SVTOD

Technical Memo

Existing Conditions Report

July 01, 2024

Prepared For

RTC

Prepared By

WOOD RODGERS
BUILDING RELATIONSHIPS ONE PROJECT AT A TIME
1361 Corporate Boulevard
Reno, NV 89502
Tel: 775.823.4068
Fax: 775.823.4066

TABLE OF CONTENTS

Tables

Figures

EXISTING CONDITIONS

Background

Virginia Street runs from Red Rock Road in the north valleys to Mount Rose Highway in the south valleys and is also considered US 395 Alternative Highway and was the historical north/south connection through Reno up until the construction of Interstate-580 (I-580). Virginia Street is famous for the Virginia Street Bridge, the Reno Arch and connects the downtown core, University of Nevada Reno, Midtown, and North/South Reno.

Study Purpose and Need

Virginia Street within the McCarran Ring (N. McCarran Blvd to S. McCarran Blvd), has been developed as a major corridor, complete with multi-modal transportation elements including the Virginia Line Bus Rapid Transit (BRT) service, The BRT currently runs along Virginia and Center Street with service arriving every ten minutes taking passengers from the University of Nevada Reno in the north to the Meadowood Mall in the south. As the area continues to grow and additional density is being developed along Virginia Street, there may be a need to expand the BRT service to the south.

South Virginia Street, from S. McCarran Boulevard to the Mount Rose Highway (SR 431) has transitioned over the last 50 years from a rural highway connecting Reno and Carson City, to a high-density mixed-use corridor. This transition is still underway. Resulting in a patchwork of transit elements throughout the S. Virginia Street corridor. Identifying the existing conditions within the study area will help to establish opportunities and needs and identify how the future extension of the BRT can create a multi-modal, transit-supportive development pattern that meets the growth and development needs of the region.

Study Area

The study corridor extends along **South Virginia Street** from the BRT route's current terminus at the Meadowood Mall transfer station to the Mount Rose Highway (SR 431). A majority of the corridor has already been developed (S. McCarran Blvd. to S. Meadows Pkwy) but the area south of Damonte Ranch Parkway remains mostly vacant with several high-density projects being planned. Therefore, an alternate study route has been included to see if an alternative BRT route, off Virginia Street, could be more successful. This corridor is identified as **Damonte/Wedge Alternative**. The project boundary, or study area, is based on an approximate three-quarter mile walking distance from the South Virginia Street and Damonte/Wedge Alternative corridors using existing streets. The entire study area includes 6,025 acres. A majority of which is within the City of Reno jurisdiction with portions of Unincorporated Washoe County to the west.

Corridors:

South Virginia Street: Is bound by Meadowood Mall in the north and the Summit Mall in the south. Specifically, the ±5.61 miles are between South McCarran Boulevard to Mount Rose Highway (SR 431).

Damonte/Wedge Alternative: A circular corridor that is adjacent to many multi-family developments, the RTC Park and Ride in the Summit Mall, and the University of Nevada Redfield Campus. The ±6.31 miles including

portions of Damonte Ranch Parkway from South Virginia Street to the terminus of Damonte Ranch Parkway. Future Damonte Ranch Parkway which includes a connection from Steamboat Parkway to Mount Rose Highway/Geiger Grade Road. Mount Rose Highway (SR 431) from Geiger Grade Road to Wedge Parkway; Wedge Parkway from SR 431 to Arrowcreek Parkway; and Arrowcreek Parkway from Wedge Parkway to South Virginia Street.

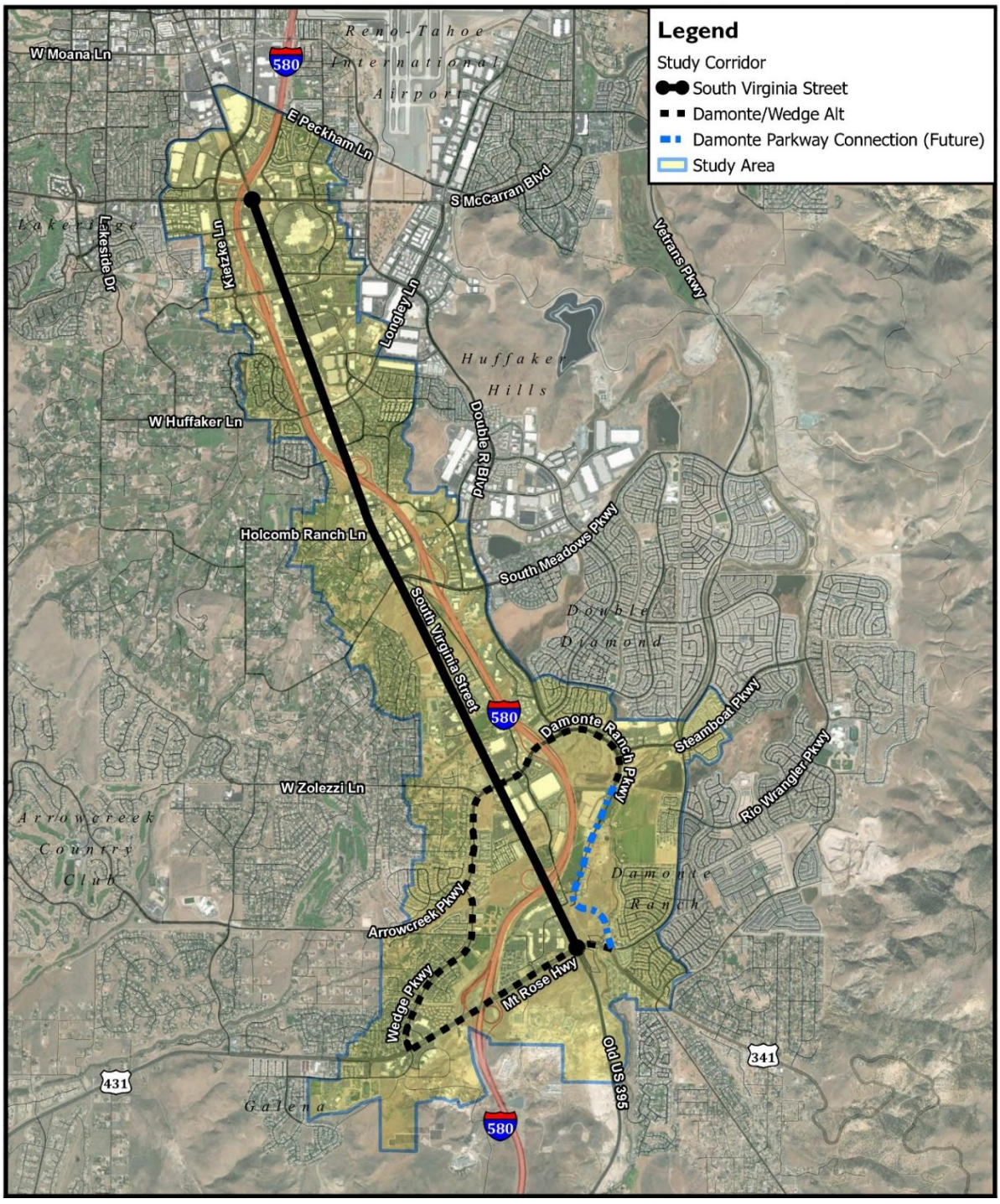


Figure 1: Study Area

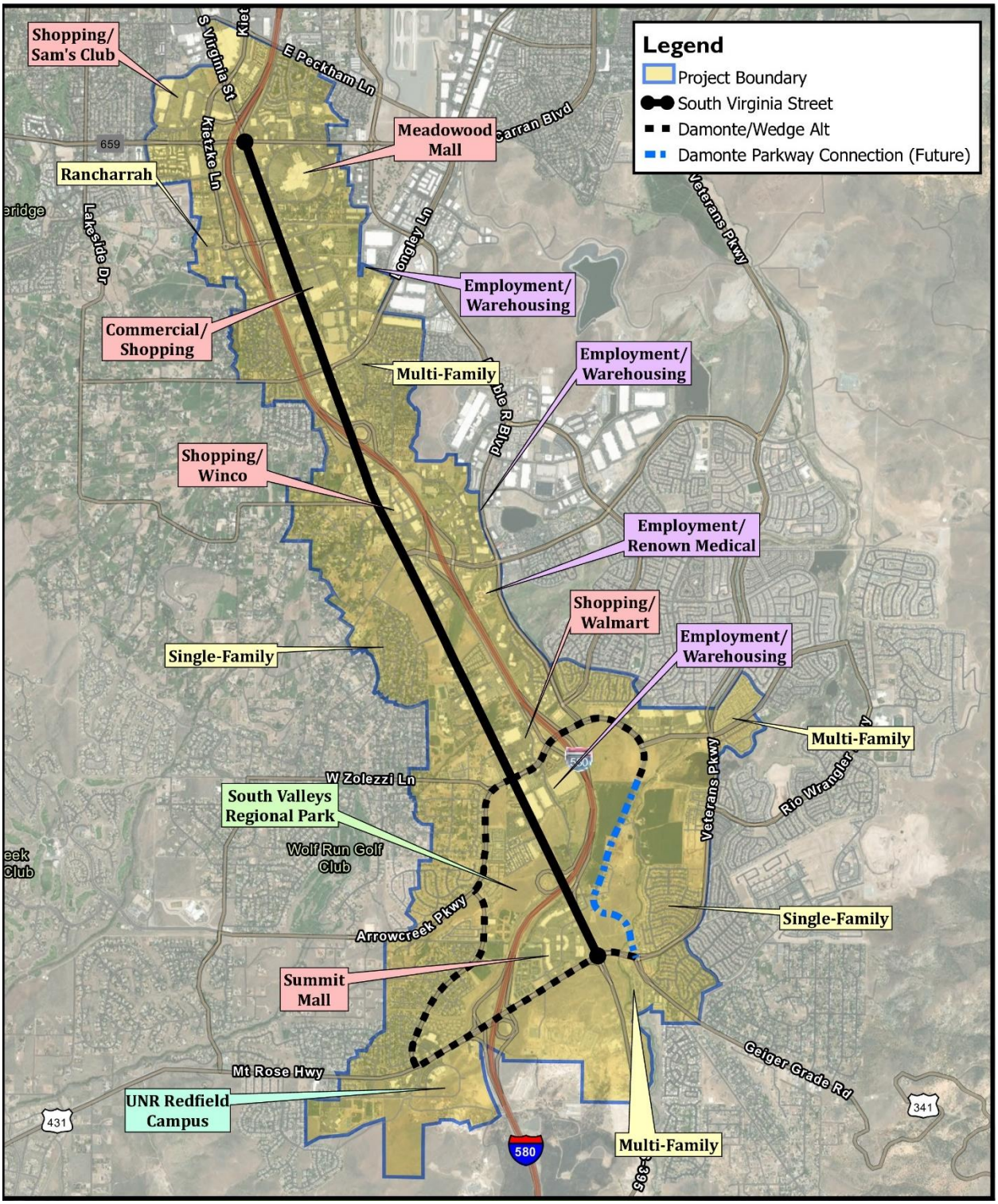


Figure 2: Influences Along the Corridors

Existing Roadway Conditions

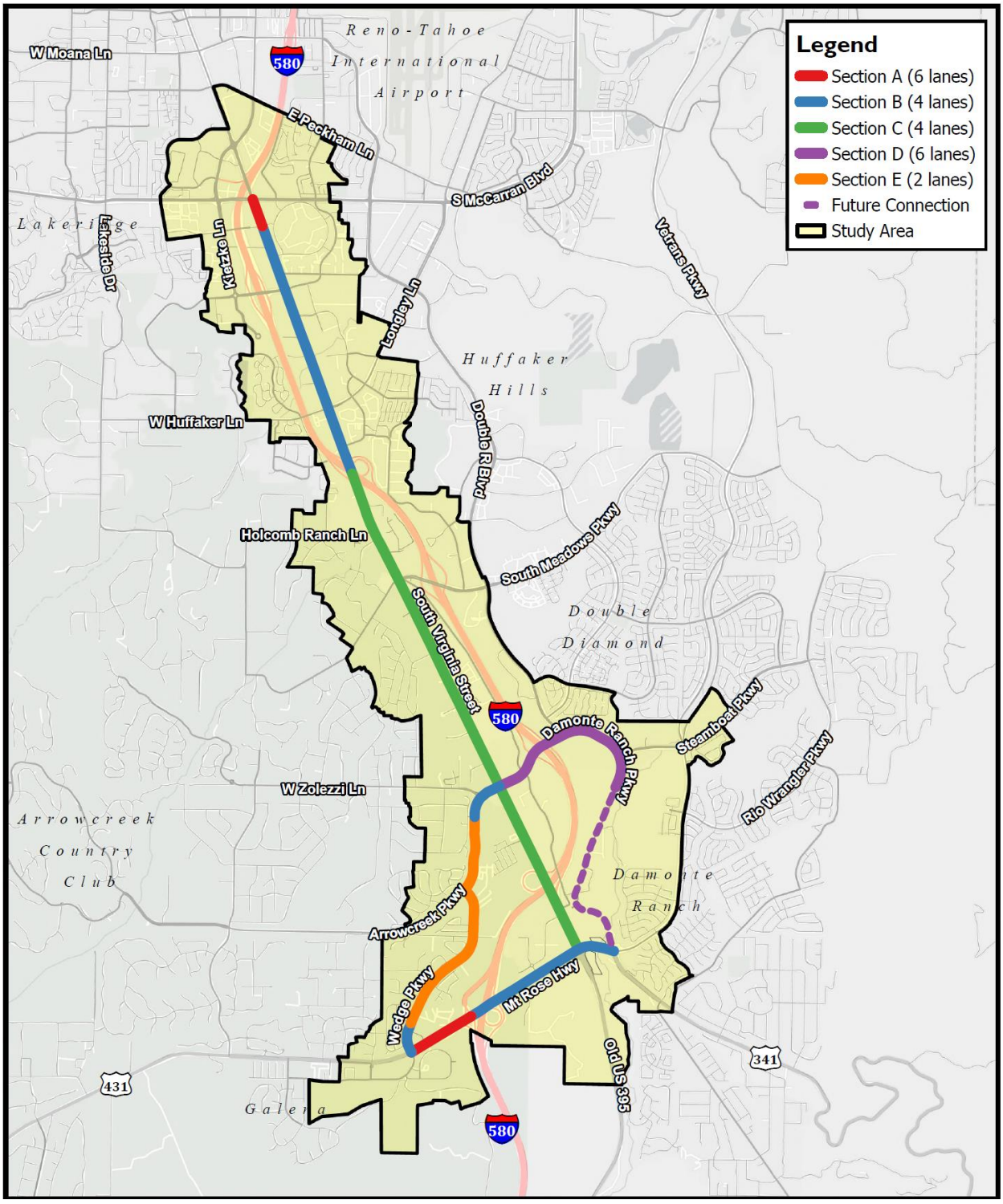
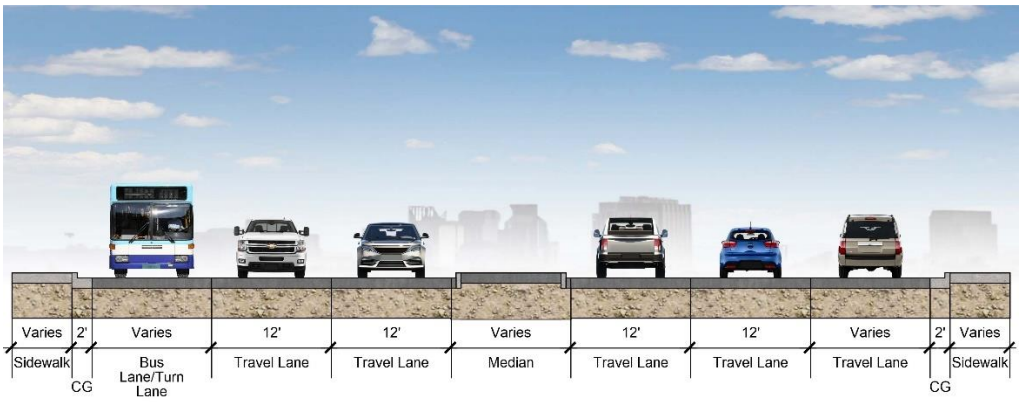


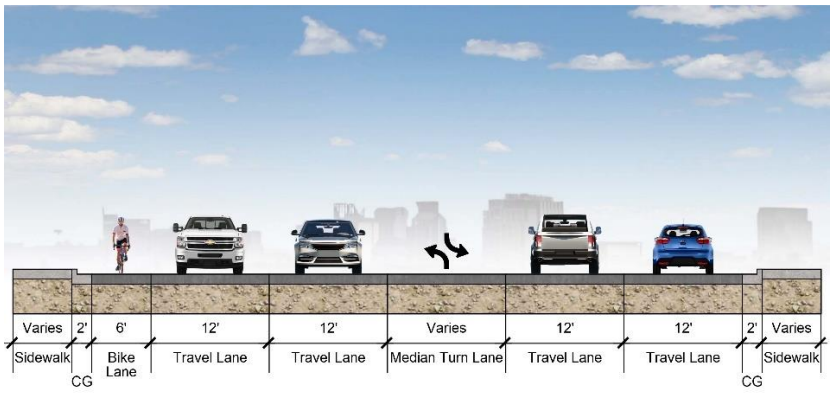
Figure 3: Roadway

Cross Sections:

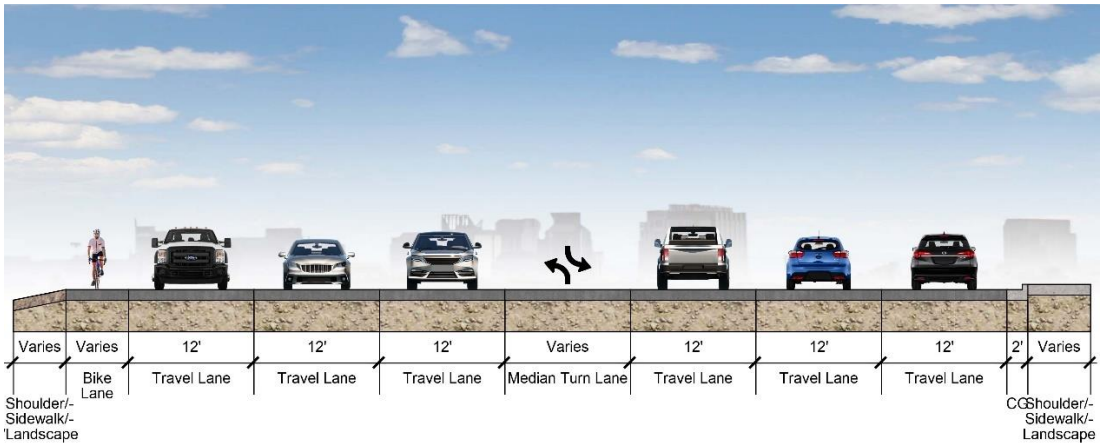
The **South Virginia Street Corridor** transitions from a four to six lane street with intermittent sidewalk and bike lanes. Generally, the vacant properties along the corridor have a shoulder and drainage ditch where newer developments have curb and gutter. Sections A, B, & C identified below, are found throughout the corridor. Speeds range from 45 miles per hour to 55 mph. The **Damonte/Wedge Alt Corridor** is a wider range of street sections with six lane roads found along Damonte Ranch Parkway and the Mount Rose Highway, with smaller collector streets at Wedge Parkway and Arrowcreek Parkway (Sections C, D, and E). Speeds range from 35 mph to 55 mph.



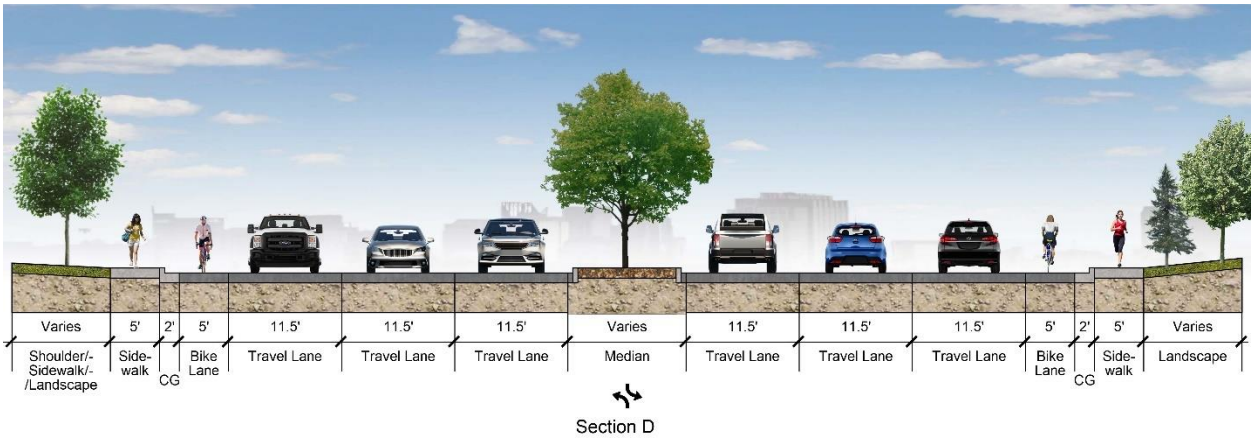
Section A



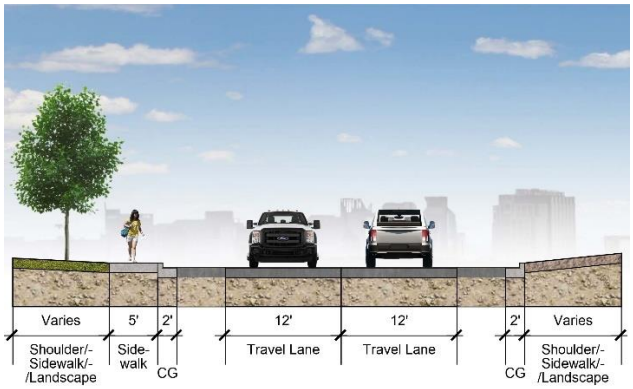
Section B



Section C



Section D



Section E

Sidewalk/Pedestrian Path and Bike Facilities:

The **South Virginia Corridor** has been developed over many years and under many different land use policies resulting in an incomplete pedestrian network. Currently only 52% of the corridor has existing sidewalk on either side of the street. Bike facilities area missing completely on about 18% of the corridor with at least one bike lane or path existing on at least one side of the street. Resulting in unreliable bike travel along South Virginia Street. Furthermore, the existing bike lanes are inconsistent in size and markings throughout the corridor and may not be a good representation of an existing facility.

The **Damonte/Wedge Alternative** has been mostly developed within Planned Unit Developments (PUD's) and therefore are more well served by consistent existing sidewalk/pedestrian paths with 78% of the corridor with a sidewalk/pedestrian path on either side. Bike facilities are also provided on nearly the entire corridor with an existing bike trail along Mount Rose Highway, these facilities connect to a larger network found throughout the residential development to the east and will help connect pedestrians to areas outside of the study area.

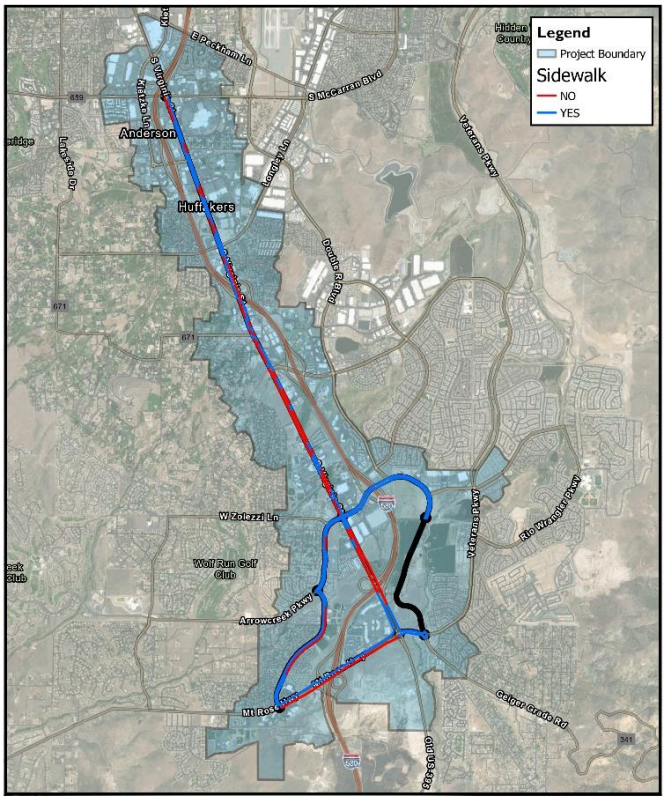


Figure 4: Existing Sidewalk

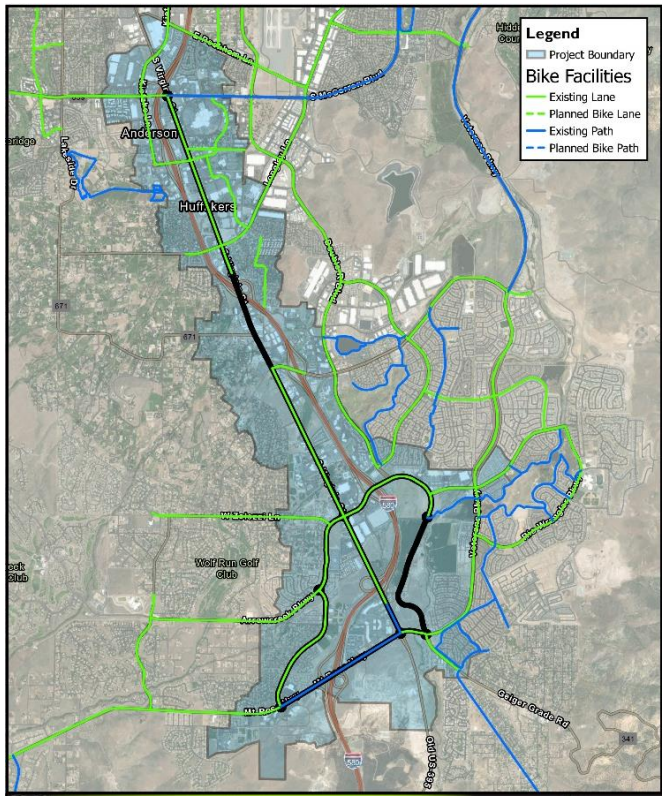


Figure 5: Existing Bike Facilities

Bus Facilities:

Existing bus services are limited south of McCarran Boulevard with Route 56 Serving South Virginia from South Meadows Parkway to Damonte Ranch Parkway. This route mainly serves the employment areas to the east of South Virginia Street along Double R Boulevard. The Carson City Route runs the entirety of the **South Virginia Street Corridor** from the Park and Ride at the Summit Mall to Meadowood Mall Transfer Station. However, this

is a commuter route connecting riders from Reno to Carson City and only runs during the weekdays in the mornings and evenings. Limited bus stops are located along South Virginia Street and one bus stop and the RTC Park and Ride is located along the **Damonte/Wedge Alternative Corridor**.

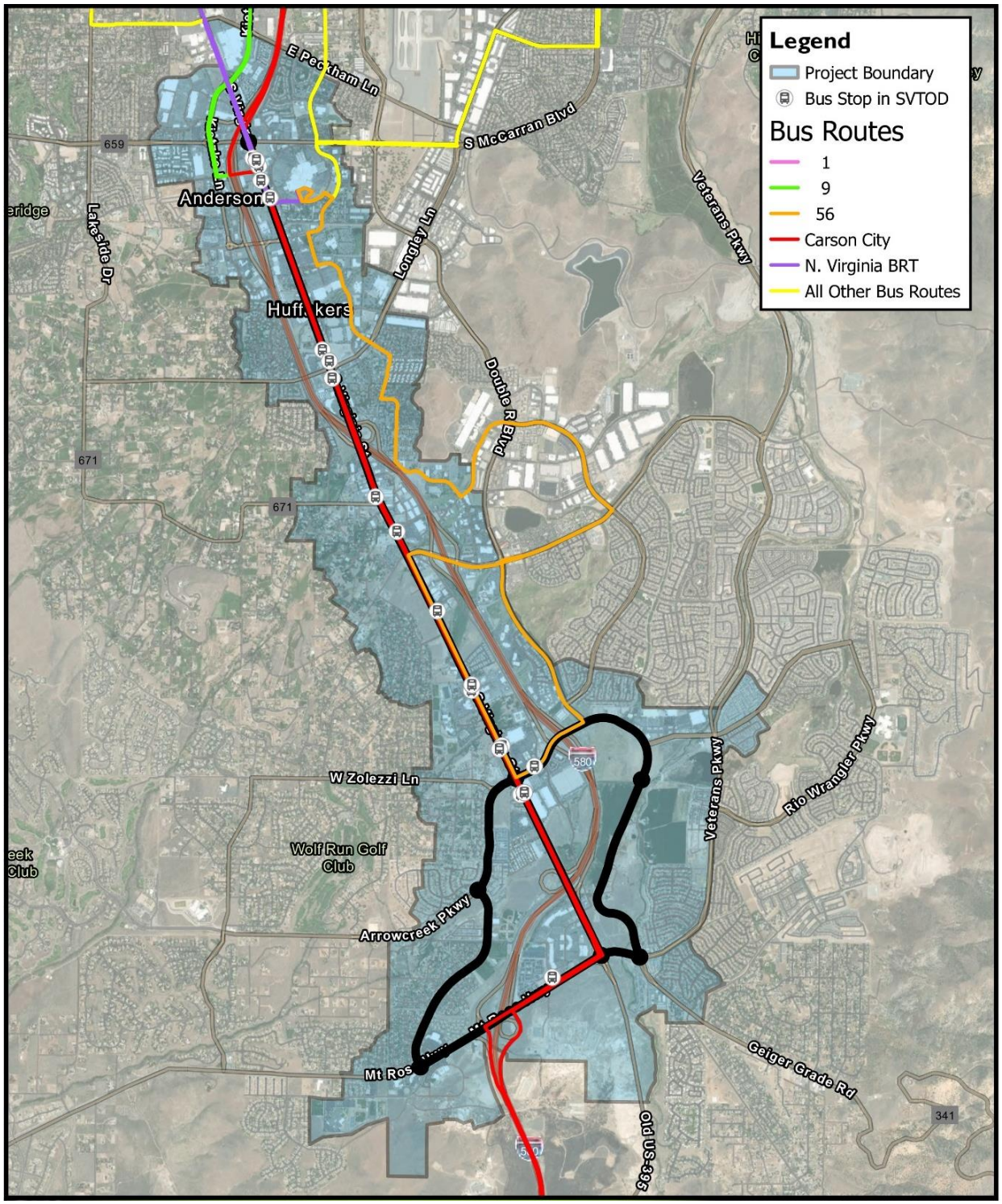


Figure 6: Existing Transit Facilities

Existing Traffic Conditions

The study area was analyzed for existing traffic conditions and other road user data. This information is used to identify areas where traffic conditions could benefit from BRT and identify potential ridership.

Signalized Intersections:

There are fourteen (14) signalized intersections along the **South Virginia Street Corridor** and 13 located along the **Damonte/Wedge Alternative** with the majority of them located along Damonte Ranch Parkway to the west.

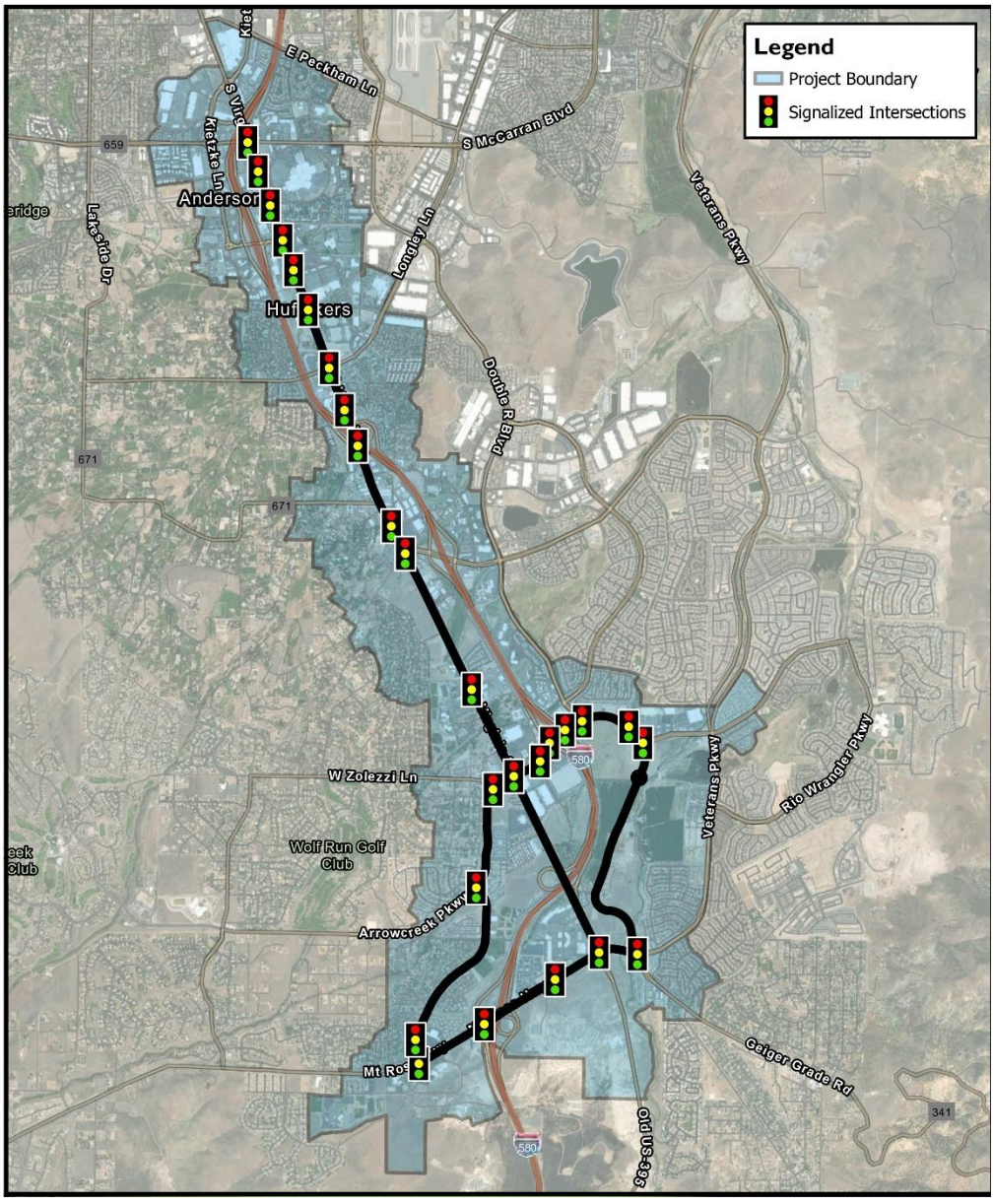


Figure 7: Signalized

Signalized intersections are important when considering BRT as they are the biggest influence on travel times and are generally associated with higher traffic volumes and higher crash rates. When considering this, one important dataset is the annual average daily traffic (AADT), which was obtained from NDOT's Traffic Records Information Access (TRINA) application. The traffic counts mapped over the corridor segments over a 5-year period and is summarized in the map below.

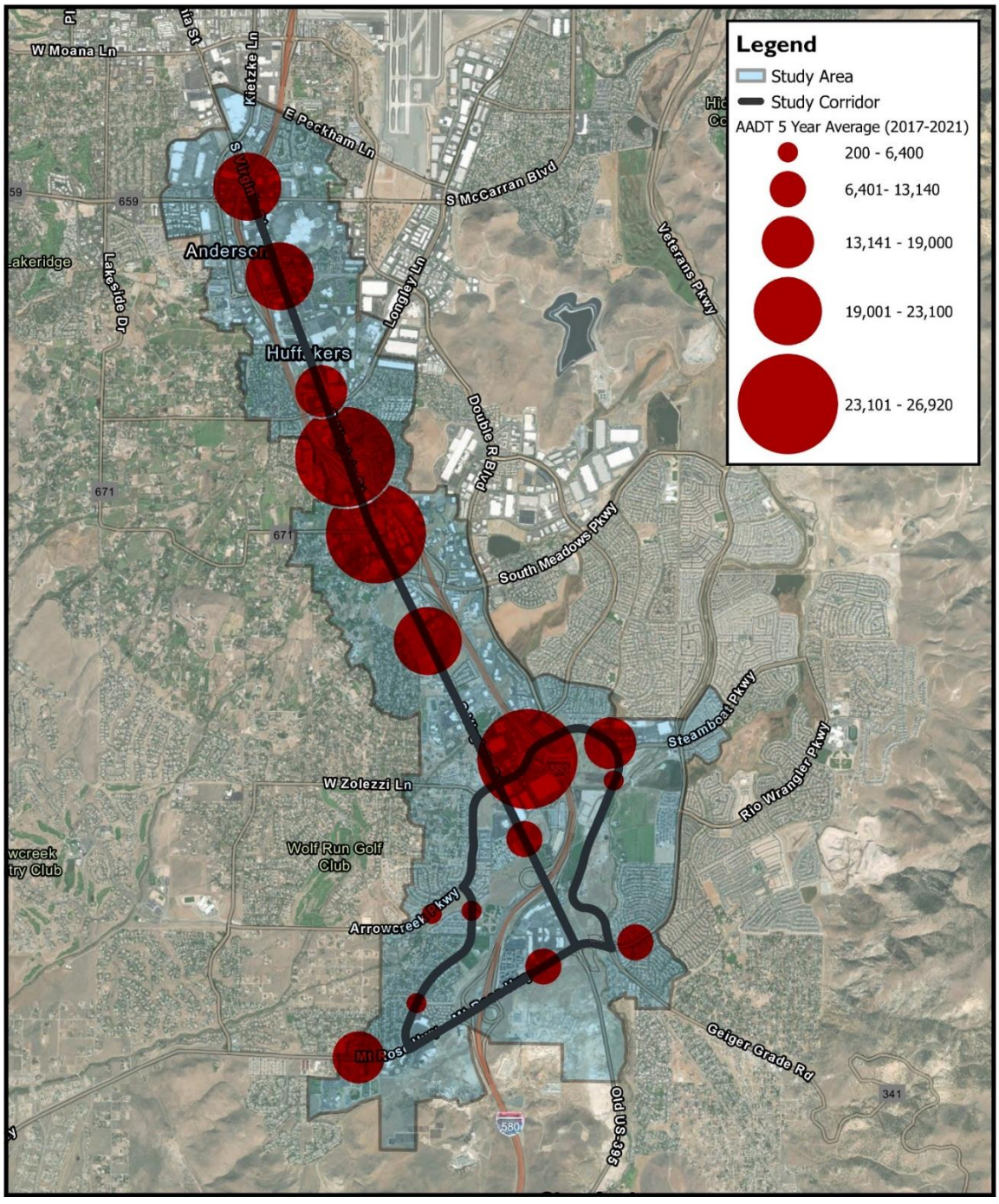


Figure 8: Annual Average Daily Traffic (AADT)

The map shows the segments with the highest traffic along the **South Virginia Corridor** are located between Longley Lane and South Meadows Parkway with AADT volumes above 20,000. The **Damonte/Wedge Alt Corridor** shows the highest AADT count located between South Virginia Street and I-580 with similar counts along Damonte Ranch Parkway and Steamboat and the Mount Rose Highway. It is anticipated that the future Damonte Ranch Connection will see similar AADT volumes.

Crash Data:

Five-year crash data between the years 2016-2020 were analyzed along the corridors and included over one-thousand crash reports. Crashes along the corridors are concentrated at the intersections and areas with higher traffic counts. More importantly when looking at BRT, crashes involving pedestrians should be considered with greater importance since identifying multi-modal and transit improvement should help to minimize these. The map below shows recorded crashes within a five-year period along the corridor and the recorded pedestrian crashes including vehicle vs. pedestrian/bicyclist.

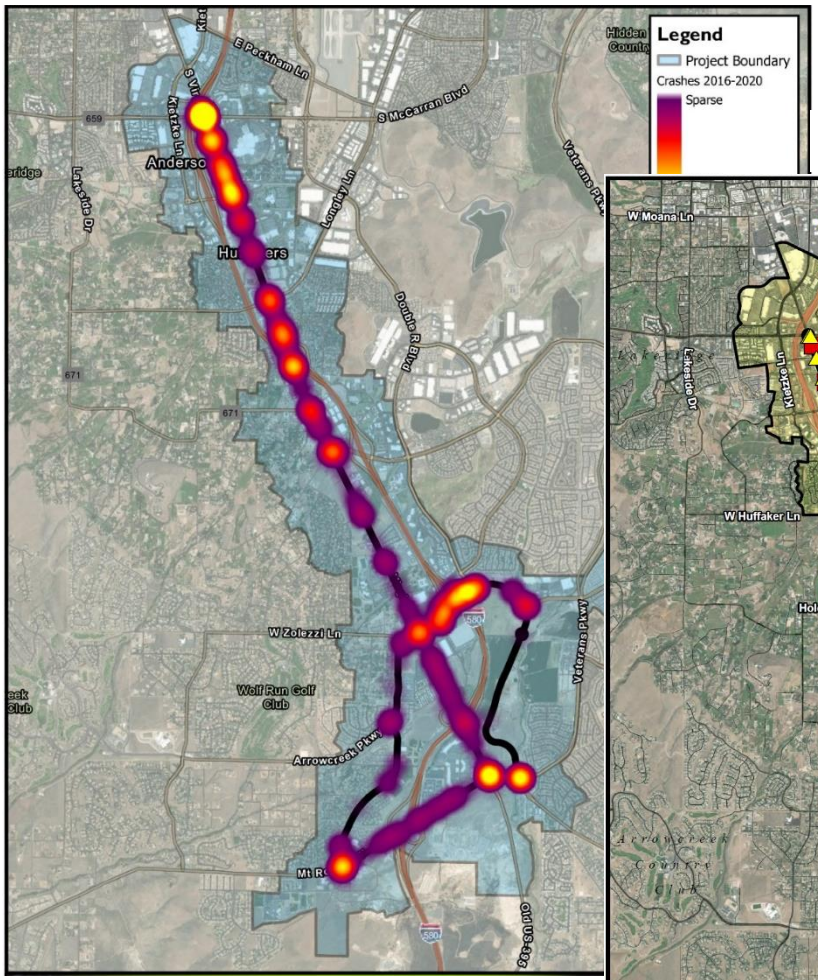


Figure 9: Crash Density (2016-2020)

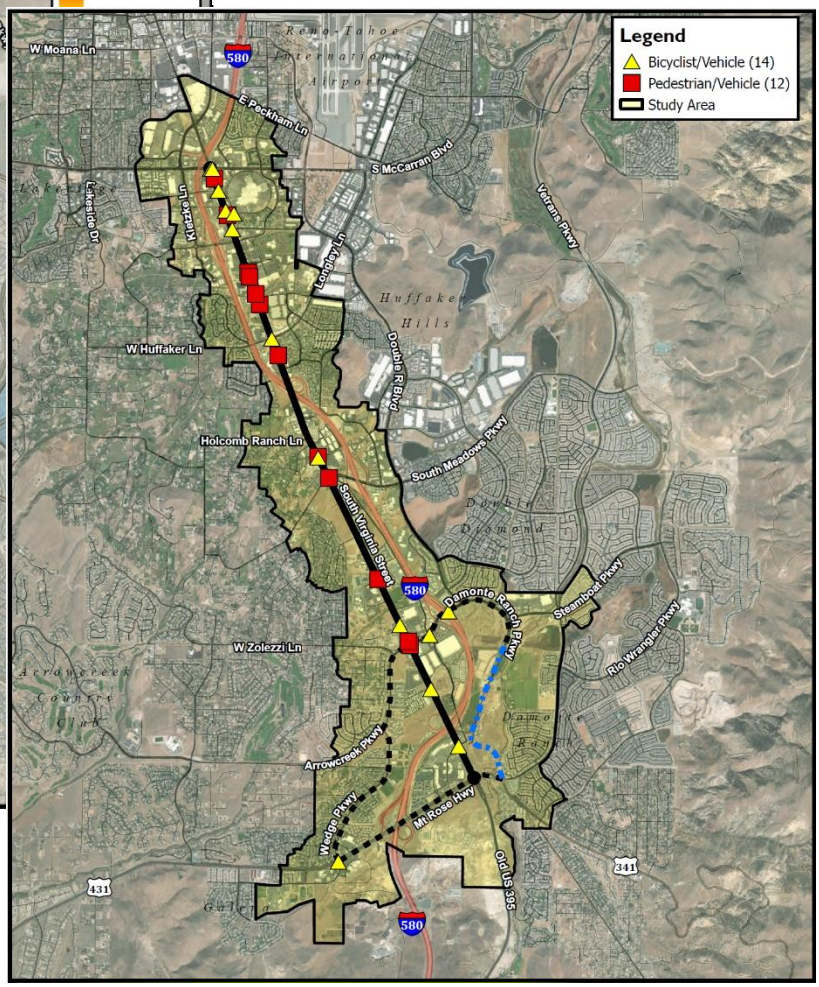


Figure 10: Pedestrian/Bicyclist/Vehicle (2016-2020)

Existing Land Use

Land use is dictated by Master Plan and Zoning designations set by the city or county and determines the types of development found within the study area. Knowing these designations will help to understand future developments within the study area. Typically, BRT is favorable to mixed use land designations which promote high density development and encourage multi-family/attached housing, large commercial developments, and employment centers with a robust multi-modal transportation network. Within the study area these include the City of Reno Master Plan and Zoning with portions to the west that are under Washoe County jurisdiction.

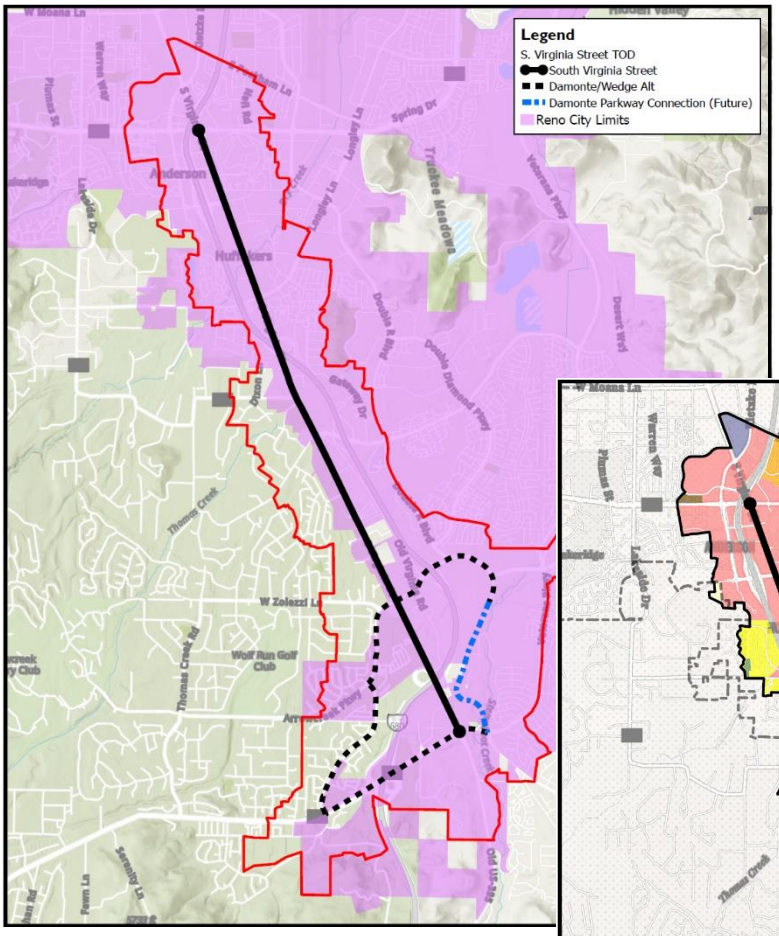


Figure 11: Jurisdiction Map

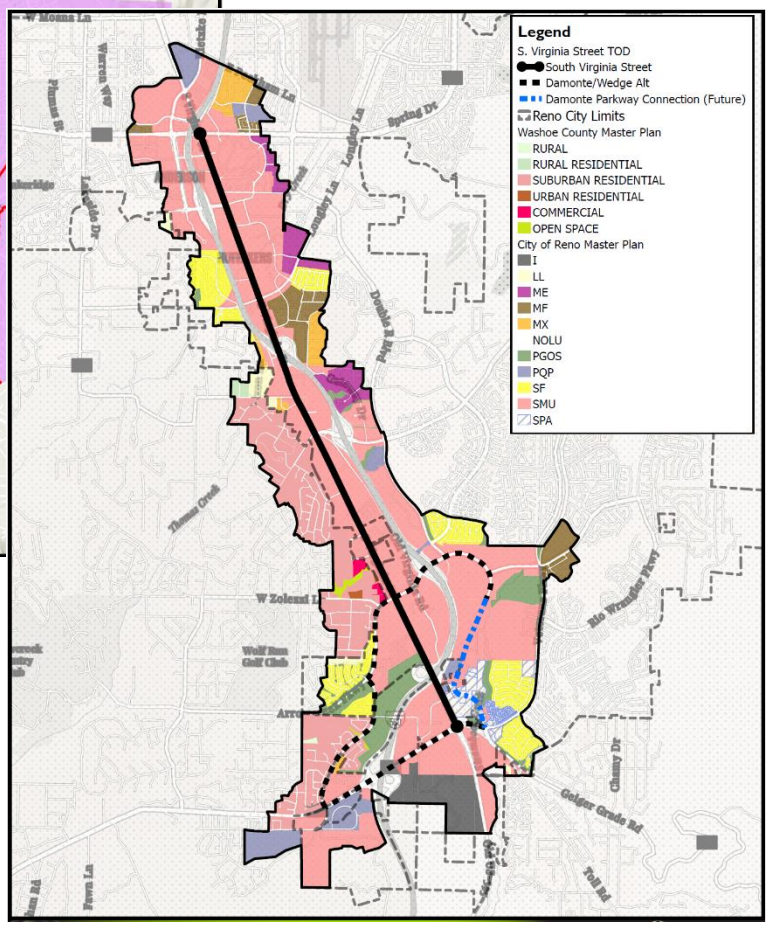
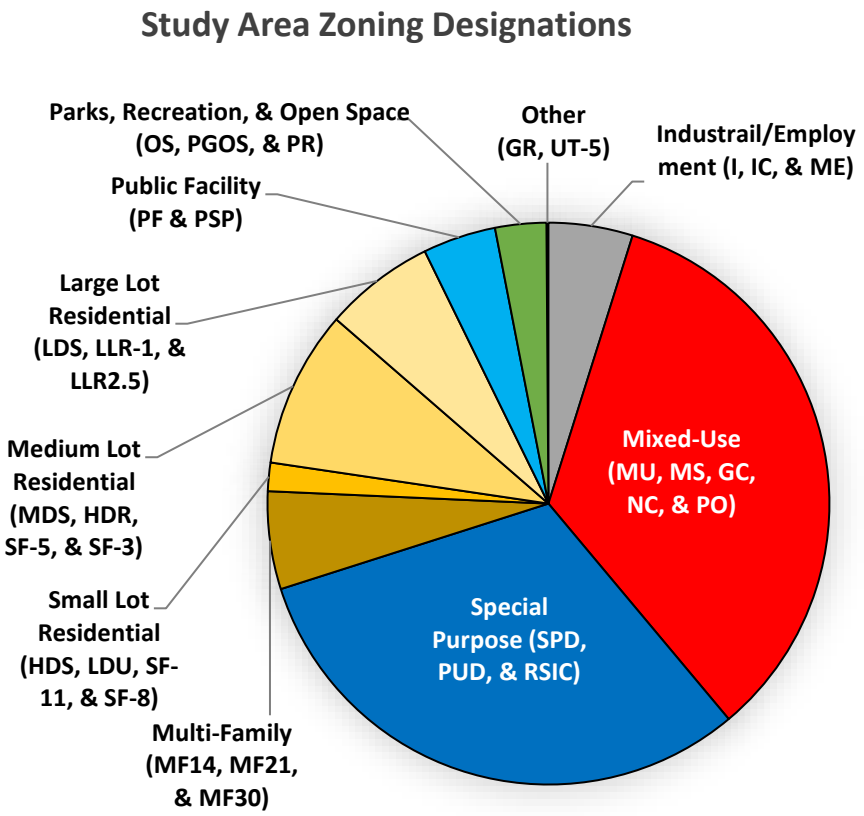


Figure 12: Master Plan

Master Plan and Zoning:

The majority of the Master Plan designations within the study area is Suburban Mixed Use (SMU) which promotes a mixed-use zoning designation that is favorable to BRT services. The underlying zoning typically associated with this master plan designation allows commercial or high-density residential. The map below shows the distribution of the zoning districts throughout the study area. The three major zoning designation within the study area are Mixed Use Urban (MU), Mixed Use Suburban (SMU), and Planned Unit Development (PUD). While the MU zoning designation is traditionally favorable to BRT, the SMU designation, which has no minimum density requirement may not be as favorable to encourage high density development on its own. The third, the PUD zoning is unique since it refers to a specific planned community with varying development standards throughout the study area.



Each PUD is unique and typically has different development standards than those found in the standard City of Reno Zoning Code. The three PUD's within the study area include Double Diamond PUD, Damonte Ranch PUD, and Pioneer Parkway PUD. The development standards are detailed in the respective PUD Handbooks and generally allow high density development within the study area. But like the SMU zoning designation, may not have minimum density standards to encourage high density along the corridor. More importantly, the PUD's are the largest area of vacant land within the study area and will largely determine the future development of the study area in the south. What the future development looks like may be hard to predict since the density range is so large.

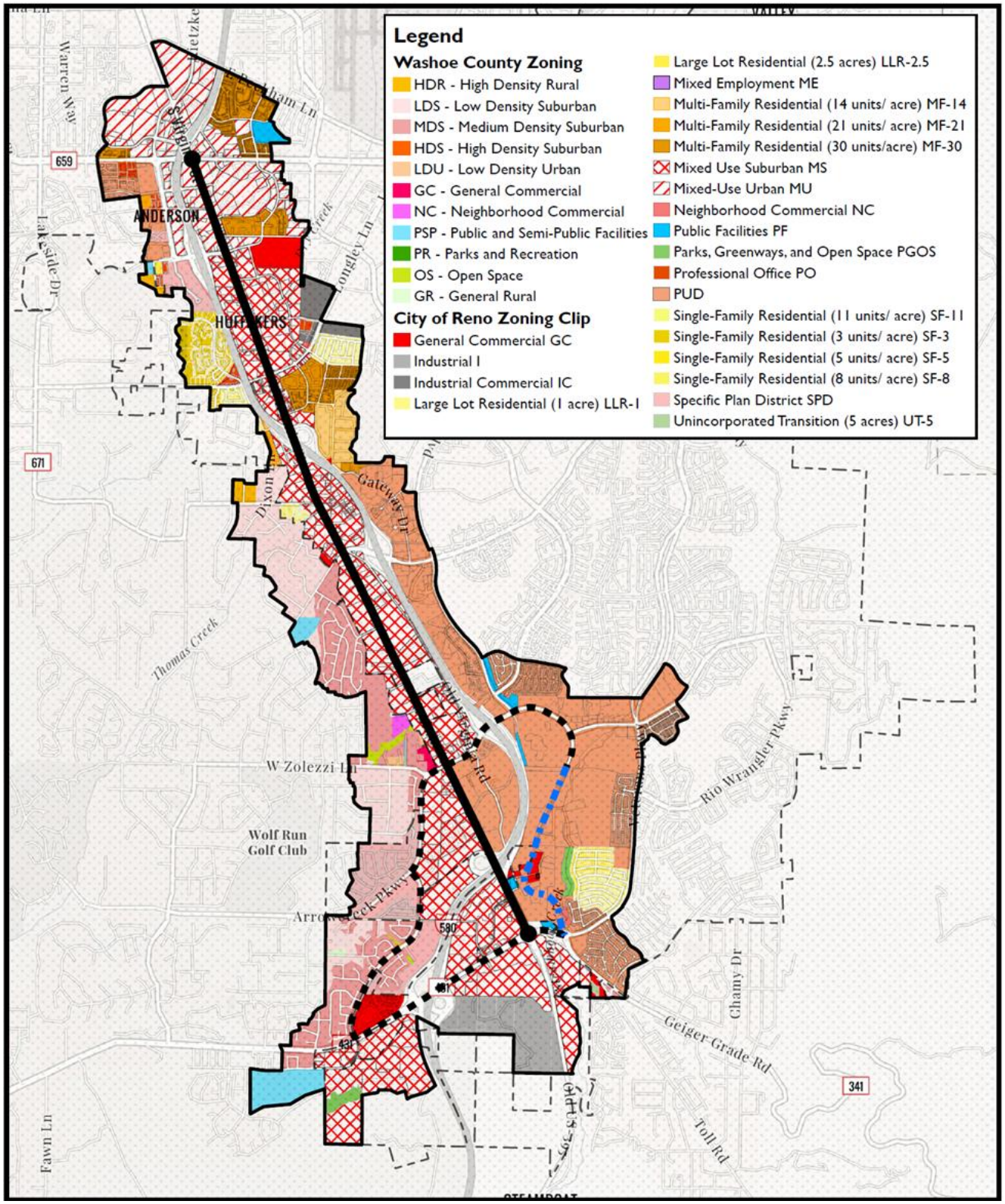
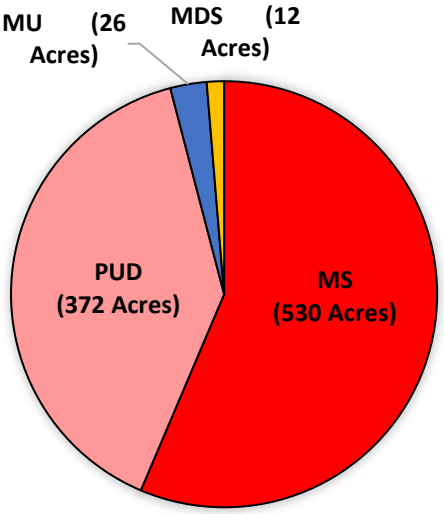


Figure 13: Zoning

Vacant Land:

A total of 940 acres of vacant land has been identified within the study area. The mixed use zoning designations do not have a maximum density and the two PUD's with the most vacant land (Damonte Ranch and Pioneer Parkway) have a maximum residential density of 105 du/ac. The potential growth within these areas will be difficult to predict. However, utilizing proposed development data from the City of Reno, as well as using data associated with future development projections conducted by the Truckee Meadows Regional Planning Agency Regional (TMRPA) in the 2019 Regional Plan, there is the potential to anticipate an additional increase of over 4,000 residential units, and over 400 acres of nonresidential that will be added to the study area over the next 20 years. To help understand the potential growth of the study area it will be important to communicate with landowners, the City of Reno, Washoe County, and TMRPA to better understand and predict the potential growth.

VACANT LAND ZONING (940 ACRES)



Approved Tentative Maps in Study Area	
Name	Dwelling Units Remaining
Pecetti Ranch Townhomes	79
Damonte Ranch Village 21	80
Rancharrah Village 6A	12
Braesview Custom	23
The Village at ArrowCreek	124
Gateway at Galena	361
Total	**679**

Approved PUD's Residential Growth Potential in Study Area	
Name	Dwelling Units
South Meadows III	1,000
Rancharrah	300
Damonte Ranch	1,500
Double Diamond	200
Pioneer Parkway	750
Total	**3,750**

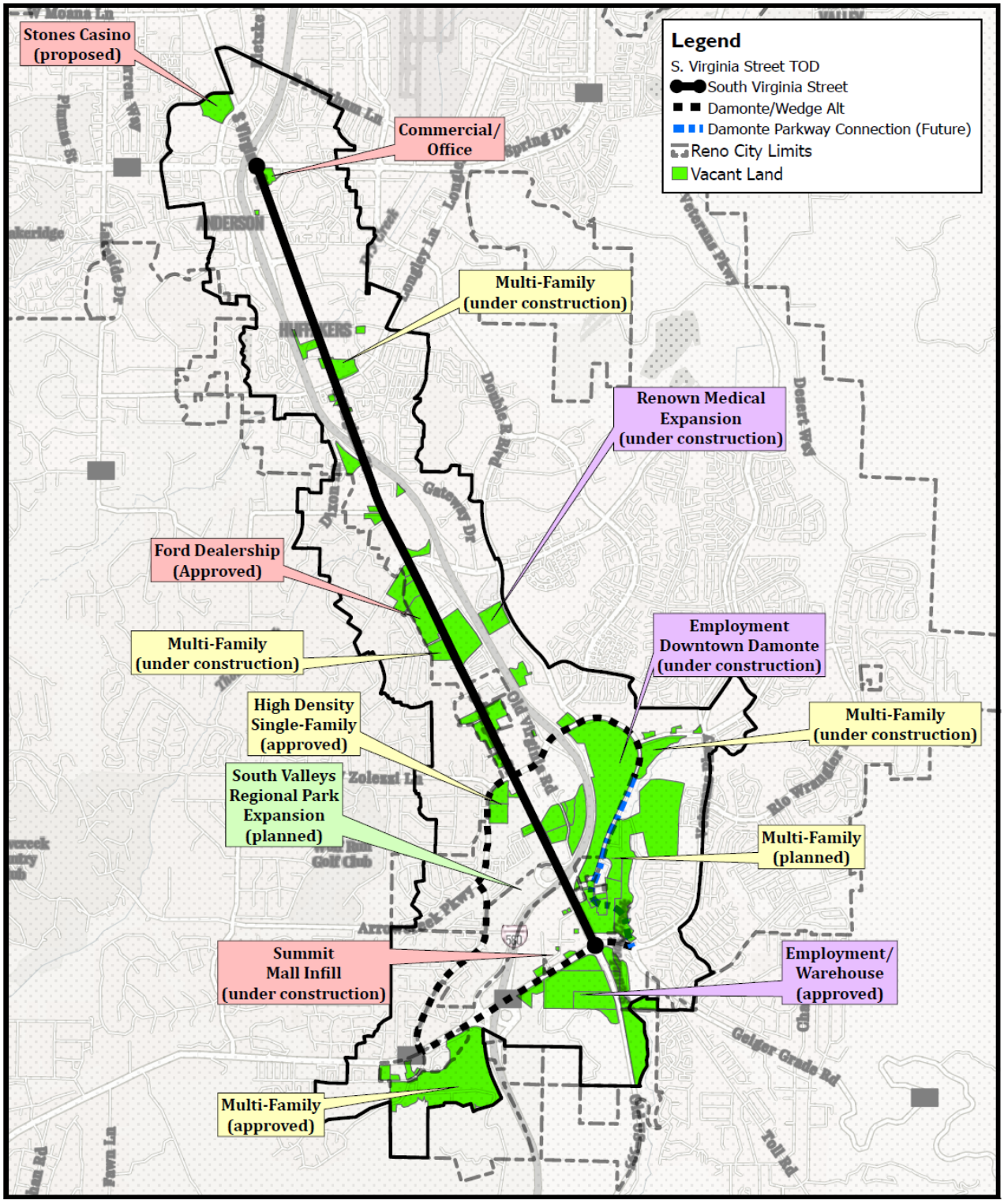


Figure 14: Vacant Land

Existing Demographics

The demographics within the study area will help to identify potential ridership and will be important to consider as riders in areas of high population, low to mid median income, and between the ages of 18-35 tend to be the population to most likely benefit from BRT. Analyzing the 2020 US Census data can help to understand the existing population but areas of vacant land should also be considered as these areas will most likely see the demographics change in the future.

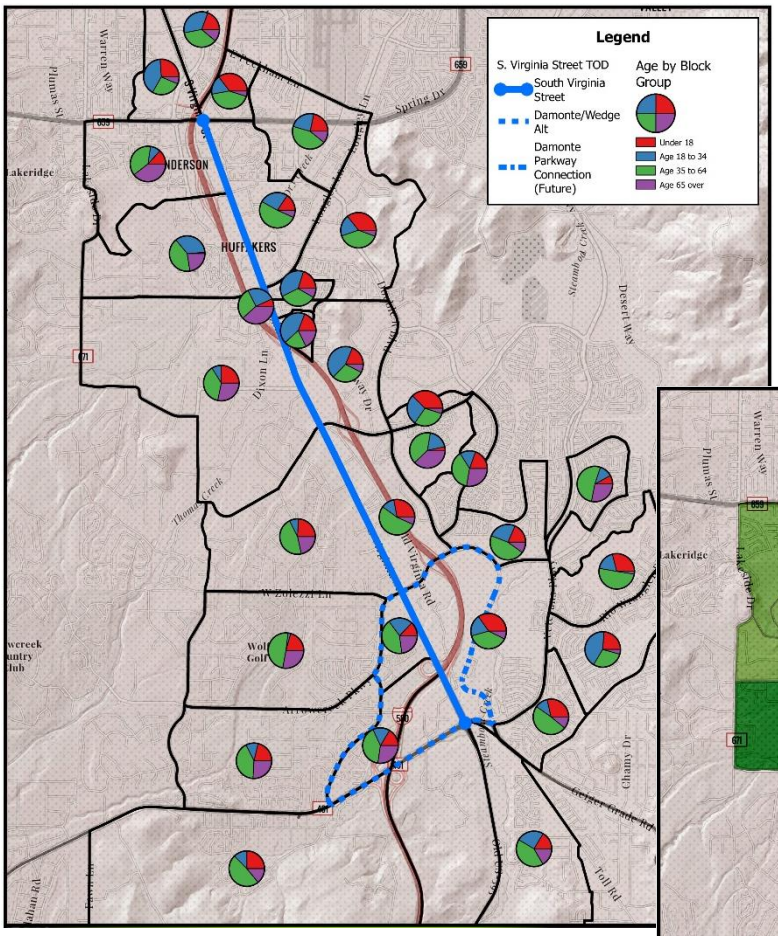


Figure 15: Age by Block Group

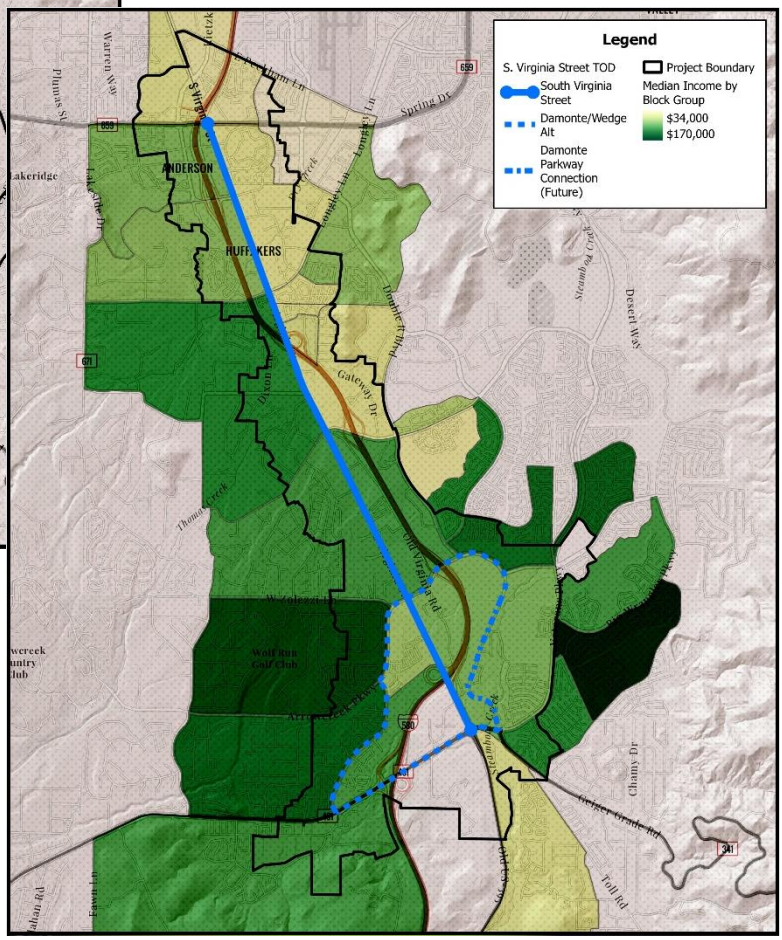


Figure 16: Median Income by Block Group

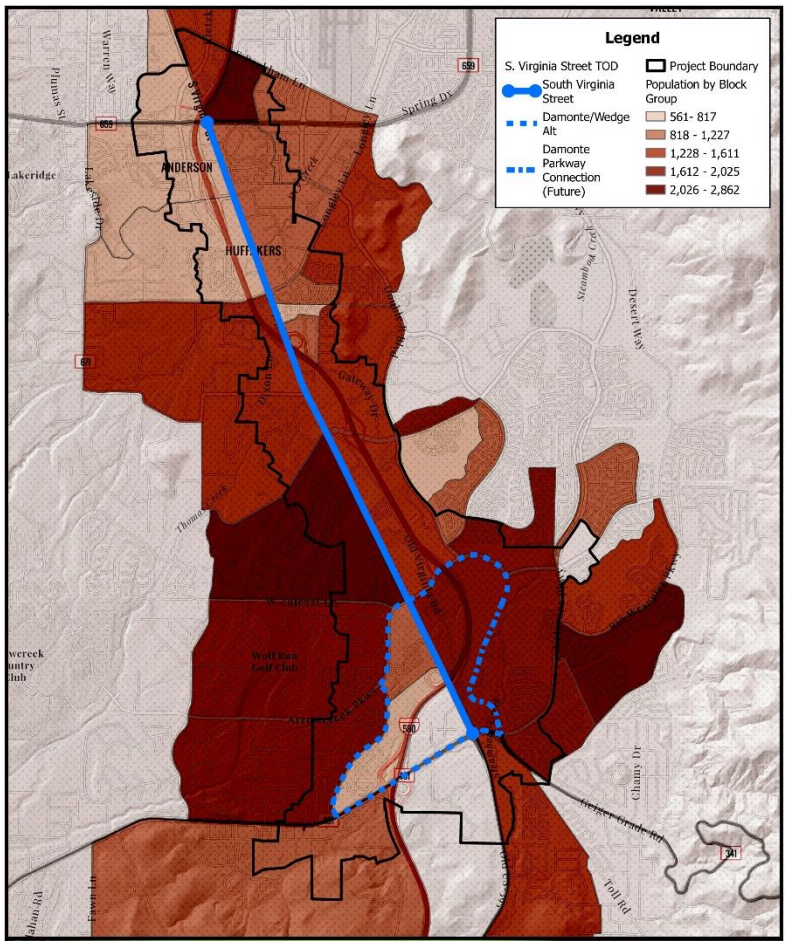


Figure 17: Population by Block Group

Existing Plans and Studies

The study area has been analyzed in several existing studies and future plans which may include portions of the study corridors. Therefore, it is important to recognize these plans and to coordinate resources where appropriate. This process ensures that this study considers the recommendations of previous 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. The *Transportation Plans and Studies Table* highlights the sections of documents that are relevant to the Virginia Street Corridor.

It should be noted that the Nevada Department of Transportation (NDOT) is currently conducting a Safety Management Plan from Mount Rose Highway to Patriot Boulevard that will focus on improving safety along the South Virginia Street Corridor. This study will communicate with NDOT Staff to coordinate any efforts to collaborate BRT improvements that are identified with this study.

Table 1: Transportation Plans and Studies

Transportation Plans and Studies			
Document	**Owner**	**Description**	**Status**
Virginia Street Corridor Investment Plan	RTC	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 sensitive approach that identifies: • Decision-making process • Virginia Street context, including geography and community values • Vision and goals • Area needs • Investment plan	Final April 2014
Transit Oriented Development in the Truckee Meadows: Bridging the Gap Between Planning and Implementation	TMRPA	The primary purpose of this paper is to assist stakeholders in the Truckee Meadows in bridging the gap between TOD planning and implementation. Accordingly, this paper contains four parts. Part I provides a brief macro-scale framework for TOD and serves as an introduction to potential policy considerations in the Truckee Meadows. Part II contains a more focused assessment of the current status of Centers and TOD Corridors in the Truckee Meadows. Building on the introductory framework in Part I and summary of current conditions in Part II, the bulk of the paper is found in Part III where policy, planning, and implementation approaches are considered that may better support TOD in the Truckee Meadows. Part III describes the current challenges facing transit-oriented development in the Truckee Meadows and presents a series of innovative approaches being employed in various metropolitan areas around the country. Part IV concludes this paper with a series of approaches for moving forward.	Revised July 2009
2050 Regional Transportation Plan	RTC	The 2050 RTP identifies the long-term transportation investments that will be made in the urbanized area of Reno, Sparks, and Washoe County, Nevada, also	

Transportation Plans and Studies			
Document	**Owner**	**Description**	**Status**
		known as the Truckee Meadows. The RTP presents transit investments such as the Virginia Street RTC RAPID project.	
City of Reno Bicycle and Pedestrian Master Plan	RTC	The Bicycle and Pedestrian Master Plan is part of the Regional Transpiration Commission's (RTC) Regional Transportation Plan (RTP). The RTP guides transportation investments in Reno, Sparks, and part of Washoe County over a 20-30 year period. This Bicycle and Pedestrian Master Plan is the official policy document addressing the development of bicycle and pedestrian facilities for transportation purposes in the Truckee Meadows.	Final June 2017
Bicycle, Pedestrian, & Wheelchair Data Collection Program Annual Report	RTC	This 2017 Annual Report for the RTC Bicycle, Pedestrian, and Wheelchair Data Collection Program ("Program") provides a detailed review of bicycling, walking and wheelchair use at key locations throughout Reno, Sparks, and Washoe County. This ongoing collection of active transportation data supplements data for motorized traffic and transit ridership data to develop a more complete picture of overall travel behavior in our communities. The data collection methodology, collection times, and analysis factors follow the National Bicycle and Pedestrian Documentation Project (NBPDP).	Final 2017
South Meadows Multimodal Transportation Study	RTC	The purpose of this multimodal study is to identify needs and long-term transportation improvements for regional roads and intersections in the South Meadows area. This study focuses on traffic operations analysis and capacity improvements, safety improvements, pedestrian and bicycle connectivity, and transit service needs. The goals of the study are the following: • Improve roadway safety for all users • Plan regional roadway and intersection capacity improvements • Expand pedestrian and bicycle connectivity • Enhance public transportation connectivity and travel options	Final April 2020
Mt. Rose Corridor Plan	NDOT	This Corridor Plan is focused on potential improvement concepts between Veterans Parkway and Douglas Fir Drive. This segment of highway forms a transition from an urban setting on the east to a more suburban and rural feel on the west. Mt. Rose	Final April 2022

Transportation Plans and Studies			
Document	**Owner**	**Description**	**Status**
		Highway is a primary travel route from Reno to Incline Village and the Lake Tahoe North Shore, resulting in a mixture of local commuters and tourists utilizing the roadway. A critical area facing current and future congestion is the segment between S. Virginia Street and the Veterans Parkway roundabout. This segment serves as a primary connection to a significant residential area, as well as to SR 341, which provides access to Virginia City. Working closely with the RTC, the study team identified needed operational improvements to the existing roundabout. The improvement would not only enhance the operations of the roundabout, but also provide better lane utilization along the west approach.	
South Virginia Street Transit Oriented Development Corridor Plan	City of Reno	The South Virginia Street Transit Oriented Development (TOD) Corridor Plan is divided into two sections: the Corridor Plan and Station Area Plans. The Corridor Plan describes the boundary, time frame, relationship to other plans and identifies policies for development within this TOD. The development concept, circulation, land use, and zoning that apply to the parcels are included in the plan for each station area. Development standards and processing provisions are included in the Reno Municipal Code.	Draft November 2006
Reno Sparks ADA Right-of-Way Transition Plan	RTC	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. Virginia Street deficiencies identified in the plan's analysis include transit stops, driveways, and sidewalk obstructions and deficiencies.	Draft 2019
Transportation Optimization Plan Strategies (TOPS)	RTC	The Transit Optimization Plan Strategies (TOPS) serves as the basis for changes to RTC's public transportation services over the next five years (FY23-FY27). It also sets out the work plan for RTC's Public Transportation Division during this period. This document analyzes the existing public transportation services operated by RTC. It also helps determine the merit for potential	Final July 2022

Transportation Plans and Studies			
Document	**Owner**	**Description**	**Status**
		transit routes connecting to or running parallel to the Virginia Street Corridor.	
Land Use and Area Plans			
Truckee Meadows Regional Plan	TMRPA	The Regional Plan describes the type, location, and pattern of growth and development that local governments and agencies in the region believe will best deliver the multiple aspects of quality of life desired by current and future residents of our area. In relation to the South Virginia Street TOD Study, this plan addresses infill development scenarios along the study corridor.	Final 2019
ReImagine Reno: City of Reno Master Plan	City of Reno	The ReImagine Reno process was an opportunity to assess and explore trends and key issues that would influence the City's future, as well as an opportunity to articulate a shared, community-wide vision for the future and to explore potential trade-offs associated with that vision. The result is a Master Plan that provides a road map for the City as it continues to grow and evolve. The Master Plan reflects the ideas, values, and desires of the community, aligning these with a range of plans, policies, and initiatives in place or underway in both Reno and the wider region. Moving forward, the Master Plan will help guide both day-to-day decision-making, short-term actions, and longer-term initiatives and strategies to achieve the community's vision. This Plan describes existing conditions along the Virginia Street corridor as well as recommendations and implementation strategies.	Final November 2021
Washoe County Master Plan	Washoe County	The Master Plan is used to determine the most desirable location of each type of development. The plan has policies and maps designed to define development suitability and conserve natural resources (e.g. protect critical environmental areas, define water resources, enhance visual and scenic corridors, etc.) It also includes growth forecast as well as policies and maps reflecting desires related to land uses and transportation. Finally, the Master Plan has standards and maps to guide provisions of public services and facilities. The public services and facilities	Final November 2020

Transportation Plans and Studies			
Document	**Owner**	**Description**	**Status**
		are implemented through the Capital Improvement Program.	
Ozone Advance Path Forward	U.S. EPA	The U.S. Environmental Protection Agency (EPA) establishes health-based National Ambient Air Quality Standards (NAAQS) for six criteria pollutants including ozone. Ozone concentrations are strongly linked to population, employment, and on-road vehicle miles traveled (VMT). Growth in these three categories increases air pollutant emissions and ozone concentrations. Ever since EPA promulgated the 2008 ozone NAAQS, the Washoe County Health District, Air Quality Management Division (AQMD) has been very proactive to encourage voluntary initiatives to improve air quality and avoid violating the ozone standard. Short-term initiatives targeted technology (i.e., smog check programs and clean school busses) and behavior (i.e., Employee Trip Reduction and Safe Routes to School). Long-term initiatives focused on shaping land use development patterns and the built environment. These initiatives were intended to increase transportation choices and reduce the impacts of on-road motor vehicles.	Updated April 2016
Complete Streets Master Plan	RTC	The purpose of the Complete Streets Master Plan is to identify the Regional Transportation Commission of Washoe County's (RTC) long range strategy for complete street treatments in the Reno-Sparks metropolitan area. This plan addresses: • Safety • Traffic flow • Connections for all modes of travel	July 2016

Figure 18: Existing Conditions Executive Summary