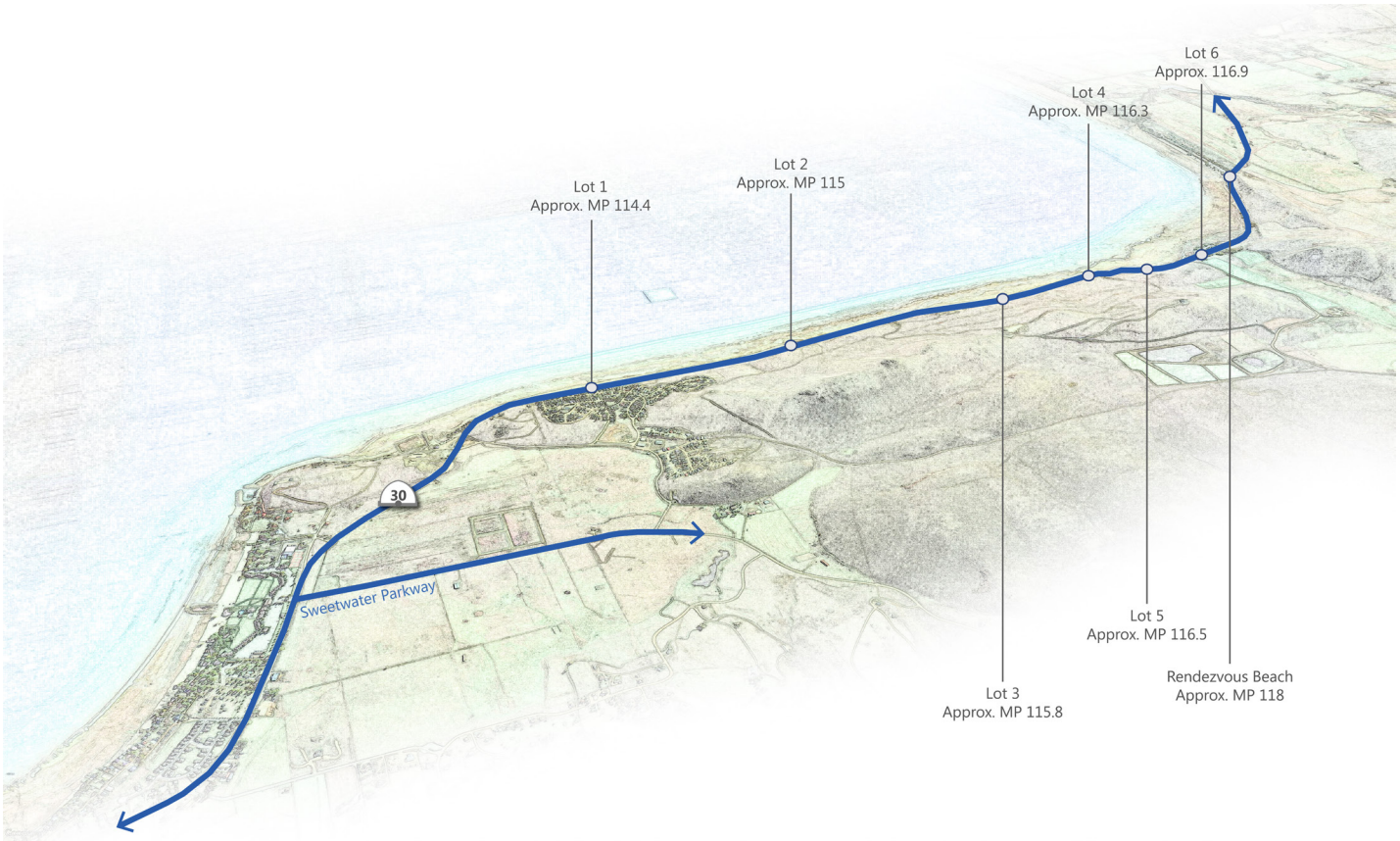
For additional information see Appendix A

Southwest Beach Access

TURN LANES

Bear Lake's southwest shore is a major recreational destination providing primitive beach access for approximately 4 miles between MP 114 and MP 118. During the peak summer season, visitors park vehicles on small roadside parking areas and the highway shoulder, creating an unsafe environment for motorists, cyclists, and people walking to and from-their vehicles. Utah Senate Bill (S.B.) 187 requires the Utah Division of Forestry, Fire and State Lands (FFSL) to designate areas along this stretch for recreational development. The FFSL plans include designated parking lots with waste management, restroom and picnic facilities at six locations. To allow for continual traffic flow and safe ingress and egress, deceleration turn lanes are proposed at each of the seven access locations.

- Lot 1 MP 114.4
- Lot 2 MP 115
- Lot 3 MP 115.8
- Lot 4 MP 116.3
- Lot 5 MP 116.5
- Lot 6 MP 116.9
- Rendezvous Beach (northbound right-turn only) MP 118



[1] See Appendix F - Agency Coordination Memo.
[2] See Appendix F - Agency Coordination Memo

PURPOSE & NEED:

The purpose of the project is to provide for safe ingress and egress at each of the six proposed parking areas. Turn lanes would improve safety along the corridor and promote parking at designated locations.

The project is needed because SR 30 does not currently have any turn lanes. The proposed parking and facility improvements will provide more order along Southwest Beach; however, designated parking areas necessitate the implementation of turning lanes to allow for safe turning movements while not impeding traffic flow. High speeds and line of sight issues along the corridor increase the likelihood of collisions associated with stopped or slow moving vehicles.

OUTSTANDING ISSUES:

A number of issues must be resolved to successfully implement the proposed trail extension:

- SR 30 is constrained by hills on the west and the lake on the east; construction could require substantial cuts into the hillside or filling below the ordinary high water mark (OHWM).
- Need to assess impact of additional storm water run-off resulting from the increase of impervious surface.

IMPLEMENTATION STEPS:

- Consider phasing the turn lanes based on highest vehicle turn activity. Turn lanes may also be combined where geographic proximity allows
- Coordinate with responsible agencies [2]:
  - United State Army Corps of Engineers (USACE) – Jurisdiction below OHWM (USACE OHWM requires delineation)
  - FFSL – Responsible for development of designated recreation areas; Jurisdiction below OHWM (FFSL OHWM is elevation based)
- Obtain the necessary permits from USACE and FFSL if construction is below the OHWM
- Obtain the necessary right-of-way to provide space for turn lanes, shoulders and trail extension
- Coordinate funding and timing with the recommended trail extension

LEVEL OF ENVIRONMENTAL DOCUMENTATION:

A Categorical Exclusion (CE) is anticipated for environmental clearance.

TIME HORIZON:

Short to Medium Term implementation would require additional planning, environmental clearance, design, possible permitting and funding. FFSL plans to begin improvements on the north end of the beach in 2016, and continue southward as funding allows.

Southwest Beach Turn Lanes SUMMARY

COST: With and Without Mill & Overlay

$1,215,000 - $1,435,000*
(Cost may vary due to topography and available ROW)

PURPOSE: Provide for safe ingress/ egress and promote parking in designated areas

NEED: Currently, the turning movements, site lines and parking are inadequate and unsafe.

RESULTS: Parking in designated areas, improve flow along Southwest Beach and avoid collisions do to poor sight lines

* In 2020 $'s

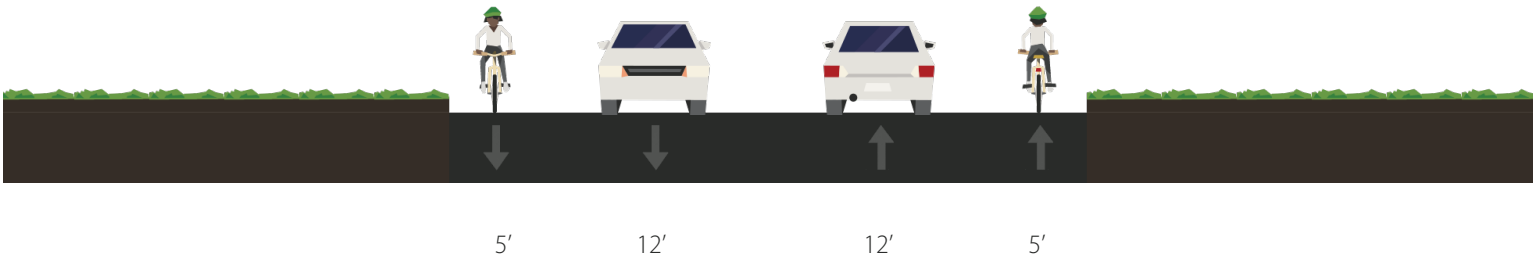
For additional information see Appendix B

Widening
ROAD SHOULDERS

The implementation of 5-foot paved shoulders, on both sides of SR 30 and US 89 is recommended for further evaluation. The addition of paved shoulders would provide a myriad of safety benefits for motorists and pedestrians, including:

- A stable surface off of the roadway for pedestrians to use where sidewalks are not provided
- An increased level of comfort for bicyclists
- Possible reduction in various crash types, specifically single-vehicle run off road (ROR)
- Increased turning radii at intersections and driveways improving turning movements and providing space for passing.
- Emergency stopping space for broken-down vehicles
- Space for maintenance operations and snow storage

Photo Courtesy of https://bikeeastbay.org/nilescanyon



PURPOSE & NEED:

The purpose of this project is to improve multi-modal safety and operations along SR 30 and US 89.

SR 30 and US 89 provide the only access, by all modes, to the primary trip generators along the east side of Bear Lake. As development and recreational pressures continue to increase, variable traffic speeds, line of site issues and an increase in multi-modal uses will continue to conflict and diminish safety along US 89 and SR 30.

OUTSTANDING ISSUES:

A number of issues must be resolved to successfully implement the proposed trail extension:

- SR 30 is constrained by hills on the west and the lake on the east; construction could require substantial cuts into the hillside or filling below the ordinary high water mark (OHWM)[1].
- ROW needed for the recommended trail extension would be in addition to ROW required for shoulders. Need to assess impact of additional storm water run-off resulting from the increase in impervious surfaces.

IMPLEMENTATION STEPS:

- Coordinate with responsible agencies[1]:
  - United State Army Corps of Engineers (USACE) – Jurisdiction below OHWM (USACE OHWM requires delineation)
  - Utah Division of Forestry, Fire and State Lands (FFSL) – Jurisdiction below OHWM (UDFFSL OHWM is elevation based)
  - Coordinate with Utah State Parks – Operates Rendezvous Beach State Park & owns property west of SR 30
  - Obtain the necessary permits from USACE and FFSL if construction is below the OHWM
- Ensure the project is coordinated with any proposed plans to potentially widen SR 30

[1] See Appendix F - Agency Coordination Memo.

LEVEL OF ENVIRONMENTAL DOCUMENTATION:

A Categorical Exclusion (CE) is anticipated for environmental clearance.

TIME HORIZON:

Short to Long Term implementation would require additional planning, design, possible permitting and significant funding.

Widening Road Shoulders SUMMARY

COST: With and Without Mill and Overlay

$1,400,000 - $1,650,000* per mile (Cost may vary due to topography and available ROW)

PURPOSE: To improve the multi-modal connectivity and safety and offer alternative modes of transport between destinations

NEED: Compromised safety due to increase of traffic flow in immediate area

RESULTS: Improve safety and reduce accidents

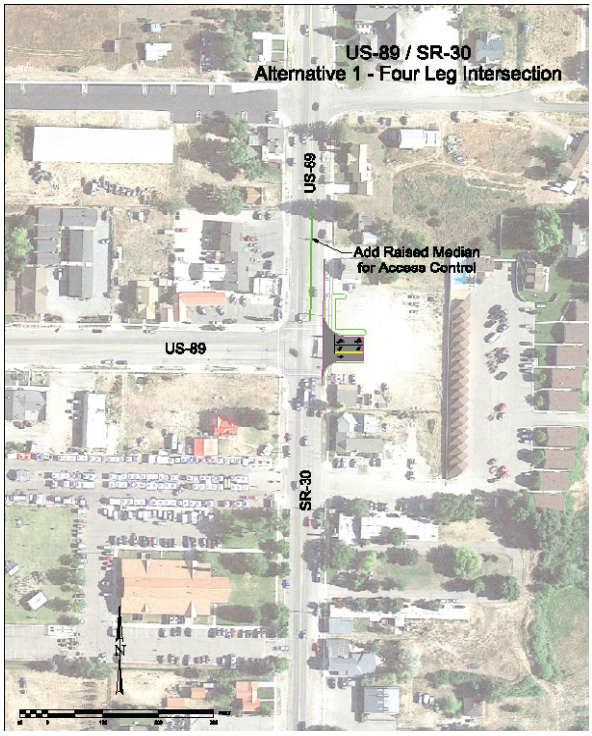
* In 2020 $'s

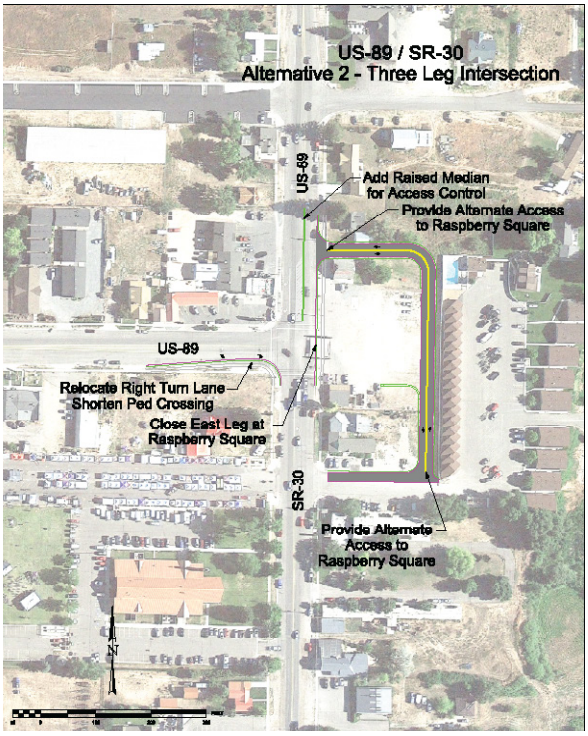
For additional information see Appendix C

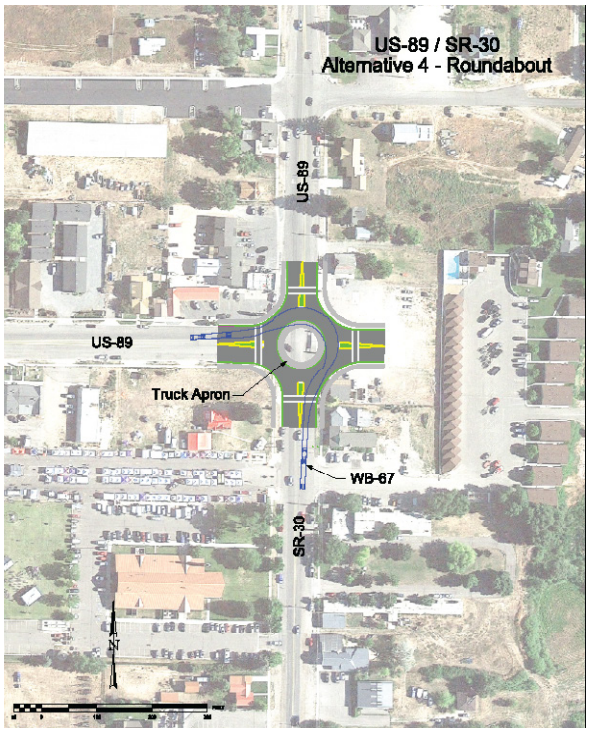
Garden City

INTERSECTION DESIGN

Raspberry Square is located at the intersection US 89 and SR 30 in the town center of Garden City. The square serves as a City gathering place for events like the Annual Raspberry Days Festival. A number of alternatives have been identified to address operational issues, improve multi-modal safety, and formalize the private driveway within the intersection.







Note: Intersection designs are planning level and require additional engineering to fully understand all impacts.

FOUR ALTERNATIVES: are proposed to improve the intersection and access to and from the square:

Alternative-1 is a four leg intersection that formalizes the main entrance to the square by clearly delineating egress/ingress lanes. A raised median on US 89 would eliminate left turns, requiring right-in-right-out movements only. Landscaping would separate the parking lot from the sidewalk along the street frontage. Further evaluation is recommended to evaluate the need for a traffic signal.

Alternative -2 would eliminate the current main entrance to Raspberry Square. A new entrance would be located on 50 South directly behind the Executive Recreational Properties and Bear Lake Cabin Rental offices. The through lane on US 89 would be eliminated, forcing vehicles to proceed north on US 89 or south on SR 30. Similar to Alternative 1, the driveway adjacent to the Quick and Tasty would be modified to eliminate left turn movements. Landscaping would separate the parking lot from the sidewalk along the street frontage. Further evaluation is recommended to evaluate the need for a traffic signal.

Alternative -3 would build on alternatives 1 and 2. A traffic signal would be installed to improve traffic operations and pedestrian safety. While a full traffic signal is not currently warranter, an interim strategy may include flashing beacons on overhead mast arms to improve stop compliance. This alternative would incorporate the proposed improvements outlines in Alternative 1 above.

Alternative -4 is a roundabout intersection to allow continuous flow of traffic through the US 89 and SR 30 intersection.

PURPOSE & NEED:

The purpose of this project is to enhance pedestrian and vehicle safety and improve peak-season traffic congestion in proximity to Raspberry Square.

Raspberry Square currently lacks clearly delineated driveways, signage and direction. This lack of facility organization during peak season travel creates an unsafe auto and pedestrian environment. As development and recreational activity pressures increase, this intersection will create a bottleneck in the roadway network and degrade traveler experience.

OUTSTANDING ISSUES:

Determine if signal is warranted

IMPLEMENTATION STEPS:

- Coordinate with adjacent businesses, property owners and development plans
- Obtain the necessary right-of-way (if necessary)

LEVEL OF ENVIRONMENTAL DOCUMENTATION:

A Categorical Exclusion (CE) is anticipated for environmental clearance.

TIME HORIZON:

Short-Term implementation would require additional planning, design and funding.

Intersection Design SUMMARY

COST:

Alternative 1: $139,000 - $220,000*
Alternative 2: $687,000 - $766,000*
Alternative 3: $150,000 - $400,000*
Alternative 4: $927,000 - $958,000*

(Cost may vary due to topography and available ROW)

PURPOSE: Enhance pedestrian and vehicle safety and improve peak-season congestion

NEED: Delineated driveways, signage and direction

RESULTS: Less congestion and better safety

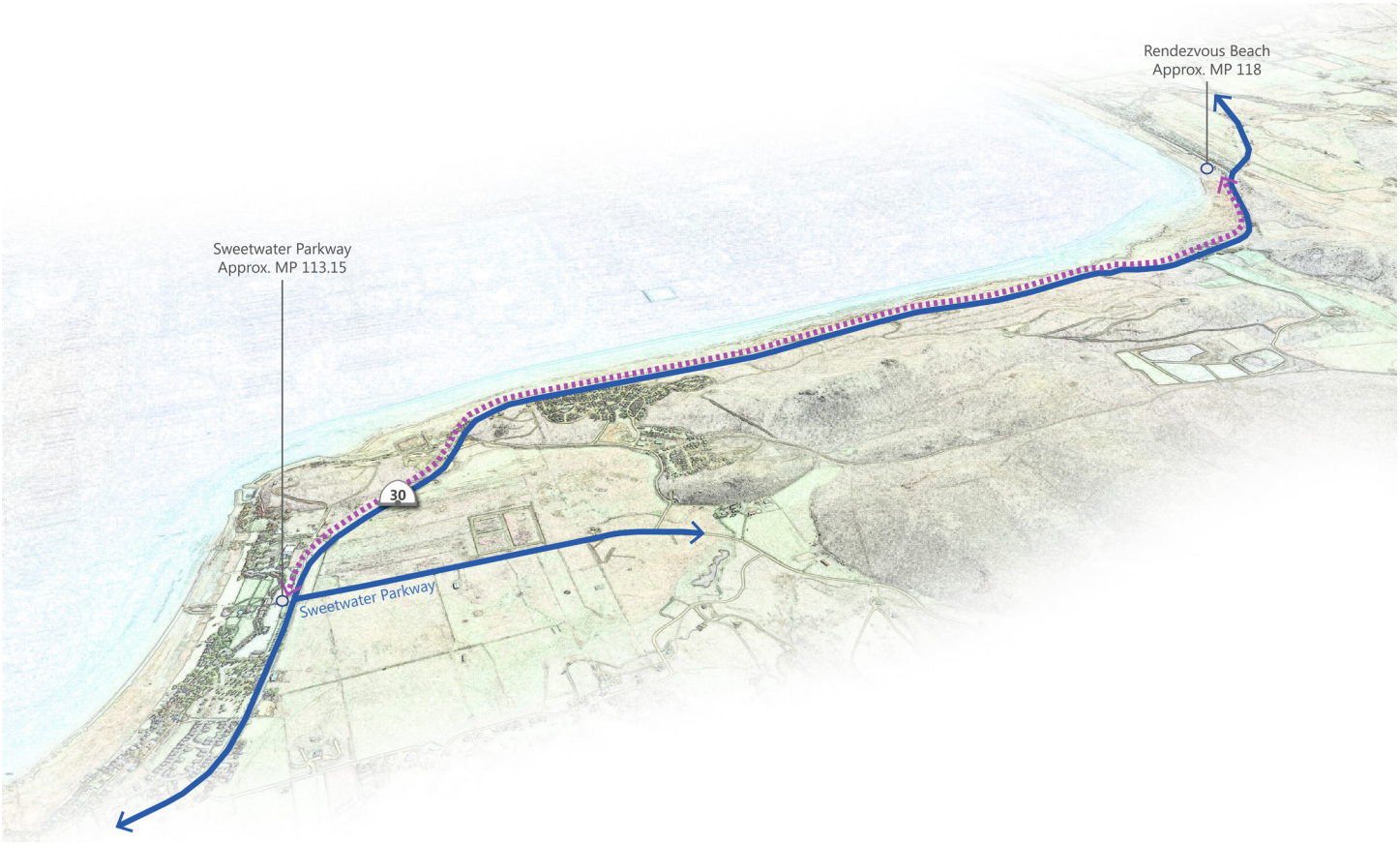
* In 2020 $'s

For additional information see Appendix D

Multi-Use

TRAIL EXTENSION

A trail extension totaling approximately 4.5 miles is proposed to on the east side of SR-30 from Sweetwater Parkway to Rendezvous Beach. The proposed extension would be a minimum 10-foot trail with 2-foot shoulders on both sides.



PURPOSE & NEED:

The purpose of this project is to extend the existing multi-use trail, from Garden City to Sweetwater Parkway, to Rendezvous State Park on the south end of Bear Lake. The project would enhance multi-modal connectivity and improve safety along State Route 30. In addition, the proposed extension would meet the health, economic development and safety goals identified in the 2012 Bear Lake Legacy Pathway Concept Plan.

The project is needed because there is currently a 4.5 mile gap on SR-30, between Sweetwater Park and Rendezvous State Park. State Route 30 provides the only access between Garden City and Rendezvous State Park. High speeds, heavy traffic, large recreational vehicles and no multi-modal accommodations on SR-30 degrade the recreational experience and create a dangerous environment for cyclist and pedestrians.

OUTSTANDING ISSUES:

- A number of issues must be resolved to successfully implement the proposed trail extension.
- Address the ROW and physical limitations that exist at MP 114.

IMPLEMENTATION STEPS:

- Coordinate with responsible agencies[1]:
- United State Army Corps of Engineers (USACE) – Jurisdiction below OHWM.
- Utah Division of Forestry, Fire and State Lands (UDFFSL) – Jurisdiction below OHWM.
- Utah State Parks – Operates Rendezvous State Park & owns property west of SR-30.
- Obtain the necessary permits from USACE and UDFFSL if construction is below the OHWM.
- Ensure the project is coordinated with any proposed plans for shoulder widening on SR-30.
- Coordinate trail design with Southwest Beach parking area.

[1] See Appendix F - Agency Coordination Memo.

LEVEL OF ENVIRONMENTAL DOCUMENTATION:

A Categorical Exclusion (CE) is anticipated for environmental clearance.

TIME HORIZON:

Medium-Term implementation would require additional planning, environmental clearance, design, permitting and funding.

Multi-Use Trail Extension
SUMMARY

COST:	$2,400,000 - $2,800,000*
PURPOSE:	Extend existing trail from Garden City to end of Bear Lake.
NEED:	Eliminate gap between Sweetwater Park and Rendezvous State Park
RESULTS:	Meet safety goals of the 2012 Bear Lake Legacy Pathway Concept Plan

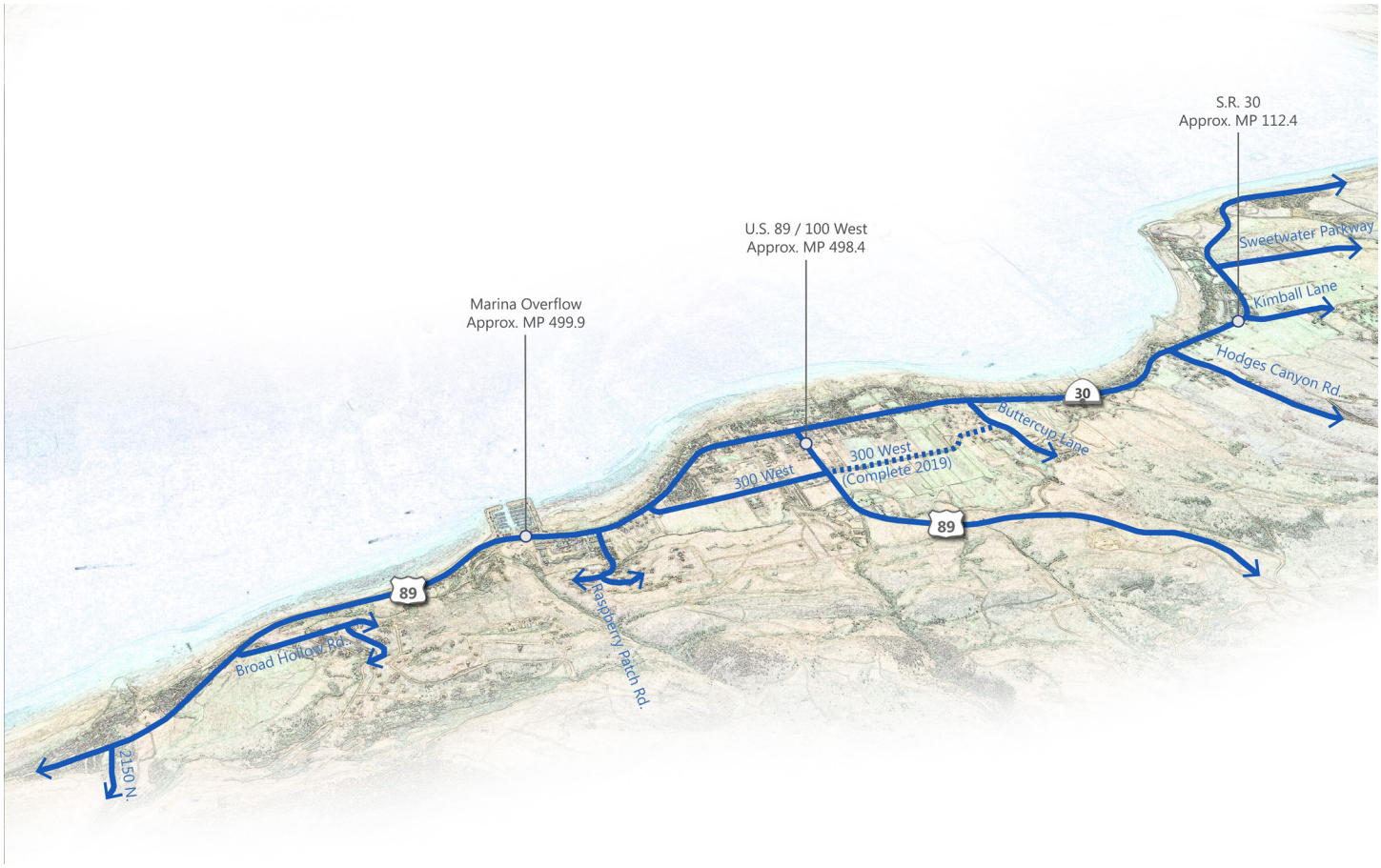
* In 2020 $'s

For additional information see Appendix E

Multi-use
TRAIL CROSSWALKS

Improved trail crossings are recommended. Proposed improvements include pedestrian-actuated control devices with illuminating lights and highly visible/reflective striping to alert oncoming drivers. In addition, advance static signs would be placed in advance of the crossings to warn drivers of the upcoming crossing.

- Marina Overflow MP 499.9
- US 89/100 West MP 498.4
- SR 30 MP 112.4



PURPOSE & NEED:

The purpose of the project is to improve safety where the Bear Lake Legacy Trail crosses roadways with high volumes and high speeds.

The project is needed because there are currently no signs, signals, or striping to alert motorists that trail users are crossing. The posted speeds are between 40 and 55 mph. High speeds, line-of-sight, heavy traffic and large recreational vehicles create a dangerous environment for trail users at each location. As the use of multi-modal modes continue to gain in popularity and the recommended trail segment between Sweetwater Parkway and Rendezvous Beach is implemented, trail use will continue to grow. Making trail crossing locations safe is critical.

OUTSTANDING ISSUES:

Proposed crossing locations require UDOT approval.

IMPLEMENTATION STEPS:

- Need to define the appropriate power source for ped-actuated signals unless solar-powered
- Need to assess site distance and mitigate any deficiencies

LEVEL OF ENVIRONMENTAL DOCUMENTATION:

A Categorical Exclusion (CE) is anticipated for environmental clearance.

TIME HORIZON:

Short-term – implementation is low cost and would require minimal design.

Multi-use Trail Crosswalks

SUMMARY

COST: $20,000* per crossing

PURPOSE: improve safety crossings

NEED: No signs, signals or striping to alert motorists of trail crossings

RESULTS: Safe trail crossings

* In 2020 $'s

Peak Season

PILOT PROJECTS

Several pilot projects are recommended for consideration to address seasonal variation in congestion, parking, and other issues along the corridor. This approach to transportation management provides flexibility to implement basic low-cost strategies, test effectiveness, and give the public time to absorb the changes and provide feedback.

- Traffic Management Committee
- Temporary speed feedback signs
- Numbered or named beach access points
- Centralized park-and-ride located near 300 West with shuttle service to key beach access locations
- Park-and-bike facilities near 300 West
- Bikeshare program that operates on weekends during peak season
- Temporary traffic signal at the intersection of US 89 and SR 30
- Traffic pace car
- Temporary Variable Message Signs (VMS)
- Courtesy shuttle between the Marina and Marina overflow parking
- Free taxi or shuttle during weekends

TRAFFIC MANAGEMENT COMMITTEE

A committee comprised of stakeholders and community leaders could meet regularly to coordinate efforts to manage seasonal traffic, implement basic low-cost pilot projects, and strategize implementation of larger more costly projects.

TEMPORARY SPEED FEEDBACK SIGNS

Temporary speed feedback signs make drivers more aware of their speed and can serve as a visual cue that they are entering an activity area. These signs could be placed in areas that experience a high amount of shoulder parking, such as the Southwest Beach area.

NUMBERED OR NAMED BEACH ACCESS POINTS

Numbered or named beach access points will help provide wayfinding for visitors. By naming or numbering beach access points it not only helps visitors direct themselves, but informs them that there are alternative access points if there is no available parking.

CENTRALIZED PARK-AND-RIDE

A centralized park-and-ride located near 300 West with shuttle service to key beach access locations can help reduce congestion throughout the corridor and at the intersection of U.S. 89 and S.R. 30. Even without shuttle service, a park-and-ride at this location provides a convenient meeting point for visitors to arrange carpools.

PARK-AND-BIKE FACILITY

Integrated with the park-and-ride, a park-and-bike facility allows users to park their car in one centralized location and use a bicycle to get to their final destination, thereby removing traffic from the corridor

BIKESHARE PROGRAM

Providing a limited bikeshare program during the peak season would allow visitors to use bikeshare for short trips to key destination locations like the Marina, beach access points, and a park-and-ride facility.

TEMPORARY TRAFFIC SIGNAL

The intersection of US-89 and SR-30 does not currently warrant a traffic signal. However, congestion and safety are a concern at this location. Providing a temporary traffic signal during the peak season could be implemented before a full signal warrant is met.

TRAFFIC PACE CAR

Pace cars can be used to slow vehicle speeds by using a police car (or other marked vehicle) that vehicles must follow.

TEMPORARY VMS

Temporary VMS can be used to help direct traffic to use alternative routes to key destinations and provide other important travel or parking information to roadway users. One specific use could be to direct traffic to use 300 West to access the Marina or other locations where 300 West would serve as an alternative bypass route. Temporary VMS can also be used to alert drivers when entering activity areas to emphasize low speeds and caution.

COURTESY SHUTTLE BETWEEN THE MARINA AND MARINA OVERFLOW PARKING

A courtesy shuttle that runs between the Marina and Marina overflow parking area would make the overflow parking location more desirable. This could also reduce the number of pedestrian/auto conflicts that occur with people crossing U.S. 89 to get between the two locations.

FREE TAXI OR SHUTTLE DURING WEEKENDS

A taxi or shuttle service that runs to key destinations can help reduce congestion during peak weekends. Offering this as a free service would make the service more appealing and could also provide a unique branding opportunity. Such a system could be based around traditional stops and schedules or be provided as more of an on-demand service that users access through a mobile application.