4 Transportation

Creating Great Places and Strong Connections

The purpose of the Transportation Element is to help the City of North Salt Lake achieve the following goals:

- *Establish and maintain a land use pattern and street system that moves traffic efficiently, reduces the need for vehicular trips, maintains good levels of service and contributes positively to the economic health and reputation of the City.*
- *Establish, improve, increase and promote vehicular access opportunities to South Davis County corridor connections on Regional and State transportation facilities.*
- *Pursue and maximize transit opportunities.*
- *Incorporate techniques and development standards that provide for and encourage transportation opportunities for pedestrians and cyclists in the City's trail and street systems and in its approval of future developments.*
- *Incorporate landscaping into the City's streets and path designs in an effort to improve the visual quality and overall aesthetics of the City and its travel corridors.*

Introduction

The Transportation Chapter delineates the goals, policies, and strategies designed to improve transportation in the City, and serves as the policy foundation for the City's project review process and as a guidance document for all transportation-related planning efforts. It is meant as a reference for decision-makers, planners, engineers, architects, builders and the general public.

Transportation is much more than just making sure we can all drive from point A to point B without serious impedance. Transportation touches every aspect of modern life, and a major objective of this chapter is to enlighten community leaders on what they can do to ensure the transportation system will be aesthetically pleasing, cost effective, and functional and accessible for all modes of transportation.

A major objective of this chapter is to enlighten and educate community leaders on the importance and needs of regional transportation connections that benefit North Salt Lake City and South Davis County.

North Salt Lake Speaks

Through the public process, North Salt Lake residents discussed the conditions of Redwood Road and Highway 89 and expressed a desire to improve the aesthetics as well as biking and walking conditions.

WORKSHOP QUESTIONS

Which one of the following would you most like to see improved on Redwood Road?

Top responses:

- Aesthetic appeal of the street 28%
- Aesthetic appeal of buildings along the street 26%
- Selection of retail shops 23%

Which one of the following would you most like to see improved on Highway 89?

Top responses:

- Selection of retail shops 33%
- Aesthetic appeal of buildings along the street 24%
- Aesthetic appeal of the street 17%

To what degree do you support walk/bike improvements on key corridors, even if it means some constraints to auto movement?

- Not worth exploring, I have substantial concerns 3%
- Worth exploring further, but I have major concerns 40%
- Sounds like a good idea, but details need to be addressed 27%
- I strongly support this idea 30%

ONLINE QUESTIONS

What is the biggest traffic or roadway issue facing North Salt Lake?

Responses listed in order of popularity:

a) Freeway access
b) East/West traffic flow and trains
c) Intersection of Center St. and Main St.

What is the biggest walking or bicycling issue facing North Salt Lake?

Responses listed in order of popularity:

a) More/better bike lanes, trails, and sidewalks
b) Need better sidewalks and bike lanes on Redwood specifically
c) Safety for pedestrians and cyclists
d) Speed of traffic

Creating Concentrated Development

Mix Uses. Promote residential, office, and targeted retail within the Town Center and the northwest quadrant of Redwood Rd. and I-215 area. Providing this mix will establish strong support for transit, and help shorten trip lengths. Infill and redevelopment opportunities along Highway 89 and Redwood Road may also support transit and create additional local employment opportunities.

Develop a tight grid of streets. The city should also support creation of a tighter grid of streets in these areas, and increase the amount of space dedicated to non-auto uses.

Discourage one story, auto oriented businesses. While we need all kinds of businesses within the Town Center one-story, auto-oriented businesses that consume a lot of land and require a lot of parking should be discouraged.

Goals and Policies

This section of the Transportation Chapter describes goals and objectives that guide policy decisions within North Salt Lake consistent with the City's vision.

The Land Use & Transportation Connection

Every weekday, many thousands of commuters from Davis and Weber Counties travel through North Salt Lake on their way to the job centers in Salt Lake County. The disconnect between high concentration of jobs in Salt Lake County and high concentration of homes in Davis and Weber counties, contributes to long commutes, congestion, air pollution, high energy consumption, and a need for expensive regional infrastructure projects. A positive jobs balance in Davis County would likely lower the average commute length from Davis County.

In Salt Lake County, Activity Centers with high-density residential buildings, office towers, and ground-level retail shops are emerging in Sugarhouse, South Salt Lake, and West Valley City. The core of Sugarhouse is nearly 4-miles from downtown Salt Lake City; West Valley's core is almost 6-miles. The proposed Town Center for North Salt Lake is about 5.6 miles from downtown and 7.6 miles from the entrance to the airport. A large number of professionals and business owners live in the area and might be interested in locating in an emerging Activity Center in North Salt Lake if an atmosphere change and renewal can gain momentum.

The City has a desire to support job growth and economic activity centers by maintaining an efficient local street system that moves traffic effectively and supports vehicular and other modes of transportation that the public needs in order to circulate in and move throughout North Salt Lake.

Goal T-1

Establish and maintain a land use pattern and street system that moves traffic efficiently, reduces the need for vehicular trips, maintains good levels of service and contributes positively to the economic health and reputation of the City.

Policies related to future land uses:

T-1.1 Create concentrated, mixed use development within the Town Center. Refer to Chapters 7 & 8.

T-1.2 Support infill and re-development opportunities along the Highway 89 and Redwood Road corridors.

Vibrant, active development and re-development in these key sites will improve regional mobility, increase the likelihood of gaining better access to nearby freeways and support the creation of transit options.

Policies related to arterial lane widths:

Lane widths on arterial streets typically range from as narrow as 9-ft in dense urban settings, to a 12-foot standard on freeways and high-speed arterials. When lanes are wide, drivers sense that they have a lot of room for error, and feel comfortable at high speeds – as intended on many streets. When lanes are narrow, drivers sense a need to drive slower. In mixed use high-density environments with many signals, crosswalks, and pedestrians, slower is safer, and reducing lane width is among the best ways to alert drivers that they are entering a sensitive area, and should slow down and remain on high-alert. Reduced lane widths also have the added benefit of saving space, which is vital in a situation where every foot is critical.

US-89 and Redwood Road currently have 12 foot lanes. On US-89, this width harkens back to the days when the highway was vital for long distance travel. With I-15, Legacy Parkway, and Commuter Rail, modeling done as part of this plan demonstrates that US-89 may never again be utilized by high volumes of traffic, and certainly not for high-speed, long distance travel except on rare occasions

when the freeways suffer from serious incidents. Even then, "high speed" is not a fair descriptor of the situation.

Documentation provided in the Appendix suggests that there is no measurable difference in the overall capacity of arterials with 10-ft lanes vs. arterials with 12-foot lanes.

T-1.3 ***Center Street, Orchard Drive to I-15*** - Reduce travel lane width where possible.

T-1.4 ***Redwood Road*** - Maintain 12-foot lane widths throughout entire length.

T-1.5 ***Highway 89*** - Reduce lane widths from 12-feet to 11-feet between 3800 South/350 North and the Beck Street entrance and maintain 2 lanes each direction (see Figure T.1: Highway 89 Cross-sections).

T-1.6 ***Highway 89*** - Coordinate with UDOT and UTA frequently regarding the ultimate cross-section and point out key benefits of reducing lane widths.

Policies related to parking within the Town Center and along Highway 89:

T-1.7 ***Off-Street Parking*** - Encourage contributions to public parking in lieu of private parking.

Public parking can be utilized more effectively, and can more easily be converted to garages when densities warrant.

T-1.8 ***Side and Back Configuration*** - When parking needs cannot fully be met with nearby public lots, encourage parking to the side of or behind buildings.

HIGHWAY 89 IN THE TOWN CENTER

"Highway 89" was once very critical for moving traffic through the region, but since the advent of I-15 and Legacy Parkway, Highway 89 is mostly used for local circulation and not for regional mobility. Within the Town Center area it no longer needs to be a high-speed auto-oriented arterial.

UDOT still believes Highway 89 performs a critical "relief valve" function when I-15 is under construction or otherwise has a problem. But reducing lane widths and travel speeds will not measurably affect its capacity to serve as a relief valve. Alternative Intersection concepts, if implemented, will actually improve average travel times on the street, while at the same time allowing the street to have narrower lanes, traffic calming features, and a reduced maximum speed limit.

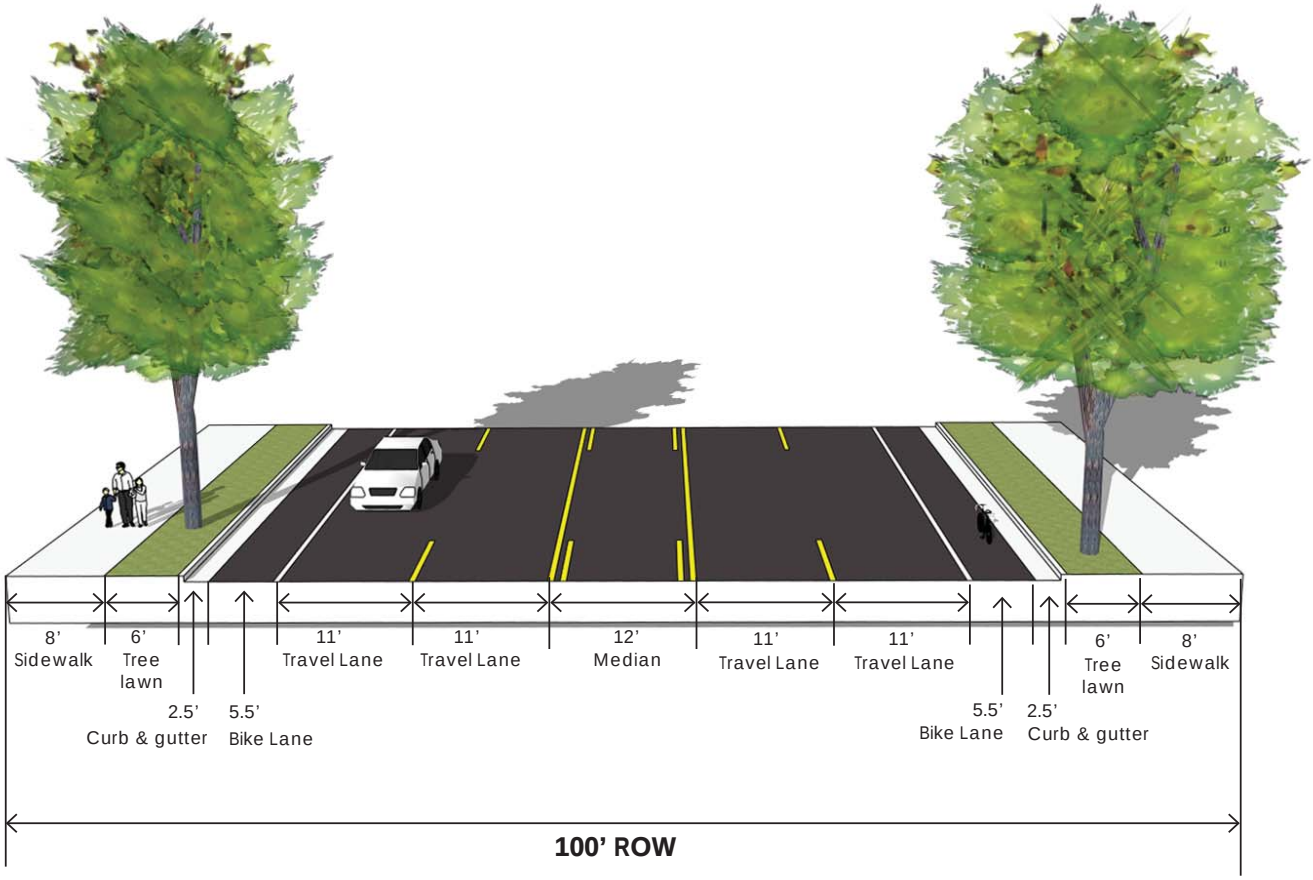
The future needs and existing constraints of Highway 89 are complicated and not easy to resolve with simple cross-sectional diagrams. There is a clear need to define not just typical sections that meet the needs of UDOT, UTA, NSL, and other stakeholders, but also to create an ultimate right-of-way footprint that allows space for transit stations and queue-jumper lanes, turn-pockets, bike/pedestrian needs, etc. The city should immediately pursue defining the ultimate needs of Highway 89, but until that can happen,the proposed cross-sections seem to be a good blend of balancing stakeholder desires with existing constraints.

Policy related to Highway 89:

> T-1.9 Perform a right-of-way analysis and needs study so that future development and re-development approvals along the corridor include needed adjustments that are in conformance with the City's long-term objectives related to this corridor.

Figure T.1: Highway 89 Cross-sections

100 foot right-of-way is desired. The 149 foot right of way cross-section is applicable wherever there is an ellipse.


8'
Sidewalk
6'
Tree
lawn
2.5'
Curb & gutter
5.5'
Bike Lane
11'
Travel Lane
11'
Travel Lane
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Median
11'
Travel Lane
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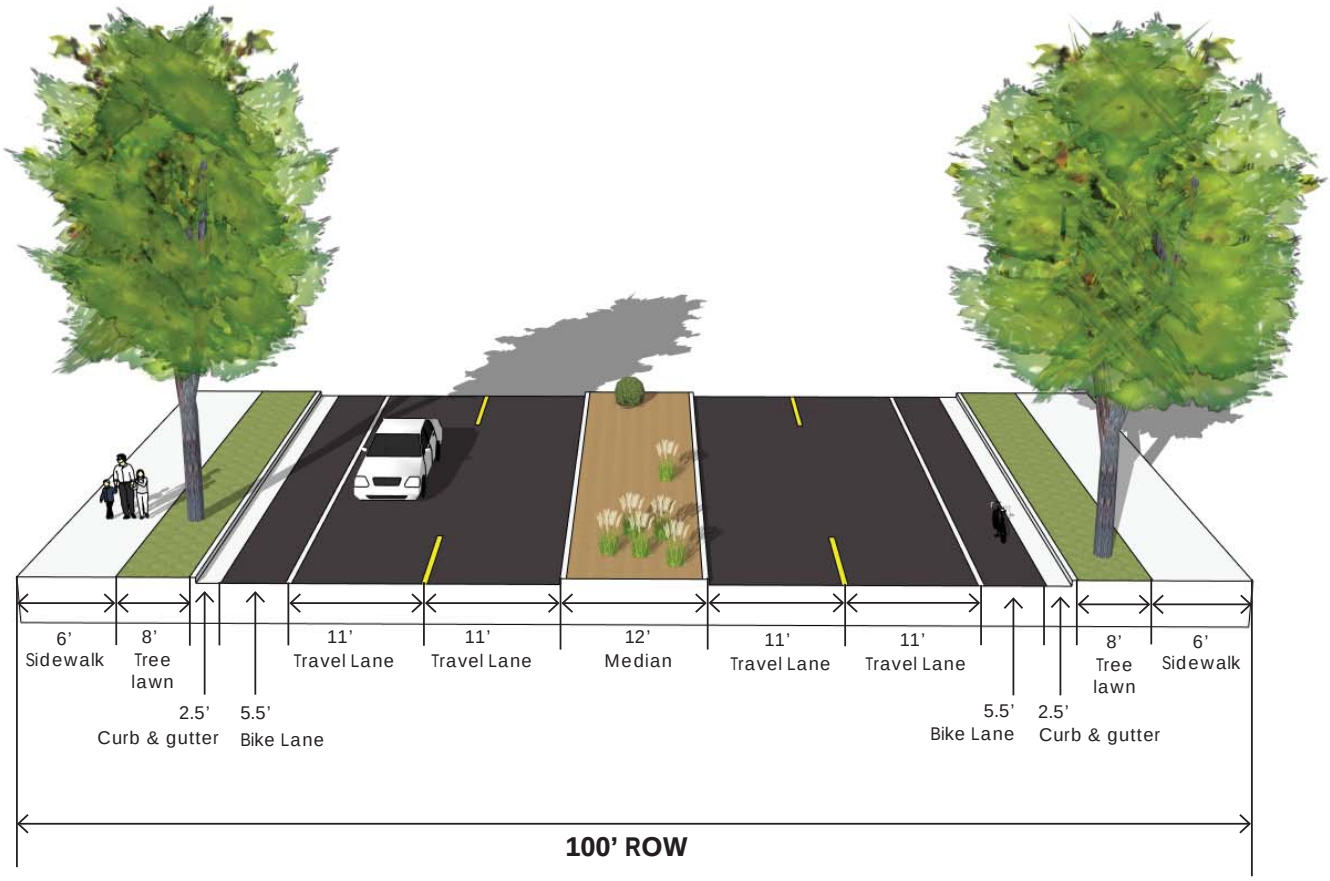
Travel Lane
5.5'
Bike Lane
2.5'
Curb & gutter
6'
Tree
lawn
8'
Sidewalk
100' ROW


6'
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Travel Lane
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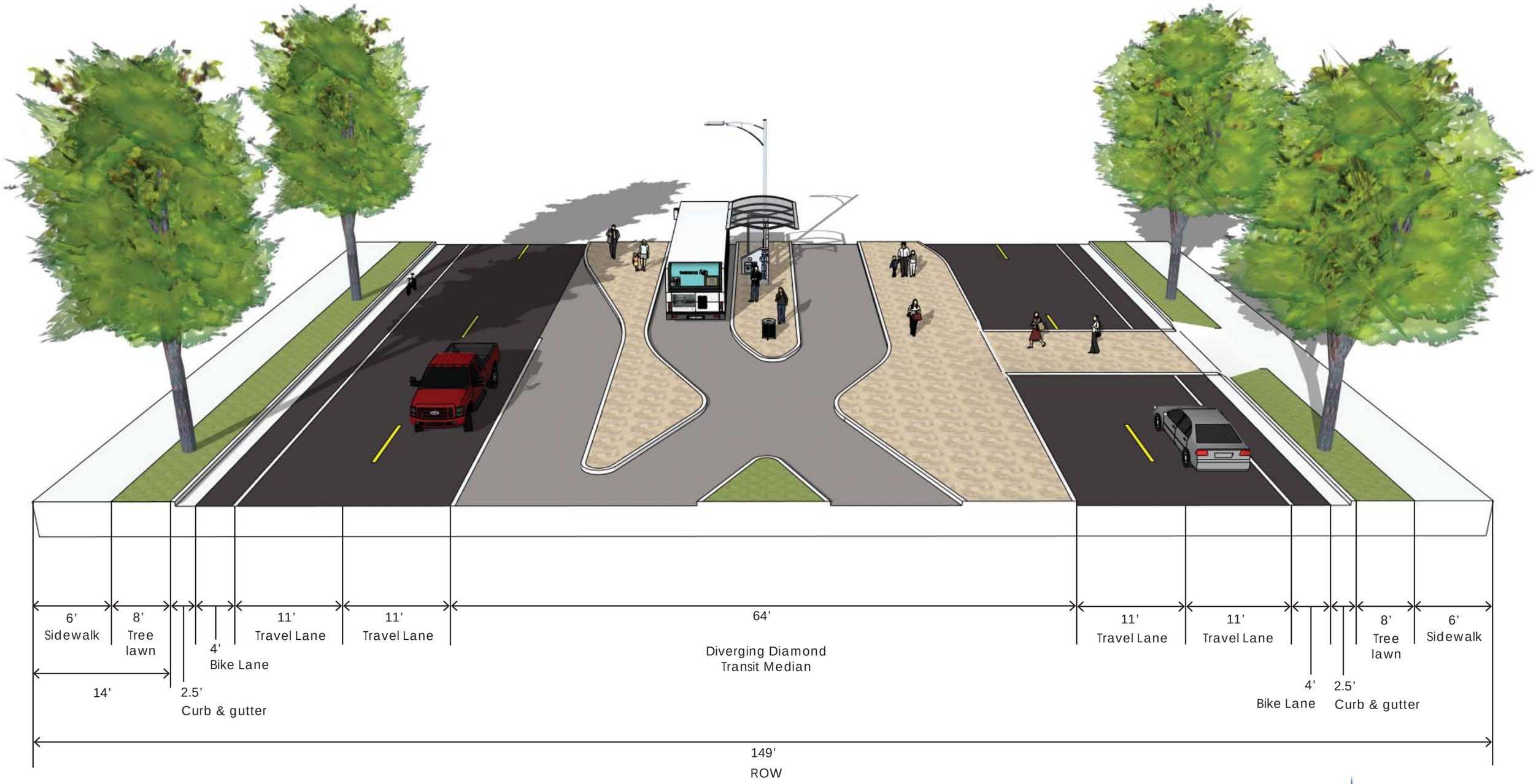
5.5'
Bike Lane
2.5'
Curb & gutter
8'
Tree
lawn
6'
Sidewalk
100' ROW



US 89 STREET SECTION (149')

NSL DIRECTIONS

1100 NORTH/2600 SOUTH

The City is fortunate to have freeway access to Interstate 15 at the North end of the City through the 2600 South interchange. However, the inefficient geometry of this interchange and the local street system immediately adjacent to the facility has created large amounts of congestion and dysfunctional routing. At times during the day, particularly in afternoon peak hours, levels of service for this intersection completely fail and it becomes an extremely difficult and time-consuming route for commercial and residential traffic. This is exacerbated at times by the close proximity to at-grade rail crossings, traffic on Main Street and the close proximity of local industrial and residential land uses along the 1100 North corridor. It should be noted that this corridor is also the jurisdictional city limit line for both North Salt Lake on the south side and Woods Cross on the north.

In an effort to correct and upgrade this facility, the 2012 Utah Legislature passed a large transportation funding bill and the reconstruction of the 2600 South/I-15 interchange was included in the list of funded projects. Construction is expected to begin in 2013 and last approximately 12-14 months. This project will reconstruct the street and ramp system that supports the interchange, add left turn ramp lanes, provide for through movements on the west side of the interchange on 1100 North and address traffic entering this area from the north and south frontage roads located on the west side of the freeway. The results of the construction include a new and expanded bridge deck on I-15 and continuous movement of east/west traffic.

In addition to this interchange upgrade, North Salt Lake City was awarded a State transportation allocation for the purpose of re-constructing 1100 North from approximately 100 East (NSL coordinate) to Redwood Road. This project includes a widening of the road and complete re-surfacing. The project will not separate the roadway from the at-grade rail lines, but, when combined with the upgrades at I-15, will result in a vastly improved facility with a significant increase in functionality.

The City has two principal long-term objectives related to 1100 North: 1) add an oversize park strip and trail on the south side of the road; and, 2) accomplish grade separation of the roadbed from the UTA Frontrunner rail lines crossing this roadway.

Policies related to 1100 North:

T-1.10 ***Cross-section on 1100 North***– The right-of-way for the area of 1100 North, south of the north curb and gutter for this roadway should be 61.5 feet and includes the following:

- A 6-foot pedestrian trail
- An 8-foot landscaped park strip with large trees
- 2.5 feet of curb and gutter
- 2 5-foot striped bicycle lanes
- 2 12-foot vehicular travel lanes
- An 11-foot center median

T-1.11 ***Grade Separation*** – The City will initiate an engineering study to evaluate the technical merits and alternatives to separate 1100 North from the UTA Frontrunner rail corridor.

One of the deficiencies of the regional transportation system in South Davis County is the inability of vehicular traffic to move west of I-15 and east of Legacy Highway without being hampered many times per day by train traffic. While train traffic is vital, it does act as an impediment to the daily functions of regional commerce. North Salt Lake City will invite and promote a transportation concept of regional significance promoting South Davis County connections. A major objective of this effort will be to create a rational methodology and transportation plan which will join together a unified connection plan between I-215, I-15, Legacy Highway and

transit plans. A main component of this effort will be to promote the grade separation of 1100 North and to provide funds for its design and construction.

CENTER STREET

Modeling suggests that Center Street will always perform well with just one lane each direction between Redwood Road and Main Street. There are also few connecting streets or driveways between Redwood Road and I-15. This leads to the conclusion that there is no need to increase pavement widths for additional lanes nor is there a need for a continuous center turn lane. Instead the city should stripe for left turn pockets as needed.

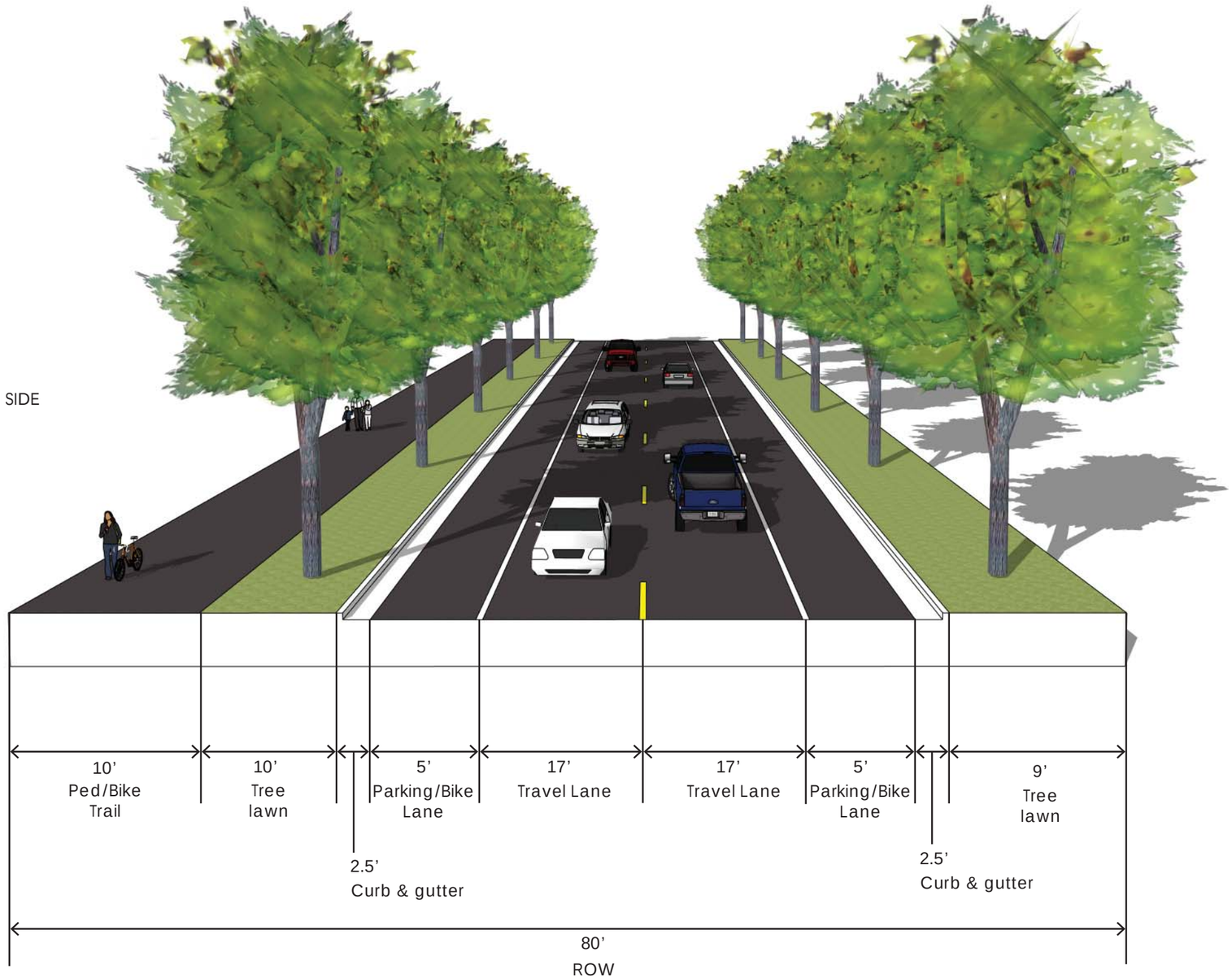
Even if traffic never warrants additional traffic lanes, Center Street is still the most important connection between the network of multi-use trails on the eastern and western edges of the city. It is also the most critical component in creating a sense of connectedness between residents and businesses on each side of the City.

On Center Street, east of 400 West, there are varying widths of pavement. This plan recommends a minimum asphalt width of 40 feet in this location. Also recommended for this section is a 10 foot park strip to be used primarily for the placement of large uniform trees (see Figure T.2) and the 10 foot multi-use trail on the south side of the roadway. Since Center Street has a high share of truck traffic, the City should create the radii needed for trailer tracking on the cross streets and at driveways, rather than directly on Center Street. This may, in certain locations, require that the City have more than 40 feet of right-of-way; however, that should not detract from the overall goal of improving the aesthetic (trees) and function (trail) of this important east-west connector.

Policy related to Center Street:

T-1.13 ***Pavement on Center Street*** – The City should maintain a 40-foot standard of pavement in order to continue the 10 foot wide asphalt trail and widen the south side park strip in areas west of the rail corridors (approximately 300 West). The City should stripe for turn pockets as necessary at intersections and driveways. Maintain shared parking and bike lane where possible.

Figure T.2: Center Street Cross-section



CENTER STREET (82')

NSL DIRECTIONS

INTERSECTION OF REDWOOD ROAD AND CENTER STREET

At the intersection of Redwood Road and Center Street, more lanes are needed to store traffic and to reduce green time needed to clear that storage. Trucks take up a lot of space, and they take a long time to accelerate. With the high number of trucks turning left onto southbound Redwood Road from Center Street, there is a need to identify the best way to accommodate left turns at this intersection.

Policies related to the intersection of Center Street and Redwood Road:

> T-1.14 Perform an intersection need and subsequent facility design study to improve storage capacities and turning movements at the intersection of Redwood Road and Center Street.
>
> T-1.15 Coordinate with UDOT to determine how best to accommodate a large number of left-turning movements so that the intersection can serve both autos and trucks relatively quickly.

Goal T-2

Establish, improve, increase and promote vehicular access opportunities to South Davis County corridor connections on Regional and State transportation facilities.

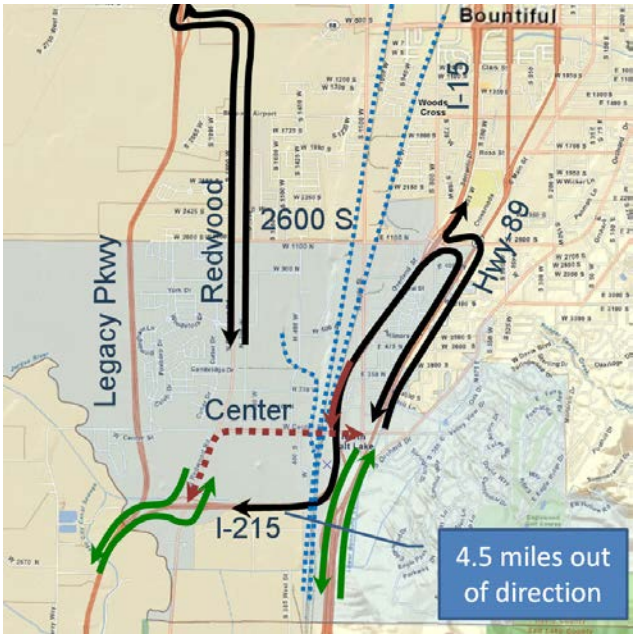
REGIONAL FREEWAY ACCESSIBILITY

The goal of this section is to generate ideas for geometric changes involving freeway access and discuss some of the opportunities and challenges each creates. These ideas can then be studied and evaluated before taking the best ideas to UDOT. The City's preferred concepts are shown in this section. Other potentially viable concepts are in the Appendix, to be referenced if necessary. All drawings depict only significant movements. No operational analysis, environmental analysis, or cost analysis has been conducted.

Freeways are a dominant aspect of the city, but ironically poor freeway access is a major factor that is likely impeding the emergence of Activity Centers in North Salt Lake and creating inefficient use of transportation facilities that could otherwise benefit the entire region. I-15, I-215, and Legacy Parkway all run through North Salt Lake, and from some directions accessibility is very good. Figure T.3 shows that to and from the south, access is very good from both I-15/Beck Street, and from the Redwood Interchange. But other directions are circuitous and unintuitive. From I-215 to the core of the city is 4.5 miles out-of-direction, which is why most people instead take Center Street, which with three tracks to cross and a terribly inefficient four-way stop, is both slow and unsightly.

As previously mentioned in this plan, 2600 South is a full interchange, but its arrangement is awkward and there is more congestion than the volumes suggest mostly due to the dysfunction of the geometry of the current ramps and roads surrounding this interchange.

Figure T.3: Freeway access



Freeway access paths to and from North Salt Lake. Green accesses are relatively good, black is relatively poor. Note that many drivers use the Redwood interchange and travel on Center Street to access the Town Center.

ACCESS TO AND FROM I-15 AND I-215 NEAR TOWN CENTER

The City's redevelopment efforts in the Town Center would likely benefit from improved access to the freeway system. Improved access would also reduce congestion and reduce the need for railroad grade separation on Center Street. It would also

improve driver expectations. This section highlights some of the key arguments in favor of additional access, along with the preferred concept for improved access. Alternative concepts are shown in the Appendix, to be pursued in the event that the preferred concept cannot be built for some reason.

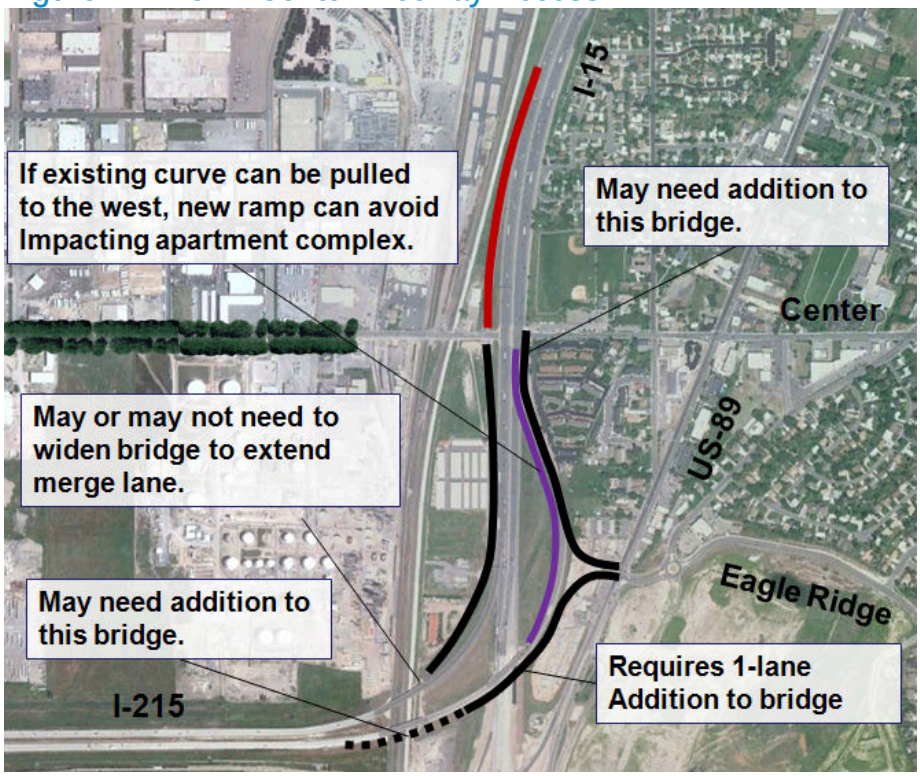
New access would improve driver expectancy

Presently, there is a single off-ramp from I-15 southbound at Center Street. This creates a "driver expectancy" problem that the Federal Highway Administration (FHWA) often seeks to remedy. If drivers can get off the freeway at a certain point, they expect they should be able to get back on for their return trip at the same point. Meeting this driver expectancy is important to FHWA. Their policy guidance is to accept zero ramps or four ramps, but avoid something in between except under extreme circumstances. There are several potential configurations that would create four ramps, and might be both feasible and relatively low-cost. In our contacts with FHWA for this plan, they have expressed a willingness to consider ideas for constructing three more ramps.

FULL TRUMPET INTERCHANGE AT I-15 AND THE TOWN CENTER

The City's proposed eastbound off-ramp from I-215 and Highway 89 requires adding 1-lane to the bridge deck over I-15. Because the storage space is very short where cars would exit the freeway and stack on the west side of Highway 89, the deceleration lane may also ultimately need to extend back further, requiring another lane on the bridge deck over the railroad. This may interfere with the location of the existing freeway link for eastbound I-215 transitioning to northbound I-15 (shown in purple on Figure T.4: Town Center Freeway Access). That link may have to be re-located west so that the new northbound on-ramp could fit without impacts to an existing apartment complex. In addition, as vehicle streams merge over Center Street, there may be a need to add to the existing bridge deck. This is not a prohibitively expensive solution, and should definitely be advanced as part of a feasibility study.

Figure T.4: Town Center Freeway Access



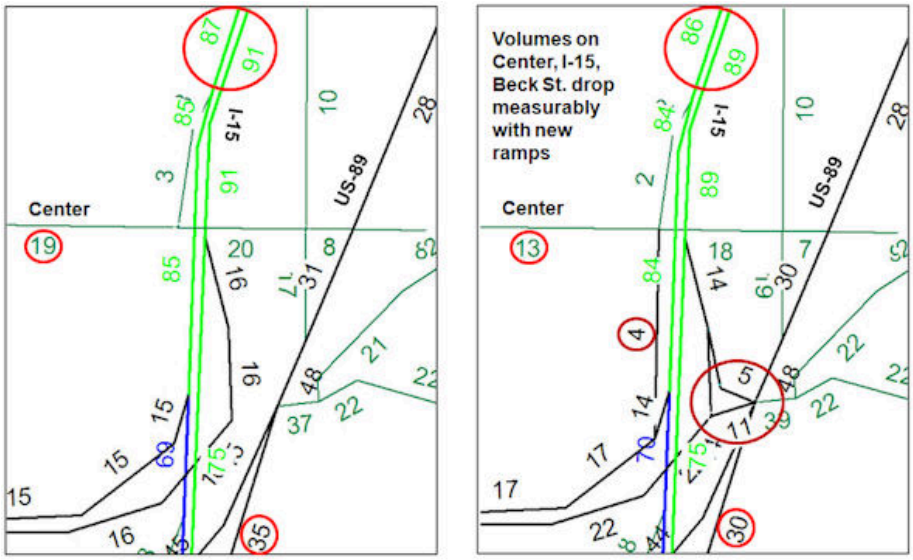
New ramps will reduce regional and commuter traffic volumes on I-15. Presently, drivers on I-215 destined for North Salt Lake must exit at 2600 South, and then come back to their destination via US-89. New ramps near the Town Center would allow them to avoid this congested portion of I-15. Another argument is that many drivers use the Redwood Road exit, and then travel into North Salt Lake via Center Street. This eventually creates significant pressure to grade separate Center Street from three railroad corridors, which will be extremely expensive if it is even feasible. Ramps serving the Town Center would effectively eliminate much of the pressure on Center Street.

Model Results

This plan tested what would happen using WFRC's travel demand model if the preferred Town Center ramp option were built. According to Figure T.5 below, without any new ramps, volumes on Center Street could climb up to 19,000 vehicles per day by 2040.

UDOT's traffic counts showed just over 11,000 in 2009. With the new ramps, volumes would drop back to 13,000. Even though this is higher than today's volumes, it would prove more manageable than today's volumes because the PM peak traffic would generally use the new ramps. Notice that the new ramps also reduce volumes on the I-15 mainline. This is because currently, too many people are forced to go to the 2600 South interchange. Opening this relief valve would make it just that much easier to manage I-15 itself.

Figure T.5: Model Results – Town Center Ramps



Three new freeway ramps serving the Town Center would reduce volumes on Center Street from 19,000 vehicles per day in 2040 to 13,000. There were about 11,000 in 2009. They would also reduce volumes on Beck Street and I-15 itself.

Policies related to freeway access for the Town Center:

T-2.1 Pursue a feasibility study to better develop the best ideas in this plan and to more fully understand the feasibility and potential construction costs of access options.

T-2.2 Improve regional access to the Town Center by working with UDOT to advance access ramp options for the Town Center.

T-2.3 Coordinate regularly with UDOT, WFRC and State legislators to meet its objectives related to improvements to

and access to freeways and other major transportation facilities.

T-2.4 North Salt Lake should promote ideas and proposals in this Plan as solutions for larger regional transportation-related issues.

A project to improve access to the Town Center is shown on the last phase of WFRC's Long Range Plan (to be built by 2040 in conjunction with the new ramps at I-215 and Legacy Parkway). Eliminating the flyoever portion of the project might make it possible to advance the local access ramps to an earlier phase, but it will take considerable political effort if this is to be built any time soon. City personnel and elected officials should meet regularly with UDOT, WFRC, and State Legislators, and remind them of the powerful arguments in favor of the ramps, including the low-cost of constructing ramps, improved driver expectancy, reduced need to grade separate the railroad at Center street, reducing volumes on I-15, supporting the auto-side of Transit Oriented Development, and highlighting the politically supportive community.

FREEWAY ACCESS IN THE SOUTHWEST QUADRANT

As previously established in this chapter, the residents and businesses in the City of North Salt Lake have a need for greatly improved access to highway and freeway systems. The neighborhoods on the west side of the City along the Redwood Road corridor are no exception. The purpose of the City's adopted General Plan document is to identify such deficiencies and propose potential solutions that the City may pursue. This plan will become the guiding set of goals, policies and strategies that the City will pursue in order to improve access to State highways.

This section of the chapter has raised the following issue: what are the best alternatives to provide access to the State's highway system for the southwest quadrant of the City? There are three alternatives that this section of the plan will review:

1) Access to Legacy Highway via Center Street.

2) Flyover ramps connecting Legacy Highway and I-215.

3) Re-construction of the interchange of Redwood Road and I-215.

This section of the plan will explain these alternatives and establish the City's adopted policies which it may pursue in the future to improve access to the highway system.

CENTER STREET AND LEGACY PARKWAY

There is currently no access to Legacy Parkway from within North Salt Lake. As congestion on Redwood Road increases, access at Center Street will become more important. UDOT did not provide ramps at Center Street, because there was almost no demand for them in the models used at the time, and because UDOT was concerned about potential conflicts with future ramps connecting I-215 and Legacy Parkway that were contemplated at the time. With the potential for higher density uses on and near the intersection of Center Street and Redwood Road, and with future development west of Legacy Parkway in Salt Lake County and north of the Salt Lake International Airport, volumes using Center Street ramps may be enough to justify these access points.

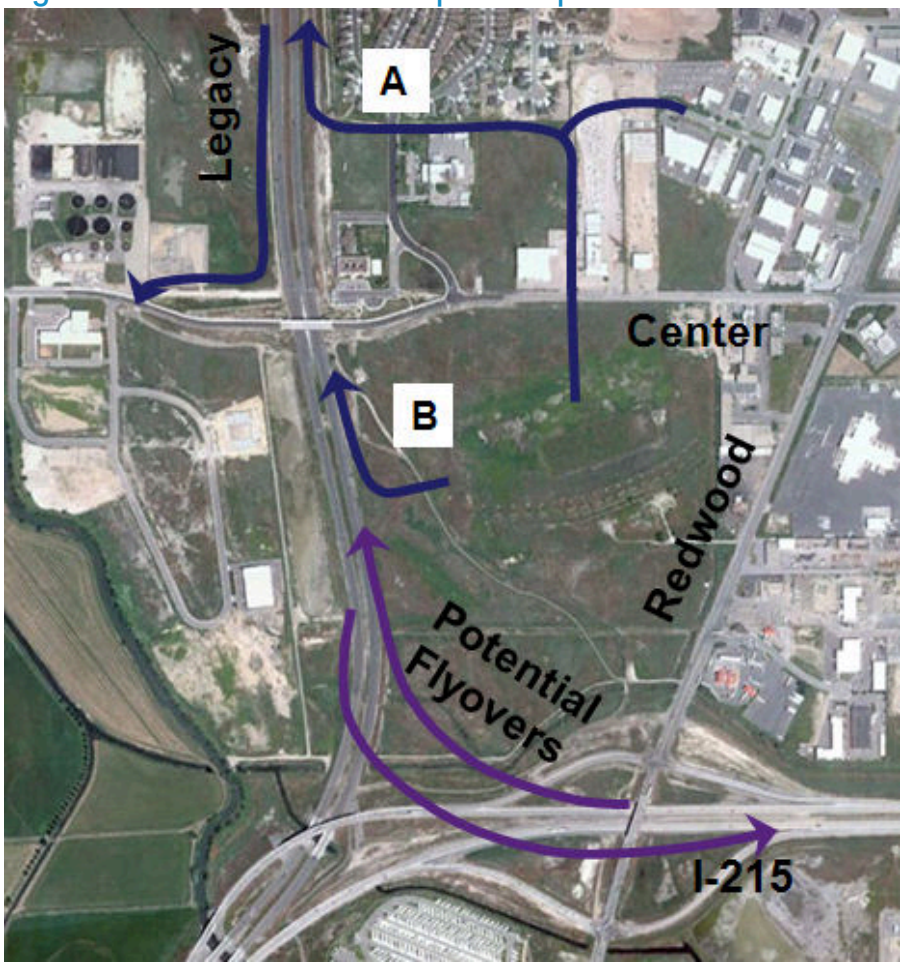
For this plan, a 2040 model was run assuming full, aggressive development of the property in the Northwest quadrant of Redwood Rd. and I-215 with a hypothetical 1000 dwelling units and 1000 jobs, and also modest 700 residential units west of Legacy and north of the Airport. There is more development potential than this at build-out, but this is a safe assumption for 2040. Under these circumstances, the model suggests each ramp would have between 3,000 and 4,000 vehicles per day. For comparison, ramps at 2600 South are nearly double this amount, but that does not mean the ramps at Center Street are not worth the investment. They would be far from the busiest in the system, but their low cost makes them practical, and it is worth protecting the footprint necessary to build the ramps.

CENTER STREET RAMP CONCEPTS

Two options for creating a northbound interchange on Legacy Parkway appear to be compatible with the existing bridge at Center Street and could be built at relatively minor cost.

In Figure T.6, "half-trumpet" designs are shown as **Options A and B. Option A** would not impede UDOT's ability to widen Legacy Parkway, if needed, in the future. It also helps integrate vacant

Figure T.6: Center Street Ramp Concepts



Half-Trumpet concepts for access to and from the north on Legacy at Center Street

and under-utilized land north of Center Street with land use plans south of Center Street. The more land that can be developed at higher intensity, the more likely UDOT will support access to Legacy.

Option B would require adding a lane under the bridge. There is currently enough room for this lane, but to use this space for the Option B ramp would hinder UDOT's ability to widen Legacy Parkway to 3-lanes per direction when that time comes. Because this interchange could be difficult for UDOT to support under any circumstance, an insistence on Option B could mean no interchange will ever be built.

Policy related to Center Street access to Legacy Parkway:

> T-2.4 Pursue on and off ramps at Center Street and Legacy Parkway as described in this Plan.
>
> The west end of Center Street and surrounding area is highly visible from I-215 and Legacy Parkway, which makes it a good candidate for businesses with a regional customer base. Creating on and off ramps to and from the north on Legacy Parkway, would greatly benefit commercially viable properties in the area. There are potential options that appear compatible with the existing bridge at Center Street and could be built at relatively minor cost.

PROPOSED LEGACY RAMPS

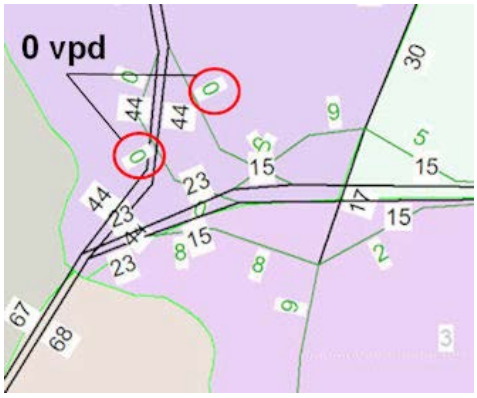
When UDOT designed Legacy Parkway, they obtained environmental clearance to construct system to system flyover ramps from southbound Legacy to eastbound I-215, then again to southbound I-15 (as well as the reverse trip). UDOT opted not to build these ramps with the initial Legacy Parkway construction because they are extremely expensive, and because forecasts at the time suggested they would be very underutilized.

An updated 2040 model was run for this plan to determine volumes on these ramps. The model detected zero vehicles per day would use these flyovers. In reality, there may be one or two thousand vehicles per day, but this cannot justify the hundreds of millions of dollars that may be necessary for these ramps, and their companion ramps at I-15.

Why are these flyover ramps so underutilized?

It is estimated that during periods of normal freeway operations, vehicles traveling on I-15 from Salt Lake into Davis County would

WFRC's model implies there will be zero vehicles per day on the system to system flyovers that would connect Legacy Parkway to I-215. In reality there may be a thousand or so trips, but hardly enough to warrant the expense of construction, and the general impacts to the City.



not choose to travel west to Legacy Parkway, only to then angle back to the east and join up with I-15 again in Farmington. The only reason to do that is if I-15 has a serious incident, or it is massively congested and cannot be widened any more.

On such days, most people coming into Davis from Salt Lake have the option to first travel over to I-215 using I-80, then transition from I-215 to Legacy. As guidance technology improves, enough people will do this that the flyover ramps in question will truly be redundant and unnecessary.

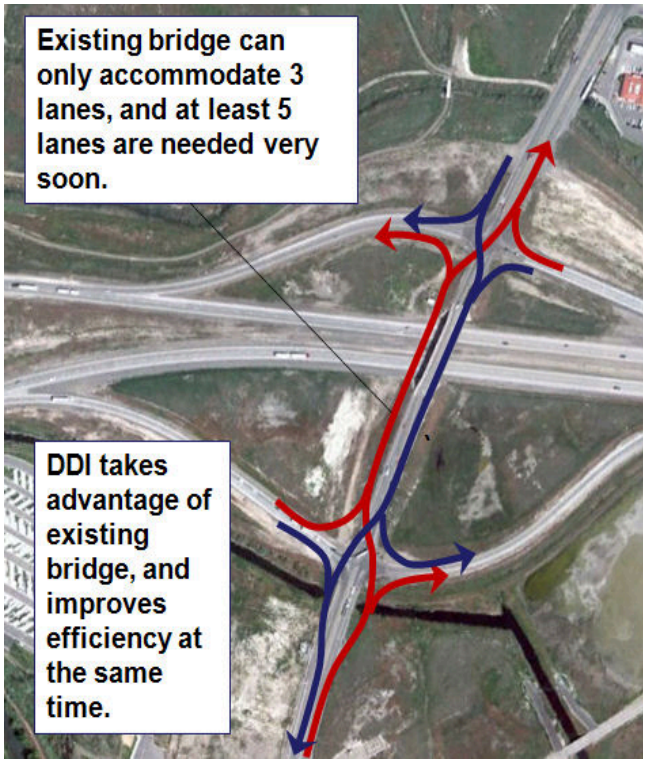
Since these estimates and the model are only speculative, the City still believes that there is value to leaving the ramps on the State's long-range plans for now. The City should work closely with UDOT and WFRC in the future to make a determination as quickly as possible whether the ramps will ever be needed. The City knows that UDOT recognizes there may never be a need for these ramps, but they currently own the land and may want to keep their options open.

The principal reason that it is important to know what the long-range access improvements will be is that this project, more than any other, has an impact on the other two possible alternatives. For instance, it is believed, based upon the City's discussions with UDOT and WFRC, that the proposed Center Street accesses to Legacy Highway are viewed in a highly negative context due to the future potential of flyover ramps that would be in conflict with any ramps that access Legacy Highway via Center Street. The City could consider temporary access points at Center Street, but even that prospect is difficult and could result in future changes that are hard to implement.

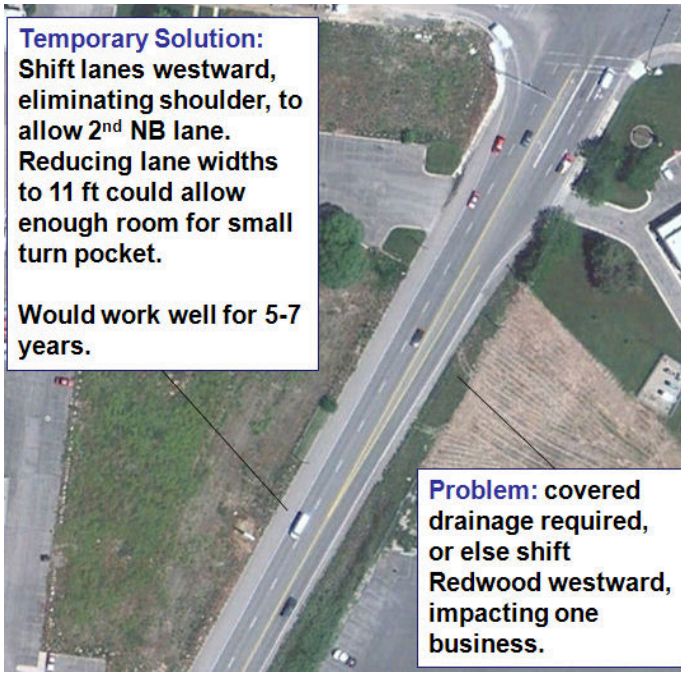
The second reason that it is critical to know as soon as possible what will be built in the future is that the City (and other areas west of I-15 that impact the City) is experiencing growth now. The flyover ramps are on a long-range plan that puts their construction in a 30 year future funding cycle. In addition, the plan indicates that even in that 30 year cycle, the improvements are unfunded. That is, a funding source has not been identified or preserved and, due to the enormous cost of these improvements, it is likely that they will be put off for decades. The City believes that the public requires improved access now and should not need to wait potentially 30 years for access to the highway system.

Policy related to flyover ramps at I-215 and Legacy Parkway:

T-2.5 ***Leave I-215/Legacy Parkway flyovers on regional plans*** - The City should work with UDOT and WFRC to determine as soon as possible whether or not the State should construct these flyovers.



Concept for Diverging Diamond at Redwood and I-215



Concept for temporarily restriping Redwood

Figure T.7: Redwood Road & I-215 Interchange Concept

REDWOOD ROAD AND I-215 INTERCHANGE

The Redwood / I-215 Interchange started out as a rural interchange with a narrow bridge deck. The area now has a significant industrial base, attracting truck traffic that congests the interchange, and the area also continues to expand its residential and general commercial base.

This interchange is overloaded now, and will only get worse. The bridge deck needs widening to support 2-lanes in each direction across the deck. This interchange would also be relatively simple to convert into a

Diverging Diamond Interchange.

Temporary Restriping of Redwood Road

Redwood Road needs to have a 5-lane cross-section between I-215 and Center Street. It will be necessary to pipe an existing drainage ditch along the eastern edge, or else the entire road must be shifted westward in lieu of piping the ditch.

The striping of Redwood Road is a good temporary solution that would work for 5-7 years. Presently, there is enough room to restripe for 5-lanes by temporarily eliminating the shoulder on the west side.

Policies related to Redwood Road and I-215:

> T-2.5 Work with property owners adjacent to Redwood Road between Center Street and I-215 to establish 5 lanes of travel by either temporary striping or more permanent widening where possible and feasible.
>
> T-2.6 Pursue the redevelopment of the freeway interchange at I-215 and Redwood Road.

Goal T-3

Pursue and maximize transit opportunities.

TRANSIT IN NORTH SALT LAKE

The potential for a major transit investment on Highway 89 is addressed in other contexts throughout this Plan and in many separate studies. This section focuses specifically on the history of transit concepts up to this point, identifies the city's current position regarding transit, and offers suggestions for helping the City work with UTA to craft a transit project that is timely and can leverage the project in pursuit of the City's overall objectives for the Town Center.

2008 South Davis County Transit Study

In 2008 UDOT and UTA conducted an alternatives analysis to identify a locally preferred alternative for additional transit in South Davis County. Figure T.8 below is an excerpt from the Executive Summary of that document (their numbering – Tables 4 & 5). That LPA reflected a desire for a rail-based alternative (Streetcar) between SLC and Parrish Lane in Centerville, and Enhanced Bus north of that. The study acknowledges that an Environmental Impact Statement would have to follow, and Enhanced Bus, BRT, and Streetcar options are all strong options, but that the streetcar was what the local stakeholders preferred at the time.

Since 2008, WFRC's Regional Transportation Plan has since suggested that the prospects of funding Streetcar construction before 2040 are extremely low, and they have recommended phased construction of Bus Rapid Transit that can ultimately transition to a streetcar. For various reasons outlined in this section, North Salt Lake supports this general approach.

WFRC 2011 Regional Transportation Plan

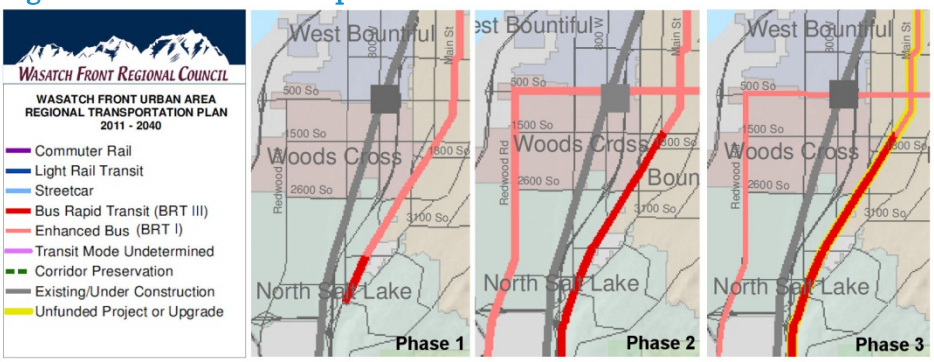
There are two projects shown in WFRC's transit plan that affect North Salt Lake: an enhanced bus on Redwood Road; and a multi-phase project on Highway 89. Figure T.8 shows the phasing sequence, and corresponding table describes the difference between Needed Modes and Funded Modes. Highlighted in yellow are project segments of interest to North Salt Lake, primarily related to premium transit on Highway 89. The table recognizes that the 2008 South Davis Transit Study identified Streetcar as the locally preferred option (shown as needed), but in WFRC's estimate, it cannot be funded until sometime after 2040 (shown as Funded).

Between now and the time when streetcars can be funded, WFRC recommends incrementally constructing a Bus Rapid Transit (BRT) line, with stations that create the look and feel of streetcars, and will in fact be compatible with an upgrade to streetcars. Because BRT is far less expensive than a streetcar, WFRC estimates the portion in North Salt Lake could open yet this decade in Phase 1.

The WFRC, the Utah Transit Authority, the City of North Salt Lake, Bountiful City and Salt Lake City are joint financial participants, along with a federal grant, in a study effort to perform a follow-up analysis that will look at transit options in South Davis

County. The expected completion of that study will be the summer of 2013.

Figure T.8: WFRC Transportation Plans for NSL



	PROJECT		LOCATION	
	Needed Mode	Funded Mode	From	To
2011 - 2020	**North Ogden - Salt Lake (First of Three Phases)**			
	Bus Rapid Transit	Corridor Preservation	4400 South (Roy)	Davis County Line
	Bus Rapid Transit	Corridor Preservation	4400 South (Roy)	Davis County Line
	Bus Rapid Transit	Corridor Preservation	Davis County Line	651 North / SR-126
	Bus Rapid Transit	Bus Rapid Transit	HAFB West Gate	200 North / SR-126
	Bus Rapid Transit	Enhanced Bus	200 North / SR-126	Clearfield FrontRunner Station
	Rail/Bus Rapid Transit	Enhanced Bus	Main Street / Parrish Lane Centerville	3800 South Bountiful / US-89
	Rail/Bus Rapid Transit	Bus Rapid Transit	3800 South Bountiful / US-89	US-89 / Eagleridge Drive
2021 - 2030	**North Ogden - Salt Lake (Second of Three Phases)**			
	Enhanced Bus	Enhanced Bus	2700 North / Washington Boulevard	12th Street / Washington Boulevard
	Bus Rapid Transit	Bus Rapid Transit	12th Street / Washington Boulevard	Ogden Intermodal Center
	Bus Rapid Transit	Enhanced Bus	Washington Boulevard / 36th Street	4400 South / Bamberger Rail ROW
	Bus Rapid Transit	Bus Rapid Transit	4400 South / Bamberger Rail ROW	Davis County Line
	Bus Rapid Transit	Bus Rapid Transit	Davis County Line	HAFB West Gate
	Bus Rapid Transit	Bus Rapid Transit	200 North / State Street	Clearfield FrontRunner Station
	Bus Rapid Transit	Enhanced Bus	Clearfield FrontRunner Station	Farmington FrontRunner Station
	Enhanced Bus	Enhanced Bus	Farmington FrontRunner Station	Parrish Lane / Main Street
	Rail/Bus Rapid Transit	Bus Rapid Transit	1500 South / Main Street	3800 South Bountiful / US-89
	Rail/Bus Rapid Transit	Bus Rapid Transit	US-89 / Eagleridge Drive	Salt Lake County Line
	Rail/Bus Rapid Transit	Bus Rapid Transit	Salt Lake County Line	Salt Lake Intermodal Center
2040	**North Ogden - Salt Lake (Third of Three Phases)**			
	Bus Rapid Transit	Bus Rapid Transit	Washington Boulevard / 36th Street	4400 South / Bamberger Rail ROW
	Bus Rapid Transit	Bus Rapid Transit	Clearfield FrontRunner Station	Farmington FrontRunner Station
WITHOUT FUNDING	**North Ogden - Salt Lake, South Davis Segment**			
	Enhanced Bus	Streetcar	Parrish Lane / Main Street	1500 South / Main Street
	Rail/Bus Rapid Transit	Streetcar	1500 South / Main Street	3800 South Bountiful / US-89
	Rail/Bus Rapid Transit	Streetcar	US-89 / Eagleridge Drive	Salt Lake County Line
	Rail/Bus Rapid Transit	Streetcar	Salt Lake County Line	Salt Lake Intermodal Center

BRT technology is evolving far more quickly than anything else in the industry. Many systems are emerging that create a sense of permanence, reliability, high visibility, and appeal similar to rail. With these features, they attract good ridership – not necessarily as high as rail, but because the cost is so much lower, the return on investment can be much better.

Policies related to Bus Rapid Transit:

T-3.1 ***Transit on Highway 89*** - The City desires to establish a quality pedestrian environment, new bike lanes on Highway-89, ellipses that aid in general circulation and

also serve as transit stops, and potential landscaped medians made possible by the ellipses. The City supports

Queue Jumpers, transit stops in the median of ellipses, and other general enhancements that would be compatible with both high-quality BRT and Streetcar. The City plans to work with UTA to find an ideal transit solution for both UTA and the City.

T-3.2 ***Transit Stations*** - The City will pursue implementation of three transit stations along Highway 89: Eaglewood Village, the Center Street area, and the 3800 S./350 N. area.

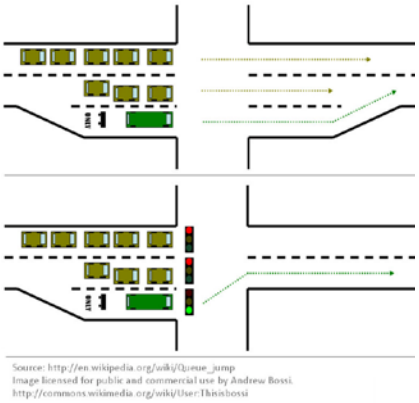
These locations are roughly ½ mile apart, in keeping with design criteria for BRT and Streetcar, and with the intensity being planned, it makes sense to have all three. Figure TC.2 in the Town Center chapter shows recommended general locations for these stations. The Appendix has useful information in working with UTA on this subject.

T-3.3 ***Exclusive Transit Lanes on Highway 89*** - If funding or space limitations require prioritization, focus transit funding on station-area design and connectivity, queue jumper opportunities, enhancements to the pedestrian realm, and high-quality BRT vehicles that will attract higher-income patrons.

T-3.4 ***Feasibility Study*** - The City will perform a feasibility analysis, as needed, of the technical specifications needed for transit stations and queue jumper lanes, the best locations for such improvements and the potential right-of-way needs for these facilities.

T-3.5 ***Coordination with UTA***- The City will share its transit objectives as often as possible with the UTA and other affected agencies and will continue to pursue transit plans in cooperation with all impacted public organizations.

Queue Jumper Lanes vs. Exclusive Right-of-Way



Source: http://en.wikipedia.org/wiki/Queue_jump
Image licensed for public and commercial use by Andrew Bossi.
http://commons.wikimedia.org/wiki/User:Thisisbossi

Queue jumpers allow buses to use right or left-turn pockets to bypass traffic - an effective way to improve speed and reliability when exclusive right-of-way is not an option.

Queue jumper lanes, are a strategy for giving transit a speed advantage when exclusive lanes are not an option. Often intersections will have shoulders, bike lanes, or right-turn pockets that create enough space for a bus to jump past other vehicles queued at a signal, and they only need legal permission to occupy this space, and then proceed through the intersection.

If there is no receiving lane on the opposite side of the intersection, then signals are organized so that if a BRT vehicle is present, it gets a green light long enough to allow it to merge left ahead of other traffic.

Goal T-4

Incorporate techniques and development standards that provide for and encourage transportation opportunities for pedestrians and cyclists in the City's trail and street systems and in its approval of future developments.

Walking for exercise

One of the greatest problems of modern times is obesity, and the desire to fight it drives more and more people all the time to both recreational and commuter exercise. Great trails within attractive "linear parks", shaded from the hot sun with huge canopy trees, will attract many more users, which in turn extends lives and reduces medical costs.

Walking is as much a mental activity as a physical activity, and the surroundings make all the difference. To walk a relatively short distance can seem long if the surroundings are dull or monotonous, and conversely, a long distance walk can seem quite short, if it is pleasant and changes frequently.

Improving the safety, convenience and overall desirability of walking and bicycling was a strong finding from the general plan public process. Implementation of other aspects of this plan will by default enhance the bike and pedestrian experience. This section focuses more specifically on other actions the City can pursue to foster greater non-motorized travel, exercise, and recreation.

Biking and jogging have become very popular in recent decades, and will likely be even more popular in the future. NSL has great opportunities to create new trails, and enhance existing trails. If high-priority trails can be developed to a high standard within 3-5 years, they will help catalyze Town Center development.

Class 1, 2, and 3 Bike Facilities

Bicycle paths are graded by the nature of the facility. Class 1 paths are typically trails with their own right-of-way and are separated from traffic. Class 2 paths are usually bike lanes striped onto pavement along side traffic lanes. Class 3 paths are typically just signs identifying a bike route.

Serious bikers who ride long distances for sport or for commuting most often prefer Class 2 paths. Casual bikers who would bike more if they could avoid being right next to high-speed traffic, generally prefer Class 1 paths. Casual riders will appreciate off-street multi-use trails.

Asphalt Paths vs. Concrete Sidewalks

Concrete sidewalks are not always needed on both sides of a road. If a choice must be made, an asphalt multi-use trail instead of a concrete sidewalk is preferred. Over time, sidewalk cracks separate, resulting in a bumpy ride. Joggers also prefer asphalt because concrete is too hard and often results in negative health impacts such as shin-splints.

Policies related to pedestrian and bicycle connections:

T-4.1 Prioritize remaining sidewalk gaps in the City based on demand for pedestrian usage using the following general criteria:

- Priority routes
- Bus routes
- Streets with close proximity to schools
- Streets with close proximity to parks
- Higher density / small lot residential areas

T-4.2 Develop a City bicycle plan for Class 1 multi-use trails.

North Salt Lake has great potential to develop many Class 1 multi-use, asphalt paths. Many of these paths converge at Center Street, making it the most important location in the City for a high-quality non-motorized experience, and the best connection to the Legacy-Jordan system. Figure T.9 shows a high-level view of major paths to be developed. Various sub-elements are discussed next. Class 1 paths should be 10-ft wide, with exception through spaces where it is impossible.

T-4.3 Establish, as much as possible, an 8-foot minimum separation between trails and traffic.

Cyclists, pedestrians, and joggers all feel much safer if they can be far removed from traffic, and the experience is more appealing if there are large trees and quality landscaping between them and traffic. When 8-ft separation is not practical, the use of shrubbery or attractive physical barriers can help.

T-4.4 Improve pedestrian/bike connections at Foxboro. Additional pedestrian / bike-only connections should be

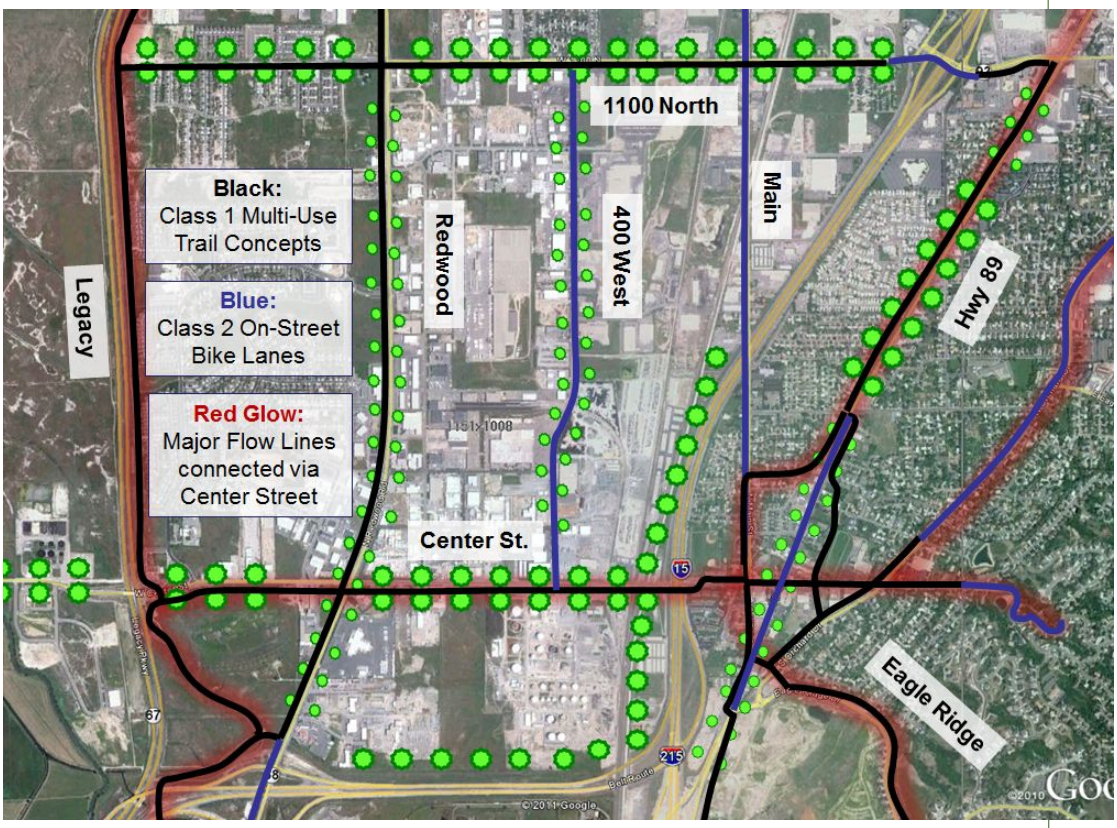
planned to further connect Foxboro to Redwood Road. Ideally, these connections would line up with existing perpendicular local streets. Here are two locations, and the City should investigate options for more:

- Between 900 West and Foxboro Drive, tying into the Terrace Apartment Drive.
- Between Foxboro Drive and Cambridge, tying into Somerset Drive.

T-4.5 Maintain pedestrian standards for Redwood Road.

The multi-use trail on the west side of Redwood Road should be continued. Further, the trail should be 8-10 feet wide and occupy a space that is typically 25 feet wide. There should always be at least 8-ft of landscaping between the trail and the curb. On the east side of Redwood Road, grass and uniform trees should typify park strips, and a regular 5-ft sidewalk should be provided. On both sides, break up the view occasionally with artwork, water-features, trees, berms, rock or monuments, building faces that touch the right-of-way, and other features.

Figure T.9: Trail and Bike Opportunities

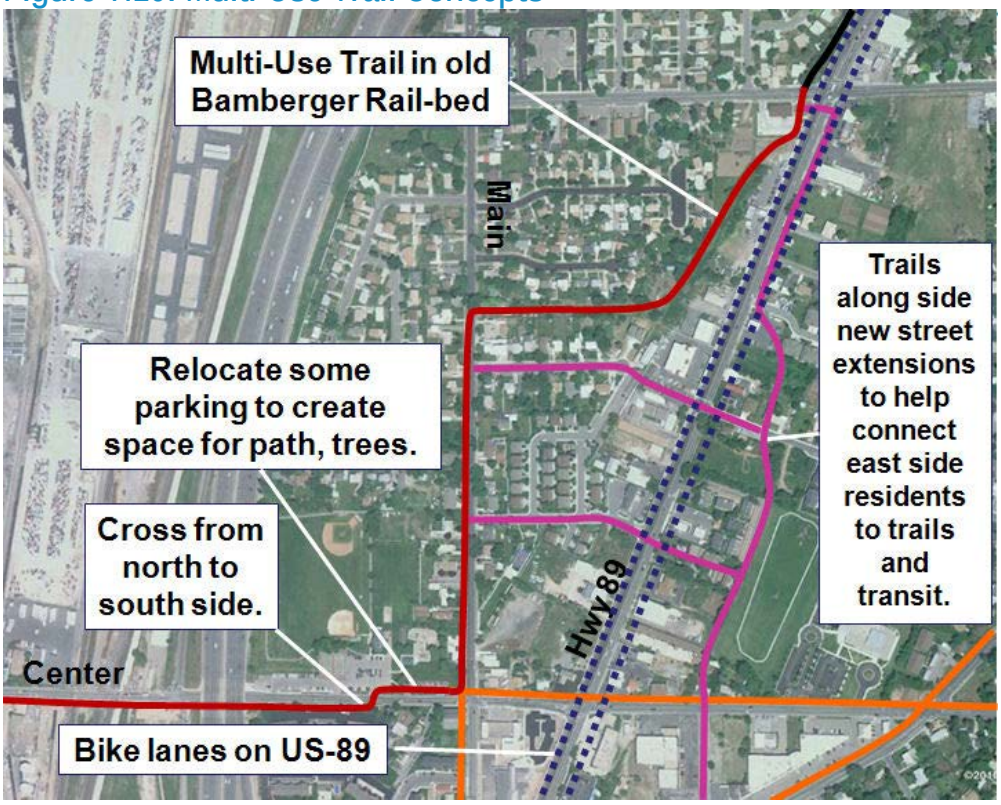


Overview of Class 1 Trail, and Class 2 Bike Lane Opportunities. Black segments are generally already complete, red are the next to complete, then orange, and pink segments as opportunities arise.

CONCEPTS AND POLICIES FOR SPECIFIC FACILITIES

Figure T.10 shows a high-level concept for Class 1 multi-use trails north of Center Street. Black segments are generally already complete. Red are the highest priority to develop next. Develop orange and pink segments as opportunities arise.

Figure T.10: Multi-Use Trail Concepts



Multi-Use trail concepts in the northern portion of the Town Center. Red paths are the highest priority.

T-4.6 Expand Bamberger Trail, Short-Term (red).

It is critical that the "Linear Park" that exists in the old Bamberger rail bed north of 3800 South, continue south with a multi-use trail to connect to Main Street and "Bamberger Station" (just south of Center). Landscaping could be similar to the linear park on 500 West in SLC, just west of Gateway Plaza (minus the cars), with monuments and historic information

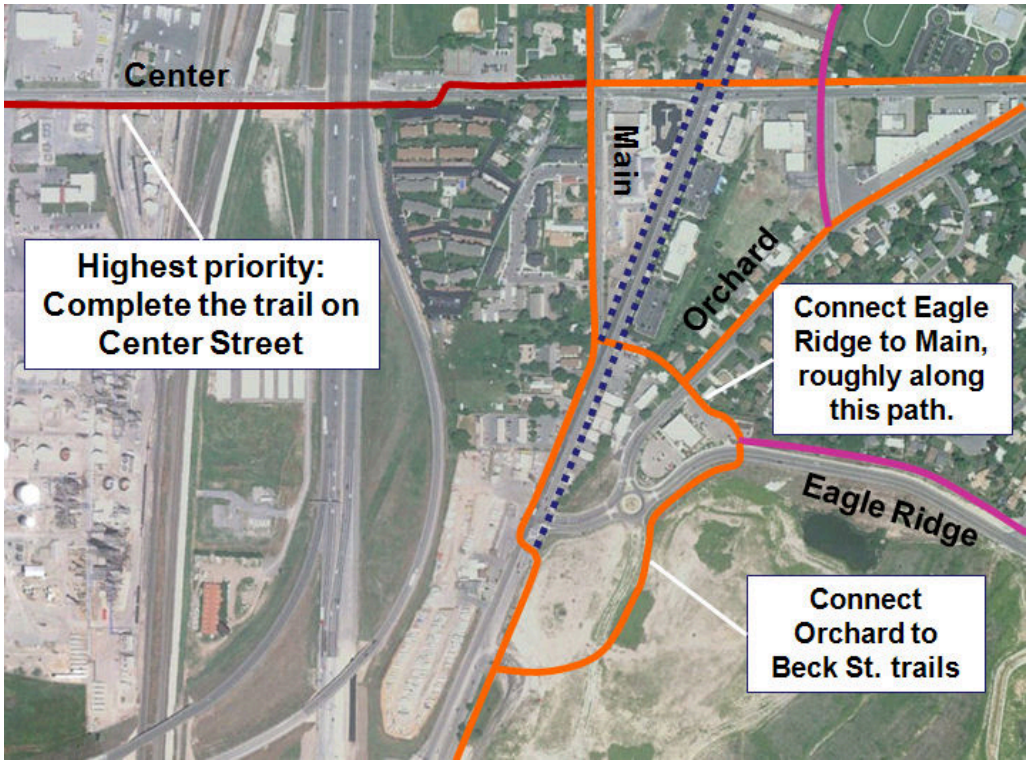
T-4.7 Develop a multi-use trail on Center Street east of Main Street, Mid-Term, (orange).

Extend a trail or bike lane on Center Street, into the foothills as far as is practical. Connect the trail to the future Springhill Geologic Park at 350 east.

T-4.8 Improve connectivity with a tighter grid of streets east of Highway 89 (pink).

For development that occurs on the east side of Highway 89, a tighter grid of local streets should be created. This will make it easier to remove driveways and parking lots from directly facing 89. As these streets are built, include a multi-use trail on one side, perhaps in lieu of a traditional sidewalk. This will create connectivity to transit stops, and general non-motorized circulation opportunities throughout the Town Center.

Figure T.11: Multi-Use Trail Concepts



A high-level concept for Class 1 multi-use trails south of Center Street. Develop orange and pink segments as opportunities arise.

T-4.9 Provide trails through the Town Center south of Center Street.

Of the trails shown on Figure T.11, Main to Beck Street is the most important. Besides this, it is not easy to see how

Pedestrian environment in Palm Springs Town Center is a good example of organic Place-Making: Sometimes sidewalks arenarrow, and sometimes quite wide. At every property, the pedestrian space is very different, but each complements the other. You may not always have much pedestrian space, but you can still do great things with the space you have.

to interconnect other paths. This shows one concept, but the City should work to find the most practical connections, considering existing development.

T-4.10 Improve trails on Center Street between Legacy Parkway and Highway-89, Short-Term, (red).

There is an existing asphalt trail along much of the south side of Center Street, west of the railroad tracks. Where it ends, a sidewalk continues, and then there is nothing across the tracks. Sidewalks are not attractive to either cyclists or joggers, so remove the concrete and continue an asphalt trail through to the east side of I-15. Create a landscaped buffer of at least 10 feet between the curb and the trail, and plant large canopy trees in the buffer, to ensure enough shade for pleasant summer-time rides, and to direct eyes away from adjacent industrial uses.

The City has many opportunities within its existing urban environments such as Town Center and along Center Street and during its future land use and development approvals to increase, enhance, accommodate and encourage pedestrian activity and ease of travel.

Policies related to Town Center development standards for pedestrians:

T-4.11 Establish Town Center street standards for pedestrians.

The primary walkway itself should be no less than 6-ft, and should be separated from the curb (excluding gutter) by typically 8-feet for a streetscape zone, and from building faces by at least 4-feet, but more should be allowable depending on the property owner's proposals for the space.

T-4.12 Allow Town Center street standard exceptions when necessary.

Where an 8-ft streetscape zone will be excessively challenging, a narrower zone can be used provided the quality of the realm is improved through sidewalk overhangs, greenery,ballards, or other creative stategies to better separate pedestrian space from traffic space.

T-4.13 Encourage property owner creativity in pedestrian streetscape.

A large beautification project can create a nice, clean look in front of every property, but still be drab and mundane if it is essentially the same everywhere. When a property redevelops, let the developer or tenants participate in how to make their own front door beautiful.

T-4.14 ***Bike lanes on Highway 89*** - Include a 5-6 foot shoulder on Highway 89 to be used as a bike lane.

Goal T-5

Incorporate landscaping into the City's streets and path designs in an effort to improve the visual quality and overall aesthetics of the City and its travel corridors.

Residents recognize that many sections of their most heavily traveled streets are auto-dominated and visually unappealing. Streets suffer from adjacent blight and poor shoulders, park-strips, and sidewalks. The tree program suggested in the Land Use chapter may be the simplest investment with the best return for improving key segments. But other enhancements need space and on critical corridors like Highway 89 it will be difficult to obtain much more space.

This section elaborates on pedestrian and streetscaping enhancements, along with other general strategies to help arterial streets support the City's overall objectives.

Policies related to landscaping:

T-5.1 ***Corridor Vision-*** In conjunction with UDOT, UTA, and other stakeholders, the City will develop an overall corridor vision that identifies and prioritizes landscaping opportunities.

T-5.2 ***Median planter boxes-*** Where center-left medians are neccessary on major arterials, the City will use planter boxes in the medians as often as possible.

Policies Related to landscaping along Center Street:

T-5.3 ***South Side-*** The City will initiate a tree planting program of large canopy trees along the south side of Center Street in a 10-12 foot park strip between the curb and the multi-use trail.

T-5.4 ***North Side -*** The north side of Center Street should have quality landscaping in a park strip that is not less than 9 feet wide. No trail will be provided or required on the north side of Center Street.