



# Virginia Street Corridor Investment Plan

April 2014







# ACKNOWLEDGMENTS



*This report is sponsored by the Regional Transportation Commission of Washoe County (RTC). The study provides a comprehensive view of premium transit opportunities and supporting infrastructure along Virginia Street corridor. Principal authors include Atkins staff; CA Group; and LSC Consultants. This study is the result of dedication and effort from a variety of stakeholders. Without their support, this study would not have been possible. The RTC is grateful for their participation and would like to take the opportunity to thank those that contributed in developing this study. The RTC staff and the principal authors of this Virginia Street Corridor Investment Strategy Report hope study stakeholders and the public will find the report beneficial as they collaborate to develop the proposed concepts and strategies for Virginia Street.*

## TECHNICAL TEAM

Steve Bunnell, City of Reno  
Amy Cummings, RTC  
Patrice Echola, RTC  
John Flansberg, City of Reno  
Heidi Gansert, UNR  
Adam Garcia, UNR  
Lee Gibson, RTC  
Jeff Hale, RTC  
Roger Hanson, RTC  
Claudia Hanson, City of Reno  
Charla Honey, City of Reno  
Michelle Horton, UNR  
David Jickling, RTC  
John Krieger, UNR  
Julie Masterpool, RTC  
Maureen McKissick, City of Reno  
Michael Moreno, RTC  
Howard Riedl, RTC  
Jody Royal-Goodwin, City of Reno  
Bill Thomas, City of Reno  
Fred Turnier, City of Reno  
John Walsh, UNR  
Marcella Yeates, UNR

## CONSULTANTS

Chad Anson, CA Group  
Emily Kubovchik, Atkins NA  
Danja Petro, Atkins NA  
Gordon Shaw, LSC Transportation Consultants  
Art Sperber, CA Group  
Kristina Svensk, LSC Transportation Consultants  
Kathleen Taylor, Atkins NA  
Josh Thomson, Atkins NA



# EXECUTIVE SUMMARY

The Virginia Street Corridor Investment Plan identifies near term and long term transportation improvements that will be made along Virginia Street from North McCarran Boulevard to Mount Rose Highway. These recommended improvements will be included in the Regional Transportation Plan 2013-2035 for implementation. The study follows a context<sup>1</sup> sensitive approach that identifies:

- Decision-making process
- Virginia Street context, including geography and community values
- Vision and goals
- Area needs
- Investment plan

**Decision making process.** This approach is based on an extensive stakeholder involvement and public outreach process. The Regional Transportation Commission of Washoe County (RTC) partnered with the City of Reno, University of Nevada, Reno (UNR), local business owners, and community advocates to identify transportation investments and programs which will support the evolution of the Virginia Street Corridor into a Transit Oriented Development (TOD) Corridor. Through this process, the RTC solicited feedback from the community and acknowledges the benefits of their participation. Decisions made in this study draw on suggestions, advocacy,

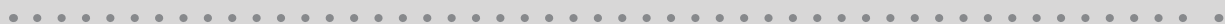
<sup>1</sup> Context refers to the natural or built environment created by the land, topography, natural features, buildings and associated features, land use types, and activities on property adjacent to streets and on sidewalks, and a broader area created by the surrounding neighborhood, district, or community. Context also refers to the diversity of users of the environment.”(Federal Highway Administration)

guidance, and engineering recommendations made through surveys and multiple public meetings. These decisions are further explained and consolidated in the following report.

**Context.** Five distinct areas are identified along the corridor: UNR, Downtown, Midtown, Convention Area, and South Reno Area. Recognition of the five distinct areas guided both the study process and the organization of this report. This allows the evaluation to focus on the uniqueness and distinct characteristics of each area. Strategies are identified to increase mobility and safety within the context of each area through existing conditions, community assets, and opportunities.

**Vision and Goals.** The Virginia Street corridor continues to evolve into a TOD Corridor. Large regional employers, whose employees make up the highest transit ridership in the RTC transit system, and the energy from the corridor’s communities drive this evolution. The input generated through valuable discussions with stakeholders and the public helped identify the goals that support this vision of Virginia Street as a TOD Corridor. Transportation investments recommended in this study are based on the following goals:

- Make Virginia Street safe and inviting for all modes of transportation
- Improve UNR – Downtown – Midtown connectivity
- Provide transportation solutions that make Midtown a unique place to live and visit
- Enhance safety and improve accessibility for disabled users





**Area Needs.** This plan builds upon findings from previous studies and plans as well as the feasibility analysis of extending RAPID to UNR. Safety, parking, transit connectivity, roadway, pedestrian, and bicycle facilities were investigated along the corridor.

The issues identified along the corridor through multiple planning efforts, studies, and stakeholder and public input include:

- Efficient transit connectivity between UNR and other parts of the corridor
- Access to RAPID transit stations due to ADA deficiencies, narrow sidewalks, inadequate bicycle connectivity, lighting, and pedestrian amenities
- Safety concerns due to high vehicular speeds and low access management
- Parking availability in Midtown area

The common theme of increasing connectivity was also identified between the five areas. The purpose of making transportation investments in the Virginia Street Corridor and along the RAPID route is to provide solutions that address multiple transportation needs. The identified issues have been articulated into a formal purpose and need statement provided in Section 7 - Transit of this report.

**Investment plan.** The recommendations within this study are in accordance with the goals of the Regional Transportation Plan. This study addresses the identified needs by integrating all types of transportation and provides solutions that focus on corridor-wide connectivity. Proposed solutions

listed below comply with complete streets<sup>2</sup> design principles and are appropriate to the context of each area. These solutions enable the RTC and other stakeholders to design and construct streets that provide safe access and travel for all users, including pedestrians, bicyclists, motorists, and transit users of all ages and abilities.

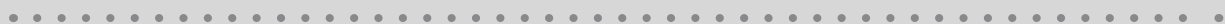
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<sup>2</sup> Complete Streets are roadways designed to safely and comfortably accommodate all users, regardless of age, ability or mode of transportation. Users include motorists, cyclists, pedestrians, and all vehicle types, including public transportation, emergency responders, and freight and delivery trucks among others. In addition to providing safety and access for all users, Complete Street design treatments take into account accommodations for disabled persons as required by the ADA. Design considerations for connectivity and access management are also taken into account with regards to non-motorized users of the facility.



## Summary of Recommendations

No.	Project	Description	Year of Expenditure Cost \$US
1	<b>Extending RAPID to UNR</b> North McCarran Boulevard to Maple Street	Transit and multimodal improvements including the extension of the RAPID route, UNR gateway feature, transit signal priority, pedestrian facilities, lighting.	7,000,000
2	<b>Virginia Street</b> Maple Street to Liberty Street	Safety enhancements including pedestrian ramps, striping, audible equipment for signal heads, traffic signal head back plates, signage.	150,000
3	<b>Virginia Street</b> Liberty Street to Plumb Lane	Phase I - Safety and Multimodal Improvements including restriping, road diet, and improving side street bicycle connectivity, bicycle parking and wayfinding.	700,000
4	<b>Virginia Street</b> Liberty Street to Plumb Lane	Phase II – Road Reconstruction and Multimodal improvements including sidewalk widening, streetscape improvements, lighting, safety enhancements.	16,500,000
5	<b>Virginia Street</b> Plumb Lane to Patriot Boulevard	Safety enhancements including striping, traffic signal modifications, signage, lighting, signal timing and intersection modifications.	900,000
6	<b>Transit</b> Meadowood transit station	Improvement to existing Meadowood Mall station including bus loading bay expansion, additional shelters, restrooms, and outside seating and landscaping areas.	5,000,000
7	<b>Transit</b> Meadowood transit station	Phase I - Safety and Multimodal Improvements including road diet, restriping, multimodal lane, safety enhancement to Tamarack Junction, access management plan, and alternative evaluation of improvements at Holcomb Ranch Lane.	15,500,000
8	<b>Virginia Street</b> Patriot Boulevard to Mount Rose Highway	Phase II - Safety and Multimodal Improvements including the construction of improvements recommended by access management plan, and constructing sidewalks.	6,000,000







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# REPORT ORGANIZATION

The following provides a brief description of each section.

**1 – Introduction.** This section introduces the purpose and goals of this effort and planning process and offers a summary of the existing plans and studies.

**2 – University of Nevada, Reno Area.** RTC supports the urban area in becoming a University Town. This chapter is focused on the UNR area of the corridor and provides a summary of assets, issues, opportunities, proposed improvement ideas, and implementation process considerations.

**3 – Downtown Area.** This section is focused on the Downtown portion of the corridor and provides general information on the status of the transportation infrastructure and service.

**4 – Midtown Area.** Midtown is in need of transportation improvements that will support the economic development in this corridor and improve walkability and accessibility to transit. This chapter provides a summary of assets, issues, opportunities, a proposed transportation improvement concept, and implementation process considerations.

**5 – Convention Area.** This section provides a summary of assets, issues, and opportunities in the Convention Area. The recommended improvements in this section are based on the findings and recommendations of the Road Safety Audit.

**6 – South Reno Area.** This section is focused on the South Reno area and provides a summary of assets, issues, opportunities, a proposed transportation improvement concept, and implementation process considerations.

**7 – RAPID Transit.** This section provides a purpose and need for proposed improvements and summarizes the proposed project that would improve connectivity and accessibility to RAPID.

**8 – Investment Plan and Recommendations.** This section outlines the investment plan for each area, identifies strategies, and provides recommendations moving forward.







## 1

# INTRODUCTION

Virginia Street was originally designated as US Route 395 until a new US 395 alignment was built through Reno in the early 1990s. At that time, the Nevada Department of Transportation (NDOT) relinquished ownership of Virginia Street to local agencies.

The City of Reno was born when the Virginia Street Bridge was first built in 1861. What started out as a toll bridge for mining purposes grew into a major transportation route which connected historical Virginia City to California and was best known as Virginia Street or Old US 395. Virginia Street corridor continues to evolve as a TOD Corridor. Large regional employers, whose employees make up the highest transit ridership in the RTC transit system, and the energy from the corridor's communities drive this evolution.

In February of 2013, the RTC, in coordination with the City of Reno, initiated an all inclusive stakeholder and public-driven process to develop a Virginia Street Corridor Investment Plan. This process included several public and stakeholder meetings as well as interviews with major stakeholders and business owners, the City of Reno, and UNR representatives.

The Virginia Street corridor study area extends from McCarran Boulevard in the north to Mount Rose Highway in the south. Five distinct areas were identified along Virginia Street based on the characteristics of each area and the types of destinations. These areas are referred to as UNR, Downtown, Midtown, Convention Area, and South Reno. (**Figure 1.1**). Major destinations located along Virginia Street within the study area include: UNR, Downtown, Midtown, Meadowood Mall, Reno-Sparks Convention Center, numerous hotels and casinos, and the University of Nevada, Reno Redfield Campus. Land uses within the corridor study area include hotel casinos, convention venues, retail, civic, and residential.

## 1.1 STUDY PURPOSE AND GOALS

This planning effort is designed to build upon completed and ongoing regional efforts and existing assets. The study addresses challenges and capitalizes on upcoming redevelopment opportunities. The purpose of this planning effort is not only to identify a set of capital improvements but also to provide transportation solutions that





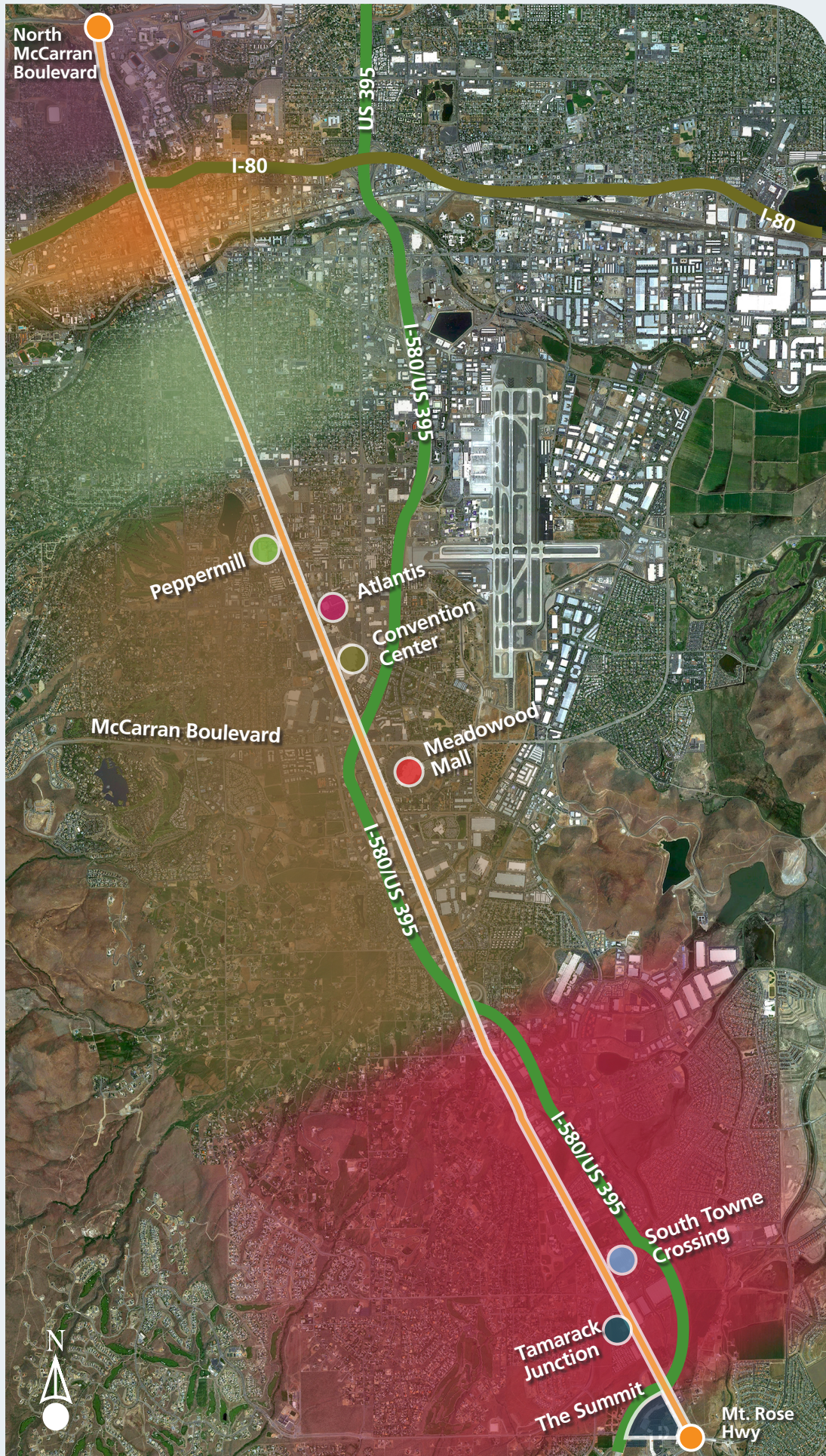


Figure 1.1 - Corridor study area



will encourage economic development, enhance safety, and improve livability in the corridor. In order to achieve this, several goals that support this vision of Virginia Street as a TOD Corridor were identified as follows.

**Improve UNR – Downtown – Midtown connectivity.** The City of Reno has a goal of making Reno into a university town. It is important to explore strategies that will improve the multimodal connectivity of UNR with Downtown and Midtown, and will increase safety for students who walk, bike, and take transit to their destinations.

**Make Virginia Street safe and inviting for all modes of transportation.** Virginia Street is home to many major destinations and workplaces. Current economic conditions and gaps in connectivity of transit service have made mobility and accessibility to the workplace challenging. By providing infrastructure improvements that increase connectivity and make RAPID transit more

accessible, RTC offers citizens the opportunity to access these destinations at a lower cost.

**Provide transportation solutions that make Midtown a unique place to live and visit.** While striving to regenerate and rebrand itself as a Technology Corridor, Midtown is undergoing a major transformation. It is vital to champion this transformation by providing transportation facilities and amenities that will enhance this unique area and facilitate accessibility and walkability.

**Enhance safety and improve accessibility for disabled users.** Virginia Street is one of the oldest streets in Reno. The sidewalks and pedestrian ramps in many locations are not compliant with the Americans with Disabilities Act<sup>3</sup> (ADA). The RTC is committed to providing improvements that remove barriers to disabled users and enhance safety.

## 1.2 PLANNING PROCESS

The RTC considers participation and input from the community and stakeholders to be vital in providing support and advocacy for the results developed in this Investment Plan. This study integrates several outreach methods and activities that promoted stakeholder and community participation (**Figure 1.2**). Through this process, the RTC solicited feedback from the community and acknowledges the benefits of their participation and input.



Figure 1.2 - Public meeting

<sup>3</sup> American with Disabilities Act was enacted by the US Congress in 1990 and prohibits discrimination and ensures equal opportunity for persons with disabilities in employment, State and local government services, public accommodations, commercial facilities, and transportation. (Source: ADA.gov)



This study was supported by an extensive stakeholder involvement and public outreach component. A survey was created which targeted residents, business owners, and commuters who travel through the corridor regularly. The bilingual public survey made available on the RTC website gathered initial thoughts from the public regarding needs and deficiencies in various transportation modes through the corridor. Bilingual surveys were distributed and collected by hand on bus routes, at special events, and also were provided to major employers. The results of the public opinion survey provided details that identify the most frequently visited areas of the corridor, the most popularly utilized modes of travel used to get to and from these locations, and the specific transportation improvements perceived to have the greatest potential of a positive impact on travel in this area.

Stakeholder interviews were conducted to support the team in collecting information and identifying major mobility needs along the corridor. Additional

meetings were conducted with major stakeholders, the City of Reno, and UNR. Most interviewees supported expanding the local bus system and encouraging transit ridership, specifically if it would further connect UNR with the rest of the city. Issues regarding safety along Virginia Street were raised, particularly in regard to automobile speed, pedestrians at intersections, and in parking areas. Many Midtown merchants interviewed also expressed concerns about the potential impacts of sidewalk construction upon local business establishments.

The study benefited from two community workshops (**Figure 1.3**) and a public meeting. These activities provided opportunities for extensive community input such as visioning and identification of assets, issues, opportunities, and solutions. Workshop No. 1 introduced the goal of the study to stakeholders, and participants focused on creating a vision for Midtown and developing strategies for attaining the Midtown



Figure 1.3 - Community workshop



vision. Workshop No. 2 introduced the goal of the study to the public, and attendees participated in focused discussions on topics including transit, pedestrians, cyclists, parking, and vehicles. Attendees then took part in electronic polling of complete street components by area. The third meeting was held as a public open house to present the findings and results of the study, and to gather and address comments from the public.

A more detailed description of the outreach activities is provided in the Public and Stakeholder Involvement Report in **Appendix A**.

### 1.3 PLANNING CONTEXT AND EXISTING STUDIES

Before developing the Virginia Street Corridor Investment Plan, it is important to review previous studies and documents. This process ensures that the Investment Plan considers the recommendations of previous studies and plans and at the same time recognizes changing conditions in the study area and the ensuing changes to the relevance of some of these older documents. This section of the introduction reviews and emphasizes those studies or plans and sections of documents that are relevant to the Virginia Street Corridor.

**2012 Truckee Meadows Regional Plan.** The *2012 Truckee Meadows Regional Plan* addresses the regional form, pattern, and management of natural resources, and the provision of infrastructure and services over the next 20 years. The effective planning area is the developed portion in the southern 25 percent of Washoe County, which includes the City of Reno and the City of Sparks.

The *2012 Truckee Meadows Regional Plan* defines Primary Transit-Oriented Development (TOD) Corridors and Secondary TOD Corridors as a part of Policy 1.2.10 which prescribes special planning rules for these TOD areas. The TODs are generally one quarter of a mile wide on each side of the designated transportation route or road, with a central point of origin at the intersection of Virginia Street and Fourth Street in Downtown Reno. The primary TOD corridor related to the Virginia Street Corridor is South Virginia Street as it continues south from 4th Street to Moana Lane. Secondary TOD corridors related to the Virginia Street Corridor include South Virginia Street (south from Neil Road to Mount Rose Highway, and Mount Rose Highway west to the Redfield Center) and North Virginia Street (north to Stead Boulevard, and Stead Boulevard to the Stead Center).

**Regional Transportation Commission Regional Transportation Plan.** The Regional Transportation Commission (RTC) *2035 Regional Transportation Plan* is the region’s 20-year long-range plan. The plan defines the long-range vision for the region’s transportation system, which focuses on transportation as a catalyst for developing economic opportunities and improving quality of life. The plan defines policies and priorities required to achieve this long-range vision. The plan also describes how specific programmatic investments and implementation of various transportation projects will further the vision expressed in the plan’s vision.

*The 2035 Regional Transportation Plan* references objectives and projects specific to the Virginia Street Corridor and includes the following.

- Initiation of the Virginia Street RTC



RAPID Bus Service spurred new and infill development.

- Virginia Street RTC RAPID needs to be expanded.
- Virginia Street bridge needs to be replaced.
- A new transit facility on South Virginia Street is needed but is unfunded.
- The Virginia Street Corridor has a target of 30 percent pedestrian, bike, and transit share of travel by 2035.
- Midtown Virginia Street sidewalks will be widened and the pavement reconstructed by 2017.
- The intersections of North Virginia Street with North McCarran Boulevard and Sierra Street/Comstock Drive are planned to have capacity improvements within the Regional Transportation Improvement Program.

**City of Reno Master Plan.** The *City of Reno Master Plan* is a comprehensive planning document, which defines the city's vision, goals, and policies. Major areas of focus include population, land use, housing, streets, and resource use. The plan is comprised of six Citywide Plans, eight Regional Center Plans, five TOD Corridor Plans, and six Neighborhood Plans.

The center and corridor plans that relate to the Virginia Street Corridor include:

- **Downtown Reno Regional Center Plan:** The *Downtown Reno Regional Center Plan* from 2006 identifies North Virginia Street, South Virginia Street, East 4th Street, West 4th Street, and Mill Street as TOD Corridors. Downtown Reno is the central hub of these corridors. This center is located generally south of I-80, west of

Wells Avenue, north of California Avenue, and east of Keystone Avenue. Downtown Reno is the highest density and intensity area in Northern Nevada. This plan proposes to strengthen that density by making it the origin to the regional TOD Corridor system. The *Downtown Reno Regional Center Plan* focuses on concentrated development and streetscapes that encourage the use of alternative modes of transportation as the preferred method.

- **Convention Regional Center Plan:** The *Convention Regional Center Plan* drafted in 2007 generally covers the Convention Center, the existing shopping mall, and surrounding commercial and residential neighborhoods. This area has unique attributes, such as the convention center, associated hotel casinos, and the existing shopping mall, which all support convention business. While these facilities bring a variety of people to the area, further development and redevelopment needs to occur to form this area into a fully functioning regional center. This plan encourages further hotel, casino, tourism, and commercial development in the future. The *Convention Regional Center Plan* identifies the Convention Center as connecting to the South Virginia Street TOD Corridor on the northern and south boundaries.
- **University of Nevada Regional Center Plan:** The *University of Nevada Regional Center Plan* from 2005 generally covers the UNR campus and surrounding areas. North Virginia Street is identified as supporting the major north-south vehicular circulation through this center. The main focus of

this plan is the further development and expansion of the university’s campus and surrounding complementary uses. This Regional Center Plan proposes a strong physical connection across I-80 into the adjacent Downtown Regional Center. The proposal for this area also includes active pedestrian-oriented streets with retail, residential, educational, and cultural activities. The cultural uses include a science and discovery center near Virginia Street which would be used by the University, downtown visitors, and residents.

**City of Reno Draft South Virginia Street Streetscape Design Standards.** Design standards outlined in this document provide the guidance for future streetscape improvements on South Virginia Street and side streets within one block of South Virginia Street from California Avenue to Kietzke Lane. These design standards recognize that the development pattern within this corridor is transitioning from traditional commercial strip development to a vibrant, mixed-use, TOD corridor. The corridor has existing bus rapid transit service, and the goal of the streetscape improvements is to more fully emphasize transit and pedestrian mobility. The South Virginia Street Streetscape Design Standards aim to:

- Increase walkability on South Virginia Street
- Develop a programmatic hierarchy for streetscape features and implementation
- Integrate streetscape features with transit services
- Develop an integrated lighting plan
- Eliminate on-street parking to gain additional pedestrian zones and to facilitate bus rapid transit service

**Virginia Street Road Safety Audit.** The NDOT Safety Engineering Division, in coordination with the RTC, authorized a Road Safety Audit (RSA) to be conducted in 2013 on approximately 14 miles of Virginia Street (SR 430) from the US 395/Panther Valley Interchange to the Mount Rose Highway/ Geiger Grade intersection. The purpose of the RSA was to identify potential road safety issues and recommend countermeasures that would mitigate those safety issues for consideration in the RTC Virginia Street Corridor Study. The RSA revealed that a uniform method of signing, lighting, striping, and pedestrian-activated devices should be instituted. Recommendations were for NDOT, RTC, and/or the City of Reno to address all ADA non-compliant ramps, driveways, bus stops, pedestrian push buttons, missing sidewalks, and sidewalks with obstructions on future NDOT, RTC, or City of Reno projects.

**Reno Sparks Bicycle and Pedestrian Master Plan.** The *Reno Sparks Bicycle and Pedestrian Plan Master Plan* completed in 2011 is a guide for developing a safe and convenient system of bicycle routes, pedestrian routes, and other related facilities. This plan addresses established goals, policies, standards, funding strategies, education, and intermodal linkages throughout the Reno Sparks region. The *Reno Sparks Bicycle and Pedestrian Plan Master Plan* is an extension of the RTC’s Regional Transportation Plan and provides prioritized lists of specific projects for implementation.

The plan names several Virginia Street specific improvements, including the following:

- Virginia Street crossing improvements and new bike lanes between 9th Street and





Sierra Street

- New pedestrian signal at Virginia Street and College Drive
- New crosswalk with stutter flash beacon at Virginia Street and 17th Street

### Reno Sparks Bicycle and Pedestrian ADA

**Transition Plan.** The *Reno Sparks Bicycle and Pedestrian Plan ADA Transition Plan* of 2011 provides a roadmap to making pedestrian facilities accessible to persons with disabilities. The plan inventories bicycle and pedestrian ADA deficiencies, categorizes the severity of those deficiencies, and translates those determinations into sets of needs. Four categories of high-priority Virginia Street deficiencies identified in the plan's analysis include curb ramps, transit stops, driveways, and sidewalk obstructions and deficiencies.

**PLAN 2 RIDE Short-Range Transit Program.** The *Short-Range Transit Program* (SRTP) is designed to set a course for the delivery of transit services over the next five years. The SRTP evaluates the ridership, services, hours, and productivity of each of the routes in the system. Some of the routes evaluated as part of the SRTP utilize the Virginia Street Corridor in some capacity. The program was developed using input from RTC leadership, the public (both riders and non-riders), and research about current operations and how they have worked over the past SRTP period. While the recent positive result of a turnkey service contract has helped to avoid immediate service reductions, potential future revenue shortfalls may still require an assessment of the system. The SRTP proposes a series of route revisions to increase productivity, and also provides for adjustments over time to

correct unproductive routes and to strengthen routes performing well.

### IBM's Smarter Cities Challenge—Reno Summary Report.

In 2012, IBM selected Reno, Nevada to receive a Smarter Cities Challenge grant. The City of Reno challenged IBM to “Help craft a data-driven strategy for economic development as the City looks to diversify its economy. By applying advanced analytics and using open data, the City aims to improve coordination among policymakers, citizens, higher education institutions, businesses and investors.” In response, the IBM team reported that the City of Reno faces the following challenges:

- Many different sources of data, each with its own rules and definitions
- Lack of integrated data
- No cohesive regional identity and vision
- Lack of collaboration across different parties, policymakers, citizens, higher education institutions, businesses, and investors
- Limited fact-based regional decision-making

Although the Virginia Street Corridor is not specifically mentioned in the document, the corridor has a role in the region's identity, is a topic of multi-stakeholder interest, and is a data point in a broad range of decision making. The function of Virginia Street and the decision made regarding Virginia Street have the potential to help overcome these five challenges.

### Mayor's Institute on City Design Report: Bridging the Disconnect Between UNR and

**Downtown Reno.** Mayors' Institute on City Design (MICD) is a leadership initiative of the the National Endowment for the Arts in partnership

with the American Architectural Foundation and the United States Conference of Mayors. Since 1986, the Mayors' Institute has helped transform communities through design by preparing mayors to be the chief urban designers of their cities. ([www.micd.org](http://www.micd.org))

The Mayor of the City of Reno attended the MICD South session in November 13 – 15, 2013 in Los Angeles California. In this session the Mayor addressed the disconnect between UNR and downtown Reno. Based on Mayor's presentation, MICD participants submitted recommendations to bridge this disconnect between UNR and downtown Reno. Highlights of these recommendations include:

- A grand makeover of Virginia corridor with trees, wider sidewalks, and the beautification and adaptation of the existing parcels to the north of the I-80 to form a UNR gateway and improved traffic pattern.
- Imaginative public-private endeavors will need to be formed and new visualizations created.
- Building UNR tenant space into adjacent casino parking garages, which are under-filled and adapting existing structures into additional student housing.
- Conceive of new 'micro urban areas' that bring together student housing, classroom space, and city amenities.
- Look seriously at the ice rink plaza at Virginia Street on the north bank of the river as an opportunity to create a much-needed focus for a downtown campus. Virginia Street, as a connector, needs an anchor at the south end to draw the UNR community from its main campus up north to a

place of arrival downtown.

### **Downtown Reno Circulation and Parking Plan.**

The *Downtown Reno Circulation and Parking Plan* of 2006 is a detailed analysis of current and forecasted future transportation circulation and parking needs in Downtown Reno. The plan considers factors that will change future transportation circulation such as development, planned transportation network changes, and changes in demand. This includes analysis of approximately 60 intersections and all roads within the downtown area.

The plan makes several Virginia Street Corridor specific recommendations, including the following:

- Install eastbound and westbound exclusive left-turn lanes on 2nd Street and Virginia Street
- Prohibit left turns from 3rd Street onto Virginia Street
- Add north-south protected/permissive left-turn signal phasing at Virginia Street and 4th Street
- Construct a new parking lot with 500 to 600 parking spaces west of Virginia Street and south of 4th Street.





## 2

# UNIVERSITY OF NEVADA RENO AREA

Virginia Street within the University of Nevada Reno (UNR) Area is located from Interstate 80 in the south to North McCarran Boulevard in the North. The *City of Reno Strategic Plan* of 2013 identifies “Make Reno a University Town” as one of the goals that would support the priority of “Promoting a Sustainable and Vibrant Economy in Reno” (City of Reno). Strong transit connections to colleges and universities are key elements of many other successful college communities, stemming from the low availability of vehicles to students and the benefits that transit can bring to busy activity centers such as university campuses.

This section summarizes the tools and strategies that the RTC will use to support the City’s goal. These strategies facilitate integration of the student community with the Downtown and Midtown Reno community by providing transportation options. While this study reviewed the opportunities of improving transit access to all higher education campuses (**Appendix B**), the focus of analysis in this section is on enhancing services to the UNR main campus along Virginia Street and parallel routes.

UNR has initiated an update to the Campus Master Plan and invited RTC and the City of Reno to collaborate on this important effort. The Campus Master Plan will refine the transportation recommendations provided in this report.

## 2.1 SUMMARY OF ASSETS, ISSUES AND OPPORTUNITIES

Key assets, issues and opportunities of the UNR area were identified through the analysis of data, existing studies and reports and input from stakeholders.

**Higher Education.** UNR was established in 1874 in Elko and is the oldest university in the State of Nevada. The university moved to Reno in 1885, and the main campus is now located just north of Downtown Reno. As of spring 2014, UNR has an enrollment of nearly 18,000 students and 1,600 faculty and staff(UNR). This university was named as one of the top 200 colleges in the nation by the recent *U.S. News and World Report National Universities* category index. (**Figure 2.1**)







Figure 2.1 - University of Nevada, Reno. Manzanita Hall

**Student housing.** The campus provides residences to 2,440 students or approximately 13.5 percent of UNR's enrollees. A review of data collected by the RTC indicates that student housing is concentrated around major arterials, in the vicinity of UNR campus, and in the near proximity of a transit route. Approximately 39 percent of UNR students were found to live within a quarter-mile from the corridor. **(Figure 2.2)**

**Roadway and Safety.** Virginia Street is also an important vehicular, pedestrian, and bicycle corridor in the Reno area's roadway system. The roadway geometry consists of two undivided travel lanes in each direction and parking on both sides of the street. Vehicle volume on Virginia Street, based on NDOT 2012 traffic count data, ranges from 24,000 per day near the I-580 interchange to 8,700 per day just south of North McCarran Boulevard.

There were 141 total crashes registered on Virginia Street from North McCarran Boulevard to Maple Street (06/1/2009 to 5/31/2012). Of these crashes, four involved fatalities, 55 had injuries, 82 resulted in property damage, and 8 involved pedestrians. A UNR student conducted a study with data

obtained from the City of Reno Police Department over the period of 2010 to 2013. Her analysis indicates that a total of 268 pedestrian and bicycle crashes were recorded in the roadway network within one mile radius from UNR.

**Transit access.** The RTC Ride public transit program serves the urban core of the Reno-Sparks region. Three types of fixed route services are in operation: RAPID bus service, the SIERRA SPIRIT, and standard bus routes. **(Figure 2.3)** The UNR main campus today is served by Route 7, Route 17, and SIERRA SPIRIT.

- Route 7 (Stead) provides service every 30 minutes over a long service day (from roughly 5:00 am to 2:00 am). It serves the Virginia Street Corridor from Fourth Street Station to the north beyond North McCarran Parkway.
- Route 17 (Lemmon Valley) provides hourly service until roughly 11:00pm at night. Going north from Fourth Street Station, it travels along Evans Street before turning right on Highland Avenue and exiting the study corridor.
- The SIERRA SPIRIT consists of a shuttle connecting the UNR campus with downtown Reno via Virginia Street. Service is provided every 15 minutes from 7:00am to 7:00pm, 365 days a year, and stops are generally provided every block. On August 7, 2013 a fare of 25 cents for general public and 10 cents for youth, seniors, and people with disabilities was implemented.

The UNR main campus is also served by two UNR operated shuttle services in the campus area.



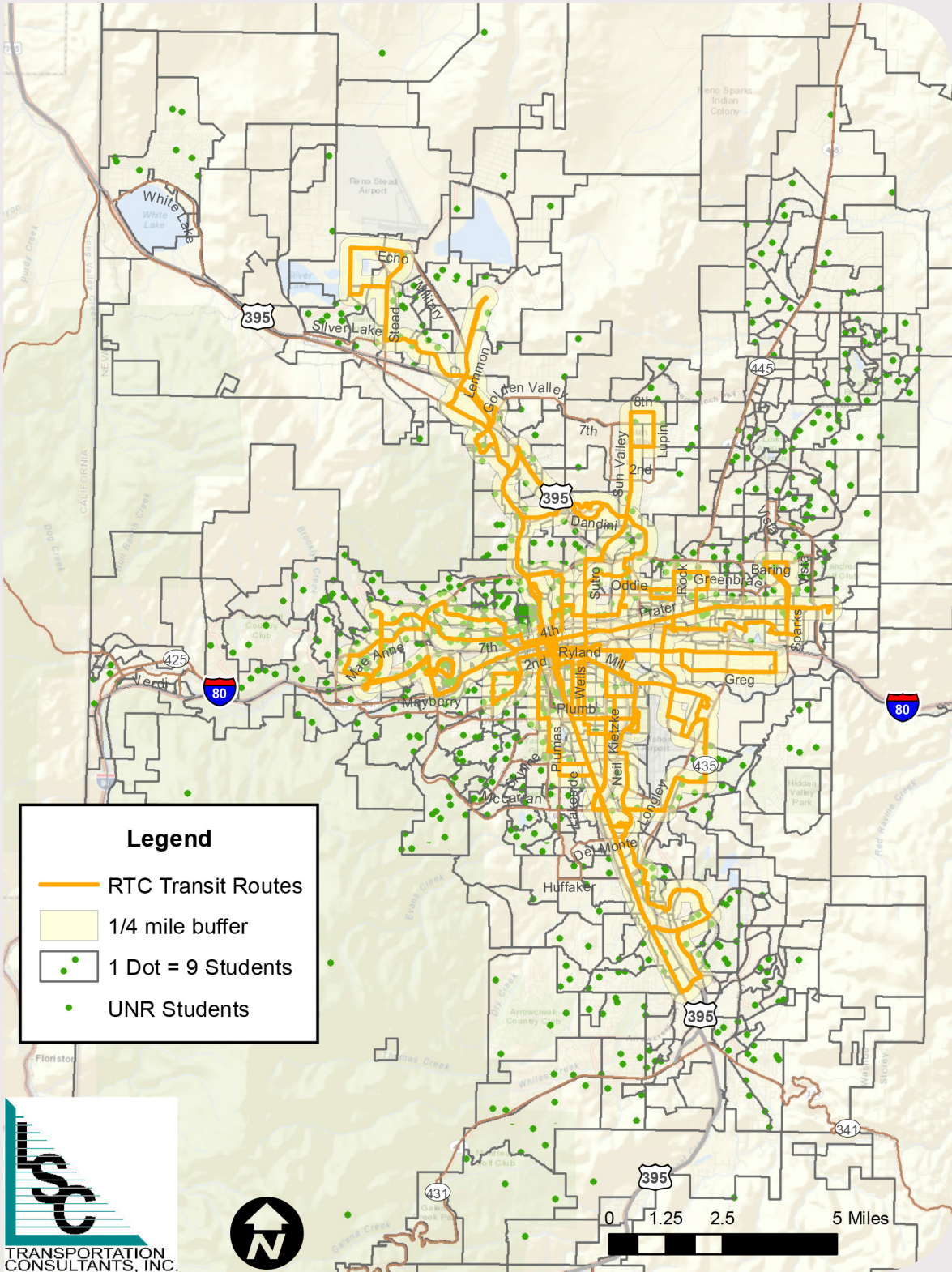


Figure 2.2 - UNR students within a quarter mile of transit routes



Figure 2.3 - Transit along Virginia

**Transit connectivity to Downtown and Midtown.**

The existing transit system does not provide a direct connection to Midtown. A transfer to the RAPID service (or other routes) is required at the Fourth Street transit terminal station. Extensive redevelopment is occurring in Downtown and there has been a growth in businesses that cater to the younger population, including students, in Midtown. The need for direct transit connectivity to these destinations is considered very important to the stakeholders and the general public. (Figure 2.4)

Table 2.1, following, shows the service provided between UNR, Downtown, and Midtown.

Table 2.1 - Transit service provided to UNR

		To Downtown	To Midtown
From UNR Main Campus	Routes	7, 17, SIERRA SPIRIT	7, 17, + RAPID or Route 1
	Time of service	5am – 1am	5am – 1am
	Frequency	Every 10 minutes	Every 30 minutes
	Travel time	10 minutes	39 minutes

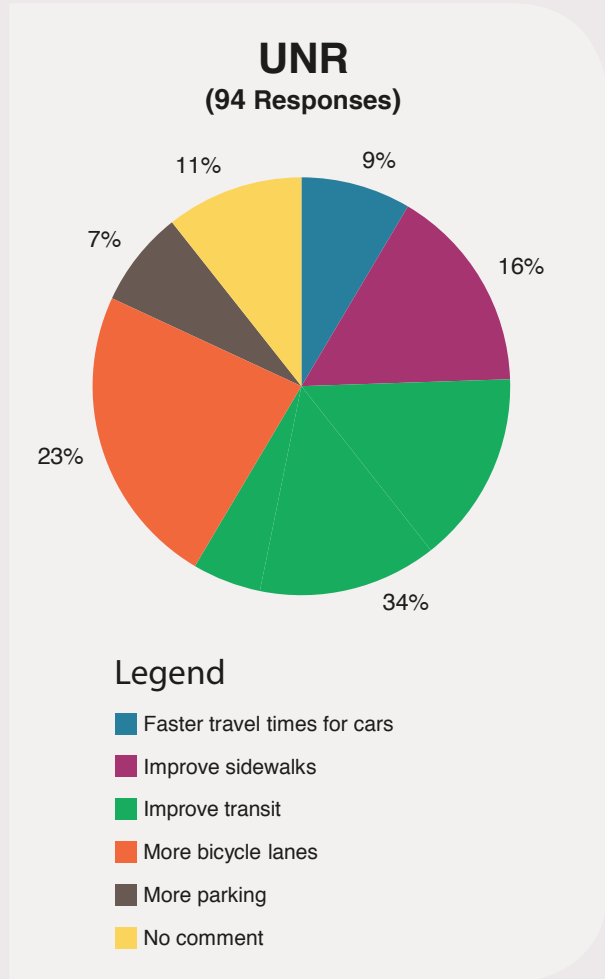
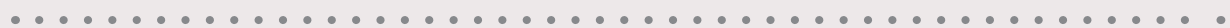


Figure 2.4 - Survey results

**RAPID Service.** The RAPID program operates largely along South Virginia Street (with service along Center Street and Lake Street in the downtown area) between the Fourth Street Station on the north and Meadowood Mall on the south. Transit on Virginia Street consists of two coordinated types of service:

- RAPID service is operated using articulated buses. For much of the operating day, service is provided every 10 minutes. Enhanced bus stops are provided, many with high platforms to provide convenient level entrance and opportunities for pre-payment of fares. A total of nine stops are served, on





roughly every half mile.

- ROUTE 1 service is operated 24 hours a day using standard size buses, approximately 40 feet in length. The route serves additional stops along the RAPID corridor every 30 minutes. A total of 23 stops are served in the southbound direction and 20 stops in the northbound direction.

**Bicycle connectivity and safety.** Bicycles are an inexpensive mode of transportation and are very popular among students. Improvement of bicycle connectivity and safety in the areas surrounding the university is a topic of concern among

students. Research performed by a UNR student indicated that bicycle and pedestrian safety concerns were attributed to the lack of lighting and poor facilities. (Figure 2.5) Currently there are no bicycle lanes on this section of Virginia Street.

**UNR Gateway.** Virginia Street between 9th Street and Maple Street is significant to the image of the university. As part of the UNR Gateway this area provides access to downtown. City of Reno and UNR are analyzing the closure of Center Street between 8th and 9th streets to vehicular traffic. While this closure will improve pedestrian and bicycle realm and safety, the impact to the

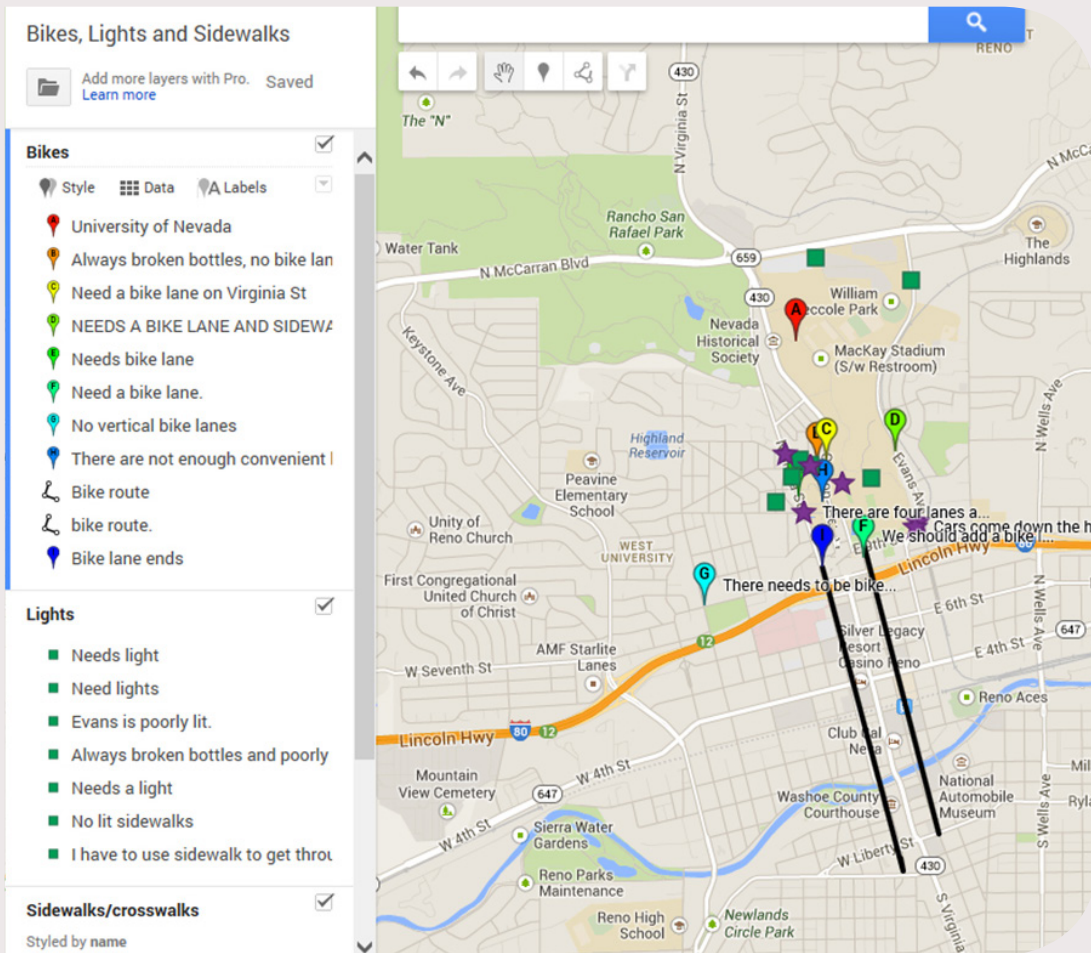


Figure 2.5 - UNR student survey (courtesy of Abbie Walker)



vehicular traffic circulation along Virginia Street needs to be evaluated. Additionally, narrow sidewalks along the I-80 bridge make it difficult for pedestrians and cyclists to cross (**Figure 2.6**).



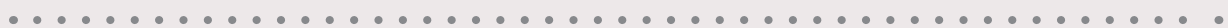
Figure 2.6 - Narrow sidewalk at the bridge crossing I-80

**UNR Master Plan.** UNR is in the process of updating the Campus Master Plan. The latest master plan was developed in 2004 and addressed the area designated by the Truckee Meadows Regional Plan as “University Regional Center”. Major components that this plan addressed were pedestrian and bicycle circulation, vehicular access, parking, and transit. The 2004 plan assumed that the area south of campus, bounded by Eighth Street and Ninth Street, as well as the proposed mixed-use district between I-80 and Fourth Street, will be included by the City of Reno in a Redevelopment Project Area. The area bounded by I-80, Ninth Street, Sierra Street, and Evans Avenue is included in the University Gateway Project (RDA#2) and currently remains

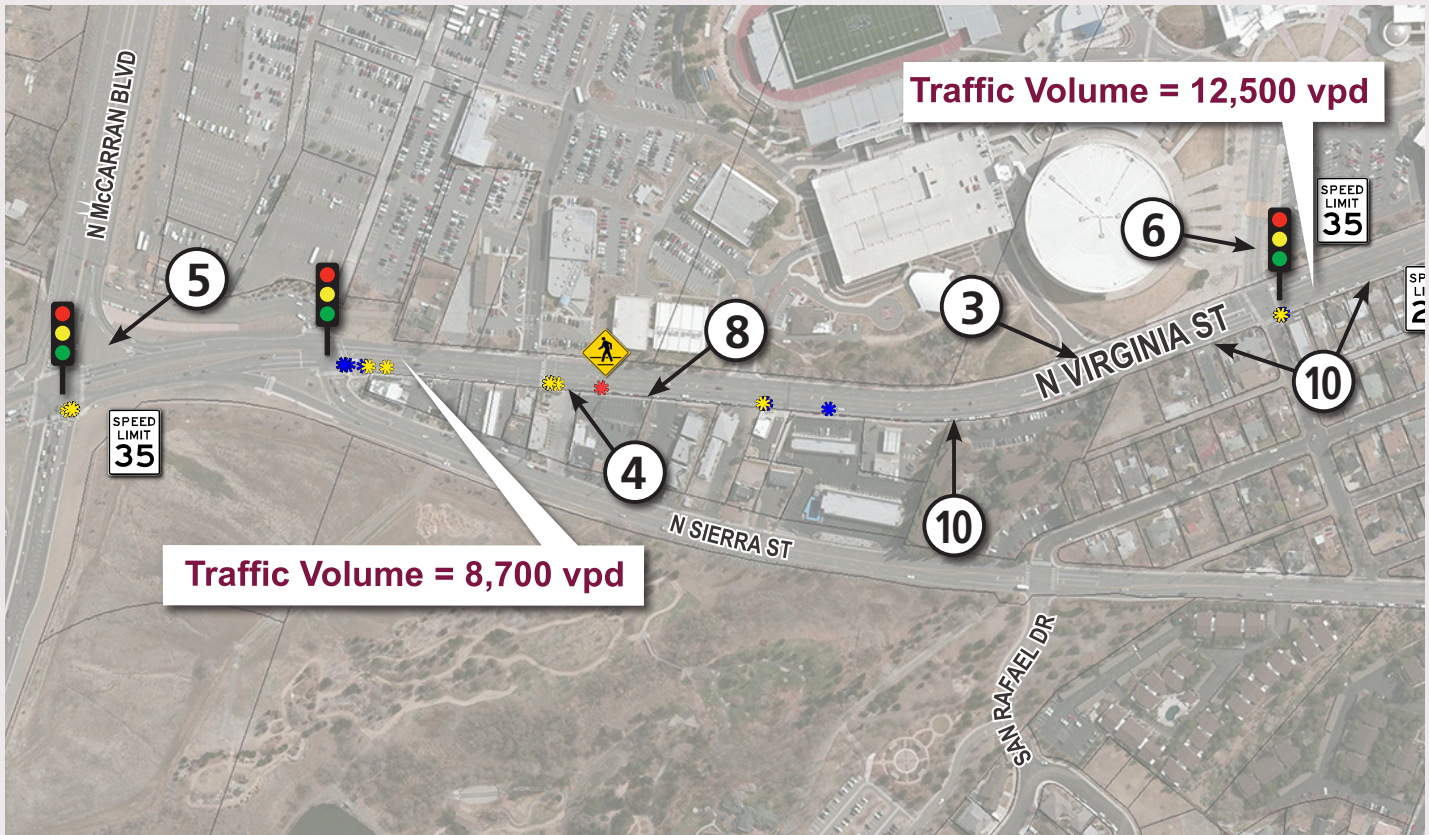
unfunded. Many of the pedestrian, bicycle, and transit circulation elements included in this plan have not been funded or implemented.

The new UNR Master Plan envisions an expanded campus to accommodate a projected 17% enrollment increase over the next ten years. The updated master plan is anticipated to provide solutions to the recommendations of the Mayor’s Institute on City Design with regard to transforming Virginia Street corridor into a corridor with unique identity. As part of the process the Master Plan will analyze the feasibility of accommodating wider sidewalks, trees, adaptation of the existing parcels to the north of the I-80 and a gateway feature.








Existing Conditions Summary. A summary of the data obtained through multiple efforts within this section of Virginia Street is shown in **Figure 2.7**.





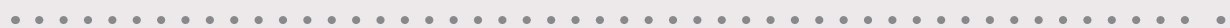


**ROADWAY CHARACTERISTICS AND SAFETY**

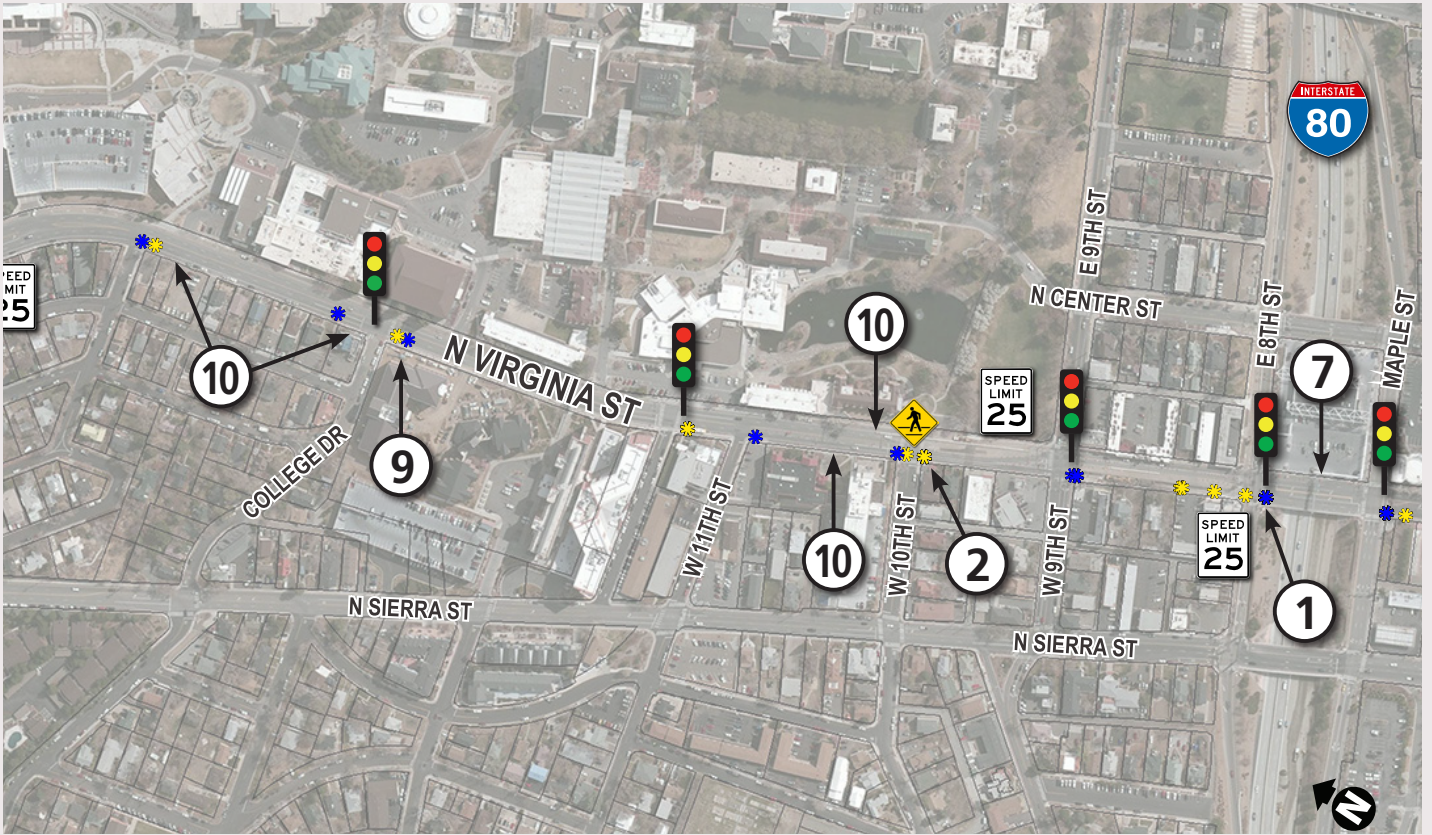
-  Speed Limit
-  Traffic Signals
-  Vpd – Traffic Volume in Vehicles per day
-  Roadway Crashes
-  Property Damage
-  Injury Accident
-  Fatal Accident

- 1** A motor vehicle and pedestrian crash resulting in 2 fatalities occurred at this intersection.
- 2** The driver's view of the northbound pedestrian crossing signs is being blocked by low hanging tree limbs.
- 3** The pedestrian crossing at the unsignalized intersection of the Lawlor Parking Garage that is north of 15th Street is just south of the location where a fatal pedestrian accident occurred. The location of the accident now has a new pedestrian activated flashers or RRFB, however this crossing does not. Also, the crossing signs do not match in color. This inconsistency in view of one another may cause a false sense of security for pedestrians.
- 4** A fatal pedestrian crash occurred at this location. Improvements including new signs, sidewalk bulb out and an RRFB system were installed since the fatality.
- 5** This is a high crash location with 39 total crashes 23 being rear end crashes. During UNR games, people use the intersection islands at Virginia Street and North McCarran as parking areas. This blocks sight distances for all the pedestrian crossings and some of the traffic movements. RTC has a planned project to redesign this intersection which will improve the islands and sight distances and approach angles.

Figure 2.7 - UNR Area - Existing conditions







**PEDESTRIAN AND BICYCLE AMENITIES AND ACTIVITY**

There are no bicycle lanes along Virginia Street within UNR area.

- ⑥ The ADA ramps for pedestrians lack tactile strips at all four corners.
- ⑦ Narrow sidewalks make it difficult to cross the bridge.
- ⑧ Virginia and Little Waldorf - RRFB pedestrian crossing.

Time Period	Bike Activity	Pedestrian Activity	Wheelchair Activity
September 2013	16	80	0
January 2014	16	83	0

- ⑨ Virginia and College

Time Period	Bike Activity	Pedestrian Activity	Wheelchair Activity
September 2013	18	266	0
January 2014	52	776	1

**TRANSIT**

Route 7 (Stead) provides service, along this section of Virginia, every 30 minutes from roughly 5:00 AM to 2:00 PM.

**PARKING**

- ⑩ Street parking is allowed.

**LEGEND**





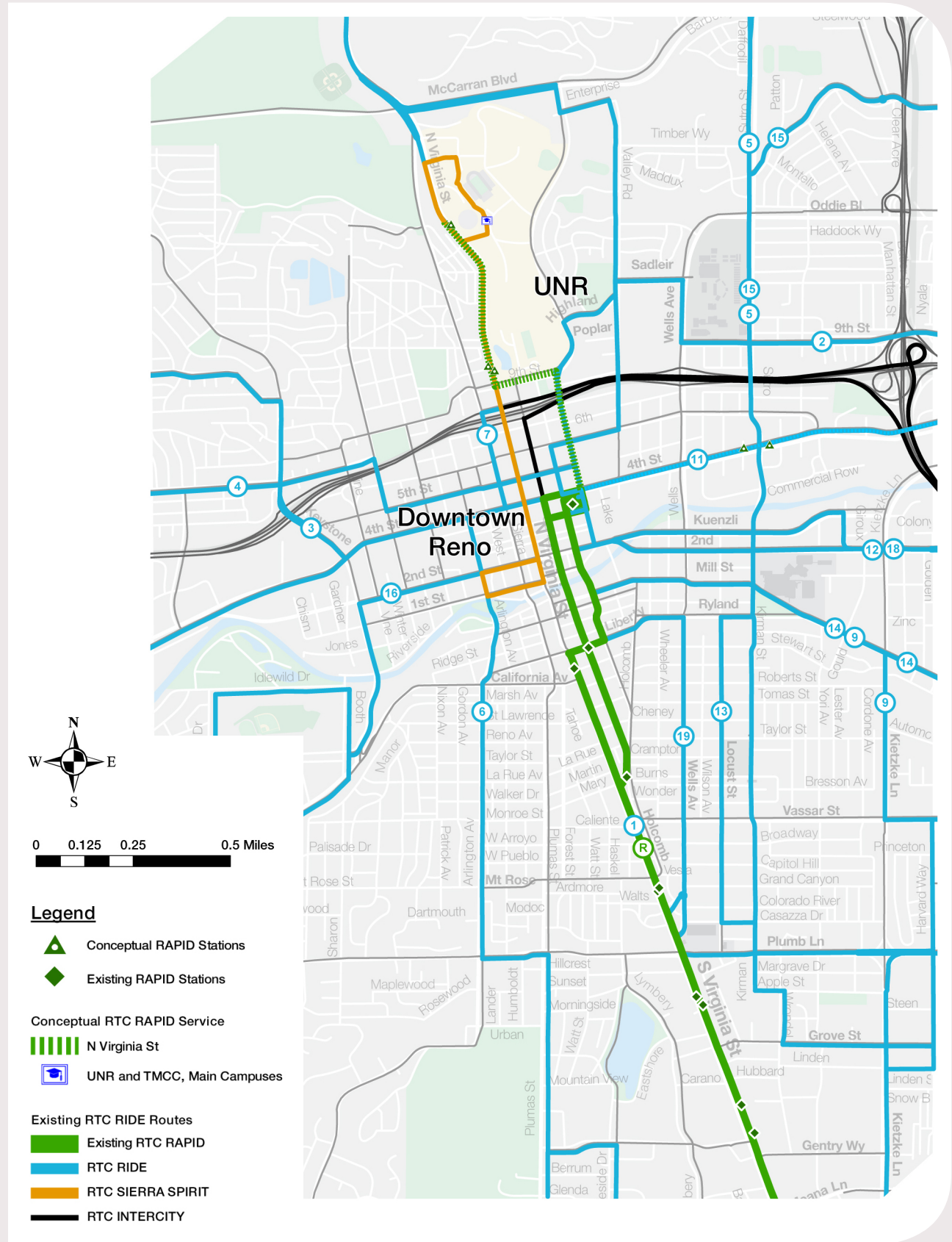


Figure 2. 8 - Preferred alignment of RAPID extension and station locations (preliminary concept - subject to change)

## 2.2 CONNECTING UNR – DOWNTOWN – MIDTOWN CONCEPT

The use of alternative modes of transportation is at the core of the concept for connecting UNR to Downtown and Midtown. The proposed concept focuses on the extension of RAPID service to UNR, improved traffic circulation, enhanced walkability, and improved connectivity of bicycle routes between UNR, Downtown, and Midtown.

**RAPID service extension to UNR.** Several alignment concepts and station locations were screened by stakeholders and analyzed based on potential ridership and operating efficiencies (**Appendix B**). The proposed alignment concept shown in **Figure 2.8** is the outcome of this process. RAPID buses would exit the Fourth Street Station, head north on Evans Street, west on 9th Street, and then north on Virginia Street. A roundabout will be constructed at the West Stadium parking complex and will serve as the northern terminus of the route.

### BENEFITS OF LOCALLY PREFERRED ALIGNMENT

- Serves the greater potential ridership. In particular, this option would place stops within convenient walking access distance to the residential areas, much of it high density, west of Virginia Street
- Provides a higher profile for transit services
- Provides the most convenient service to Lawlor and the Knowledge Center

The extension will add two additional stops to the route: Manzanita Lake and Lawlor Events Center.

**Manzanita Lake stop.** Buses would stop in the curb lanes and the sidewalk would be extended in the existing parking lanes to provide space for enhanced bus stops. A protected pedestrian crossing device would provide protected pedestrian crossing of Virginia Street. (**Figure 2.9** and **2.10**)



Figure 2.9 - Manzanita Hall RAPID station (preliminary concept - subject to change)

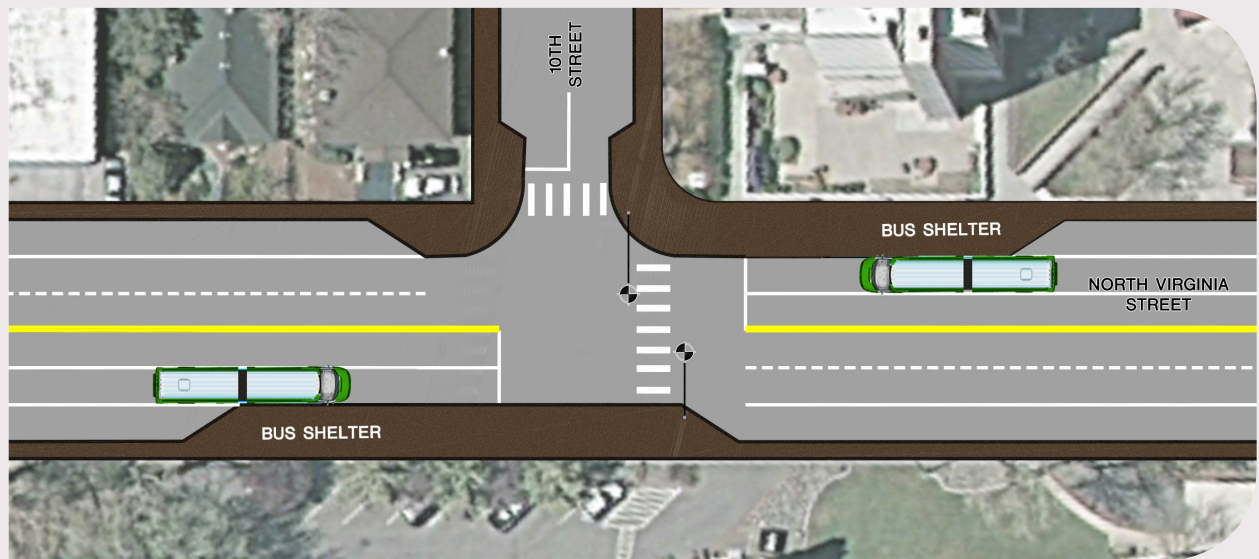


Figure 2.10 - Plan view of Manzanita Hall RAPID station (preliminary concept - subject to change)

#### BENEFITS OF MANZANITA STOP LOCATION

- Convenient location near many of the UNR facilities in the southern portion of the campus
- Serves housing and commercial land uses to the west and south
- New traffic control device would provide a protected pedestrian crossing of North Virginia Street
- Relatively low construction cost and low visual impact
- Minimizes loss of parking

**Lawlor stop.** This stop is located on the east side of Virginia Street, north of Fifteenth Street and it is accompanied by a roundabout on Virginia Street at the West Stadium Parking Complex access to provide space for the buses to turn around. (Figure 2.11 and Figure 2.12)

#### BENEFITS OF LAWLOR STOP LOCATION

- Convenient to several key UNR activity centers, including Lawlor Events Center, Mackay Stadium, Joe Crowley Student Union, Mathewson IGT Knowledge Center, and the Lombardi Recreation Center
- Lower operating costs and faster travel times than other options
- Roundabout design eliminates the need for a southbound RAPID station
- Roundabout improves westbound-to-southbound left turn movements out of the parking structure onto Virginia Street
- Less conflict between buses, pedestrians, and traffic than other alternatives

Under the proposed concept, ridership on the proposed RAPID extension to and from the UNR area is estimated to increase from 705 passenger trips to 1,530 passenger trips.



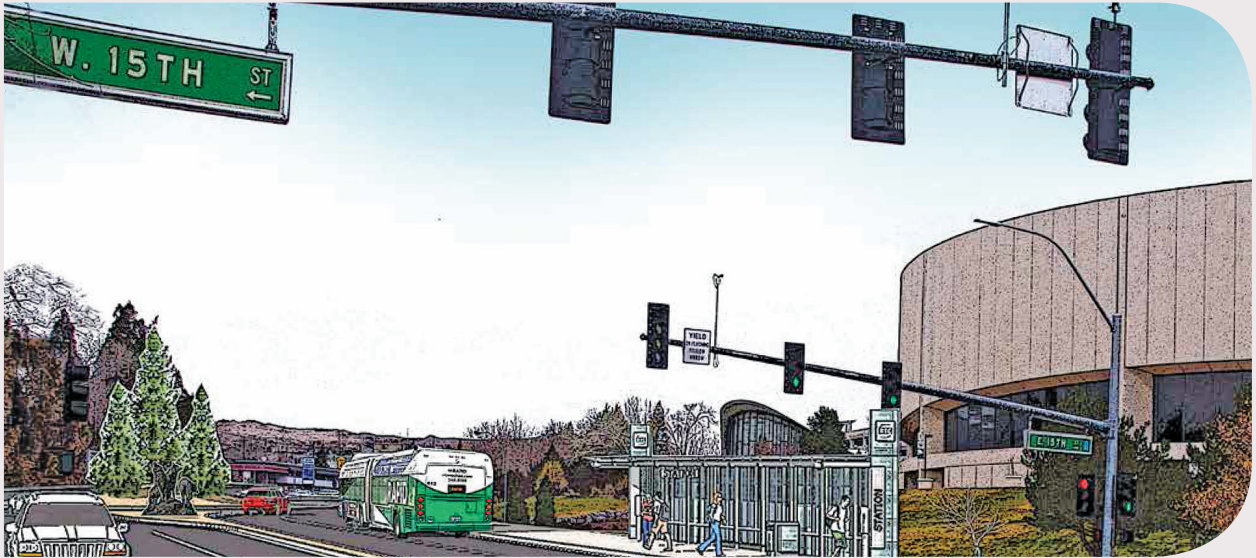


Figure 2.11 - Lawlor RAPID station (preliminary concept - subject to change)

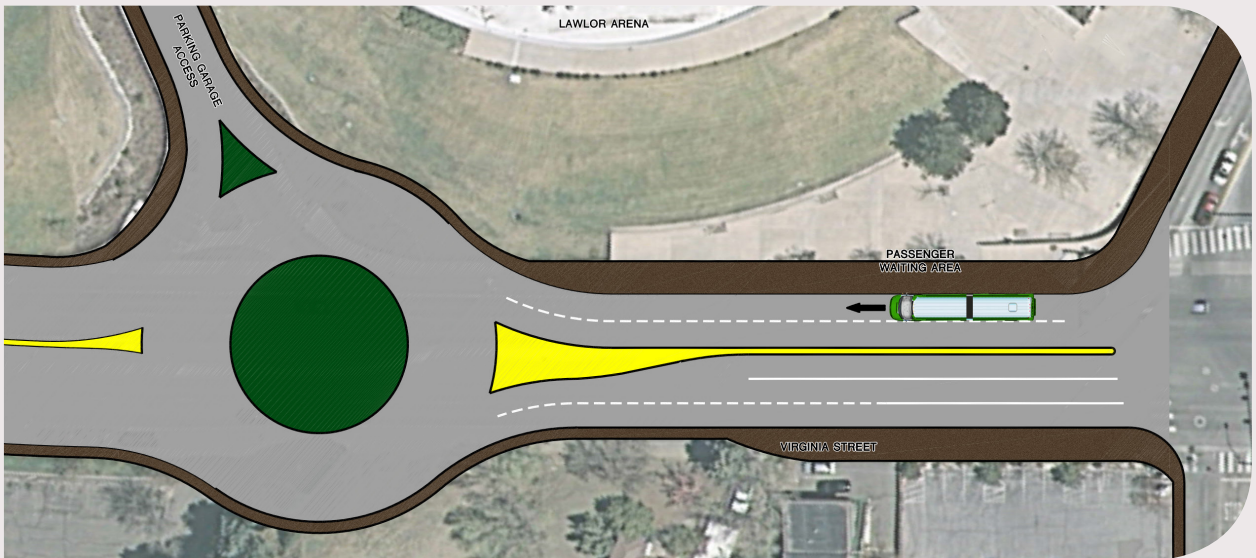


Figure 2.12 - Plan view of Lawlor RAPID station (preliminary concept - subject to change)

**Transit Signal Priority.** RTC has implemented Transit Signal Priority (TSP) along the RAPID route, on Virginia Street, from California Avenue to Meadowood Mall Circle. TSP is a cost effective tool that is used to increase reliability of transit systems and reduce travel time. TSP reduces the time the transit vehicle is slowed down at the traffic signals by giving the transit vehicle a little extra green time or a little less red time. The increase in

reliability may also increase the attractiveness of transit as an alternative to vehicle travel.

The current system includes 3M Opticom detectors and Naztec controllers with transit priority software in place. The extension of the RAPID route will be complemented with a TSP that has the same technical specifications. Detectors and controllers with transit priority software will be



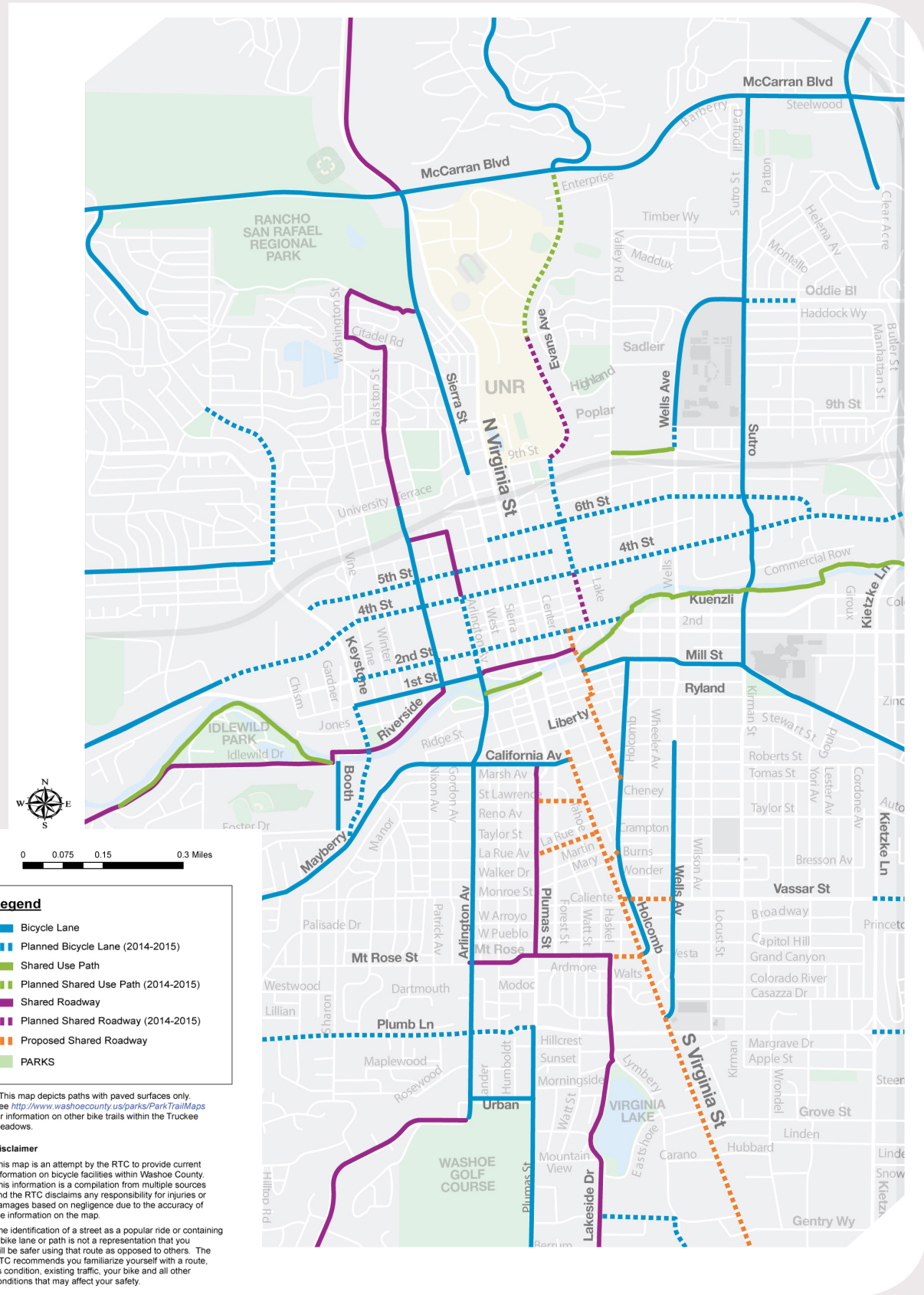


Figure 2.13 - UNR - Downtown - Midtown bike route connectivity (preliminary concept - subject to change)

required at the intersections of Virginia Street with Artemesia Way and 15th street.

**Bicycle connectivity between UNR-Downtown-Midtown.** Virginia Street is the primary facility used by vehicular traffic to enter the UNR campus via I-80 or McCarran Boulevard. Very few vehicles use Evans Avenue to enter campus. The proposed concept uses arterials parallel to Virginia Street to improve bicycle connectivity between UNR, Downtown, and Midtown. This concept offers less friction with vehicular traffic than Virginia Street. The map shown in **Figure 2.13** indicates types of improvements on Evans Avenue and shows how the route is connected to Midtown and Downtown. The route is located less than one-fifth of a mile from Virginia Street in Downtown or approximately a one to two minute bike ride assuming an average speed of five to ten miles per hour. The distance from Virginia Street is reduced where the route approaches Midtown. In areas where roadway width is available, the route will use paths or dedicated bicycle lanes. On narrow streets with less traffic, bicycles will share the road with the vehicular traffic. “Wayfinding” signs will be provided along the route indicating how to reach Virginia Street or other important destinations. (**Figure 2.14**)

### 2.3 GATEWAY CONCEPT

A new Gateway concept that includes a roundabout at the intersection of Virginia Street and 9th Street is being considered by the City of Reno and the UNR Master Plan update. This concept intends to enhance traffic circulation within the Gateway area, in conjunction with other treatments that enhance walkability in adjacent arterials. These treatments include the closure of Center Street to vehicular traffic and the reduction on the number of lanes on Virginia Street from 9th Street to Lawlor Avenue.

Roundabouts are circular intersections with yield control on entry and geometric features that create a low speed environment, reduce traffic conflicts, and increase safety (FHWA). The center island provides an opportunity for an attractive entrance to the UNR area and a gateway centerpiece in the form of landscaping or public art.



Figure 2.14 - Wayfinding Sign Example

#### BENEFITS OF ROUNDABOUTS (FHWA)

- Traffic safety
- Operational performance
- Environmental factors
- Access management
- Traffic calming
- Pedestrian safety
- Aesthetics
- Land use
- Ongoing operations and maintenance
- Reduced approach roadway width





**USER CONSIDERATIONS (FHWA)**

**Motorists**

Roundabouts enhance safety of drivers by:

- Allowing more time to make decisions, act and react
- Reducing number of directions driver needs to watch for conflicting traffic
- Reducing the need to judge gaps in fast traffic accurately

**Pedestrians**

Pedestrians with vision impairments may have more difficulty crossing roundabouts. ADA specific treatments need to be considered.

**Bicycles**

Bicycles have the option to either navigate the roundabout as motor vehicles or as pedestrians depending on skill and experience.

by the circulation plan are recommended to be considered for improving the safety of pedestrians.

A more comprehensive look into walkability and circulation cannot be complete without considering the integration of land use changes and redevelopment into the discussion. The UNR Master Plan update will provide an opportunity for the RTC and the City of Reno to identify implementable strategies (Figure 2.15)

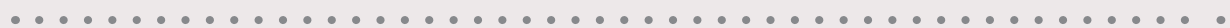
**2.4 IMPLEMENTATION PROCESS CONSIDERATIONS**

**Coordination.** The RAPID service extension to UNR is one of the strategies that will help integrate the students into the Reno community. The success of this strategy is shared with the implementation of other strategies that will help the City reach this goal as a community. Without active and continuous coordination between stakeholders and the public, this project may not bring the intended benefits.

Many of the improvements under the new concept would require reconstruction of sidewalks or bringing sidewalks and ramps undisturbed by construction up to ADA standards.

The UNR Master Plan will further evaluate and refine pedestrian, bicycle, and vehicular circulation plan alternatives, including the impact of these alternatives to traffic operations, parking, and access management.

The proposed alternative concepts should also give consideration to access and circulation around Walgreens. The potential closure of the west entrance, widening of the sidewalk at this location, or other alternatives that are supported



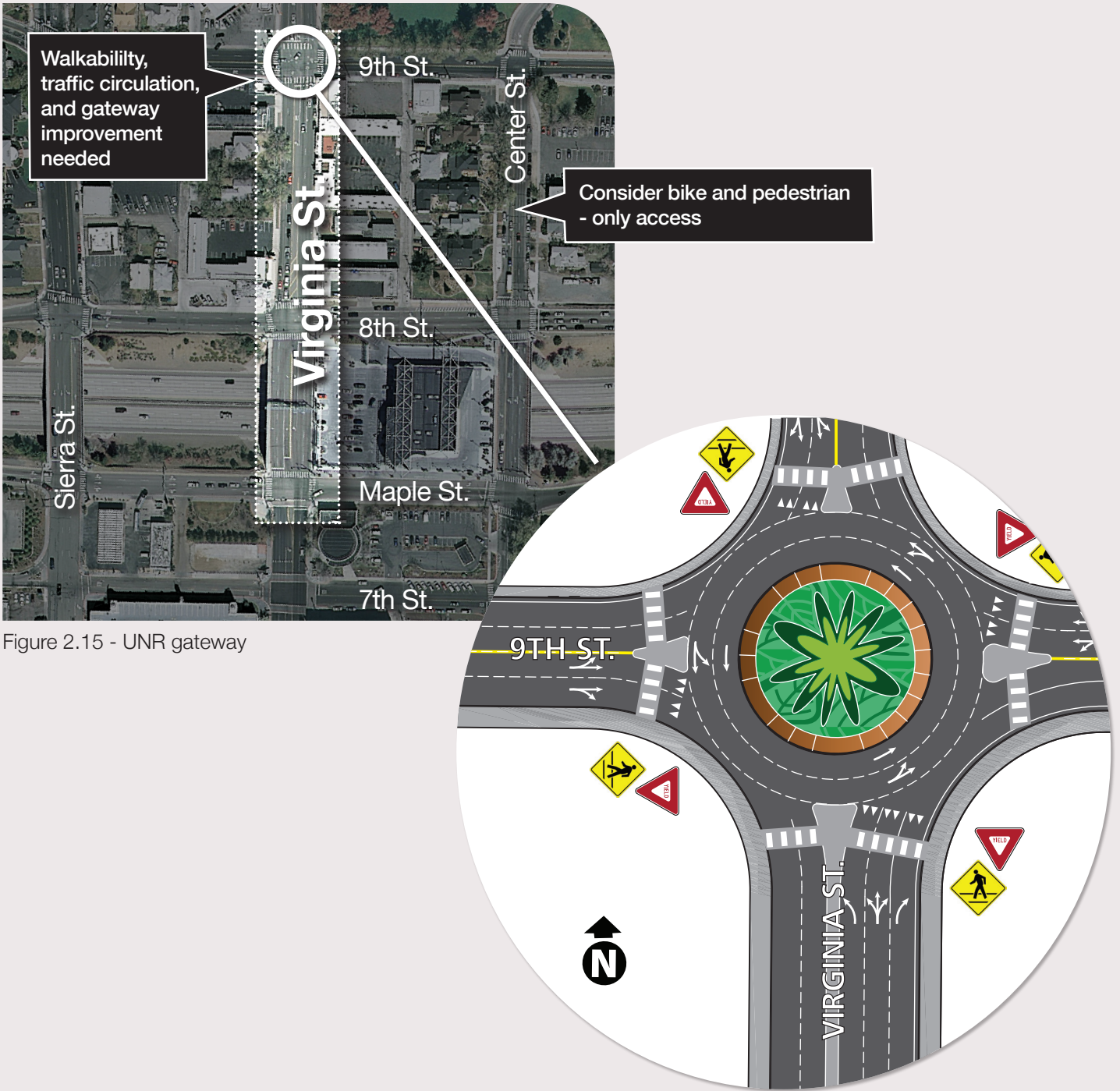


Figure 2.15 - UNR gateway

Note: Concept subject to be revised during UNR Masterplan









## 3

## DOWNTOWN AREA

The Downtown area, bounded by Maple Street to the north and Liberty Street to the south, is home to the famous Reno Arch and has major civic, hotel, casino, and recreational properties. Within the Downtown area, Virginia Street has seen major improvements. A new bridge over Truckee River is under design and will replace the historical Virginia Bridge.

### 3.1 SUMMARY OF ASSETS, ISSUES, AND OPPORTUNITIES

Key assets of Downtown were identified through review of existing studies.

**Roadway characteristics and safety.** The roadway accommodates one lane in each direction with a center left turn lane. This section does not include bicycle lanes. Vehicular traffic volumes vary from 10,000 to 15,000 vehicles per day (vpd), and the speed limit is 25 mph. A total of 83 crashes were recorded in this section of Virginia Street from 06/09/2009 to 05/31/2012. There were no fatalities and no pedestrians or bicycles were involved.

**Transit.** The area is well served by a total of 18 transit routes which branch out from the 4th Street Station. These routes connect Downtown with all major portions of the Reno/Sparks region, with service frequency ranging from every 10 to every 60 minutes.

**Pedestrian scale and safety.** Heavily used by pedestrians, Virginia Street has wide sidewalks and a safe pedestrian realm (**Figure 3.1**). The RSA conducted by NDOT identified a few issues that are summarized below.



Figure 3.1 - Pedestrian realm in Downtown

**Virginia Street and Liberty intersection**

- The eastbound to southbound right turn movement has poor sight distance for pedestrians in the crosswalk located on the south leg of the intersection. The proximity of the nearby building in this corner blocks the view of the driver.
- The curb ramp at the northeast corner of the intersection is not ADA compliant.

**Virginia Street from Truckee River Bridge to Maple Street**

- Pedestrian crossings made of brick pavers do not stand out to the driver.
- Pedestrian crossings do not have an audible function. This feature may be important for this area due to its high pedestrian activity.

**Virginia Street and 7th Street Intersection**

- The pedestrian crossings at this unsignalized intersection lack advanced pedestrian signs.

**3.2 RECOMMENDED IMPROVEMENTS**

Recommended improvements described below are based on the recommendations of the RSA. All of the proposed safety improvements are combined into one investment plan item.

**Safety improvements from Liberty Street to Maple Street**

- Improve sight distance at the pedestrian crossing of the Liberty Street and Virginia Street intersection
- Construct an ADA ramp at the Liberty Street and Virginia Street intersection
- Renew the pedestrian striping that outlines the crosswalks made with pavers
- Update pedestrian push buttons and pedestrian heads to audible equipment
- Install reflective sheeting on traffic signal head back plates
- Install pedestrian signs for the 7th Street intersection.









## 4

## MIDTOWN AREA

Midtown area in this study is bounded by Liberty Street to the north and Plumb Lane to the south. The Midtown, one of the oldest neighborhoods in Reno, is located within this area and embodies the attributes that typically support a transit and pedestrian oriented lifestyle. The built form presents a unique opportunity for transforming Virginia Street into a pedestrian-friendly facility served by a premium transit service. An investigation of land use trends, built patterns, mobility, and existing plans provides comprehensive information concerning this opportunity. Stakeholder and public input was leveraged to identify the assets, issues, and opportunities within Midtown and to draw on a diverse mix of design and operational features. This section will present improvement concepts and implementation process considerations that will help transition Virginia Street to a complete street.

#### 4.1 SUMMARY OF ASSETS, ISSUES AND OPPORTUNITIES

Key assets of Midtown were identified through surveys as well as meetings with residents, corridor users, and business owners.

#### Historical legacy and renewed enthusiasm.

From its origins, Midtown has been a commercially oriented neighborhood. Today, Virginia Street within Midtown has a variety of small shops, restaurants, art galleries, and other small businesses that are trying to gain momentum. Old brick structures and historic homes are being reused for businesses and are mixed with new modern construction to give Midtown an eclectic feel. (Figure 4.1)



Figure 4.1 - Old brick structure used for businesses (pictures courtesy of Barry O'Sullivan)



Many young entrepreneurs are moving to Midtown, which reinforces Virginia Street's "Technology Corridor" branding.

**Pedestrian scale.** Due to its history, Midtown inherited a more compact built form than the Convention or South Reno areas. Residential properties located in close proximity to Virginia Street make walking and biking more appealing. Short blocks, businesses fronting the roadway, and easy parking also contribute to the pedestrian scale that other areas lack.

**Transit access.** One of the biggest transportation assets of Midtown is availability of and access to transit. RAPID Transit, a state of the art Bus Rapid Transit (BRT) service, serves limited stops along this corridor every 10 minutes, and Route 1 serves all stops every 30 minutes. **(Figure 4.2)** The transit service availability makes Midtown more attractive, especially to younger segments of the population and university students.



Figure 4.2 - RAPID transit in Midtown

**Network accessibility.** A robust street network paralleling and crossing Virginia Street provides Midtown with easy access in and out of the area. This provides an opportunity for using the established network to increase connectivity among other modes of transportation including walking, biking, and transit.

The stakeholder process and public input during workshops highlighted challenges and opportunities. These include the following.

**Improving sidewalks, lighting, and pedestrian amenities.** The widening of Virginia Street in the 1960s and later revisions in the 1980s to accommodate US 395 took a toll on once wide sidewalks, pedestrian scale lighting, and landscaping. **Figure 4.3** shows how Virginia Street was before the widening and after the widening. Narrow 18-inch sidewalks, lighting poles in the middle of a narrow sidewalk, lack of lighting, and other ADA deficiencies are common occurrences along this part of Virginia Street. **(Figure 4.4)** These poor conditions of pedestrian infrastructure make access to transit challenging.

**Roadway Safety and Operations.** Currently, Virginia Street in this area has mostly one lane in each direction, with on-street parking in most areas and a center left turn lane. The vehicular traffic volume varies from 17,000 to 23,800 vpd, and the speed limit is 30 mph. With the construction of the I-580/US 395 Carson City Freeway project, the vehicular traffic that once used Virginia Street as a through route has shifted to the new freeway. Virginia Street now serves primarily short and local trips. Longer trips tend to use the freeway and enter Midtown via arterials that have an interchange with either I-80 or I-580.





Figure 4.3 - Virginia Street before, during and after widening (pictures courtesy of Barry O'Sullivan)



Figure 4.4 - Sidewalk deficiencies (pictures courtesy of Barry O'Sullivan)



Data collected by NDOT indicate that during the period of April 1, 2010 to May 1, 2013 there were a total of 134 crashes on this section of Virginia Street. RSA attributes these crashes to the high amount of driveways, street parking, and some deficiencies in signing.

The right of way availability and roadway width varies along Midtown which makes space reallocation challenging.

**Parking management and creating more opportunities for parking.** When Midtown was built, automobile usage was very low. Generally, people walked to the stores and businesses, and if they did drive, they parked on the street. As automobile usage grew, the need for parking increased. Many businesses have accommodated parking on the sides of the buildings or where there is unused land. Parking is limited to 2 hours in the Midtown District. Recently, the City of Reno conducted a survey among business owners regarding a need for parking and strategies to increase parking. Below is a summary of survey results.

- 55% of respondents acknowledged that there is an issue with parking.
- Current policy on 2-hour parking is favorable among 67% of respondents.
- An overwhelming 86% of respondents are opposed to metered parking.

Strategies recommended by respondents to improve parking situation included:

- City purchasing nearby lots and converting them to public parking
- Building a parking structure in Midtown
- Converting cross streets into one-way and introducing angled parking

- Making a street environment that can accommodate pedestrians, increase public transit, and provide a better protected environment for bicyclists (City of Reno)

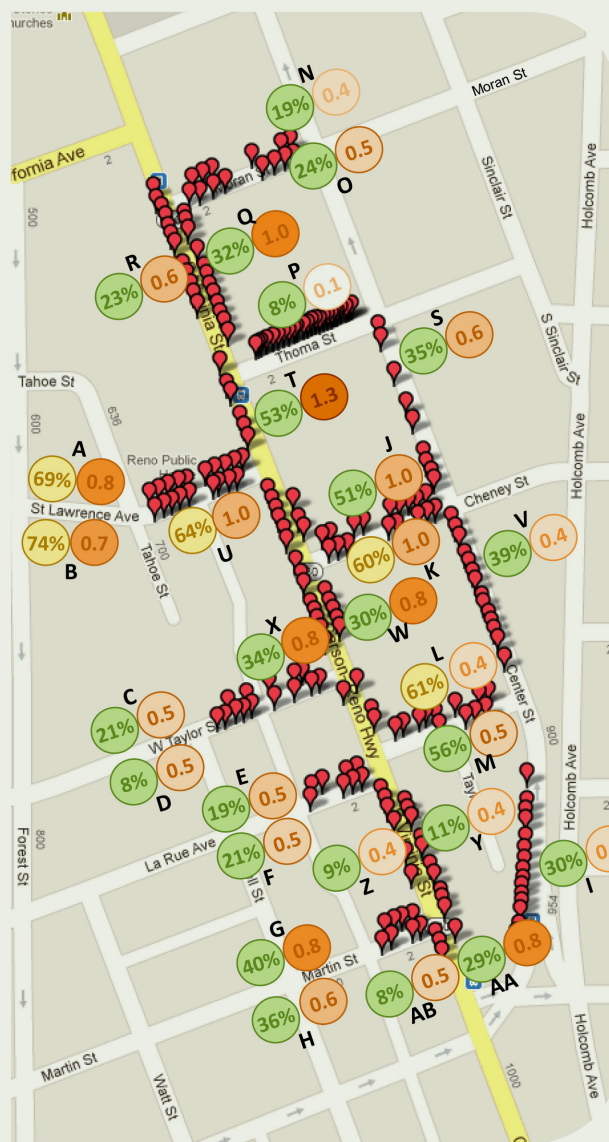


Figure 4.5 -Monitored parking areas

At the public workshops, Midtown business owners indicated that business is gaining some momentum, and the need for parking is increasing again. Concerns were also raised about the lack of availability of shared parking. Parking in Midtown

is free. The City of Reno currently has installed “pucks” that monitor parking occupancy and has also published a phone application for residents to track parking availability. The monitored area along Virginia Street is from California Avenue to Center Street. **Figure 4.5** shows the monitored parking areas.

**Improving the connectivity to Downtown and UNR.** The revitalization process in Midtown has attracted many students who would like to enjoy what Midtown has to offer. The lack of direct transit and bicycle route connectivity makes it difficult for students without vehicles to access Midtown and integrate with city life.

**Lower vehicular speeds and pedestrian conflict.** Although some drivers would like to see speeds increased in this section of Virginia Street (**Figure 4.6**), for others vehicle speeds are perceived to hinder enhanced pedestrian access and increased safety (**Appendix A**).

**Redevelopment.** The Midtown District constitutes the northern section of the South Virginia Transit Oriented Development (TOD) Corridor as designated by the Truckee Meadows Regional Plan and the City of Reno Master Plan. Under this TOD plan, the corridor has a master plan land use designation of “Special Planning Area South Virginia Transit Corridor”, and a zoning designation of “Mixed Use/South Virginia Transit Corridor Zoning Overlay” (MU/SVTC). The policies under this plan aim at maintaining the historical identity of Midtown and supporting infrastructure improvements, which provide a safe and inviting environment for transit, pedestrians, and cyclists. Infill and redevelopment on underutilized and vacant parcels are also encouraged by the plan.

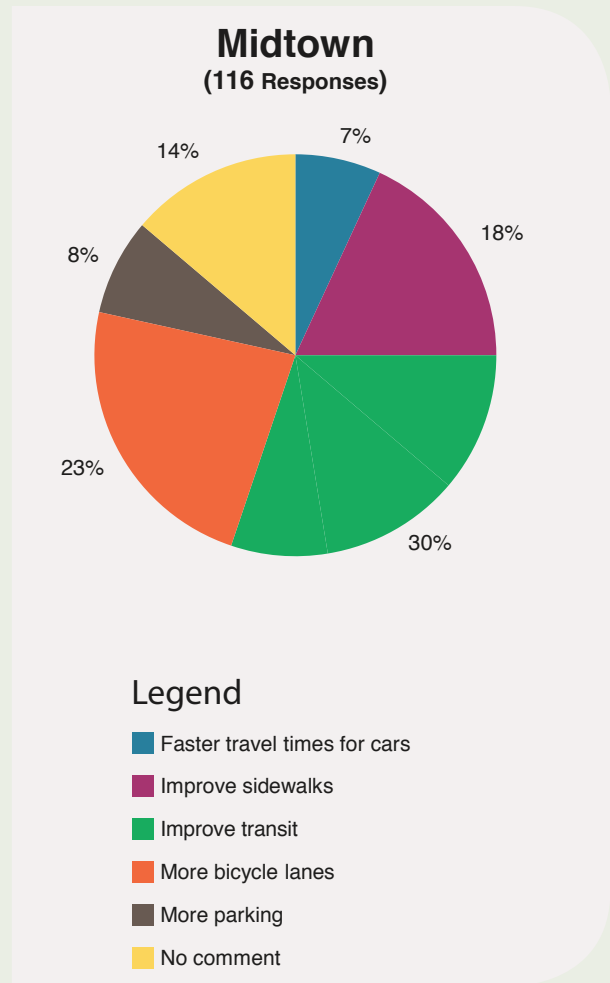


Figure 4.6 - Survey results

**Existing Conditions Summary.** A summary of the data obtained through multiple efforts within this section of Virginia Street is shown in **Figure 4.7** and **Figure 4.8**.





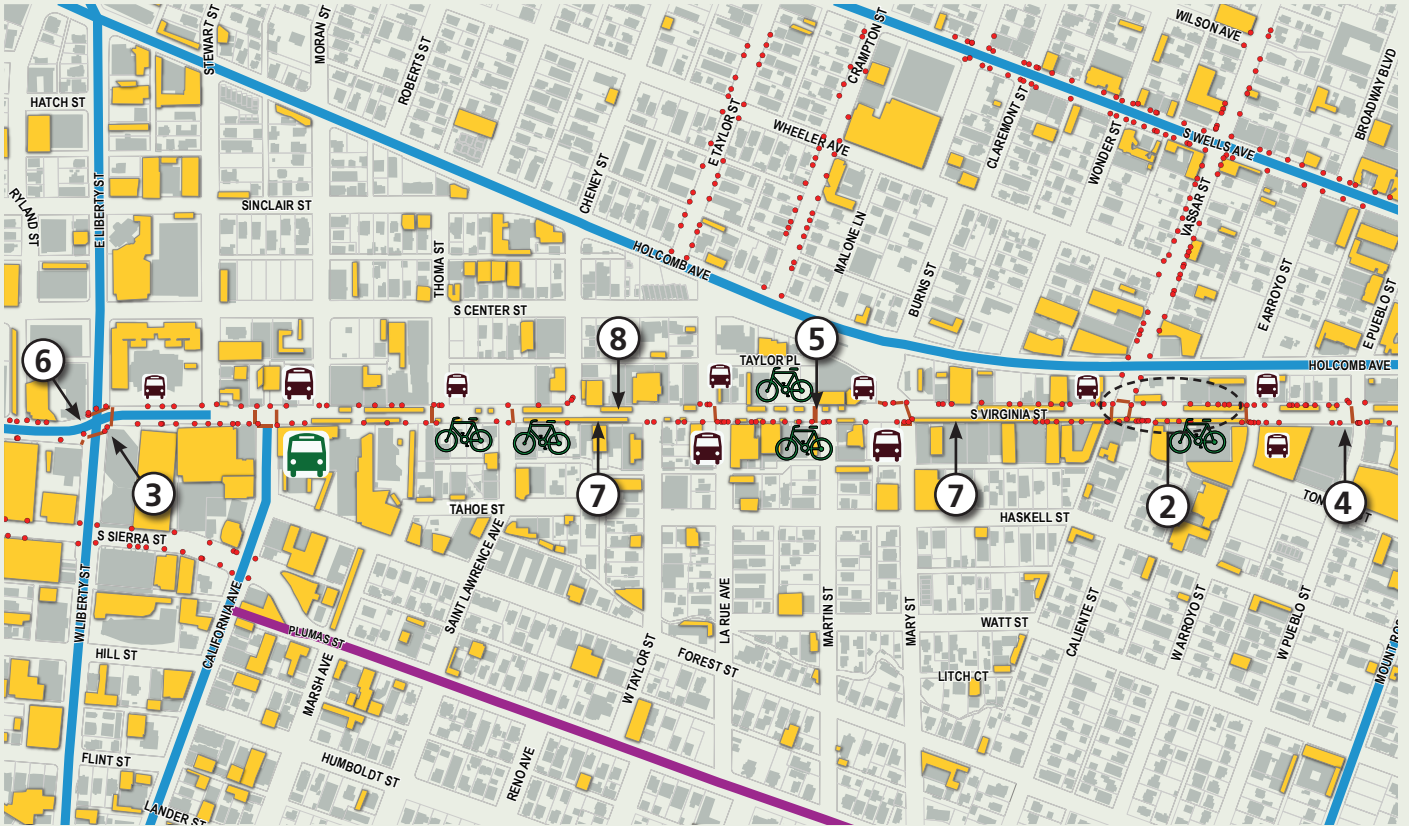


Figure 4.7 - Midtown Area - Existing multimodal conditions

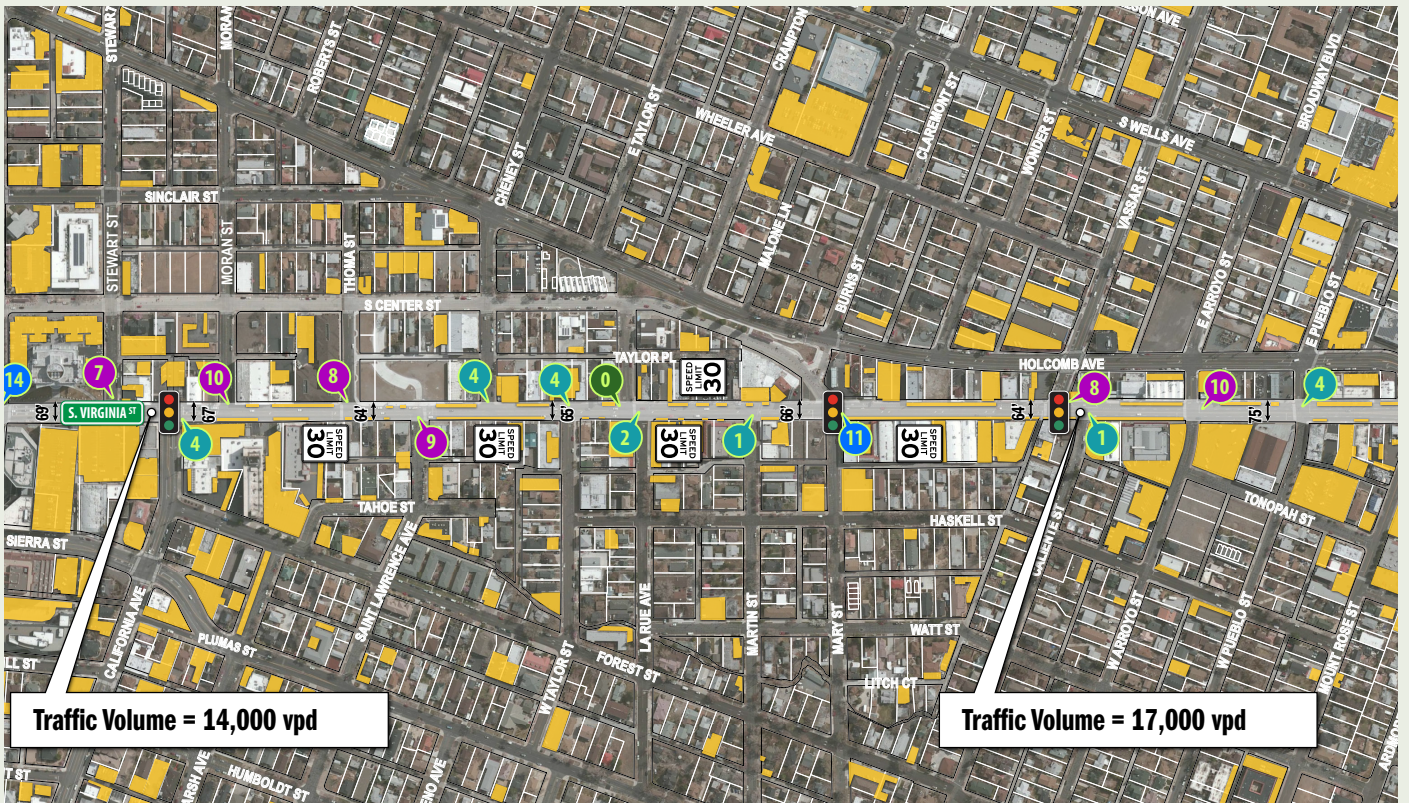
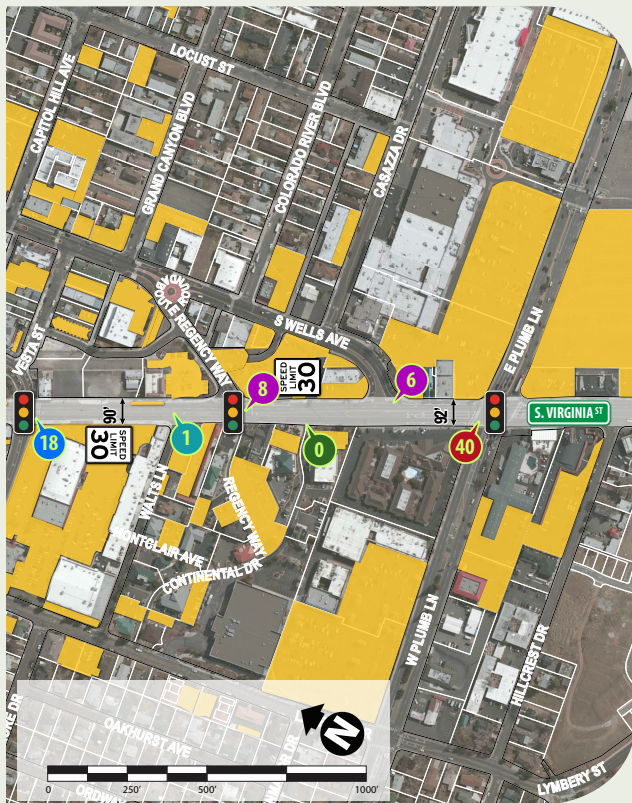
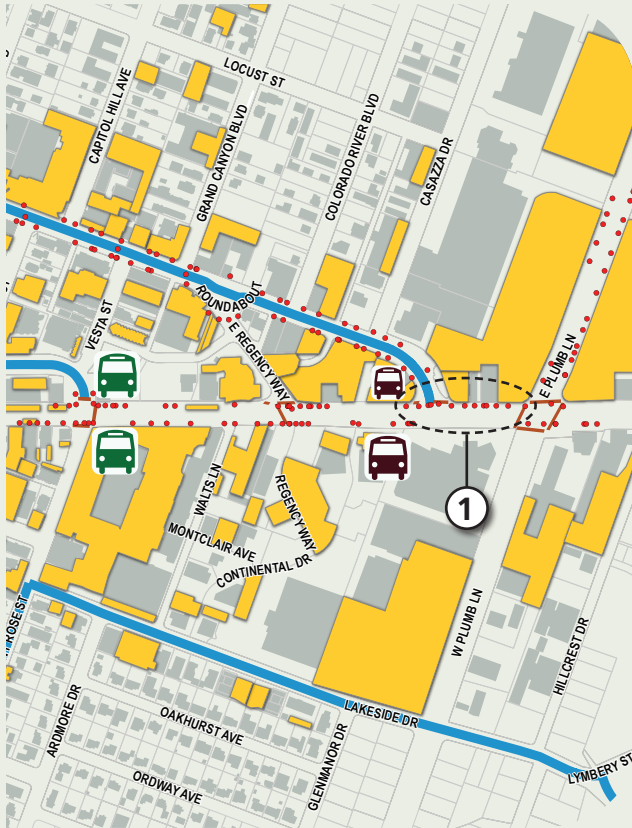


Figure 4.8 - Midtown Area - Existing auto conditions





**ROADWAY CHARACTERISTICS AND SAFETY**

**LEGEND**

- Speed Limit
  - Traffic Signals
  - Vpd – Traffic Volume in Vehicles per day
  - Roadway Crashes
    - 0
    - 1-5
    - 6-10
    - 11-20
    - > 21
- Note: Data collected by NDOT indicate that during the period April 1, 2010 to May 1, 2013 there were a total of 134 crashes in this section of Virginia Street. RSA attributes these crashes to the high amount of driveways, street parking and some deficiencies in signing.

- 1 The northbound dual free flowing right turn lanes create conflict with pedestrians crossing at the cross walk. A vehicle in the outside right turn lane, stopping for pedestrians crossing the street, blocks the sight distance for vehicle in the second right turn lane.
- 2 The “Right Lane Must Turn Right” sign on the northbound direction approaching Vassar Street is located approximately 370 feet from the intersection. This distance does not to give the driver ample distance to merge into the only through lane.
- 3 The proximity of the building on the southwest corner of intersection does not allow the driver to see pedestrians crossing the street on the south leg of the intersection. “Right Turns Wait for Pedestrians” sign is hard to read and the area does have a high number of pedestrians.

**PEDESTRIAN AND BICYCLE AMENITIES AND ACTIVITY**

- ADA Deficiencies
 

Note: These deficiencies primarily consist of missing or damaged sidewalks, signs and lighting poles located in the middle of the sidewalk, and narrow sidewalks. The majority of the Midtown area does not meet ADA compliance.
- Pedestrian Crosswalk
- Bicycle Lane
- Shared Lane
 

Note: Currently Virginia Street in Midtown does not have bicycle lanes.
- Bicycle Parking

- 4 Advance pedestrian signs for this crossing are missing.
- 5 Virginia and Martin

Time Period	Bike Activity	Pedestrian Activity	Wheelchair Activity
September 2013	59	205	0
January 2014	40	235	0

- 6 The crosswalk does not have an ADA compliant curb ramp.

**TRANSIT**

**Bus Stop Locations**

- R – RAPID Service - Bus Stop Locations (operates in this section every 10 minutes using articulated buses.)
- R-1 - ROUTE 1 - Bus Stop Locations (serves additional stops along the RAPID corridor every 30 minutes using standard size (approximately 40 feet in length) buses.)

**Daily Activity**

(7253 passengers board buses over the course of an average weekday. 77% of this consists of ridership on RAPID program.)

- < 39
- > 40-169
- > 170

**PARKING**

- 7 Street parking is allowed. City of Reno has limited street parking to 2 hours and 230 sensors are installed in designates spaces to monitor occupancy. Parking fine for staying longer than the posted time is \$25.
- 8 Midtown Area experiences significant parking congestion on 3 blocks within the area that form a ‘z’; Saint Lawrence Ave., 700 block of S. Virginia St.; and E. Taylor St., during lunch and happy hours.

**STREETScape, LIGHTING AND AMENITIES**

Narrow sidewalks do not provide room for streetscape elements. Trashcans and other pedestrian amenities only exist at RAPID stations. Poor lighting.

## 4.2 MIDTOWN CONCEPT

Midtown has many attributes that support a transit and a pedestrian oriented lifestyle. However, research into transit systems indicates that attributes exist beyond transit-supportive development that can influence transit lifestyles.

The appeal of walking or bicycling to the transit station may be equally important. Pedestrian and bicycle access can be improved by providing safe and attractive pathways and amenities at transit stations and in parking areas. Another important factor in promoting the use of other modes is the safety of pedestrians and cyclists in their interactions with motorized vehicles.

Complementing the existing transit investment with pedestrian friendly elements may increase the opportunity for individuals and families to realize the full benefits of these investments, such as increased accessibility to services, increased connectivity, reduced transit travel time, and reduced cost of living. This is the main theme of the Virginia Street Concept presented in (Figure 4.9 shown on pages 50 and 51). The proposed concept is able to meet the vision and goals by maintaining parking and the number of vehicular traffic lanes from Vassar Street to California Avenue. The roadway section from Holcomb Avenue/Mount Rose Street to Vassar Street has been converted to one lane in each direction with two-way left turn lane and parking. A preliminary analysis indicated that the lane reduction will not impact the traffic operations along this section of Virginia Street. However a more detailed analysis is recommended to be performed during the design process.

**Pedestrian Amenities.** Pedestrian comfort and safety is enhanced by reallocating roadway space to provide for wider sidewalks and introducing curb extensions, or “bulb-outs” at the intersection areas or midblock locations as necessary. Bulb-outs reduce the crossing distance for pedestrians and improve the ability of pedestrians and motorists to see each other. By visually reducing roadway space, bulb-outs create a sense of closeness which alters driver behavior and reduces vehicular speeds. Additionally, these bulb-outs may provide an opportunity for outside space which adjacent businesses could use for outside dining or other activities. (Figure 4.10)

**Parking.** Within this concept street parking has been maintained and in some instances slightly increased. There is a total of 84 parking spaces in the northbound direction and 74 parking spaces in the southbound direction from Regency Way to California Avenue. The sections of Virginia Street from Regency Way to Holcomb Avenue/Mount Rose Street and from Pueblo Street to Arroyo Street are recommended to include parking. The new parking locations allow for approximately 12 additional parking spaces. Site circulation and access is recommended to be evaluated during the design process within an Access Management Plan. While satisfying the need for parking, on-street parking is also used as a design strategy that has traffic calming benefits and contributes to pedestrian safety. On-street parking creates a buffer that separates pedestrians on the sidewalk from the moving vehicles on the roads. The reduced roadway space and increased turning radius of vehicles at the intersections contributes to reduced speeds (Federal Highway Administration [FHWA]).





Figure 4.10 - Virginia Street at St Lawrence (preliminary concept - subject to change)

Availability of enhanced pedestrian facilities may help change the behavior in selecting parking spaces. People may become more comfortable parking farther from their destination and completing their trip by walking. This will also contribute to a reduction in parking occupancy variation along Virginia Street, as observed by City of Reno.

**Bicycles.** Accommodating bicycles is a crucial element of the overall concept. Many contextual elements were considered that would provide a bicycle access concept plan to Midtown. Virginia Street through Midtown and Downtown is only one lane in each direction. Roadway geometry, the presence of an interchange with I-80, and high pedestrian activity Downtown all play a significant role in the increase of vehicular traffic density. High vehicular density and friction are not favorable among amateur cyclists. Also, research has indicated that construction of bicycle lanes may only influence the mode share for short trips. The proposed concept uses residential roads that run parallel to Virginia Street which would help

cyclists avoid heavy traffic. Other cities like Austin, Texas have followed a similar approach with successful results. The goal of this concept is to enhance the connectivity of Midtown by increasing the bicycle network surrounding Downtown and Midtown. **Figure 4.11** (shown on pages 52 and 53) shows the proposed bicycle facility connectivity. To complement this bicycle network a series of bicycle parking locations were proposed at the junctions of this network with Virginia Street and at transit stations.

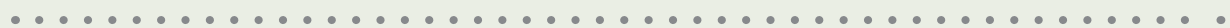
**Landscape and aesthetics.** The proposed landscape design for the Virginia Street corridor within Midtown will include elements such as trees, landscaping, lighting, pedestrian furnishings, enhanced pedestrian crossings, and a small plaza.

The proposed landscape planting strip located between the roadway and the sidewalk will be composed of street trees that will provide an aesthetic and safe buffer between the pedestrians and vehicles. Proposed site amenities such as benches and trash receptacles will further enhance

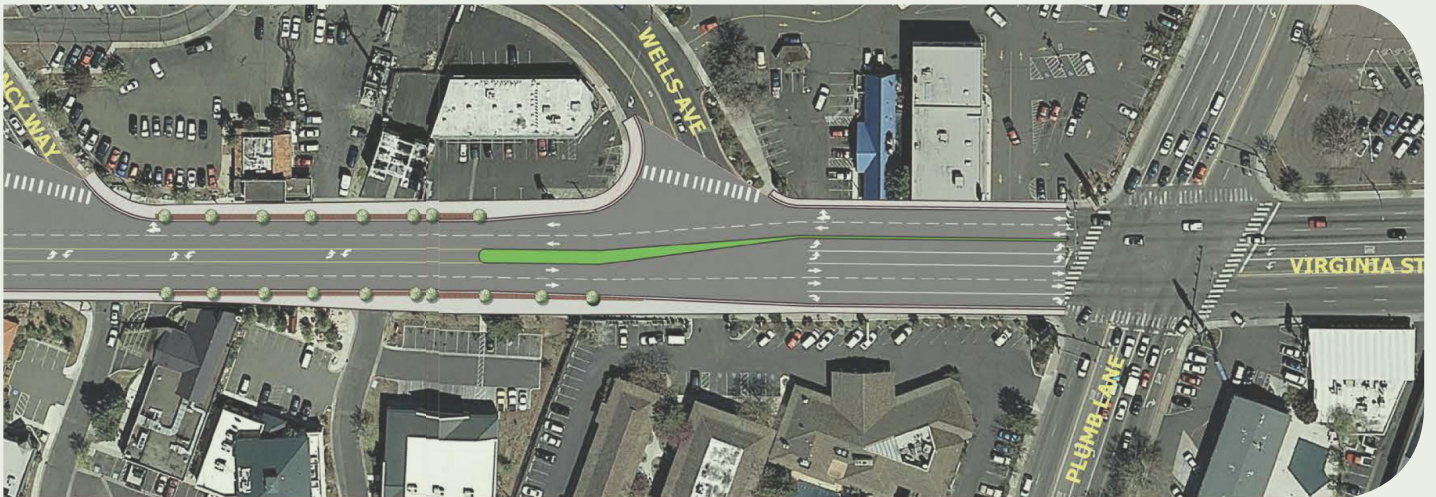







Figure 4.9 - Plan view of Virginia Street Concept in Midtown (preliminary concept - subject to change)







Legend

-  Existing Bus Stop
-  Existing RAPID Transit Stop
-  Proposed Streetscape





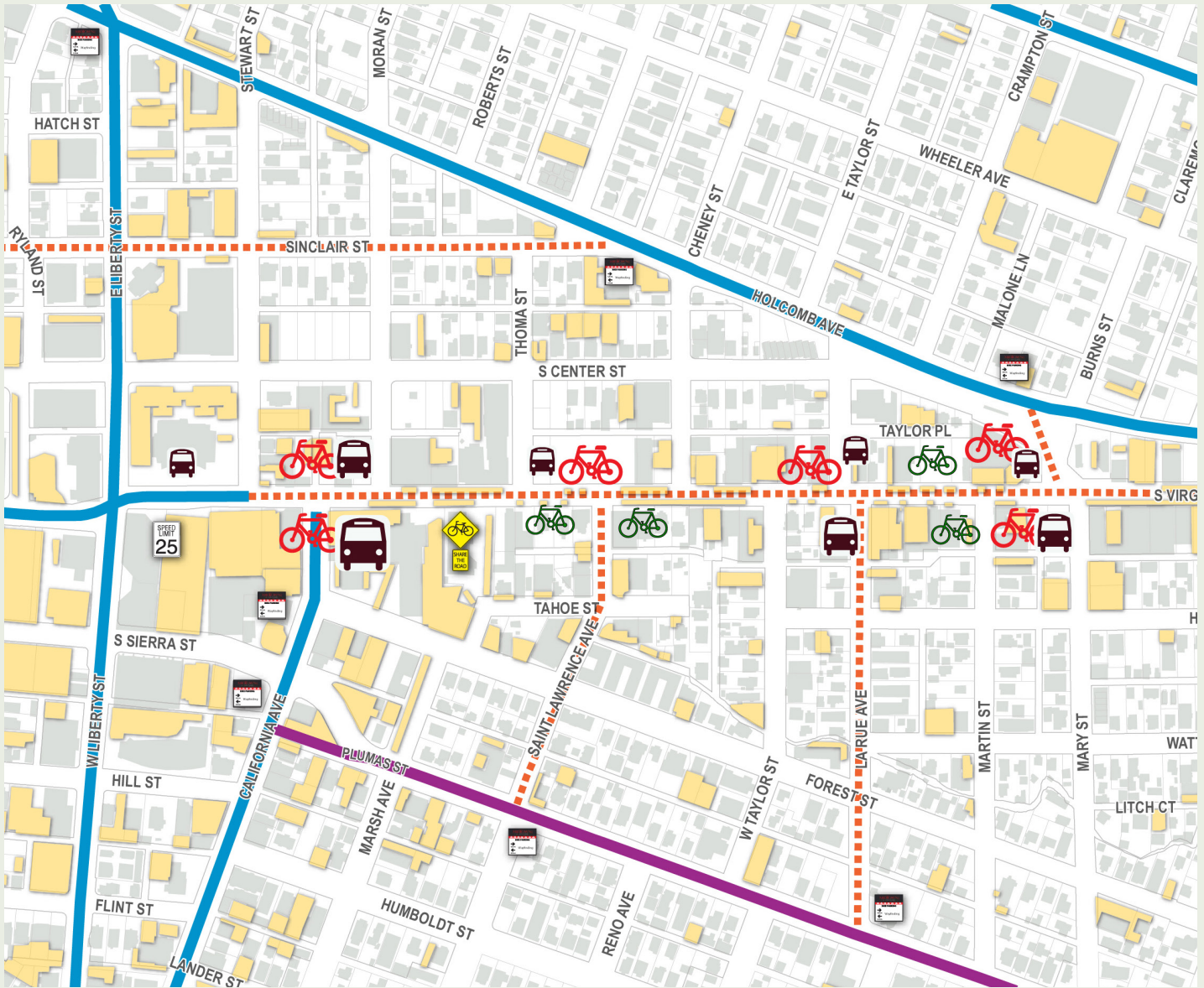
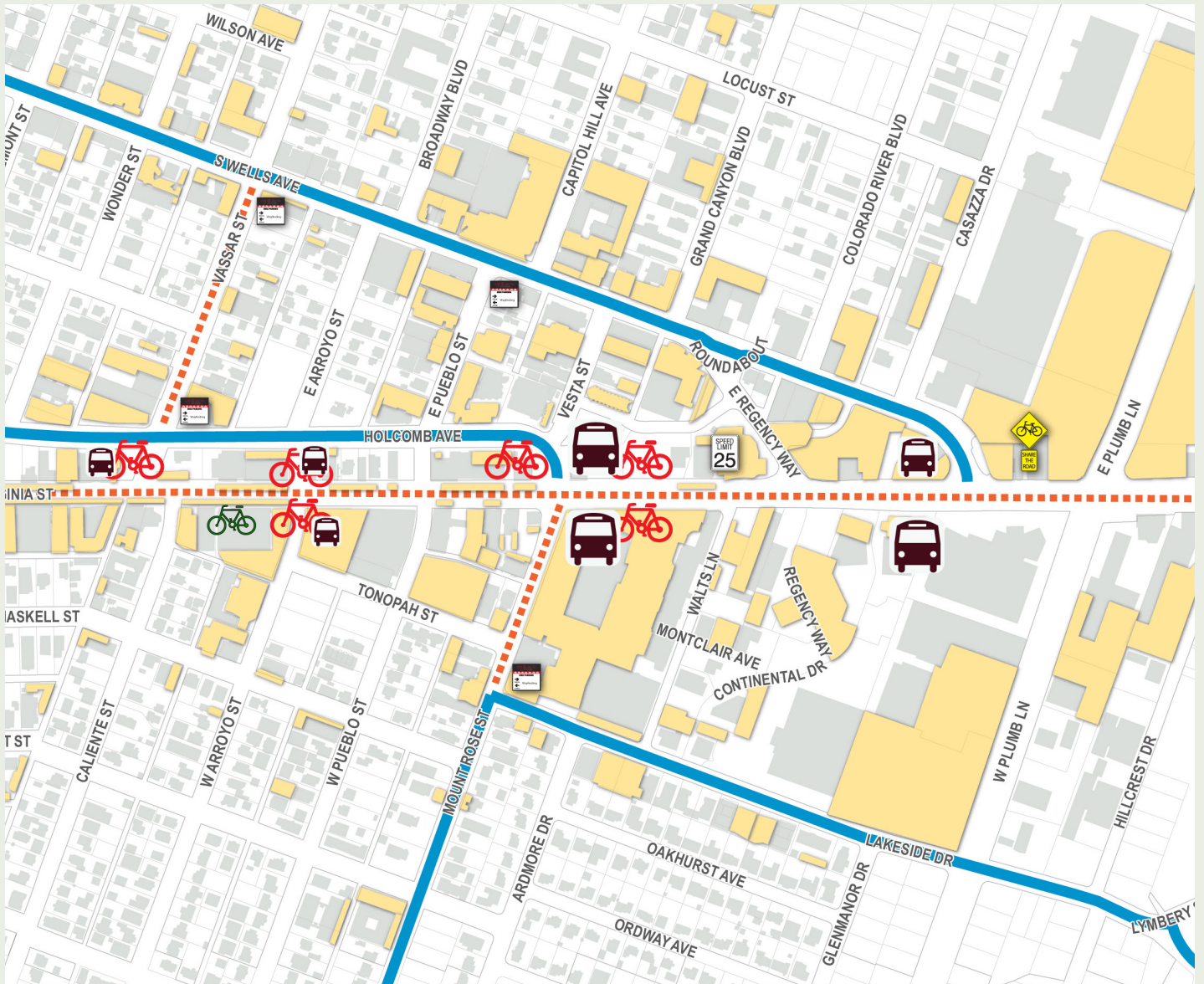





Figure 4.11 - Bike connectivity plan (preliminary concept - subject to change)

















**Legend**

**Daily transit activity by bus stop (on & off)**

-  < 40
-  40-170
-  > 170

-  Bicycle Lane
-  Shared Roadway
-  Proposed Shared Roadway
-  Proposed Bicycle Parking
-  Existing Bicycle Parking
-  Bus Stop Locations
-  Parking Area
-  Parcel
-  Rooftop

-  Typical Bike Wayfinding Signage
-  25 MPH - Speed Limit Signage
-  Share The Road Signage





the user experience. Lighting will increase visibility and provide a heightened sense of security at night, in addition to being a tool for vehicles to better see pedestrians.

Potential plaza space has been identified adjacent to the intersection of Virginia Street and Center Street as well as in other undeveloped lots along Midtown. The pedestrian plaza will include places of rest, shade, and an informational kiosks, and also provides an opportunity for incorporating a public art component. **(Figure 4.12)** All of the landscape elements will enhance the user experience for the many pedestrians that use the Virginia Street corridor and will bring a new life to the area, through the use of color, texture, and lighting, which will make the space more comfortable, usable, and safe.

## 4.3 IMPLEMENTATION PROCESS CONSIDERATIONS

The proposed concept of providing wider sidewalks and on-street parking is challenged by three main elements that need to be addressed in close collaboration with business owners and other stakeholders during the design process.

**Right-of-way.** The concept proposed in this study is primarily accommodated within the minimum current roadway width and allows for a minimum 6-foot sidewalk **(Figure 4.13)**.

Additional width exists along the corridor that is either property of NDOT or the City of Reno. A discovery process of the exact Right of Way (ROW) width will be conducted during the design process. Once the width is established, the RTC, the City of Reno, and property owners fronting



Figure 4.12 - Pedestrian plaza at Virginia Street and Center Street (preliminary concept - subject to change)



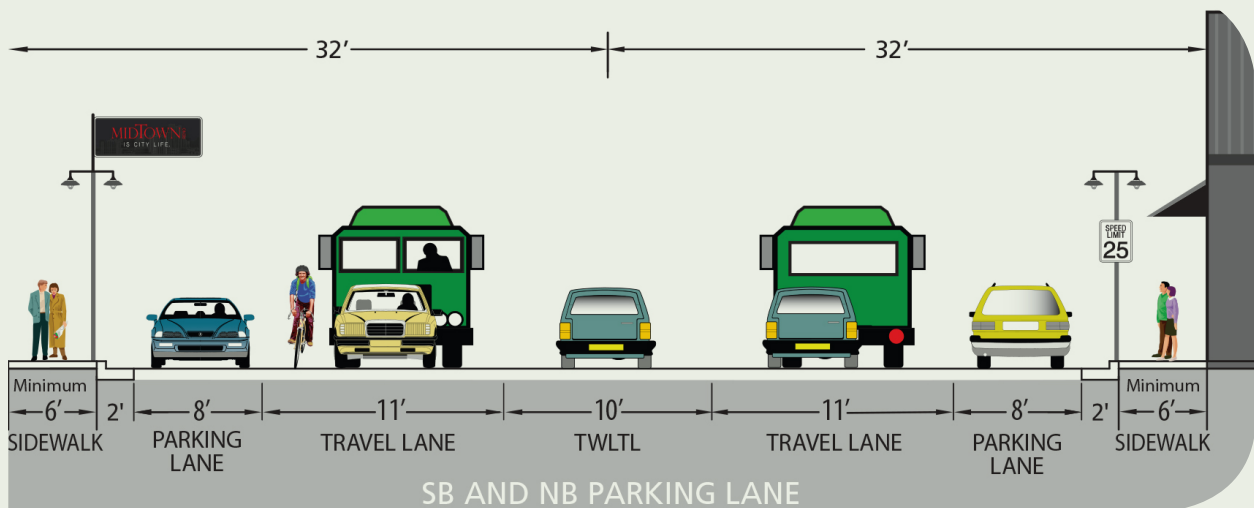


Figure 4.13 - Virginia Street cross section (preliminary concept - subject to change)

Virginia Street can work to identify strategies for improving the additional sidewalk width that is not within the public ROW. These strategies will also take into consideration the cost and responsibility of maintenance.

**Access management.** Traditionally, access management is concerned with auto access in and out of adjacent land uses on major arterials (Williams and Levinson 2008). Standards for midblock driveways, traffic signals, stops, and priority treatments are designed to prevent accidents and facilitate the flow of vehicular traffic. Virginia Street within Midtown has a significant amount of closely spaced driveways that create obstructions to a continuous sidewalk, increase conflict between pedestrians and vehicles, limit on-street parking availability, and impede the flow of vehicular traffic. To overcome these issues, close consideration should be given by the RTC, the City of Reno, and property owners to access consolidation and circulation issues.

**Parking strategies.** While the RTC's proposed concept accommodates on street parking, business owners and residents feel this is not a long term solution. The City of Reno may

need to explore the feasibility of the strategies recommended in the survey responses by the business owners and residents of Midtown.

There are planning and financing tools which the City of Reno may need to develop to enhance the current parking strategies so that they support the existing BRT system.

If redevelopment occurs in Midtown, public parking in-lieu of a private parking strategy can be explored. Parking in-lieu fees are an option to developers in some communities as an alternative means to reduce minimum parking requirements from zoning. The developer agrees not to build the number of parking spaces required by the code and instead pays a fee to the city. The revenue associated with parking in-lieu fees is often restricted to use for new public or shared parking construction. An alternative use for such funds might be local street improvements designed to make transit and walking more attractive than the use automobiles to get around. This may also support acquisition of off-street properties to be used for public parking as recommended by the residents at the public meetings.





## 5

## CONVENTION AREA

Virginia Street within the Convention area for the purpose of this study is located from Plumb Lane to the north to Patriot Boulevard to the south. The southern portion of this area runs in very close proximity to I-580 and has mostly commercial properties with abundant surface parking and vacant parking lots. Major employment, visitor, and traffic generators in this section of Virginia Street include the Convention Center, Meadowood Mall, the Atlantis Hotel and Casino, and the Peppermill Hotel and Casino.

(Figure 5.1)



Figure 5.1 - Virginia Street in Convention Area

This section will summarize specific issues and

recommended solutions identified by other studies that will be included in the investment plan.

### 5.1 SUMMARY OF ASSETS, ISSUES, AND OPPORTUNITIES

Stakeholder and public input was leveraged to identify the assets, issues, and opportunities within the Convention area and to draw on a diverse mix of design and operational features. Although the area did not attract much public interest, over the course of the study several assets, issues, and opportunities were identified through the review of the existing planning documents and studies.

**Roadway Safety and Operations.** This section of Virginia Street consists generally of two lanes in each direction and a speed limit which varies from 35 mph to 45 mph. The vehicular traffic volumes vary from 18,000 vpd to 23,500 vpd.

Safety and operational deficiencies were identified by the RSA. Highlights of the RSA report are summarized below.

The intersection of Virginia Street with South McCarran Boulevard is identified by the RSA as a high crash location with more than 30 crashes during the three year period of study (**Figure 5.2**). There are a significant number of U-turn movements at this intersection by southbound drivers who are trying to access the northbound I-580 on-ramp just north of south McCarran Boulevard. The recently opened northbound on-ramp from the extension of Meadowood Mall Way provides a nearby access to I-580 for southbound drivers on Virginia Street.



Figure 5.2 - Virginia Street and South McCarran Boulevard intersection

The northbound shared right through lane on Virginia Street approaching south McCarran Boulevard allows right turn access to eastbound South McCarran Boulevard and access to the I-580 northbound on-ramp. Many drivers are confused by this multi-purpose lane and assume that it does not provide access to I-580 because it appears to be a long right turn lane to south McCarran Boulevard.

Other deficiencies that might impact safety include lane and signal head alignments, street lighting, and roadway signing and marking.

### **Bicycle and pedestrian activity and safety.**

Minimum five foot wide sidewalks are present in this area and there are no bicycle lanes. During conventions considerable pedestrian and vehicle activity occurs in the area between Kietzke Lane and Peckham Lane (**Figure 5.3**). Observations reveal that pedestrians cross at unmarked locations near the mid block area.

Pedestrian and bicycle counts conducted by the RTC at the Virginia and Peckam intersection also demonstrate pedestrian activity in this area (**Figure 5.4**). **Table 5.1** below shows counts collected in September 2013 and January 2014. The counts reflect the pedestrian and bicycle activity from 10am to noon and from 5pm to 7pm.



Figure 5.3 - Roadway width not safe for uncontrolled pedestrian crossing



Figure 5.4 - Pedestrian activity at Virginia Street and Peckham Lane intersection



Table 5.1- Pedestrian and bicycle activity

Time Period	Bike	Pedestrian	Wheelchair
Sept. 2013	24	271	1
Jan. 2014	32	411	7

This section of Virginia Street has an intermittent bus lane in the northbound direction. Between Kietzke Lane and Peckham Lane one lane has been designated as a shared bus and bike only lane, which is a beneficial strategy to safely accommodate bicycles in addition to making a suitable use of the extra pavement (**Figure 5.5**).



Figure 5.5 - Bus Lane in Virginia Street

**Transit.** Transit services along this corridor are focused on the Meadowood Mall Transfer Center. South of this Center, Route 56 provides hourly service on or near South Virginia Street as far south as Damonte Ranch Parkway. To the north of this Center, the primary service consists of RAPID serving limited stops up to every 10 minutes, along with Route 1 serving all stops every half hour. Three queue jumps are provided to improve transit operations. Queue jumps are located at Kietzke Lane in SB and NB direction, and Peckham Lane in NB direction. RAPID operates in mixed flow travel lanes in the Southbound direction and in partially dedicated transit lanes in the northbound direction. In addition, Routes 6 and 9 serve portions

of this corridor.

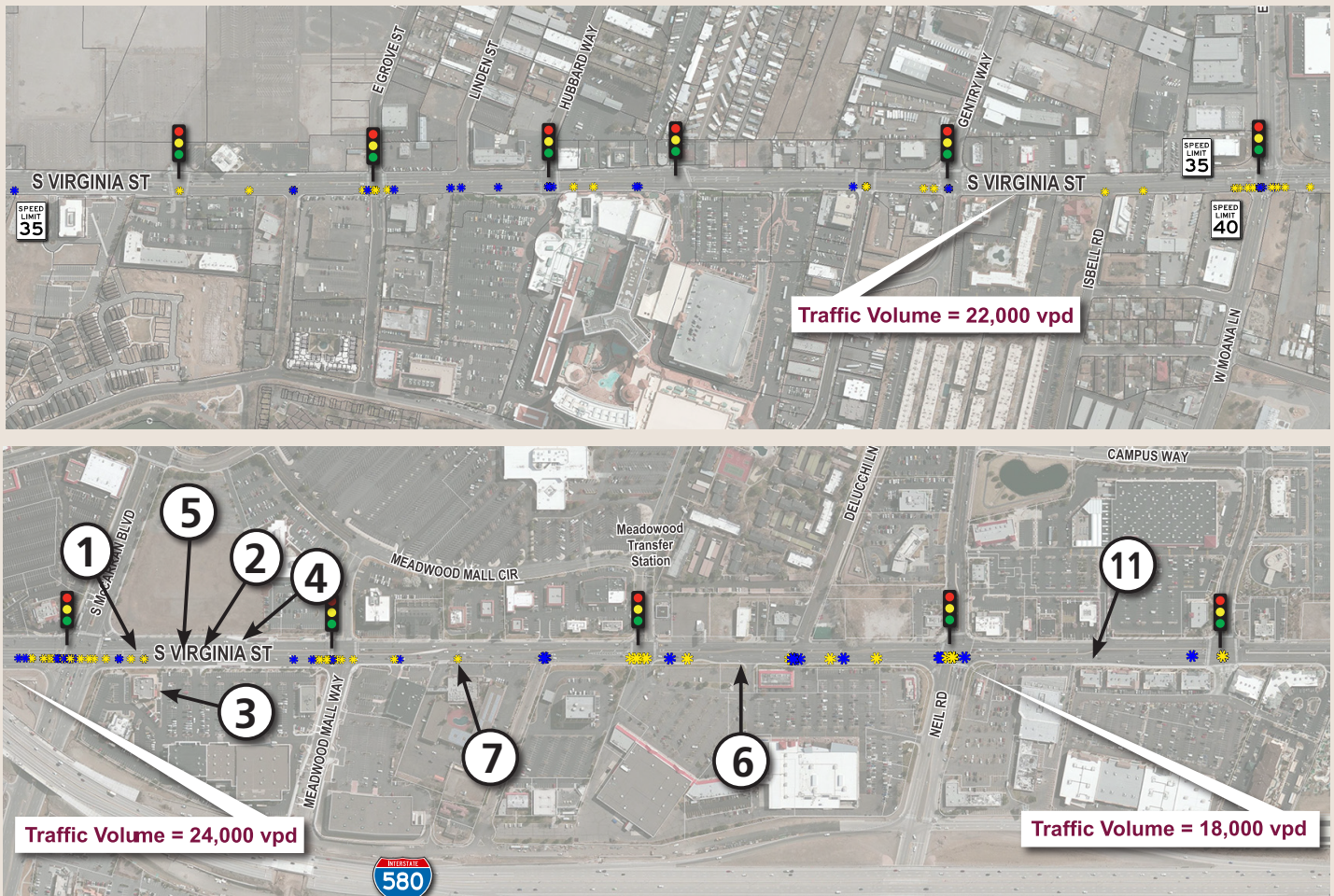
RTC is considering the feasibility of changing the transit station at the Meadowood Mall and alternative routing in southern portion of Reno. The detailed evaluation performed in Appendix B indicates that under current levels of ridership demand, the existing Meadowood Mall location is the overall best location for the transfer site serving the southern portion of the RTC RIDE route system. The reduction in ridership associated with moving the transfer site elsewhere would be greater than additional ridership generated by service to new stops.

The alternative site located at South Virginia Street and Longley Lane only makes sense as part of a larger program of developing the overall parcel, such as a mixed-land-use project that takes advantage of an adjacent transit center.

**Convention Regional Center plan.** Virginia Street between Del Monte and Moana Lane is within the Convention Regional Center as identified by the Truckee Meadows Regional Plan and the City of Reno Master Plan. This area is designated as a regional center due to the location of major destinations in which convention activity is a major focus. This plan supports a pedestrian friendly form of development focused around planned or existing transit access points for RAPID. The plan encourages primarily internal east-west connectivity within the area and along arterials crossing Virginia Street. Pedestrian and bicycle improvements along these routes will facilitate access to the transit stations.

A summary of identified deficiencies is summarized in the Existing Conditions Summary **Figure 5.6**.





**ROADWAY CHARACTERISTICS AND SAFETY**

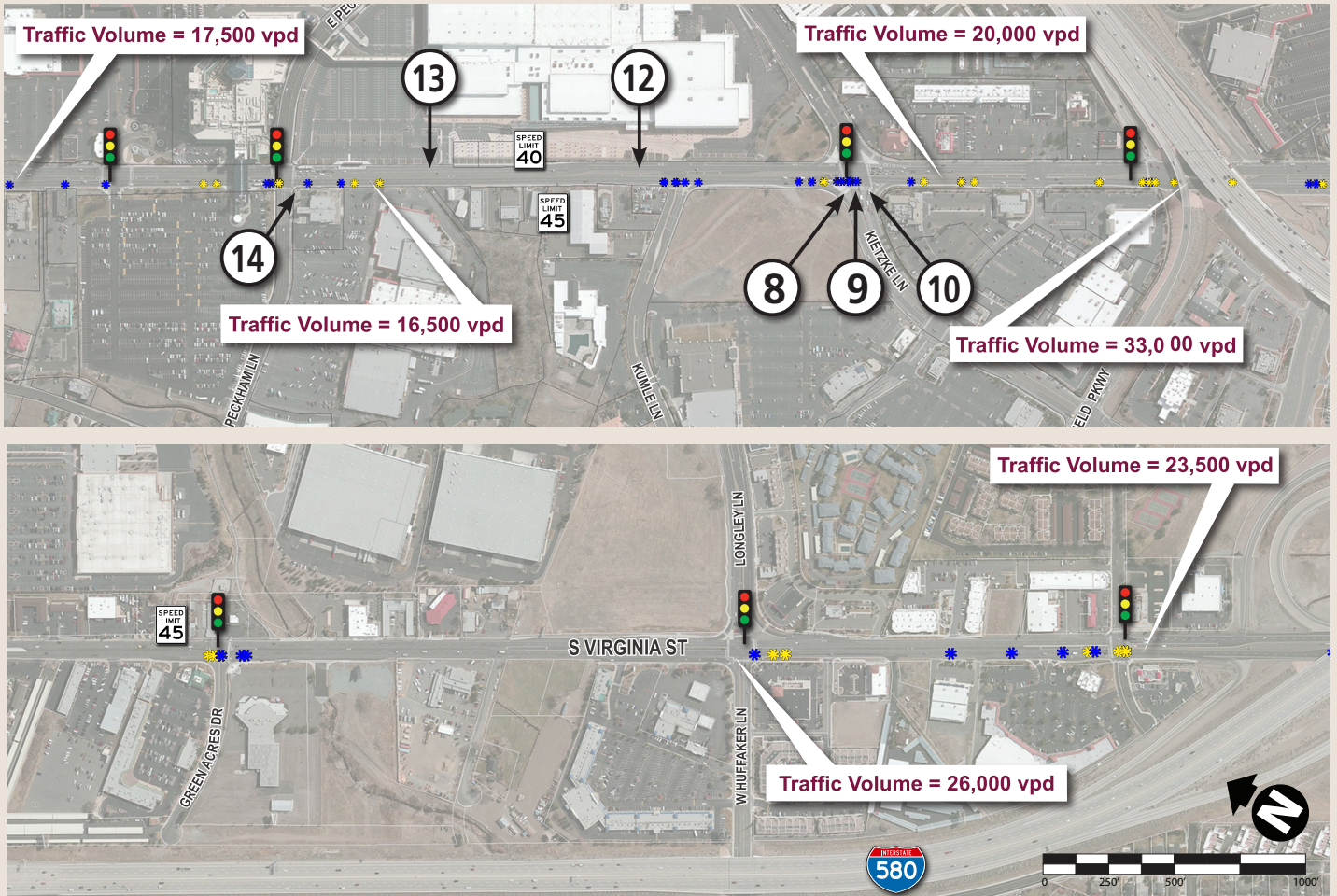
- Speed Limit
- Traffic Signals
- Vpd – Traffic Volume in Vehicles per day
- Roadway Crashes
- Property Damage
- Injury Accident
- Fatal Accident

Note: There were 136 angle crashes between Kietzke Lane and North McCarran Boulevard. This section of the roadway has numerous driveways, unsignalized side street which contribute to angle crashes.

- ① This intersection is identified as a high crash location. The U-turns being made by southbound drivers from the left turn lane conflict with the westbound to northbound right turn on red movements from So. McCarran Boulevard. The drivers making the U-turns are trying to access the northbound I-580 on-ramp just north of So. McCarran Boulevard. The recently opened northbound on-ramp from the extension of Meadowood Mall Way provides a nearby access to I-580 for southbound drivers on Virginia Street.
- ② The marked crosswalks over the sweeping right turn lanes on the eastbound, southbound, and northbound approaches are not covered by the street lighting.
- ③ Eastbound drivers are making illegal left turns from the number 1 through lane to access the I-580 northbound on-ramp.
- ④ The number 4 northbound through lane allows right turn access to eastbound South McCarran Boulevard and access to the I-580 northbound on-ramp. Many drivers are confused by multipurpose of this lane and assume that it does not provide access to I-580 because it physically appears to be a long right turn lane to South McCarran Boulevard.
- ⑤ The number 1 northbound through lane does not properly align with the through lane across the intersection. The current lane striping for this lane requires drivers to make an adjustment to the right to avoid hitting the raised median on the north side of the intersection.
- ⑥ The newly installed SB to EB left turn lane for “Bus Only” is not always recognized by the driving public. The traffic signal heads do not align with the northbound and southbound through lanes.

Figure 5.6- Convention Area - Existing Conditions





- ⑦ The traffic signal heads for north/south traffic do not align with the through travel lanes and may contribute to driver confusion.
- ⑧ The street lighting at the intersection covers the crosswalks within the intersection but does not cover the sweeping right turn lanes on the northwest, southwest and northeast corners.
- ⑨ Three of the four sweeping right turn lanes do not have a merge lane and requires drivers to merge directly into the adjacent through lane.
- ⑩ The sweeping right turn for the northbound to eastbound movement has a "Yield" for the crosswalk that is located too far past the crosswalk.

**PEDESTRIAN AND BICYCLE AMENITIES AND ACTIVITY**

- ⑪ On the southwest corner the sidewalk, curb and gutter encroaches into the southbound bike lane, reducing the width to less than 5 ft.
- ⑫ During conventions large pedestrian and vehicle activity is noticed in the area between Kietzke Lane and Peckham Lane. Observations show that several people cross at unmarked locations near the mid block area.
- ⑬ There is a shared bus and bike only lane on the northbound side of the roadway between Kietzke Lane and Peckham Lane. This is a good use of the extra pavement.

⑭ Virginia and Peckam intersection	Bike Activity	Pedestrian Activity	Wheelchair Activity
September 2013	24	271	1
January 2014	32	411	7

**LEGEND**



## 5.2 RECOMMENDED IMPROVEMENTS

Based on the evaluation of the transit station relocation at Meadowood Mall it is recommended for the RTC to focus on the existing Meadowood Mall transfer center (barring a joint development project at the South Virginia Street and Longley Lane site). Bus and passenger activity levels warrant improvements to this existing site. The following improvements to the transit station are recommended for further study:

- Expansion of bus loading bay space to provide dedicated bus bays for each route, designed to avoid conflicted between bus travel paths (such as sawtooth bays). This would require an expansion of the site “footprint”.
- Shelter to provide protection from the elements for up to 90 passengers. Approximately 1,200 square feet of protected passenger waiting space would be desirable. Optimally, this space would be within a structure with climate control. At a minimum, bus shelters on site should be expanded (preferably designed specifically for the site).
- Restrooms, for the public and for drivers.
- Improved outside seating and landscaping areas.

The above improvements are funded through the fiscally constrained transit program and are not included in the plan.

Recommended improvements described below are based on the recommendations of the RSA. All of the proposed safety improvements are combined into one investment plan item.

### Safety improvements from Patriot Boulevard to Plumb Lane

- Modify and adjust striping.
- Traffic signal improvements and modifications
- Install, replace, or relocate signs
- Install street lighting
- Intersection improvements and modifications
- Signal timing and coordination
- Conduction of a pedestrian study during a large convention event between Kietzke Lane and Peckham Lane to determine if there is a need for a mid-block pedestrian crossing
- Evaluate conversion of one southbound travel lane to a bus only lane between Plumb Lane and Hubbard Way/Peppermill









## 6

## SOUTH RENO AREA

Virginia Street within the South Reno area extends from Patriot Boulevard on the north to Mount Rose Highway on the south. This section of Virginia Street is under the jurisdiction of the NDOT. The roadway was designed as a high speed facility (55mph) to accommodate US 395 vehicular traffic. With the construction of the new I-580/US 395, the vehicular traffic that once used Virginia Street as a through route from Carson City to Reno has shifted to the new freeway.

The roadway has a rural feel with sidewalks mostly absent and two urban interchanges with

I-580 bounding this area. Commercial and vacant parcels run along Virginia Street with abundant surface parking and a style of development that does not have any distinctive pattern. **(Figure 6.1).**

Low traffic density, availability of land, and vacant parcels provide an opportunity for transformation. An investigation of mobility and safety provides comprehensive information concerning this opportunity. Stakeholder and public input was leveraged to identify the assets, issues, and opportunities within South Reno to draw on a diverse mix of design and operational features.

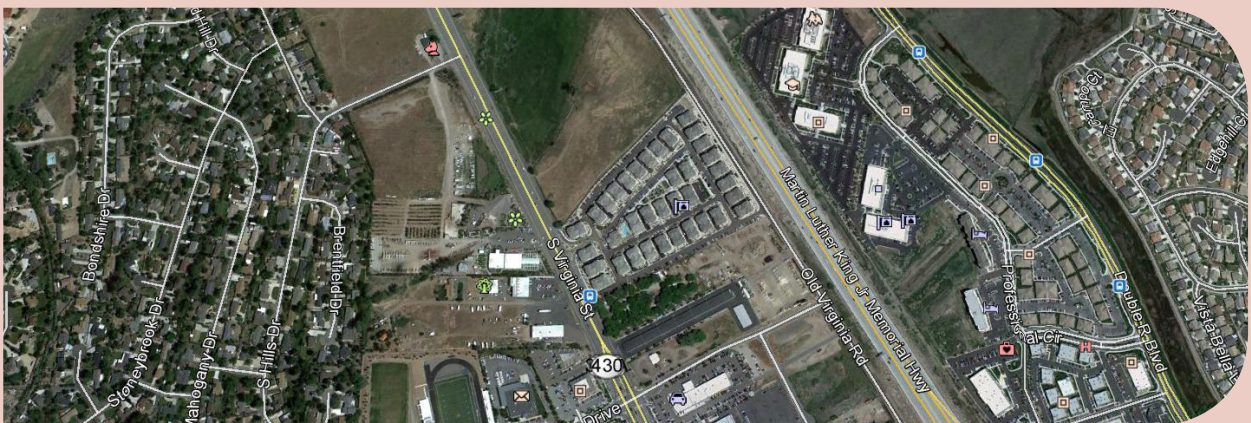


Figure 6.1 - Built pattern around Virginia Street

This section will present considerations of the implementation process that will help transition Virginia Street to a complete street.

## 6.1 SUMMARY OF ASSETS, ISSUES AND OPPORTUNITIES

Key assets of South Reno were identified through surveys and meetings with residents and stakeholders at public workshops.

**Availability of roadway space.** Virginia Street within the South Reno corridor has three lanes in each direction with a center left turn lane, wide shoulders, and a 130-foot right-of-way. The availability of right of way gives the transportation agencies the flexibility of right-sizing the street to fit the needs of residents. Vehicular traffic volumes through this area vary from 13,700 vpd to 18,500 vpd. A planning level capacity analysis, as shown in **Figure 6.2**, indicates that Virginia Street has excess roadway capacity that can be allocated to other uses.

**Popular bicycle route.** Non-continuous bicycle lanes are present in some sections of Virginia Street in the northbound direction. The re-routing of I-580/US 395 to the new freeway, in addition to the rural feel of the roadway within this area, has attracted cyclists who use the wide shoulders or bicycle lanes where available. The integration of bicycle lanes through interchanges is perceived as a challenge that may be overcome with increasingly common engineering treatments. These treatments vary depending on the layout of the interchange and may include removal of pork chops, converting free on/ off- ramp movements to controlled movements, and “yield to bikes” signing.

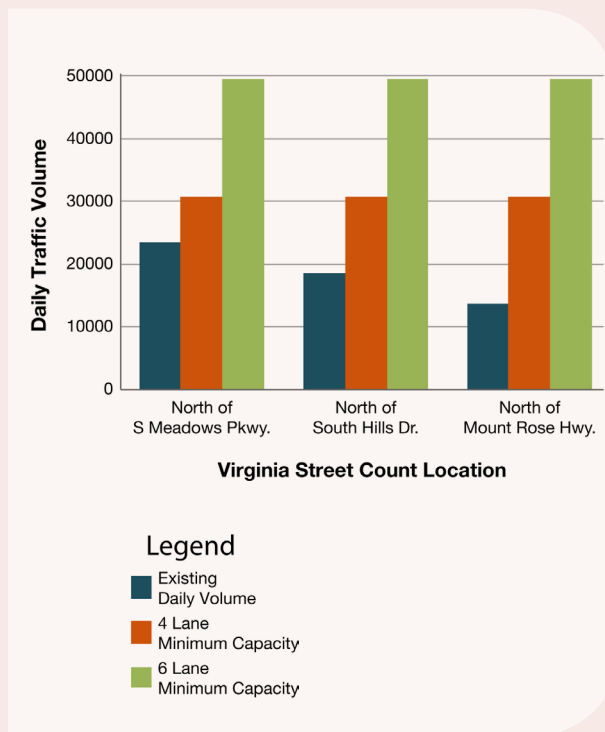


Figure 6.2 - Capacity analysis in South Virginia Street

**Continuous sidewalks.** The sidewalks along Virginia Street in this area generally exist only along developed parcels. Current land use does not promote a friendly pedestrian environment. To address safety concerns, connectivity of sidewalks is recommended to increase safety and facilitate further pedestrian activity.

**Safety enhancements and access management.** A RSA was conducted along Virginia Street by NDOT. A total of 112 crashes were recorded from Mount Rose Highway to Kietzke Lane between June 1, 2009 and May 31, 2012. These crashes include 2 fatalities, 41 injuries, and 69 property damage. Two fatalities occurred at the entrance of the Tamarack Junction Casino (**Figure 6.3**). The RSA indicated that the drivers have to negotiate left turns across three southbound travel lanes of Virginia Street to enter or leave the casino.







Figure 6.3 - Tamarack Junction casino

The unsignalized intersection of Virginia Street at Holcomb Lane experienced six crashes during the same period (**Figure 6.4**).



Figure 6.4 - Holcomb Lane intersection

The RSA attributed crash occurrence primarily to access issues, inconsistent design, lack of lighting, and improper roadway signing and marking. The audit identified several variations along the route with regard to the placement of traffic control devices, lane alignment, and roadway signage. These variations may cause confusion and impact driver behavior.

**Transit service to “The Summit”.** Transit route 56 is the only route that provides partial service to the southern portion of Virginia Street. However, the southern limit of this route is Damonte Ranch Parkway. The new commercial developments at The Summit have generated public interest in:

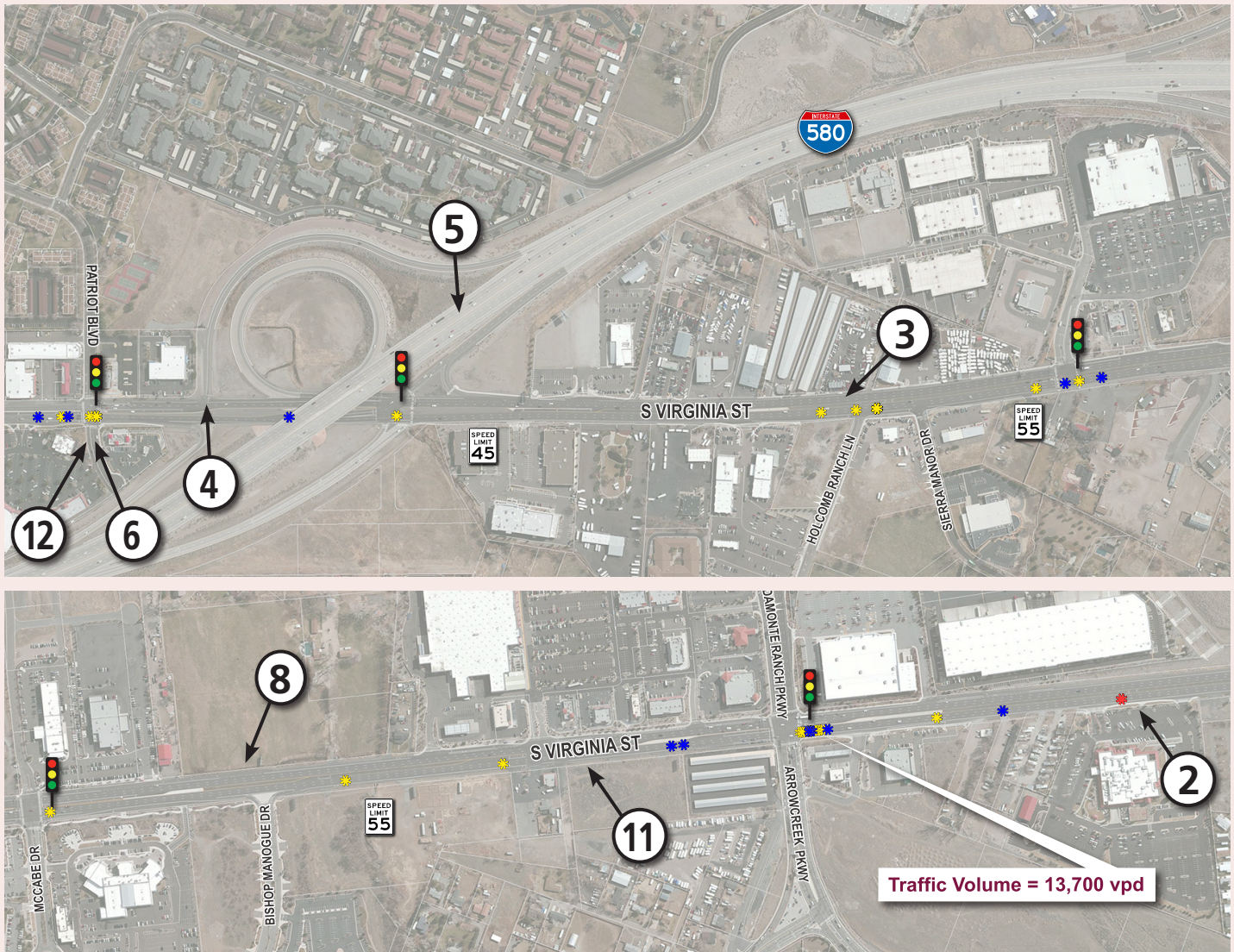
- Extending the RAPID Transit service to The Summit
- Extending service, improving connectivity, increasing frequency, and expanding service hours of the current system
- Considering other technologies that may potentially convert the route to an intercity express with Carson City

Transit analysis in **Appendix B** indicates that an additional traditional route on South Virginia Street between Meadowood Mall, Summit Sierra Mall and Redfield Campus will probably be warranted. The effectiveness of this additional route would be increased by future development along the corridor, and/or efforts to expand ridership generated by Redfield Campus.

A summary of the existing conditions and issues identified is summarized into the Existing Conditions Map in **Figure 6.5**.







**ROADWAY CHARACTERISTICS AND SAFETY**

- Speed Limit
- Traffic Signals
- Vpd – Traffic Volume in Vehicles per day

- 1** Volumes in this section have decreased due to the opening of the new freeway extension
  - Roadway Crashes
  - Property Damage
  - Injury Accident
  - Fatal Accident

Note: Rear-end are the predominant crash type at intersections, 42% of angle crashes occur at mid-block or unsignalized locations, and 30% of crashes occur at night.
- 2** Two fatalities were recorded at the entrance of Tamarack Junction Casino. At Tamarack Junction drivers have to negotiate left turns across the three southbound lanes on Virginia Street where posted speed limit is 55 mph.
- 3** Virginia Street and Holcomb Lane is a non-signalized intersection with STOP control for traffic on Holcomb Lane. This intersection has experienced 6 crashes during the 3 year crash period which is a high number of crashes for a non-signalized intersection on this segment of Virginia Street.
- 4** The southbound Virginia Street approach to the I-580 northbound on-ramp (south of Patriot Blvd.) has no destination signing identifying the on-ramp, therefore, no directional information is available to non-familiar drivers seeking northbound access to I-580.
- 5** The dotted line striping for this exit only lane starts 1600 ft. from the interchange and the overhead sign indicating it is an exit only lane is only 500 ft. from the interchange. During the peak period non-familiar drivers often get trapped in this lane before they see the overhead sign and are forced to make an erratic maneuver to exit the lane if they don't want to enter the freeway. The traffic signal heads for this approach are not aligned with the northbound through lanes.
- 6** The traffic signal heads in the northbound direction do not align with the through lanes.(Virginia and patriot)

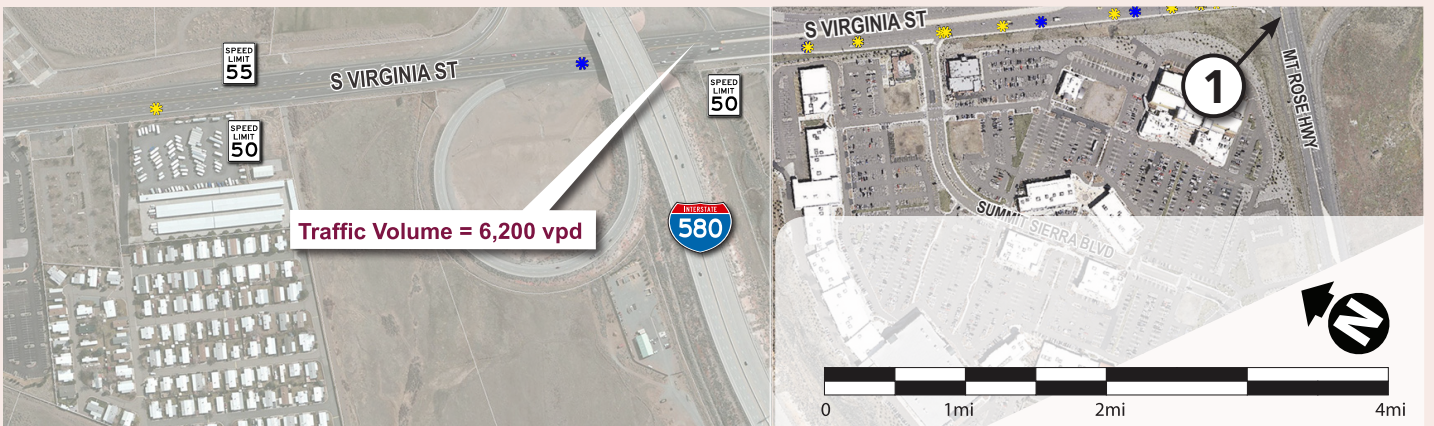
Figure 6.5 - South Reno Area - Existing Conditions







Traffic Volume = 18,500 vpd



Traffic Volume = 6,200 vpd

- 7 Pavement marking is in poor condition
  - 8 Several drainage headwalls and steep sloped ditches within the clear zone area are either unmarked or missing guardrails.
- PEDESTRIAN AND BICYCLE AMENITIES AND ACTIVITY**
- 9 Numerous ramps, driveways, bus stops, pedestrian push buttons, missing sidewalk and sidewalk obstructions currently do not comply with ADA standards.
  - 10 The marked bike lanes on this segment of Virginia Street are sporadically marked and signed. There are missing sections of marked bike lane, improper use of bike lane signing and bike lane markings that are not used in a systematic fashion.
  - 11 The southbound bike lane on Virginia Street is signed as "Bike Lane Ends" just north of the Arrowcreek/Damonte Ranch Parkway intersection;
  - 12 Northbound vehicular traffic on Virginia Street crossing the Patriot Boulevard intersection in the number 2 lane ends up in the bike lane north of the intersection.

**LEGEND**





## 6.2 VIRGINIA STREET CONCEPT IN SOUTH RENO

The South Reno area has the characteristics of a suburban/rural area. In this context, the mission of Virginia Street is to provide an alternate route to the freeway as well as access to the commercial and industrial properties in the South Reno area. For residents living in this area, Virginia Street also provides access to the Midtown and Downtown areas. The proposed concept of Virginia Street in the South Reno area enhances safety following the strategies recommended by the audit and takes advantage of the width of the roadway to accommodate other modes of transportation. The concept will accomplish these by incorporating the following elements:

**Right-sizing the street or “road diet”.** Right-sizing is the reduction in the number of travel lanes without compromising the operation or impacting the vehicular traffic. (Figure 6.6 shown on pages 74 to 79) One of the benefits of right-sizing is that it allows space within the roadway to better accommodate transit, bicycles, and pedestrians. The new concept introduces a multimodal lane in each direction separated by a buffer from the vehicular travel lanes. Separation of modes can contribute to improved safety for bicycles and pedestrians and increased efficiency for transit. A multimodal lane is intended to accommodate cyclists as well as transit. Sidewalks will be constructed along vacant parcels to provide continuity and increase connectivity.

**Access Management Plan.** An Access Management Plan is a tool used by transportation agencies to prevent future access, operational,

and safety problems and to provide solutions to existing problems. As such, access management was identified by NDOT during the RSA as a strategy to enhance safety along this corridor. It is considered beneficial to develop an Access Management Plan prior to the design process of the proposed new concept. The proposed concept will require re-striping of the corridor, modifications of access and circulation, modification of existing signing, and placement of additional signs. Coordination between stakeholders and the public along the corridor is crucial for the success of this plan. The plan will inform the design process in determining the following (Access Management Manual, TRB 2003):

- Problems to be resolved
- Methods of access management that can be used to resolve the problems
- Incorporating a non-traversable median
- Supporting street network and modifications to this network and circulation
- Opportunities for joint access and inter-parcel circulation
- Changes in traffic control or signal operations

### **Improvement at Tamarack Junction Casino.**

Safety enhancements are proposed on Virginia Street at the Tamarack Junction Casino to minimize conflicting movements identified by the RSA. The concept will channelize vehicular traffic and incorporate a raised median as shown in Figure 6.7 Tamarack Junction Plan View.

The raised median is proposed to be constructed from the south casino entrance all the way to the existing raised median 600 feet south of Damonte Ranch Pkwy. An opening will be accommodated in the raised median for the northbound left turning vehicles into the casino. Similarly, vehicles

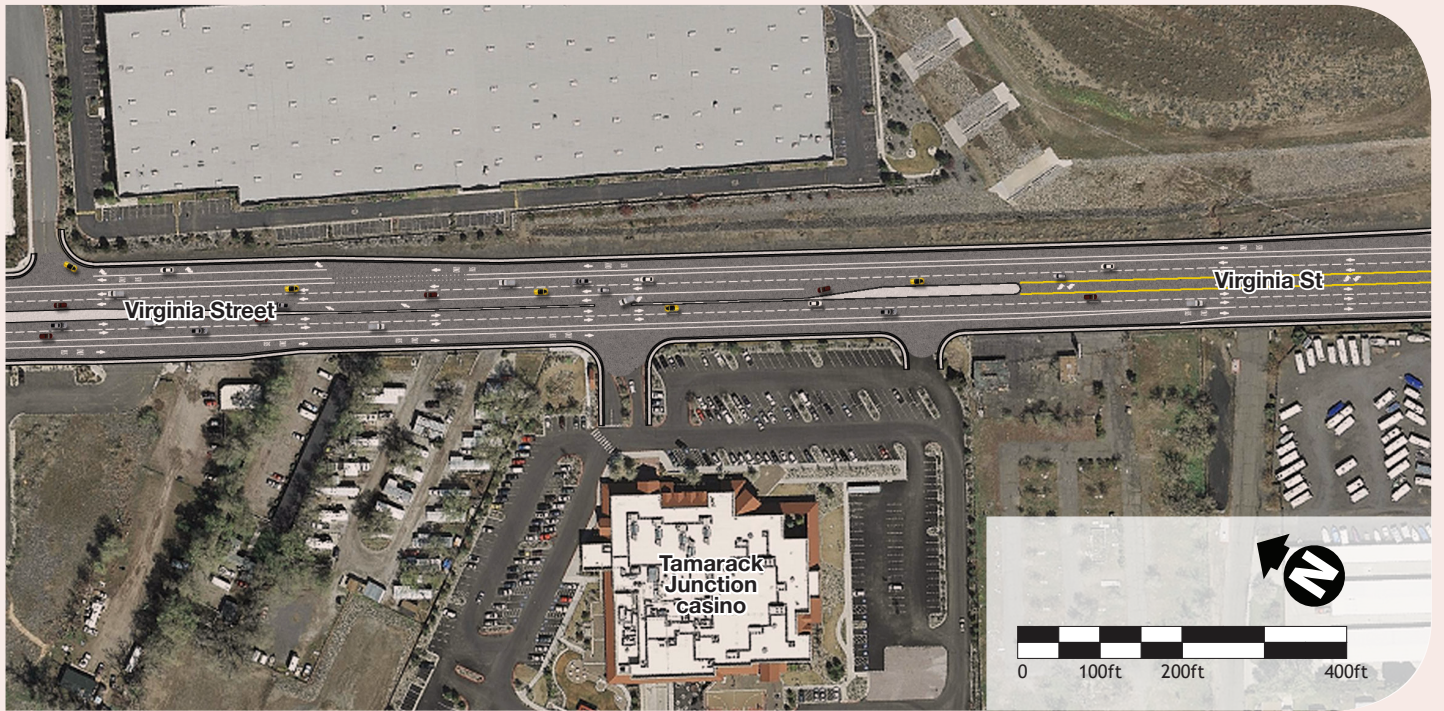


Figure 6.7 - Improvement concept at Tamarack Junction casino (preliminary concept - subject to change)





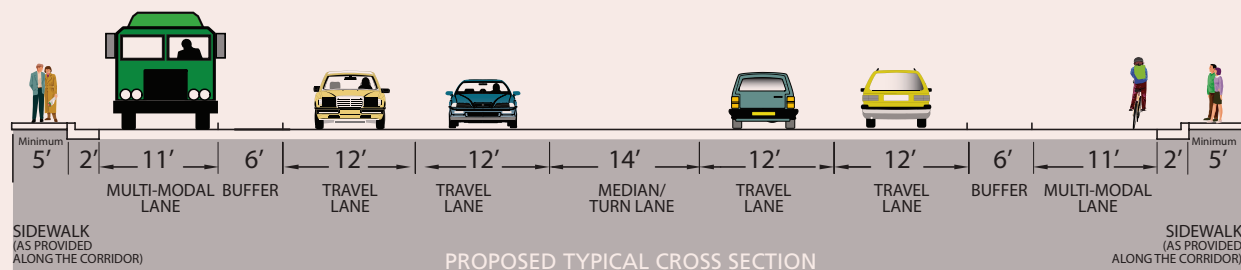


Figure 6.8 - Cross Section of low cost improvements (preliminary concept - subject to change)

travelling northbound and out of the casino will have a median opening and will be able to utilize a dedicated acceleration lane that would allow them to merge into the northbound traffic.

#### **Safety Improvements at Holcomb Ranch Lane.**

NDOT Safety conducted a new RSA along the South Virginia Street corridor in February 2014. Among the recommendations of the RSA was the installation of a median from South Meadows Parkway to the I-580 interchange with Virginia Street and a roundabout at the Exit 61 interchange on and off ramps. While roundabouts are considered to be a safety countermeasure, application of a roundabout at this location would require additional analysis of traffic operations, roadway geometry, and reasonably available right of way to determine the effectiveness of the improvements. It is recognized that this intersection does currently raise potential safety, operation and access issues; however, it is recommended that various alternatives be considered in greater depth at this interchange to increase both the interchange effectiveness and safety while also complying with a FHWA Change in Control of Access Request and NEPA clearance.

### **6.3 IMPLEMENTATION PROCESS CONSIDERATIONS**

Rerouting US 395 to its new current alignment allowed the reinstatement of Virginia Street as an essential urban arterial. While the City of Reno supports a full transformation of Virginia Street from a highway to an urban arterial, the same level of priority may not exist for NDOT. Discussions have occurred regarding the transfer of Virginia Street to the City of Reno's jurisdiction; however, the lack of funds has not allowed NDOT to make improvements needed by the City before this transfer occurs. On the other hand, if funding is available the City of Reno has concerns about the high cost of maintenance that would be associated with a potential transfer in ownership. These institutional issues may impact the timely implementation of this concept. To facilitate a smoother implementation, RTC is proposing a low cost concept (**Figure 6.8**) that will use pavement marking to implement the right-sizing and keep both construction and maintenance costs lower in the interim.







Figure 6.6 - Right-sizing concept in South Virginia (preliminary concept - subject to change)











Figure 6.6 - Right-sizing concept in South Virginia (preliminary concept - subject to change)









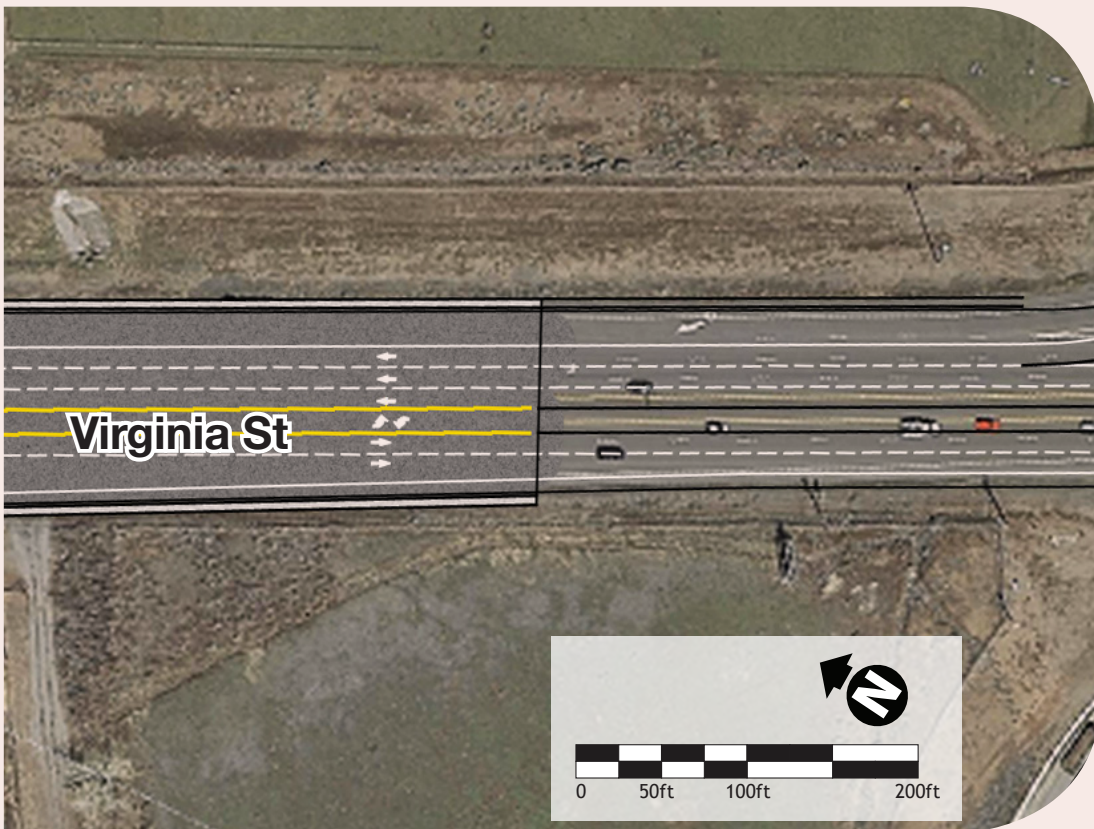


Figure 6.6 - Right-sizing concept in South Virginia (preliminary concept - subject to change)











## 7

# RAPID TRANSIT

The Washoe County Regional Transportation Commission has embarked on an analysis of potential alignment alternatives for extending the RAPID transit to the University of Nevada, Reno (UNR) and to identify a set of transportation investments in the Virginia Street Corridor that would improve access to RAPID.

The previous sections in this report focused on developing priorities that address the independent needs of communities along Virginia Street. These sections identified characteristics and assets of each area along Virginia Street, issues that transportation infrastructure is facing, and opportunities for improvements. Improvement concepts developed for each of these areas stem from these findings and the valuable input of stakeholders and public.

The analysis shows that the three denser areas of Virginia Street, Convention Area, Midtown, and Downtown, are served by a common and unique BRT system – The RAPID. While the operations of this system have proven successful, there are infrastructure gaps that disrupt the connectivity

and access to RAPID.

This section brings together findings of many efforts and the public and stakeholder input into a Purpose and Need Statement. The Purpose and Need statement, described below, builds upon the previously identified transportation issues in the corridor, and describes potential investments identified through this joint effort.

## 7.1 PURPOSE AND NEED

The purpose of making transportation investments in the Virginia Street Corridor and the RAPID route is to provide a solution that addresses multiple transportation needs. These needs are:

- Improve mobility and access in the corridor by providing inviting, reliable, safe, and secure transit, biking, and walking options
- Support economic development and the region's goal to become a University Town
- Improve mobility and access for the student population in the corridor



**Need to improve mobility and access in the corridor by providing inviting, reliable, safe, and secure transit, biking, and walking options.**

Lack of pedestrian and bicycle amenities and numerous ADA deficiencies make Midtown an arduous biking and walking environment.

To improve mobility along the Virginia Street Corridor, along the RAPID route, and to increase connectivity and access to corridor activity centers, RTC seeks to make transportation investments to incorporate a Complete Streets approach and improve the environment for transit, bicycles and pedestrians. Potential investments such as extending the RAPID route to UNR will decrease travel time for users traveling to the southern part of the corridor and increase ridership. Implementing bicycle lanes and continuous bicycle routes that access Virginia Street within Midtown area could improve safety, convenience, and access. Widening sidewalks within Midtown and making them ADA compliant, providing bulb-outs, median refuges, more crosswalks, and other pedestrian features could also provide a more inviting and safer walking environment.

**Need to support economic development and the region's goal to become a University Town.**

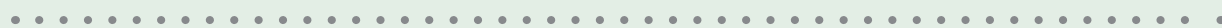
The Virginia Street Corridor is currently an older urban corridor like many across the United States. The RTC and the City of Reno are committed to enhancing the corridor and improving livability by improving access to existing activity centers, making the corridor more pedestrian-oriented, and reinforcing a sense of “place” at key locations along the corridor. A variety of local land use policies and plans support the growth, development, and intensification of activity within

the corridor. The Truckee Meadows Regional Plan has designated several centers and corridors along Virginia Street that support higher density and transit oriented lifestyle. Following this regional plan, the City of Reno has adopted the Downtown Center Plan, South Virginia TOD plan, University Center Plan, and Convention Center Plan. These plans include land use and zoning policies that encourage higher-density development around RAPID stations.

The current Virginia Street transportation infrastructure is ineffective in supporting the region's vision because of the shortage of pedestrian and bicycle infrastructure that hinders the accessibility to transit stations.

Improving the connectivity between UNR, Downtown, and Midtown would increase transit, bicycle, and pedestrian activity. As demonstrated in other cities across the country, high quality transit can be a catalyst for economic and community development.

To ensure that its plans are supportive of and consistent with other efforts in the Virginia Street Corridor, RTC is coordinating its planning for the corridor with all other affected agencies and organizations. RTC will make sure its plans are compatible with existing and future corridor land use patterns and plans and that the plans fit the character of the corridor. This will ensure that RTC's transportation improvements and investments by others work together to cohesively develop and renew the corridor. RTC will also incorporate quality design in its investments in order to help enhance the quality of public space along the corridor.



### **Need to improve mobility and access for student population in the corridor.**

The UNR area has a heavy concentration of low income student population. An analysis of demographic data indicates that 30 to 40 percent of the population in this area are below poverty level. At the same time over 40 percent of the population has a college degree. The analysis of the affordability index indicates that the households in the area surrounding UNR spend approximately 15 to 20 percent of their income in transportation costs. (<http://htaindex.cnt.org/map>)

The distance from Lawlor Building to RAPID Station on Holcomb Avenue in Midtown is approximately 2.6 miles. As described previously, the current travel time from UNR to Midtown is approximately 39 minutes which makes the transit service relatively slow due to transfers that need to be made.

Extension of the existing RAPID route to UNR will improve transit connectivity and travel time for this segment of population. This will also be an opportunity to use transit as an alternative mode of transportation that reduces transportation cost. Parallel to this effort the RTC is already in the process of improving bicycle connectivity to downtown and midtown areas.

## **7.2 PROPOSED PROJECT**

Virginia Street is a vital corridor for the Reno urban area. The RTC has recognized that Virginia Street would greatly benefit from substantial investment in transit infrastructure and other transportation facilities. For this reason, RAPID BRT transit

service was established along Virginia Street from the transit terminal at Meadowood Mall to the Transit terminal at 4th Street. Although this investment has proven successful, transportation infrastructure deficiencies and the location of the existing terminus of RAPID have hindered the accessibility to stations and limited its use by UNR students and staff. The proposed investment in transportation infrastructure and the extension of RAPID to UNR would improve corridor mobility by increasing accessibility and connectivity and enhancing pedestrian and bicycle facilities.

Multiple efforts have been conducted in this corridor by the RTC, the City of Reno, UNR, and NDOT to evaluate deficiencies, identify needs, and lay out the planning framework that would support a safe, accessible, and transit oriented environment. Over the past year, the RTC conducted a study that brought together all these efforts, and also conducted a feasibility analysis of extending RAPID to UNR. The study developed improvement concepts that would improve accessibility to RAPID and Route 1 stations.

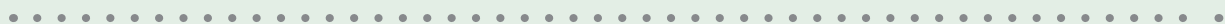
The study process included extensive outreach to identify community and stakeholder concerns and to develop strategies to improve mobility and accessibility in this corridor. This effort considered both benefits and impacts of a range of transportation improvement concepts. The findings of this study led to the development of a preferred concept that would carry forward into the next phase of project development.

The following are the recommendations for a locally preferred concept of extending RAPID to UNR and providing infrastructure improvements.





1. Extension of current RAPID service to UNR
  - Stations: approximately a half mile apart located at Manzanita Hall and Lawlor building.
  - Alignment: RAPID buses would exit the Fourth Street Station; head north on Evans Street, west on 9th Street, and then north on Virginia Street. A roundabout just north of the Lawlor stop will serve as an area for buses to turn around. The overall length of the extended route will be 1.8 miles or 3.6 miles round-trip.
  - Guideway: The RAPID will operate in mixed traffic lanes from the 4th Street transit station to the terminus in both directions.
  - Transit Signal Priority from 4th street station to the new terminus to the RAPID extended route.
  
2. Multimodal improvements from the I-80 bridge to North McCarran Boulevard including:
  - Provide a Gateway feature
  - Bring infrastructure up to ADA standards
  - Provide pedestrian facilities including a pedestrian control device
  - Improve lighting
  
3. Multimodal improvements from Liberty Street to Plumb Lane to improve accessibility to RAPID stations.
  - Remove one travel from Mount Rose Street to Vassar Street
  - Re-stripe Virginia Street from Plumb Lane to California Avenue
  - Provide side street bicycle connectivity, parking, and wayfinding signing







## 8

# INVESTMENT PLAN AND RECOMMENDATIONS

In conclusion, the recommendations for the study area include the following:

1. Extend current RAPID service to UNR and provide multimodal Improvements from North McCarran Boulevard to Mapple Street including a gateway feature, a roundabout, bringing infrastructure up to ADA standards, pedestrian facilities, and lighting.
  - Stations: approximately a half mile apart located at Manzanita Hall and Lawlor building.
  - Alignment: RAPID buses would exit the Fourth Street Station; head north on Evans Avenue, west on 9th Street and then north on Virginia Street. A roundabout just north of the Lawlor stop will serve as an area for the buses to turn around. The overall length of the extended route will be 1.8 miles or 3.6 miles round-trip.
  - Guideway: The RAPID will operate in mixed traffic lanes from the 4th Street transit station to the terminus in both directions.
2. Safety improvements from Maple Street to Liberty Street.
  - Improve sight distance at the pedestrian crossing of the Liberty Street and Virginia Street intersection
  - Construct an ADA ramp at the Liberty Street and Virginia Street intersection
  - Renew the pedestrian striping that outlines the crosswalks made with pavers
  - Update pedestrian push buttons and pedestrian heads to audible equipment
  - Install reflective sheeting on traffic signal head back plates
  - Install pedestrian signs for the 7th Street intersection
3. Multimodal improvements from Liberty Street to Plumb Lane to improve accessibility to RAPID stations - Phase I.
  - Remove one travel from Mount Rose Street to Vassar Street
  - Re-stripe Virginia Street from Plumb Lane to California Avenue
  - Provide side street bicycle connectivity, parking, and wayfinding signing

4. Road reconstruction and multimodal improvements from Liberty Street to Plumb Lane to improve accessibility to RAPID stations - Phase II.
  - Widen sidewalks and bring infrastructure up to ADA standards
  - Provide streetscape improvements and lighting
  - Perform safety enhancements
5. Identify right of way width and coordinate with property owners fronting Virginia Street within the Midtown area to identify strategies for improving the additional sidewalk width that is not within the public right of way. These strategies should also take into consideration the cost and responsibility of maintenance.
6. Perform an access management plan from California Avenue to Mount Rose Street. Virginia Street within Midtown has a significant amount of closely spaced driveways that create obstructions to a continuous sidewalk, increase conflict between pedestrians and vehicles, limit on-street parking availability, and impede the flow of vehicular traffic. Coordination with property owners to overcome these issues during plan development is recommended.
7. Develop parking strategies that would reduce the need for on-street parking and support the existing RAPID system. These strategies may include identification of parking sites, shared parking between establishments, and in-lieu parking fees.
8. Safety improvements from Plumb Lane to Patriot Boulevard including:
  - Modify and adjust striping
  - Improve and modify traffic signals
  - Install, replace, or relocate signage
  - Install street lighting
  - Improve and modify Intersections
  - Coordinate signal timing
  - Conduct a pedestrian study during a large convention event between Kietzke Lane and Peckham Lane to determine if there is a need for a mid-block pedestrian crossing
  - Evaluate conversion of one southbound travel lane to a bus only lane between Plumb Lane and Hubbard Way/Peppermill
9. Improvements to existing Meadowood Mall transit station.
  - Expansion of bus loading bay space to provide dedicated bus bays for each route, designed to avoid conflicted between bus travel paths (such as sawtooth bays). This would require an expansion of the site “footprint”.
  - Install a shelter to provide protection from the elements for up to 90 passengers. Approximately 1,200 square feet of protected passenger waiting space would be desirable. Optimally, this space would be within a structure with climate control. At a minimum, bus shelters on site should be expanded (preferably designed specifically for the site).
  - Install restrooms, for the public and for drivers.
  - Improve outside seating and landscaping areas.



10. Multimodal improvements from Patriot

Boulevard to Mount Rose Highway to enhance safety and accommodate alternative modes – Phase I. These improvements include:

- Remove one travel lane and restripe Virginia Street. Dedicate the removed lane to transit operations and bicycle use.
- Perform safety enhancements as specified including Tamarack Junction Casino to minimize conflicting movements identified by the Road Safety Audit.
- Develop an Access Management Plan.
- Evaluate alternatives for improvements between Holcomb Ranch Lane and I-580 and Virginia Street interchange in compliance with FHWA Change in Control of Access Request and NEPA clearance. Consider installation of a raised median from South Meadows Parkway to the I-580 Interchange as well as circulation options including a roundabout at the I-580 Exit 61, southbound off-ramp/on-ramp interchange terminal. These strategies target enhancement of safety at Holcomb Ranch Drive intersection.

11. Multimodal improvements from Patriot

Boulevard to Mount Rose Highway to enhance safety and accommodate alternative modes – Phase II. These improvements include:

- Construct improvements recommended by access management plan and evaluation of alternatives between Holcomb Ranch Lane and I-580 and Virginia Street interchange

- Construct sidewalks

The recommendations within this study are in accordance with the goals of the Regional Transportation Plan. This study addresses the identified needs by integrating all types of transportation and provides solutions that focus on corridor wide connectivity. Proposed solutions identified comply with complete streets design principles and are appropriate to the context of each area. **Table 8.1**. These solutions enable the RTC and other stakeholders to design and construct streets that provide safe access and travel for all users, including pedestrians, bicyclists, motorists, and transit users of all ages and abilities.

**Table 8.2** summarizes the recommended improvements that will be included in the Regional Transportation Plan and the corresponding cost estimate.



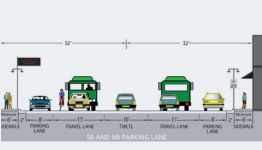




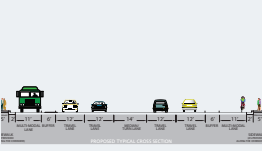
Project Name	Photo	Complete Streets Elements					
		Safety	Enhanced Transit Stops/Route	Bicycle Facilities/Amenities	Pedestrian Facilities/Amenities	Auto Capacity	ITS
<b>Extending RAPID to UNR</b> Transit and multimodal improvements from North McCarran Boulevard to Maple Street.		●	●		●		●
<b>Virginia Street</b> Safety enhancements from Maple Street to Liberty Street.		●			●		●
<b>Virginia Street</b> Phase I - Safety and multimodal improvements from Liberty Street to Plumb Lane.		●		●	●		
<b>Virginia Street</b> Phase II – Road reconstruction and multimodal Improvements from Liberty Street to Plumb Lane.		●	●		●		
<b>Virginia Street</b> Safety enhancements from Plumb Lane to Patriot Boulevard.		●			●		●
<b>Transit</b> Improvements to existing Meadowood transit station.			●		●		
<b>Virginia Street</b> Phase I - Safety and multimodal improvements from Patriot Boulevard to Mount Rose Highway.		●		●			●
<b>Virginia Street</b> Phase II - Safety and multimodal Improvements from Patriot Boulevard to Mount Rose Highway.		●			●		●

Figure 8.1 - Recommended improvements and complete street elements





Figure 8.2 - Corridor improvements cost and schedule

No.	Project	Description	Year of Expenditure Cost \$US
1	<b>Extending RAPID to UNR</b> North McCarran Boulevard to Maple Street	Transit and multimodal improvements including the extension of the RAPID route, UNR gateway feature, transit signal priority, pedestrian facilities, lighting.	7,000,000
2	<b>Virginia Street</b> Maple Street to Liberty Street	Safety enhancements including pedestrian ramps, striping, audible equipment for signal heads, traffic signal head back plates, signage.	150,000
3	<b>Virginia Street</b> Liberty Street to Plumb Lane	Phase I - Safety and Multimodal Improvements including restriping, road diet, and improving side street bicycle connectivity, bicycle parking and wayfinding.	700,000
4	<b>Virginia Street</b> Liberty Street to Plumb Lane	Phase II – Road Reconstruction and Multimodal improvements including sidewalk widening, streetscape improvements, lighting, safety enhancements.	16,500,000
5	<b>Virginia Street</b> Plumb Lane to Patriot Boulevard	Safety enhancements including striping, traffic signal modifications, signage, lighting, signal timing and intersection modifications.	900,000
6	<b>Transit</b> Meadowood transit station	Improvement to existing Meadowood Mall station including bus loading bay expansion, additional shelters, restrooms, and outside seating and landscaping areas.	5,000,000
7	<b>Transit</b> Meadowood transit station	Phase I - Safety and Multimodal Improvements including road diet, restriping, multimodal lane, safety enhancement to Tamarack Junction, access management plan, and alternative evaluation of improvements at Holcomb Ranch Lane.	15,500,000
8	<b>Virginia Street</b> Patriot Boulevard to Mount Rose Highway	Phase II - Safety and Multimodal Improvements including the construction of improvements recommended by access management plan, and constructing sidewalks.	6,000,000







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