



CITY OF NORTH LAS VEGAS COMPREHENSIVE TRAILS AND BIKEWAYS MASTER PLAN



DECEMBER 7, 2011

ATKINS

TABLE OF CONTENTS

ACKNOWLEDGEMENTS.....	4
1. INTRODUCTION.....	5
1.1 BENEFITS TO NORTH LAS VEGAS.....	5
1.2 CITY MISSION / VISIONING 2025.....	9
1.3 VISION STATEMENT.....	9
1.4 GOALS & OBJECTIVES.....	9
2. CURRENT CONDITIONS.....	12
2.1 THE SETTING.....	12
2.2 EXISTING INFRASTRUCTURE.....	13
2.3 EXISTING TRAIL AND BIKEWAY FACILITIES.....	15
2.4 EXISTING MASS TRANSPORTATION.....	16
2.5 DESTINATIONS AND TRIP GENERATORS.....	17
2.6 OPPORTUNITIES.....	18
2.7 CHALLENGES.....	19
3. DEVELOPING THE NETWORK.....	21
3.1 INTRODUCTION.....	21
3.2 NETWORK APPROACH.....	21
3.3 ROUTE SELECTION AND EVALUATION CRITERIA.....	21
3.4 NETWORK CONCEPT.....	23
3.5 NETWORK CLASSIFICATIONS.....	27
3.6 DESIGN CRITERIA.....	38
4. KEYS TO SUCCESS: IMPLEMENTATION RECOMMENDATIONS.....	48
4.1 INTRODUCTION.....	48
4.2 RECOMMENDED POLICIES.....	48
4.3 ACTION PLAN.....	49
4.4 PHASING AND NETWORK PRIORITIES.....	50
4.5 MAINTENANCE.....	57
4.6 SUPPORT PROGRAMS.....	58

APPENDIX A: RELEVANT MUNICIPAL CODE STANDARDS AND REGULATION..... 59
APPENDIX B: RELEVANT ADOPTED PLANS - GOALS, OBJECTIVES, & POLICIES 61
APPENDIX C: POTENTIAL FUNDING SOURCES 69
APPENDIX D: 2011 COSTS ASSOCIATED WITH MAINTENANCE OF TRAILS AND BIKEWAYS 79
APPENDIX E: REFERENCE MATERIALS..... 80

ACKNOWLEDGEMENTS

City Council

Shari L. Buck, Mayor
Robert L. Eliason, Councilman
Anita G. Wood, Councilwoman
Pamela A. Goynes-Brown,
Councilwoman
Wade W. Wagner, Councilman

Planning Commission

Steve Brown, Chairman
Dilip Trivedi, Vice Chairman
L. Dean Leavitt
Jay Aston
Laura Perkins
Sylvia Joiner-Greene
Willard Ewing

Parks and Recreation Advisory Board

Ryann Juden
James B. Olive
Felizia Hernandez
Felix Acevedo, Jr.
Tony Gales
Rick Lemmon
Tony Winsor

ATKINS Staff

Geoffrey Schafler
David Farley
Stephen Whiteford
Bruce Brodsky
Heather Houston-Meeks
Philip Pederson
Karen Klaassen

City Staff

Timothy R. Hacker, City Manager
Frank Fiori, Director
Mike Henley, Deputy Director
Ish Garza
Eric Hawkins
Cliff Moss
Duane McNelly
Michelle Menart
John Jones
Marc Jordan
Johanna Murphy
Robert Eastman
Vicki Adams
Toni Ellis
Janice Thomas

1. INTRODUCTION

The purpose of the Citywide Trails and Bikeways Master Plan (CTBMP) is to design a comprehensive network of trails and bikeways and to establish corresponding design criteria, guidelines, goals, objectives, and policies. A key component of the CTBMP is the implementation plan, which defines priorities for the location, development and maintenance of trails and bikeways, and includes a short term and long term action plan.

The CTBMP is consistent with, and builds upon, previously established goals for the City of North Las Vegas that have been adopted as part of other guiding planning documents, such as Visioning 2025 Strategic Plan, the Comprehensive Master Plan, and the Park and Recreational Facilities Master Plan (refer to Appendix B for a detailed analysis of these and other pertinent adopted plans, goals, objectives, and policies). Moreover, this plan expands upon the city’s currently adopted network of trails and bikeways that is illustrated in “Figure A-8: Pedestrian and Bike Trails” of the CNLV Comprehensive Master Plan.

As part of the plan development process, the city’s current conditions were inventoried and analyzed. The existing network, open space resources such as parks and cultural facilities, and major destinations were assessed to identify potential connections and new linkages for all on-street and off-street systems. In addition, regional, state, and national standards and trends were studied to help guide the development of this document. This included evaluation of the plans of adjacent jurisdictions and the Regional Transportation Commission of Southern Nevada.

1.1 BENEFITS TO NORTH LAS VEGAS

Communities with trail facilities and high levels of walking and bicycling are among the best places to live in America. Investment into a system of trails and bikeways in North Las Vegas would both directly and indirectly support the City’s mission to be “Your Community of Choice” through a variety of quality of life benefits. A brief summary of these benefits is provided, which relate to health, social belonging, transportation, the environment, and the economy.

Health Benefits

Obesity and other health issues related to sedentary lifestyles are steadily increasing nationwide. Local statistics in Clark County reveal higher incidences of obesity among adults and children than national averages. Regular exercise, such as walking and bicycling, has great benefits including lower risks for heart disease and stroke, and an increased chance of remaining independent with age. Developing trails and bikeways will provide options for



residents and visitors of all ages to enjoy physical activity, outdoor recreation and to gain physical fitness through more practical use of the network for commuting and daily errands.

Social Benefits

Use of the trails and bikeways network can improve mental outlook and social relationships, and provide a mechanism for building ties within neighborhoods and the community at large. Trails provide an opportunity to interact with people of varying backgrounds and experiences. Trails also help build partnerships among private companies, landowners, neighboring municipalities, local government, and advocacy groups. When residents are encouraged to be involved in a local project, like a trail project, they feel more connected to the community.



Transportation Benefits



A good walking and bicycling environment increases travel alternatives. The transportation benefits of walking and bicycling include an increase in overall mobility and a reduction in traffic congestion. The U.S Census Bureau estimates that in the Las Vegas Valley approximately 55,000 households do not own a car. Walking and biking are inexpensive forms of transportation. Trails and paths can provide safe transportation options for those who cannot drive or are without vehicles, while increasing transportation options for all residents in the

community. Trails and non-motorized facilities can make transportation more economical and reduce vehicle trips within the city.

Environmental Benefits

The development of trails and bikeways will result in more options for movement by non-polluting, energy efficient travel modes. Short distance motor vehicle trips are the least fuel-efficient and generate the most pollution per mile. Walking and cycling are pollution free modes of travel, which can substantially assist in reducing vehicular related emissions and demand for hydrocarbon fuels. Trails and bikeways also improve the environment by encouraging more efficient land uses and less urban sprawl. Automobile dependant urban development patterns are very land intensive and generally require three times as much space as pedestrian oriented communities.



Economic Benefits



Trails and bikeways provide a variety of benefits to local economies during both construction and operational phases. Like parks, properly designed trails can enhance the property values of homes and businesses located adjacent to trails. In addition, heavier volume regional trail facilities can bring economic benefits by generating visits from members of neighboring communities, creating positive economic benefits to businesses in

the local community. The availability of trail and bikeway facilities is also a quality-of-life amenity considered important by many corporations seeking to expand or relocate.

DID YOU KNOW?

- *50% of all trips are less than 3 miles, which is only a 15-minute bicycle ride, yet 85% of these trips are made by vehicle (Pedestrian Safety Guide and Countermeasure Selection)*
- *25% of all trips are less than 1 mile (a feasible walking trip), yet 75% of these trips are made by vehicle (California Public Health Program – CPHP)*
- *Air pollution contributes to over 70,000 deaths in the U.S. each year (Harvard School of Public Health)*
- *78% of children fall short of the recommended minimum dose of activity: 60 minutes a day (CPHP)*
- *Percentage of children walking or biked to school has drastically decreased over the years: 1970 – 70 percent of children walked or biked to school; in 2007 – only 16 percent of school aged children walked or biked to school (Federal Highways Administration – FHWA)*
- *In 2009, Nevada had the 11th highest percent of obese and overweight children in the United States (Trust for America’s Health)*
- *In 2009, 63% of adults in Clark County were overweight or obese, which is up from 54% in 1999 (Behavioral Risk Factor Surveillance System, Centers for Disease Control & Prevention 2007- 2008)*

1.2 CITY MISSION / VISIONING 2025

The mission of the City of North Las Vegas is to create and sustain “Your Community of Choice” for its residents, visitors and businesses. One of its strategic vision elements is to become “a carefully planned and well-designed community that has achieved an amenity driven and balanced development in all sectors” with “pedestrian-oriented neighborhoods, high quality commercial and industrial areas, destination power centers, regional shopping malls and restaurants, regional infrastructure and municipal facilities, transportation systems that afford a person the ability to travel easily throughout the City, and a wide variety of housing options, open space, educational, recreational and other cultural amenities.”

1.3 VISION STATEMENT

“The Citywide Trails and Bikeways Master Plan establishes the framework for a city where residents and visitors can enjoy recreation and exercise contributing to a healthy lifestyle, and where commuting by bicycle using an integrated trails/road network, becomes a realistic transportation alternative.”



1.4 GOALS & OBJECTIVES

As mentioned, the City has already embraced various goals and objectives that speak to the importance of trails and bikeways through the adoption of other planning documents. Common themes that resonate consistently among these plans are connectivity, a safe pedestrian environment, multi-modal transportation, mass transit, and clean air. The following goals and objectives of the CTBMP are based upon these themes, which have been refined into four broad categories to support the plan’s vision: Connectivity & Accessibility; Safety, Education & Public Outreach; Health & Community Well-Being; and Network Implementation & Sustainability. These goals and objectives are the basis for developing a fully integrated and interconnected trail and bikeway network.

Connectivity & Accessibility

Goal #1: Create a continuous network of trails and bikeways throughout the City.

- a. Provide access to key public places, employment and commercial centers, schools, residential areas, and recreation and tourist attractions.

- b. Improve access to transit and increase neighborhood connections.

- c. Provide a network that is accessible to a wide range of users, skill levels, and physical capabilities.
- d. Provide connectivity between communities and across barriers, such as highways and washes.

Safety, Education & Public Outreach

Goal #2: Promote safety and increased use of the trails and bikeways network through engineering, education, encouragement, and enforcement.

- a. Design, develop and maintain a safe trails and bikeways network that meets or exceeds national and local standards.
- b. Develop educational programs and publications that promote user (pedestrians, cyclists, motorists) knowledge and safety.
- c. Develop a public outreach program to promote the awareness and appreciation of the benefits of trails and bikeways usage in terms of economic, transportation, air quality, community image and health.
- d. Promote safety for all users by enforcing traffic laws on roadways.

Health & Community Well-Being

Goal #3: Create a trails and bikeways network that emphasizes recreational trail experiences, expands transportation options, and enhances community pride and livability.

- a. Integrate trails and bikeways into every day life, thereby promoting good physical, mental, and emotional health and social bonding for family, friends, and the greater community.
- b. Increase opportunities for recreation by providing trails that accommodate a variety of users, such as cyclists, skaters, joggers, runners, and equestrians.
- c. Create a network that encourages walking and bicycling as a viable means of transportation.
- d. Supply the community with attractive open space corridors that take advantage of distinguishing topographic, historic, ecological and cultural features and educational opportunities.

Network Implementation & Sustainability

Goal #4: Coordinate the successful implementation of the trails and bikeways network in a manner that is strategic, sensitive to the environment, and sustainable.

- a. Incorporate trails and bikeways, as defined in this plan, in all future development.
- b. Establish an interdepartmental team to coordinate the implementation of the trails and bikeways network.
- c. Develop an implementation and funding strategy that has an immediate impact while addressing future needs of the community.
- d. Encourage the use of sustainable and environmentally friendly building materials.
- e. Develop a maintenance program and budget to adequately sustain the network.
- f. Develop a stewardship program that gives residents and local businesses the opportunity to participate in the management of the trail system.

2. CURRENT CONDITIONS

2.1 THE SETTING



Location and Climate

The City of North Las Vegas is located at the northern edge of the Las Vegas Valley in the Mojave Desert. The landscape is just over 100 square miles and the topography is generally very conducive to bicycle use by virtue of gently sloping land. There are areas where there is some steepness, but mild slopes predominate. The civic center/downtown core and mature neighborhoods are located in the southern portion of the City, while new development has generally occurred sequentially to the north.

The City enjoys 320 days of sunshine annually, approximately four inches of annual rainfall, and negligible snowfall. Although summer daytime high temperatures average 94-104 degrees, the arid desert climate allows for greater evaporative cooling compared to humid climates. Pleasant evening temperatures encourage people to be outside after dark. These conditions make for an ideal environment for outdoor activity.

Regional Context

The southern Nevada region is comprised of several local governmental jurisdictions, all of which have adopted networks for on-street bicycle facilities and shared use trails. All combined, there are a total of 390 miles of adopted bicycle routes, 690 miles of adopted bicycle lanes, and 760 miles of adopted shared use paths. While impressive in concept, there is still much work required to implement these networks. Only 82 miles (21%) of the planned bicycle routes have been developed, 194 miles (28%) of bicycle lanes, and 107 miles (14%) of shared use trails.

Population

Despite a dramatic slow-down in population over the past few years, North Las Vegas remains among the nation's 20 fastest growing large cities. The U.S. Census Bureau in June 2010 ranked North Las Vegas 16th among the fastest growing large cities in America, that is up from 19th in 2009. From 2000 to 2009, North Las Vegas was the third fastest growing large city in America, as determined by the U.S. Census Bureau. Since 2000, the City has grown by 93.4% with an average growth rate of 6.9%.

Year	Population	% Increase
2000	115,488	----
2001	125,196	8.4 %
2002	137,691	10.0 %
2003	147,877	7.4 %
2004	168,081	13.7 %
2005	190,150	13.1 %
2006	202,520	6.5 %
2007	215,026	6.2 %
2008	216,664	0.8 %
2009	221,003	2.0 %
2010	223,394	1.1 %

North Las Vegas is expected to be home to approximately 410,000 residents when it reaches build out.

Year	Projected Population
2020	256,967
2030	304,131
Build Out	410,000

2.2 EXISTING INFRASTRUCTURE

Roadway Network

The existing street network is well suited to the creation and implementation of an interconnected trails and bikeways system. The City’s Master Plan of Streets and Highways is planned on a grid system with arterial streets spaced at one mile intervals. Master planned communities (Eldorado and Aliante) utilize curvilinear street networks that connect to the existing grid system. The grid system is advantageous for connectivity by providing a multitude of routing options and opportunities to



connect to other regional destinations and trail systems. The typical street section for local, collector and arterial streets include a wide outside lane of at least 14’ or greater that can accommodate shared lane travel between motorists and cyclist; thus making them “Bicycle Compatible” as defined by the Federal Highway Administration.

In 2011, the City of North Las Vegas is approximately 42% developed. As new development occurs, developers are required to build half street improvements to serve their parcel(s). Since the requirement is to build only half street improvements, often it is months and sometimes years before the other half of the street is constructed. This situation is known as a sawtooth street. The City is actively trying to reduce the number of sawtooth streets that exist in an attempt to increase connectivity and safety.

Major Transportation Corridors



Major transportation corridors in the city include: Interstate 15 (I-15), the Union-Pacific Railway (UPRR), Bruce Woodbury Beltway (215), and an arterial street system. The I-15 is located along the southern boundary of the city and runs diagonally north-south. The UPRR runs parallel to the I-15 and supports the surrounding industrial development. The 215 is a 53 mile highway that loops around $\frac{3}{4}$ of the Las Vegas Valley; it creates an east-west connection across the northern area of the City to the I-15. Major north-south roadway corridors

include Decatur, Las Vegas Boulevard, Martin Luther King, Jr. Boulevard, Lamb Boulevard and Pecos Road. Major east-west roadways corridors include Ann Road, Centennial Parkway, Cheyenne Avenue, Craig Road, and Lake Mead Boulevard. The City is in the process of constructing the North 5th Street Transit Corridor. This corridor will provide a north-south multi-modal transportation corridor through the central part of the city. A total of nine transit stations are planned along this corridor.

Drainage Facilities

There are four existing drainage facilities in the City that have the potential to accommodate off-street, multi-use trails with little or no acquisition costs: the Western Tributary of the Las Vegas Wash, the Upper Las Vegas Wash, the Gowan Outfall Channel, and the Alexander Road Channel. The Las Vegas Wash, which is a major drainage facility throughout the Las Vegas Valley, has a “wishbone” alignment within the city. The lower segment travels diagonally northwest-southeast across the entire city and the upper segment travels north-south, connecting with the lower segment near the I-15. The City has made a commitment on behalf of its citizens to develop a 15-mile trail system along the wash as part of the Las Vegas Wash Regional Trail System. It will include interpretive areas, rest areas, trail nodes, and trailheads with varying levels of amenities at each destination. This trail system is currently in varying stages of development throughout the Las Vegas Valley and North Las Vegas.

Utility Corridors

There are utility corridors within the City that may also have the potential to accommodate trails. In Aliante, there is a multi-use trail within the Grand Teton transmission line easement, which will eventually extend east and west in the future master-planned community Park Highlands.



2.3 EXISTING TRAIL AND BIKEWAY FACILITIES

The Pedestrian and Bike Trails Map that was adopted as part of the City of North Las Vegas' Comprehensive Master Plan identifies a system that includes a total of 56 miles of bicycle routes, 101 miles of bicycle lanes, and 70 miles of trails and pathways. The majority of the network has not yet been developed; only about 6% of the currently adopted facilities have been developed.

Bicycle Routes and Lanes

Although many roadways in the City are bicycle compatible, there are very few developed on-street bicycle facilities. There are a total of 5 miles of signed bicycle routes and a total of 2 miles of signed and striped bicycle lanes. The majority of existing, on-street bicycle facilities have been implemented over relatively short spans (less than one mile) versus longer segments that would provide greater utility. Much of the existing bikeway facilities also exhibit faded markings, minimal signage and dead ends; some segments of bicycle lanes are striped only near schools with no connections to nearby residential neighborhoods.



Multi-use Trails and Sidewalks

There are approximately 29 miles of developed multi-use trails in the city, which includes 24 miles of trails in Aliante and 9 miles of the Las Vegas Wash Regional Trail. The Aliante trail system consists of lighted concrete pathways with a minimum width of 8 feet and landscaping on both sides. These trails are located adjacent to streets and in drainage facilities. The developed portion of the Las Vegas Wash

Regional Trail extends southeast from Tropical Parkway to Craig Road. It is comprised of a 10' wide asphalt trail that is landscaped along both sides and located almost entirely off-street. The city has funding to construct an additional 10 miles of the Las Vegas Wash Regional Trail, which are expected to be complete in 2012.

The design and location of sidewalks varies throughout the City due to numerous changes over time to adopted codes and ordinances. Sidewalks typically range from 3 ½ feet to 5 feet wide, depending on the street classification. Neighborhood streets that are less than 60 feet in width often have sidewalks



sidewalks

that are less than 5 feet wide. Sidewalks built prior to 1999 are generally located at the back of curb and may have obstructions such as street signs, light poles, and other utility equipment. Often there is very little or no landscaping adjacent to these sidewalks. In 1999, the City adopted design guidelines that require sidewalks along arterial streets 80 feet or wider to be separated from the back of curb by a minimum of five feet. Developers are required to provide landscaping adjacent to

2.4 EXISTING MASS TRANSPORTATION

Existing transit routes are serviced by the Regional Transportation Commission of Southern Nevada (RTC) and provide transportation throughout North Las Vegas and the metropolitan area (refer to



Figure 1-1). All RTC vehicles serving the Las Vegas Valley are equipped with a bicycle rack that can accommodate up to two or three bicycles and there is no additional cost to bring a bicycle along for a ride. Approximately 60,000 bicycles are accommodated on buses in the region every month. The popularity of this feature makes it critical for bicycle facilities to connect with transit routes/stops via the shortest possible routes; research shows that pedestrians will walk an average of ¼ mile to use public transportation.

2.5 DESTINATIONS AND TRIP GENERATORS

Major destinations in the city have been inventoried and analyzed to help define where people are coming from and where they need and want to go. City planning and guidance documents were also reviewed to identify future destinations and growth areas. Major destinations include parks, schools, and other civic facilities; entertainment, retail and commercial areas; employment centers; future transit development locations, and future growth areas.

Libraries, Parks and Recreation

There are currently a total of 3 libraries and 34 parks in the city, which includes two municipal golf courses, four municipal pools, two recreation centers and a multi-generational center operated by the YMCA. Within the next few years, the city will also be developing its first regional park, and a 7-acre historic site. Craig Ranch Regional Park is envisioned to become the centerpiece of the parks and trails system in the city and a key community gathering area for the region. It is being developed on the 135-acre site of a former golf course located in the geographic center of the city and will have direct access to/from the Las Vegas Wash Regional Trail. Kiel Ranch Historical Park will be a 7-acre site located approximately 1 ½ miles west of downtown North Las Vegas. It is a historical treasure of Nevada (listed on the National Register of Historical Places) as it is home to one of the states oldest adobe structures and an active artesian spring.



Schools



There are a total of 30 public schools (K-12) in the city that serve a total of 42,570 students, which represents almost 20% of the city's total population. The City is also home to the College of Southern Nevada Cheyenne Campus and the Culinary Training Academy. Providing safe, convenient access to schools is a key function of a non-motorized transportation network. Given the fact that majority of K-12 students are non-drivers, schools should ideally be located close enough to homes to enable walking or bicycling. A reasonable walking distance is considered to be ¼ to ½ mile, which is the distance most people are willing to walk in 5-10 minutes.

Civic Facilities/Downtown

Civic facilities are concentrated in the downtown area, which include City Hall, the Police Command Center, the Justice Facility, the Main Branch of the North Las Vegas Library, and the Neighborhood Recreation Center. A new city hall facility is currently under construction in the same vicinity and is expected to be open in November 2011. Other major downtown destinations include North Vista Hospital, Jerry's Nugget Casino, Silver Nugget Casino and other casinos. In February 2009, the city adopted the Downtown Master Plan and Investment Strategy (DMPIS) which provides the strategic framework to implement the community's vision to redevelop Downtown into a community focal point. Many issues and policies outlined in the DMPIS are relevant to this planning effort and are noted in the appendices.



Special Planning Areas

Other notable areas and destinations in the City of North Las Vegas include:

- Northern Development Area (I-215, UNLV Campus and VA hospital sites).
- Industrial Areas (Apex, North 5th Corridor, Losee Road along I-15, Lamb Boulevard, area adjacent to Nellis AFB).
- Technology Corridor (Cheyenne, west of I-15, to North Las Vegas Airport).
- North Fifth Street (as a village neighborhood center).
- Gateway Redevelopment District.
- Northeastern Triangle Area is (potential to become a primary node of redevelopment).

2.6 OPPORTUNITIES

A well-utilized, interconnected network of trails and bikeways is achievable in the City of North Las Vegas. This section provides an overview of the numerous opportunities identified during the process of developing the CTBMP:

- Existing roadways are generally “bicycle compatible” in terms of having adequate widths to accommodate retrofitting to include bicycle facilities that meet nationally and locally accepted standards (i.e. AASHTO, Clark County Uniform Standard Design Drawings). This retrofitting can be accomplished at a lower cost than what would alternately be required if it was necessary to expand roadway widths.
- Demand for facilities already exists, which is evident by the frequency of bicycles on buses and current use of existing trail systems.

- Existing mass transit provides use of bicycle racks at no additional cost above regular fares.
- There are opportunities to capitalize on current development and investments, such as the Las Vegas Wash Regional Trail development and planned roadway improvement projects (i.e. North Las Vegas Blvd. Improvements).
- Development of on-street bicycle facilities will enhance the connectivity, accessibility, and use of the Las Vegas Wash Regional Trail System.
- There have been changes in the federal administration and corresponding policy that support the development of fully integrated active transportation networks. Ideally, this will result in more federal funding opportunities.
- The climate in CNLV is suitable for year-round use of facilities. Although the summer months are hot, it takes less time to cool down in this arid climate versus humid climates.
- There is a significant amount of regional planning, coordination, and support for the development of trails and bikeways. There may be additional opportunities to collectively collaborate and/or pool resources for efforts such as public outreach and education.
- Utility corridors, drainage ways, and major transportation ways may include surplus right-of-way that can accommodate trail development with little or no acquisition costs.
- The City has favorable topographic conditions in that it is relatively flat.
- Over half of the City has not yet been developed; therefore there is still the future opportunity to have bicycle and trail ROW dedication and development through private investment.

2.7 CHALLENGES

This section summarizes the challenges that exist within the city. Addressing these issues is paramount to achieving an inter-connected system of trails and bikeways and was integral in the creation of the CTBMP.

There are many barriers in place throughout the City that currently reduce or limit the ability of pedestrians or trail-users to move freely and safely from one neighborhood or area to another. These challenges include highway corridors that bisect the City with limited cross-connections. Although these corridors function well for motorists, they effectively cut large sections of the city off to pedestrians and other non-motorized users. Currently, the City's adopted street cross-sections in the

Master Plan of Streets and Highways provide little room for creation of bicycle lanes or multi-modal paths.

Another issue considered is the inconsistent nature of the existing system. In general, on-street facilities are not adequately maintained, terminate prematurely, and have insufficient signage. Due to the distance between signs along the existing bicycle routes and lanes, an automobile driver could enter the system and travel several blocks without recognizing the corridor as a designated bicycle route. Additional signage can increase safety for the cyclists and minimize way-finding issues. Other maintenance issues to be addressed include specific improvements in certain areas such as restriping and restoration or replacement of signage.

This section provides an overview of the numerous challenges identified during the process of developing the CTBMP:

- Major arterial streets with high volumes of fast moving traffic create a barrier that must be addressed. Often existing trails will cross one of these streets between traffic signals. Users are then forced to detour down narrow sidewalks to reach a crosswalk or when a break in traffic presents itself.
- On-going maintenance (funding, staff resources, durability of materials).
- Achieving optimal bicycle lane width and lateral separation for on-street facilities.
- Accommodating on-street facilities in areas with frequent driveway cuts.
- Partially constructed/"Sawtooth" roads.
- Limited network access points to some existing gated communities/walled developments.
- Support to fund improvements; very little on-street bicycle facility development has occurred to date, despite the fact that there are adopted alignments.
- Implementation; no lead staff person to coordinate bicycle facility development.
- Acquiring additional right-of-way for trail and bikeway development in developed areas.

3. DEVELOPING THE NETWORK

3.1 INTRODUCTION

This chapter outlines the process followed to arrive at the recommended bicycle and trail network. The process initially involved an inventory development and assessment of conditions for both existing and planned facilities and routes. When sufficient research and ground assessments were completed, a candidate route network was produced and revisited city staff and a consulting team to solidify routing decisions in detail. Once the Master Plan facility types are confirmed, the next steps in the process will be to confirm the final network map and develop any supporting measures for implementation of the network.

3.2 NETWORK APPROACH

A four step approach was used to prepare the network plan as follows:

- 1) *Completing an Inventory and Assessment of Current Conditions*; which compiles all existing or previously planned pedestrian, trail and bicycle facilities to establish a base condition. This also includes an inventory of major destinations throughout North Las Vegas.
- 2) *Identifying and Assessing Candidate Routes*; which involves selecting and investigating potential trail alignments and bicycle routes and evaluating each (based on section 3.3 Route Selection and Evaluation Criteria) to determine its feasibility for inclusion as part of the recommended network.
- 3) *Suggest Route Networks*; which involves mapping each network and system for review.
- 4) *Determining Facility Types for Selected Routes*; which involves choosing an appropriate facility type for each route or system and illustrating the recommended network on a map.

3.3 ROUTE SELECTION AND EVALUATION CRITERIA

The route selection process is based on guidance provided in the RTC's 2008 Bicycle and Pedestrian Plan and a set of evaluation criteria from which the location of appropriate routes and the preferred facility type are selected. The evaluation criteria was developed to use as the basis for evaluating routes; determining the final selection of routes; determining the design and cross sections of the routes; and ultimately, as tools for prioritizing projects for funding and construction. The information provided in this section should also serve as the basis for analyzing potential routes to be incorporated into the network in the future.

The evaluation criteria are listed, as follows, in proposed order of priority:

1. **Safety:** The proposed facility should provide a safe experience. The network should strive to minimize risk while accommodating a range of ages, experience levels, security concerns and overall travel desires.
2. **Accommodation/Accessibility:** The proposed facility should serve the needs of the maximum number of user groups possible; both commuters and recreational users, young and old, pedestrians and cyclists. Routes and facilities should also be easily accessible within local neighborhoods and provide access to major destinations throughout the City. In addition, roadways that can be accessed with few or no direct motorized conflicts are preferable. This issue is of particular importance for roadways adjacent to residential areas, schools, shopping and large activity centers.
3. **Continuity & Directness:** The proposed facility should be continuous, clear and easy to follow, proceeding in the most efficient, and direct pathway possible. Pedestrians and cyclists tend to favor routes that require the least expenditure of energy. Navigability and ease of wayfinding are also extremely important.
4. **Connectivity/Linkage:** The proposed facility should link destinations of all levels: neighborhoods, employment centers, schools, parks, shopping, recreation and entertainment facilities, public services, and destinations beyond the city limits. In addition, the facility should be integrated with other modes of transportation, particularly public transit.
5. **Regional Trail Connectivity:** The proposed facility should take advantage of the nexus of several regional trails in the area, connecting to and between these systems to create an even larger network.
6. **User Experience:** The proposed facility should provide a comfortable and appealing user experience, and should take advantage of opportunities to follow scenic corridors and connect with scenic resources.
7. **Sensitivity:** The proposed facility should be designed to respect and avoid harm to wildlife corridors, critical areas, and other sensitive landscapes.
8. **Funding/Construction Opportunities:** Identify opportunities to construct the proposed facility as part of other projects, such as roadway resurfacing, flood control channel improvements, new construction, etc.

In addition to the evaluation criteria, the recommended network adheres to (where possible) the following guidance on bicycle facility selection provided in the RTC's 2008 Bicycle and Pedestrian Plan:

- The preference is to locate bicycle facilities on roadways with an 80-foot right-of-way or less.
- Implementing bicycle lanes or routes will be accomplished within the existing right-of-way.
- Except in rare or necessary circumstances, bikeways should be located on streets with posted speeds of 35 miles per hour or lower.
- Routes should be located one-quarter mile or less from fixed route transit.
- Surface conditions should be considered to ensure that there are no unusual street or drainage features that could cause a potential loss of control by the cyclist.
- Bicycle facilities should not be located on roadways that are known to have a high volume of truck traffic.

3.4 NETWORK CONCEPT

The recommended network concept is depicted in Figure 3-1: Trails and Bikeway Master Plan Map. The proposed network is comprised of on-street bicycle lanes and bicycle routes, and physically separated paths that include off-street multi-use trails and street-side multi-use trails (refer to Section 3.5 Network Classifications for detailed descriptions). It is integrated into the City's grid, maximizing existing rights of way and taking advantage of the opportunity to connect to the Las Vegas Wash Trail. The bicycle system follows the grid, connecting with bicycle routes and lanes in existing developments, and maximizing miles of bikeways along arterial and collector roads. The system extends as close as possible to the City limits in all directions, and is accessible to all neighborhoods and identified community destinations.

The network concept is intended to provide continuity and connectivity from all points in the City and seeks to limit the possibility of dead-end trails, bicycle lanes and routes. The Las Vegas Wash Regional Trail and the Upper Las Vegas Wash Regional Trail serve as the primary trail corridors that offer access beyond city limits. A regional trail is proposed along the northern side of the CC-215 corridor that will also provide access to other trail systems in adjacent cities. The network concept emphasizes linkages to these regional trail corridors from most parts of the City through several ancillary connections extending along strategic corridors, connecting with existing trails and foreseeing connections up to and along the northern boundary of the City.

The network has also been designed with an emphasis on providing connectivity to local parks. The City is already taking a big stride toward that effort with the development of Craig Ranch Regional Park, which is located in the center of the City and is contiguous to the Las Vegas Wash Regional Trail. The park will provide a trailhead for the Las Vegas Wash Regional Trail and connection to its internal multi-use trail system. The Las Vegas Wash Regional Trail also connects directly to the Sandstone Ridge Community Park and to the future park that will be developed in the Cheyenne

Peaking Basin. Other parks in the city will require access through a combination of on-street and off-street facilities.

In future growth areas, trails and bikeways should be fully integrated into private and public land use processes. Trails should be provided away from roadway corridors as much as possible (off-street trails versus street-side trails). Conceptual trail corridors in some future growth areas are identified in the Network Concept Map, but may be deviated from to accommodate future roads and uses. Further study, including GPS “staking” of each alignment, should occur during initial land use planning for each growth area to take into account existing and planned natural features and amenities. Integrating trail corridors early in the land use planning process will require close coordination and supervision between City Departments.

Figure 3-2: Trails and Bikeways Location Table specifies the street names and limits of proposed facilities, including street-side multi-use trails that are proposed along one side of the roadway. This table is intended to be used in conjunction with Figure 3-1: Trails and Bikeway Master Plan Map as working documents, helping to guide decision-making for new developments, capital improvements, maintenance of roadways and other elements associated with trails and bikeways.

If in the future the City of North Las Vegas considers adding equestrian trails to the network, effort should be made to connect to the City of Las Vegas’ equestrian facilities. Equestrian trails should be located in largely rural areas with close proximity to equestrian facilities and user demand. Specific equestrian trail locations are not identified on the Master Plan Map. Exact locations for the trails will have to be evaluated on a case by case basis. However, the northwest portion of the City should be considered for further investigation into this possibility, as it is currently undeveloped and near the proposed equestrian park in the City of Las Vegas.

FIGURE 3-1 Trails & Bikeways Master Plan Map

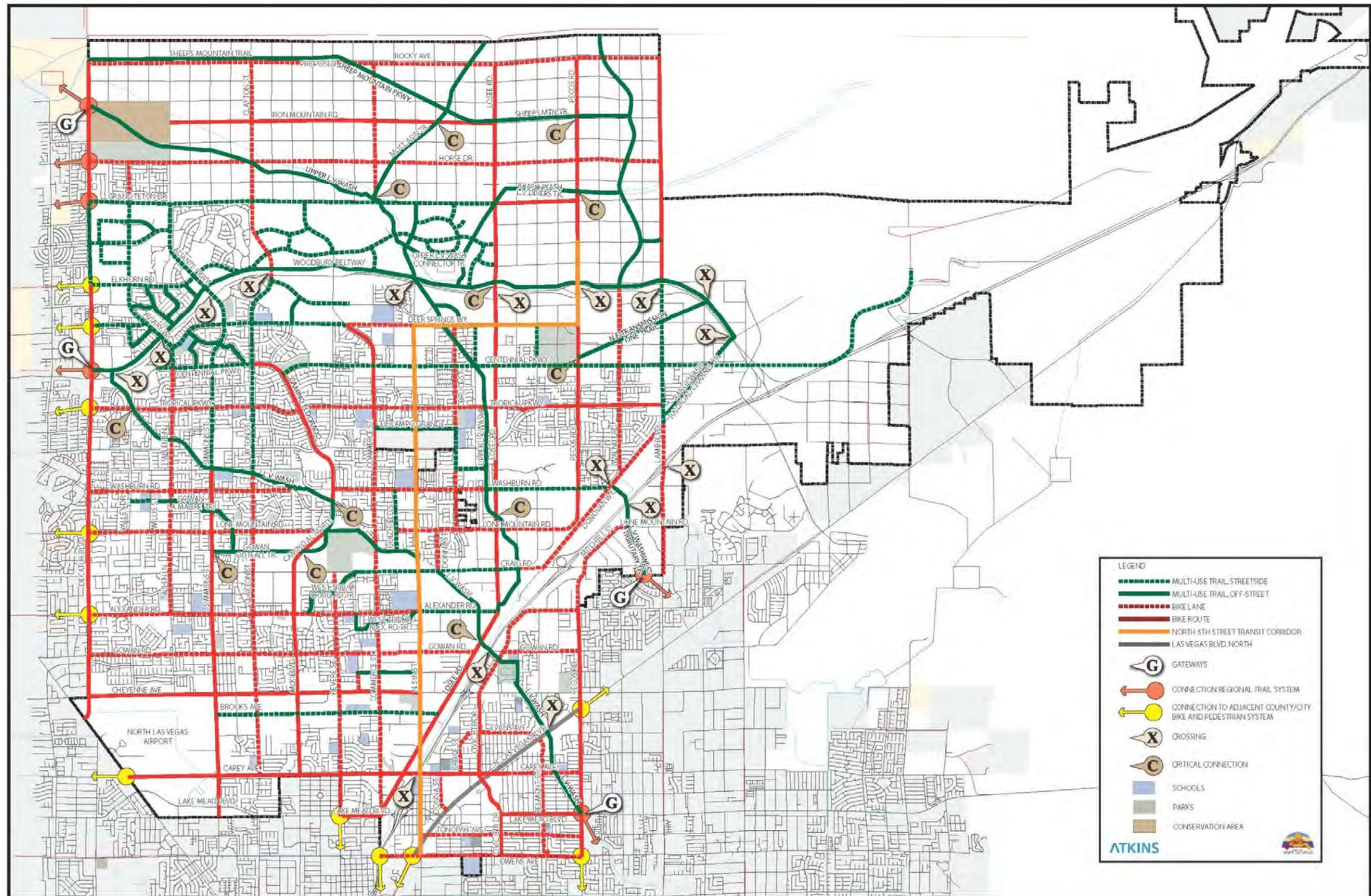


FIGURE 3-2 Trails & Bikeways Location Tables

Bike Routes	
Street Name	Limits
Camino Al Norte	Craig Rd. to Lone Mountain Rd.
Carey Ave.	N. Rancho Dr. to Carroll St.
Cheyenne Ave	Decatur Blvd. to N. 5th St.
Civic Center Dr.	Owens Ave. to Cheyenne Ave.
Commerce St.	Ann Rd. to Deer Springs Wy.
Decatur Blvd.	N. Rancho Dr. to Elkhorn Rd.
Decatur Blvd.	Grand Teton Dr. to Rocky Ave.
Grand Teton Dr.	Losee Rd. to Pecos Rd.
Iron Mountain Rd.	Aliante Pkwy. To Losee Rd.
Lake Mead Blvd.	Civic Center Dr. to Pecos/Las Vegas Wash
Lake Mead Blvd.	Revere St. to Losee Rd.
Lamb Blvd.	215 Trail to Rocky Ave.
Losee Rd.	Lake Mead Blvd. to Rocky Ave.
Martin L King Blvd.	Carey Ave. to Craig Rd.
Simmons St.	Coran Ln. to Las Vegas Wash
Tropical Pkwy.	Anne Rd. to Lamb Blvd.
Pecos Rd.	Lone Mountain Rd. to Deer Springs Way
Pecos Rd.	Farm Rd. to Rocky Ave.
Camino Eldorado	Clayton St. to Las Vegas Wash

Bike Lanes 60' R.O.W.	
Street Name	Limits
Bruce St.	Carey Ave. to Evans Ave.
Bruce St.	Centennial Pkwy. to Rome Blvd.
Carey Ave.	Carroll St. to Pecos Rd.
Commerce St.	Losee Rd. to Cheyenne Ave.
Donna St.	N. Las Vegas Blvd. to Carey Ave.
Donna St.	E. Craig Rd. to E. Lone Mountain Rd.
Donovan Wy.	Craig Rd. to Lamb Blvd.
Englestad St.	Cheyenne Rd. to Colton Ave.
James St.	E. Owens Ave to Webb Ave.
Revere St.	Lake Mead Blvd. to Cheyenne Ave.
Rocky Ave	Decatur Blvd. to Lamb Blvd.
Tonopah Ave.	N. 5th St. to Pecos Rd.
Walnut Rd.	Prairie Orchid Ave. To Villa Azul Ave.
Webb Ave. Rd.	Belmont St. to James St.

Bike Lanes 80' R.O.W. or Greater	
Street Name	Limits
Alexander Rd.	Decatur Blvd. to N. 5th St.
Alexander Rd.	Civic Center Dr. to Pecos Rd.
Allen Rd.	E. Alexander Rd. to Centennial Pkwy.
Aviary Wy.	Grand Teton Dr. To Horse Dr.
Belmont St.	Webb Ave. to N. Las Vegas Blvd.
Bruce St.	El Campo Grande to Centennial Pkwy.
Bruce St.	Lone Mountain Rd. to Hammer Ln.
Civic Center Dr.	Cheyenne Ave. to E. Alexander Rd.
Clayton St.	Clark County 215 to Rocky Ave.
Clayton St.	Carey Ave. to Las Vegas Wash
Commerce St.	Cheyenne Ave. to Ann Rd.
Commerce St.	Grand Teton Dr. to Rocky Ave.
Craig Rd.	Upper Las Vegas Wash to Donovan Wy.
Deer Springs Wy.	Commerce St. to N. 5th St.
Evans Ave.	Civic Center Dr. to N. Las Vegas Blvd.
Gowan Rd.	Decatur Blvd. to Losee Rd.
Gowan Rd.	N. Civic Center Dr. to Pecos Rd.
Horse Dr.	Decatur Blvd. to N. Lamb Blvd.
Lamb Blvd.	Craig Rd. to Donovan Wy.
Lone Mountain Rd.	Decatur Blvd. to Camino Al Norte
Lone Mountain Rd.	Goldfield St. to Pecos Rd.
Mitchell St.	Craig Rd. to Lone Mountain Rd.
Owens Ave.	I-15 to Pecos Rd.
Revere St.	Cheyenne Ave. to W. Craig Rd.
Tropical Pkwy.	Centennial Pkwy. to Ann Rd.
Walnut Rd.	Villa Azul Ave. To 215 Trail
Washburn Rd.	Decatur Blvd. to Las Vegas Wash
Washburn Rd.	Camino Al Norte to Upper Las Vegas Wash

Multi-Use Trails, Streetside	
Street Name	Limits
Alexander Rd.	N 5th St. to Losee Rd.
Brooks Ave.	Simmons St. to Losee Rd.
Bruce St.	Hammer Ln. to El Campo Grande Ave.
Centennial Pkwy.	Camino Eldorado to Hollywood Blvd.
Clayton St.	Las Vegas Wash to 215 Trail
Craig Rd.	Kings Hill Rd. to Upper Las Vegas Wash
El Campo Grande Ave.	Commerce St. to Bruce St.
Goldfield St.	Las Vegas Wash to Washburn Rd.
Grand Teton Dr.	Decatur Blvd. to Losee Rd.
Hammer Ln.	Bruce St. to Upper Las Vegas Wash
La Madre Wy.	Valley Dr. to Willis St.
Lamb Blvd.	Donovan Wy. to 215 Trail
Lawrence St.	Centennial Pkwy. To Deer Springs Wy.
Statz St.	Centennial Pkwy. To Deer Springs Wy.
Simmons St.	Las Vegas Wash to Centennial Pkwy.
Washburn Rd.	Las Vegas Wash to Donovan Wy.

Multi-Use Trails, Off-Street	
Trail Name	Limits
215 Trail	Decatur Blvd. to Range Wash - Railroad Channel Trail
Gowan Outfall Channel Trail	Simmons St. to Las Vegas Wash Trail
Gowan Outfall-La Madre Way Trail	Gowan Outfall Channel to Willis St.
Colton Trail	Englestad St. to N 5th St.
Las Vegas Wash Trail	215 Trail to Pecos Rd.
Las Vegas Wash West Tributary Trail	Donovan Wy. to Craig Rd.
Moccasin Trail	Moccasin Rd. to Upper Las Vegas Wash Trail
NE Transmission Line Trail	Pecos to 215 Trail
Range Wash - Las Vegas Wash Divers Trail	215 Trail to UNLV North Campus Trail
Range Wash - Railroad Channel Trail	Tropical Pkwy to 215 Trail
Sheep Mountain Pkwy. Trail	Decatur Blvd. to UNLV N. Campus Trail
UNLV N. Campus Trail	215 Trail to Moccasin Rd.
Upper Las Vegas Wash Trail	Las Vegas Wash Trail to Decatur Blvd
Upper Las Vegas Wash Trail Connector	Upper Las Vegas Wash to Range Wash - Las Vegas Wash Divers
Western Tributary at Alexander Rd. Trail	Kings Hill Rd. to N 5th St.
Western Tributary at Craig Rd. Trail	Alexander Rd. to Craig Rd.

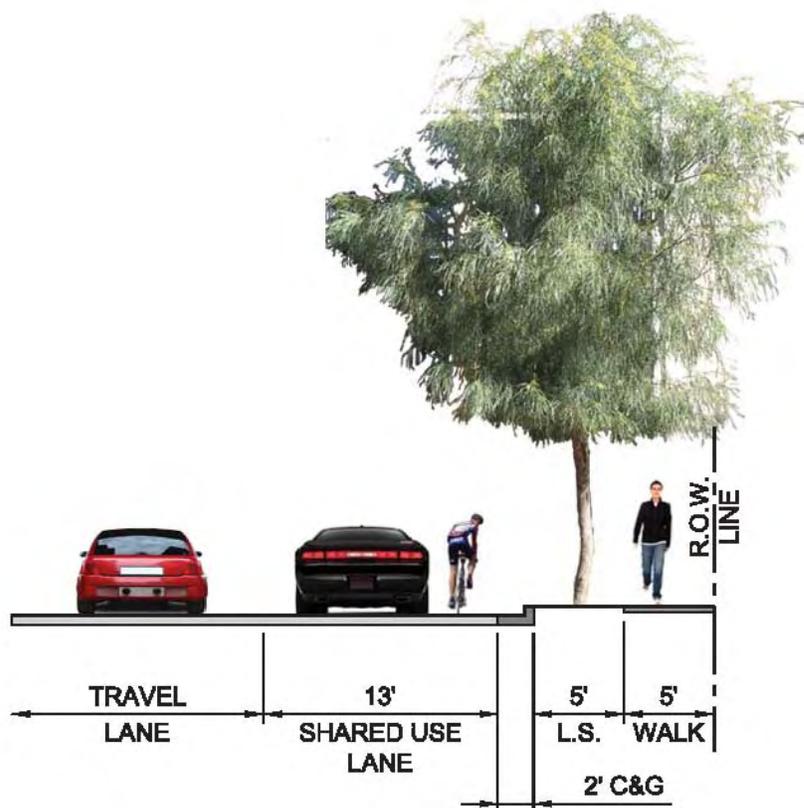
3.5 NETWORK CLASSIFICATIONS

The bikeways and trail classifications and design standards are intended to guide the City staff and design professionals in a uniform, consistent manner. The CTBMP uses the same definitions and classifications for bicycle facilities as the Regional Transportation Commission of Southern Nevada (RTC). These cross sections offer alternatives to provide bicycle and/or trail facilities within a variety of right-of-way widths.

Bicycle Facilities

Bicycle Route – is a shared roadway that has been designated by signing as a preferred route for bicycle use. Bicycle routes are designated on roadways that have a wide curb lane of at least 13 feet or greater between the lane line and the lip of the curb (Figure 3-3).

FIGURE 3-3 Bicycle Route



Bicycle Lanes

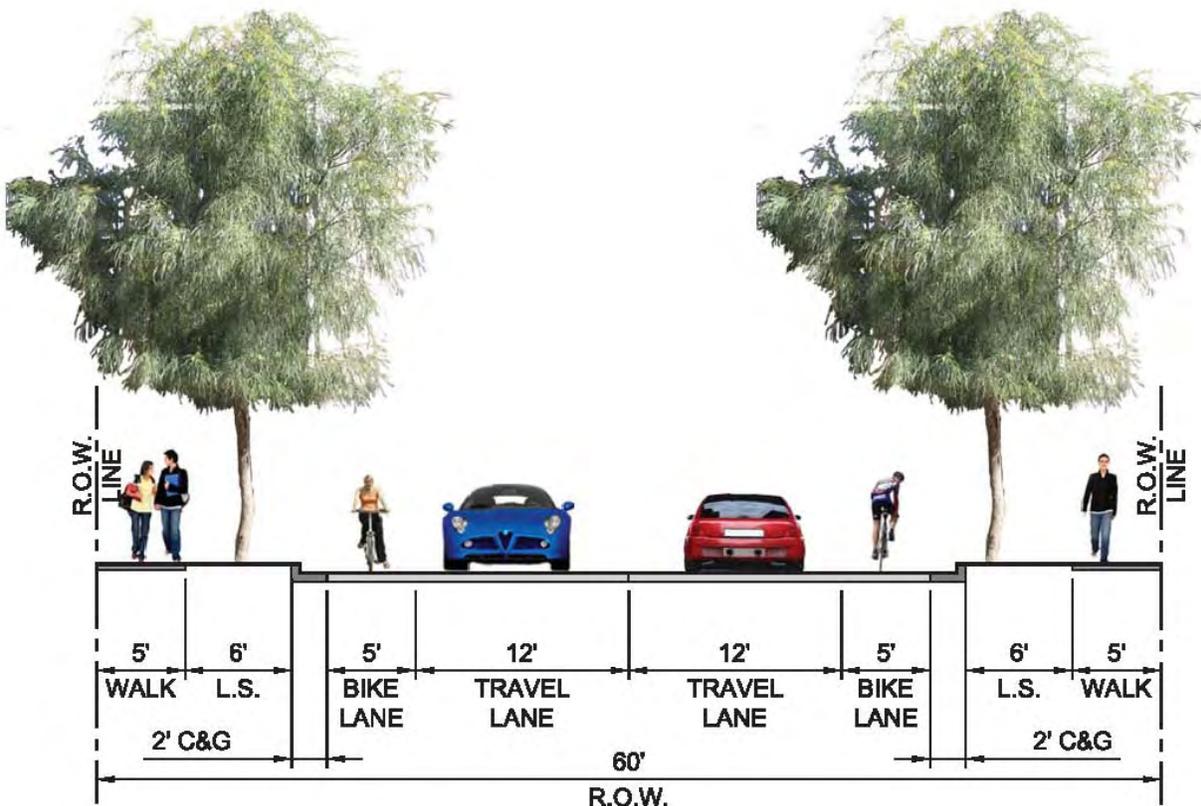
A bicycle lane is a portion of a roadway that has been assigned using striping, signing, and pavement markings for the use of bicyclists. The preferred width of the bicycle lane is 5-foot minimum from the bicycle lane strip to the edge of the pavement, plus a 2-foot wide curb and gutter, except in a case where a critical connection requires that the RTC alternate standard be used.

60' right-of-way (ROW)

Alternative 'A' (Figure 3-4) includes:

- Two 12' wide travel lanes
- 5' wide bicycle lanes on each side
- 5' wide detached sidewalk on each sides
- 6' wide landscape strip between the sidewalk and curb

FIGURE 3-4 Bicycle lane Alternative 'A' – 60'ROW

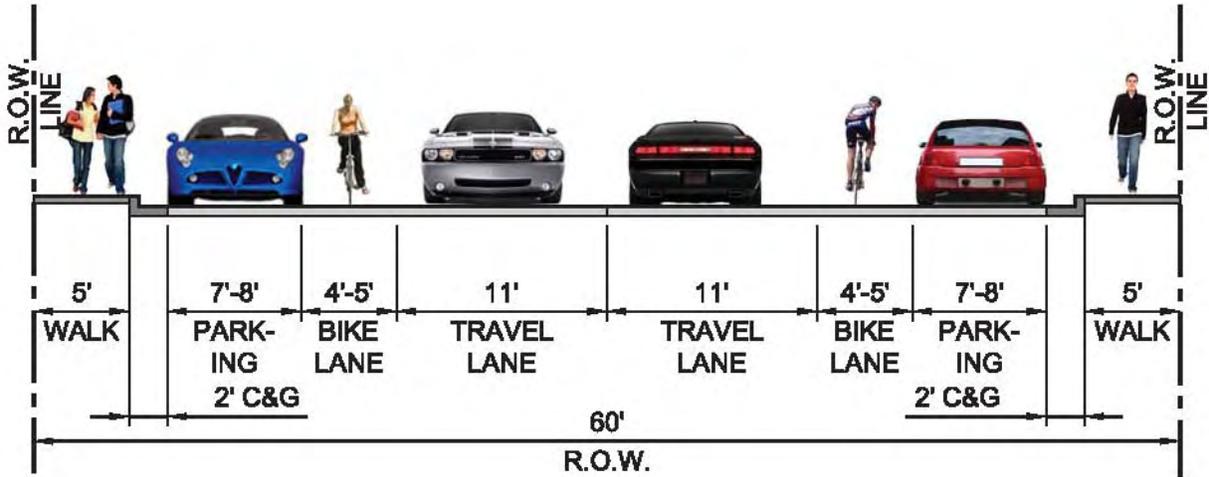


This alternative could be used in new development and redevelopment areas.

Alternative 'B' (Figure 3-5) includes:

- Two 11' wide travel lanes
- 4'-5' wide bicycle lanes on each side
- 7'-8' wide parking
- 5' wide sidewalk on each side

FIGURE 3-5 Bicycle lane Alternative 'B' – 60' ROW



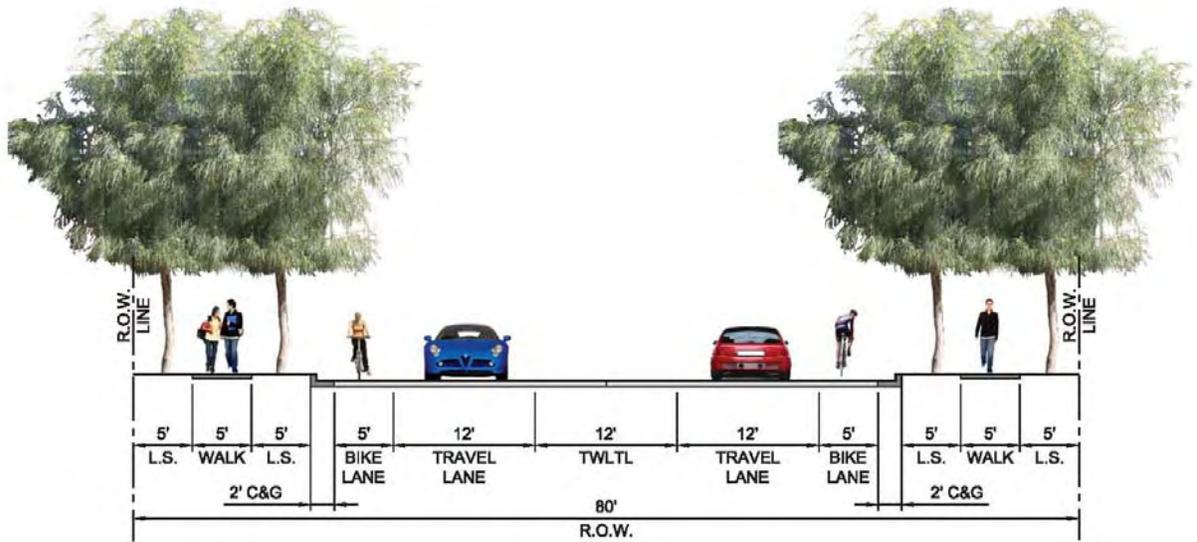
This alternative may be used in retrofit circumstances, where space is limited, to accommodate bicycle lanes.

80' right-of-way

Alternative 'A' (Figure 3-6) includes:

- Two 12' wide travel lanes
- 12' wide two-way left-turn lane (TWLTL)
- 5' wide bicycle lanes on each side
- 5' wide detached sidewalks on both sides
- 5' wide landscape strips on either side of the sidewalk

FIGURE 3-6 Bicycle lane Alternative 'A' – 80' ROW

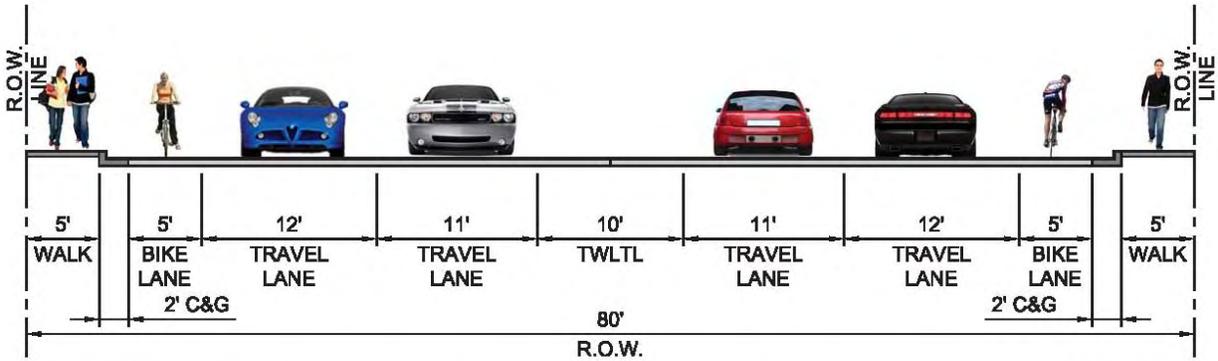


This alternative would be used in new development and redevelopment areas.

Alternative 'B' (Figure 3-7) includes:

- Two 11' inside travel lanes
- Two 12' outside travel
- 10' wide two-way left-turn lane (TWLTL)
- 5' wide bicycle lanes on each side
- 5' wide sidewalk on each side

FIGURE 3-7 Bicycle lane Alternative 'B' – 80' ROW



This alternative would be used in areas of new development or redevelopment.

100' right-of-way

The preferred bicycle facility for a 100' right-of-way is a bicycle route. A bicycle route is a shared roadway that has been designated by signing as a preferred route for bicycle use. Bicycle routes are designated on roadways that have a wide curb lane of at least 13 feet or greater between the lane line and the lip of the curb (Figure 3-3). Bicycle lanes are not recommended on streets with a 100' right-of-way or greater.

A bicycle lane may be included on a 100' right-of-way if a critical connection is identified. A critical connection may be identified where an off-street trail intersects with a street or where bicycle lanes continue into an adjacent municipality. These situations may be identified during the implementation of this plan to achieve a fully integrated and interconnected pedestrian and bicycle system.

When a critical connection is identified, the appropriate street cross-section will be determined at that time. Refer to the Uniform Standard Drawings of Clark County for 100' right-of-way street cross sections that include a bicycle lane.

Multi-use Trails

A multi-use trail (or a “shared-use path” as described by the AASHTO and RTC) is a pathway physically separated from motorized vehicular traffic by a landscape or other barrier and either adjacent to the street right-of-way or within an independent right-of-way. The minimum width for a multi-use trail is generally 10 feet of paving for bi-directional travel, with a minimum 2-foot shoulder on both sides of the path. Per the AASHTO, an 8-foot width is adequate only where the following conditions exist:

- Bicycle traffic is expected to be low, even on peak days or during peak hours;
- Pedestrian use of the facility is not expected to be more than occasional;
- There will be good horizontal and vertical alignment providing safe and frequent passing opportunities; and
- The path will not be subject to maintenance vehicle loading conditions that would cause pavement edge damage.

In some cases, it may be necessary or desirable to increase the width of multi-use trail paths to 12 feet or 14 feet where trail usage is anticipated to be high (e.g., the future UNLV campus). As a general rule, trails with 100 users per hour should be 12 feet wide and trails with 300 users per hour should be 14 feet wide.

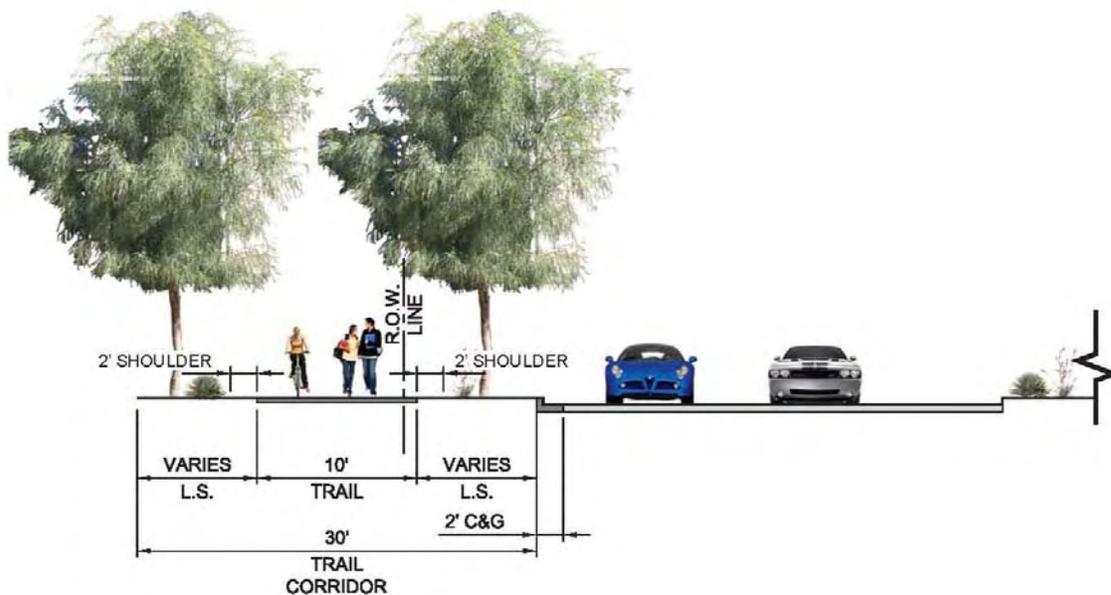
The CTBMP defines conditions for two types of multi-use trail classifications: “street-side multi-use trails” and “off-street multi-use trails”.

Street-Side Multi-Use Trails

A “street-side multi-use trail” refers to a trail that occurs adjacent to a roadway. The typical street-side multi-use trail cross section is shown in Figure 3-9. Trail corridors shall be a minimum of 30’ in width. When occurring as a result of private development, the portion of that corridor to be provided by the developer will be determined while negotiating the development agreement with the City and/or during the land entitlement process. This corridor shall provide a minimum 10’ wide trail surface to allow for two-way traffic. The shoulder/landscape areas abutting the trail edge will vary to accommodate the meandering of the trail. Amenities located along trails are discussed further in this section.



FIGURE 3-9 Street-side Multi-use trails

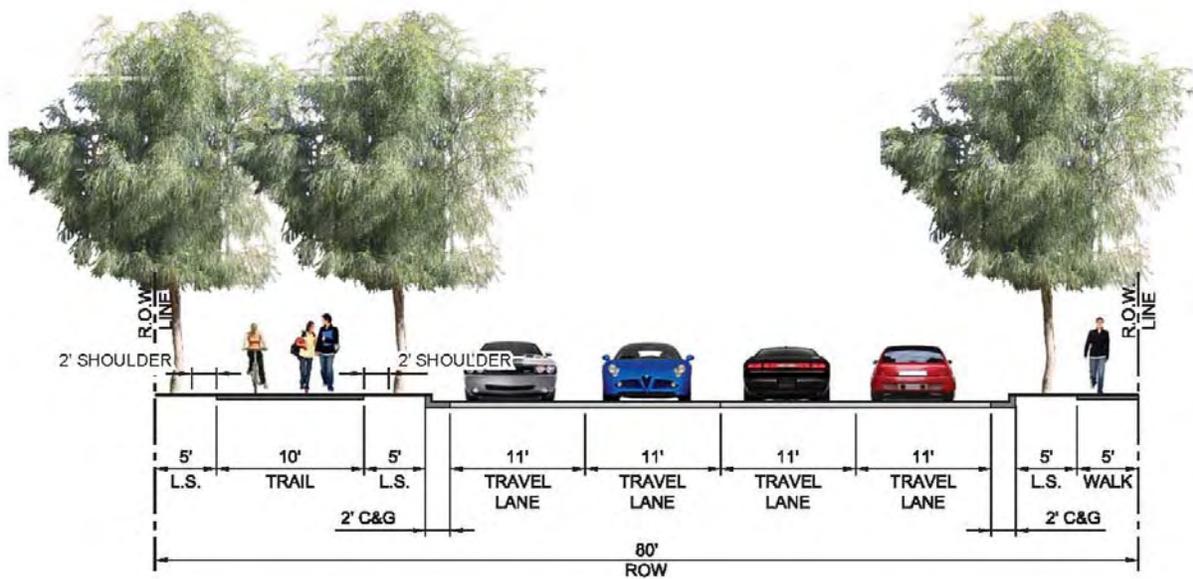


In order to incorporate street-side trails in areas of the City that have already been developed, the following two alternatives have been developed as options for the possible reconfiguration of existing 80’ right of ways.

Alternative 'A' (Figure 3-10) includes:

- Four 11' wide travel lanes
- 5' wide detached sidewalk with a 5' wide landscape strip between it and the curb
- 10' wide trail on one side
- Two 5' wide landscape strips, between the trail and curb, and the trail and R.O.W. line

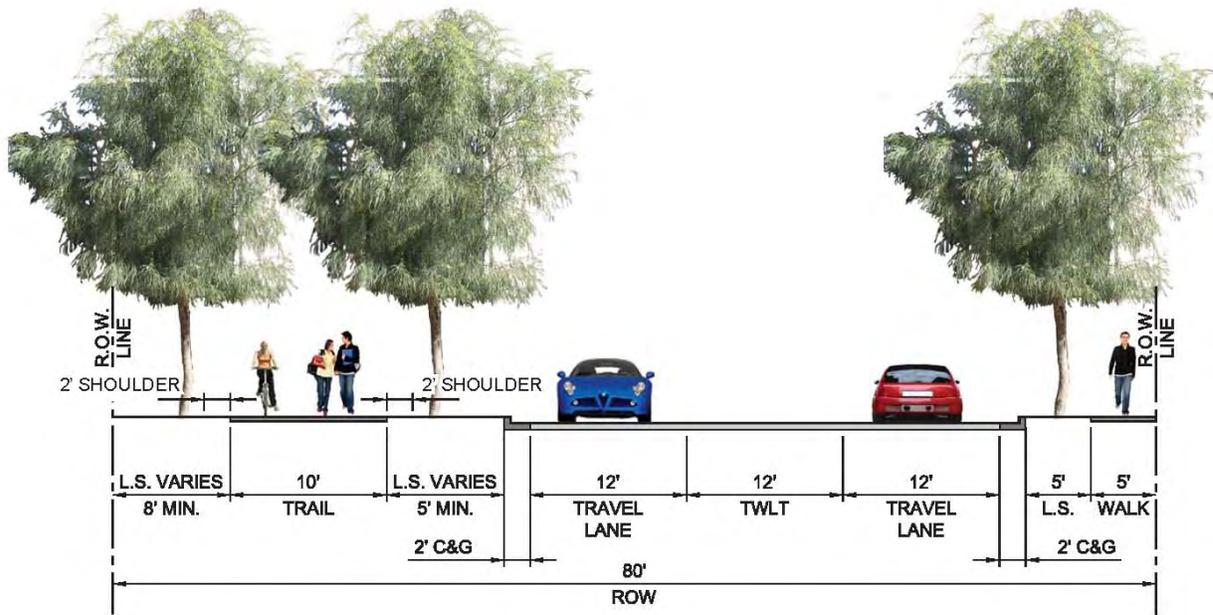
FIGURE 3-10 Street-side Multi-use trail Alternative 'A'



Alternative 'B' (Figure 3-11) includes:

- Two 12' wide travel lanes
- 12' wide two-way left-turn lane (TWLTL)
- 5' wide sidewalk with a 5' wide landscape strip in between it and the back of curb on one side
- 30' wide trail corridor with a 10' wide trail on one side of the street
- 5' wide minimum landscape area between trail and curb
- 8' wide minimum landscape area between trail and R.O.W. line

FIGURE 3-11 Street-side Multi-use trail Alternative 'B'



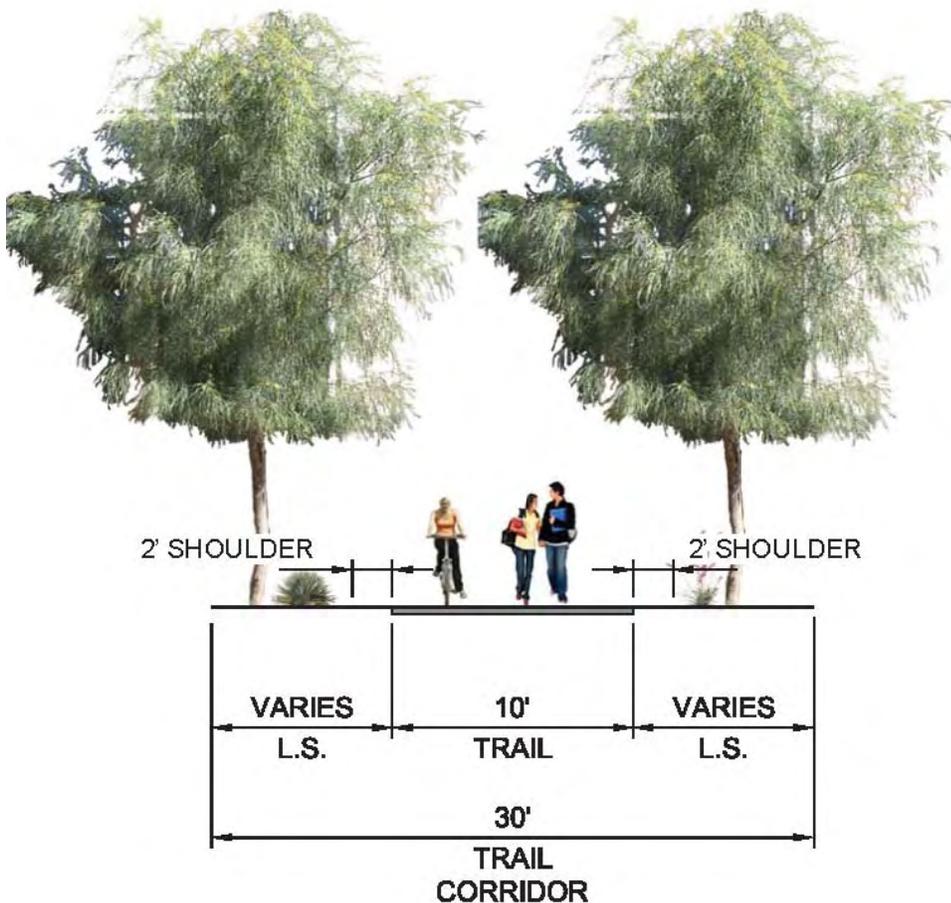
Off-Street Multi-Use Trails



An “off-street multi-use trail” refers to a trail that occurs within an independent right-of-way (i.e. a drainage corridor right-of-way). The typical off-street multi-use trail cross section is shown in Figure 3-12. Off-street trail corridors shall be a minimum of 30’ in width. A 10’ wide asphalt trail surface shall be provided to allow for two-way traffic. The landscape areas abutting the trail edge will vary in width to avoid obstructions. The landscape width may also vary to allow for meandering of the trail.

Such meandering shall be limited to extremely long segments where relief from monotony is needed. Required trail amenities and development standards are discussed further in this section. Off-street trail facilities are generally preferred by recreational users, as they provide a more pleasant and comfortable experience away from motorized traffic.

FIGURE 3-12 Off-Street Multi-use trail



3.6 DESIGN CRITERIA

Design criteria are set forth to promote safety, health, and welfare of the users of the bikeways and trails system. The criteria have been incorporated into the CTBMP to ultimately improve the bikeways or trail user's experience. A well designed system should encourage residents to take part in outdoor activities such as walking and biking, which promote a healthy lifestyle for the community of North Las Vegas.

The following trail and bikeway design criteria are intended to guide the City and design professionals in a uniform, consistent manner. The design standards address individual components of the bikeway and trail systems including signage, lighting, and landscape.

Bicycle Facility Criteria

Markings

Bicycle lanes will be in compliance with the latest version of the Manual of Uniform Traffic Control Devices. Additional warning devices may be utilized to alert the driver when they encroach upon the bicycle lane.



Signage

Signage for bicycle lanes and bicycle routes shall comply with the Clark County Uniform Design Standards and AASHTO's Guide for the Development of Bicycle Facilities. All signage shall also comply with the Manual of Uniform Traffic Control Devices, current edition.



Multi-use Trail Criteria

In addition to the design criteria set forth in this section of the CTBMP, trail designers shall refer to AASHTO's Guide for the Development of Bicycle Facilities, Clark County Uniform Design Standards and the Manual of Uniform Traffic Control Devices for technical design of trails. City staff will also develop trail design guidelines that will describe amenities to be located on the off-street and street-side trails, such as benches, drinking fountains, and trash receptacles.

Trail width and surface

Trail corridors should be a minimum of 30' wide, allowing for landscaping on both sides of the trail wherever possible. Multi-use trails may be either concrete or asphalt. The standard multi-use trail is 10' wide with a 2' clearance zone on each side. Concrete is the typical surface used when trails are located within or adjacent to a street right-of-way. Asphalt is a typical trail surface for trails located away from streets, along a wash or utility



corridor, such as the existing Las Vegas Wash trails, although asphalt surfaced trails may be located along a street right-of-way. An asphalt trail shall be a minimum of 10' wide with 2' shoulders of compacted or stabilized decomposed granite on both sides, not to exceed 1:6 slope away from trail.

Trail landscaping



Landscaping of trails shall follow landscape design guidelines developed by the City of North Las Vegas Community Services & Development Department. Water conservation landscape methods shall be used and plant palettes for low water use are required. Shade arbors or trees are required to reduce the heat island effect, to improve air quality, to buffer noises, and to provide shade to trail users. Sight visibility easements shall be adhered to at all trail intersections. Landscaping must be

kept at a safe distance from the trail so as not to encroach upon the trail nor create areas that compromise the security of the trail. Growth patterns of trees and shrubs should be considered when placing landscaping adjacent to lighting fixtures. Care must be taken not to block lighting during installation, growth periods and as the landscaping matures.

In preservation areas, all disturbed areas shall be re-vegetated to minimize erosion and to restore the habitat. Additional vegetation shall be planted along preservation trails in such areas where additional shade is warranted or where wildlife habitat may be improved.



Trail access

Connection of the trail system with adjacent neighborhoods, commercial, industrial, and business development should be promoted and may be required as part of new development. Where access points are provided to adjacent residential developments, design features such as keyed, and/or combination gates should be used. These gates should be spring loaded and self closing.

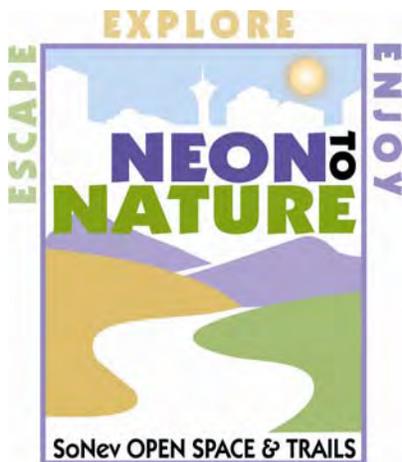
Emergency vehicle access points shall be provided as required by the Fire Department. Areas accessible by a motorized vehicle should have collapsible bollards or a lockable gate installed to prevent unauthorized vehicles from entering the trail corridor.

Trail signage

Signage throughout the trail and bikeway system needs to be clearly identifiable and easy to read while in motion. There are three types of signs that should be incorporated along trails: 1) Safety and Regulatory, 2) Directional and 3) Interpretive.



1) Safety and Regulatory Signage shall comply with the Clark County Uniform Design Standards and AASHTO's Guide for the Development of Bicycle Facilities. All signage shall also comply with the Manual of Uniform Traffic Control Devices, current edition.



2) Directional Signage shall be incorporated along the trail, at trail heads and access points. Directional signage should also include mile markers to help trail users track the distance traveled, aide with reporting emergencies and help law enforcement identify a specific location to reduce emergency response times. The content of the entire signage package should be consistent with that being developed for the regional trail system by the Southern Nevada Regional Planning Coalition (SNRPC). Directional signs should include the trail logo. The City standard park monument sign shall be installed at the gateway locations shown on the Master Plan Map.

3) Interpretive Signage

Interpretive signage may be included along the trails to inform trail users of educational, environmental, cultural and historical information about the corridor in which the trail is located. This can also include signage about the trail theme, trail etiquette, or other items of interest.

Trail crossings

When designing a trail crossing, the following criteria should be followed:

- Clear, unobstructed crossings are essential.
- Not less than 100' in advance of an intersection with a street or another trail, signage shall be provided to warn users of the intersection and the type of intersection. It is also recommended that signs be placed on the streets to warn vehicle drivers of upcoming trail crossings.
- “WALK YOUR BIKE” signage should be placed on multi-use trails at arterial street intersections.
- Wherever possible, trail street crossings shall be perpendicular to the road, properly marked within the crossing, and marked on both sides in compliance with the Manual of Uniform Traffic Control Devices, current edition.

Trail bridges, overpasses, and underpasses

When designing trail bridges, overpasses and underpasses, the following criteria should be followed:

- Where feasible, lengths of such features shall be limited to 150 feet.
- CPTED (Crime Prevention Through Environmental Design) principles shall be followed, to the extent possible, in the design of trail bridges, overpasses, underpasses, and the approaches to them.
- When possible, add light windows to underpasses.
- A clear viewing area from both ends of the feature must enable the user to see the entire area well in advance of actually entering the area.
- Grade changes shall be smooth and unobstructed.
- Overhead structures shall maintain 10 feet of clearance from top of trail surface.
- Drainage grates or tiles must be safe for bicycle use and must be posted with advance warning signage.
- The standard trail width (10') shall be continued across all bridges, overpasses and underpasses where trail alignments are planned, including structures across freeways, railroads and major arterials.



Trail lighting

The following lighting standards should be considered:

- Trails shall be lighted in compliance with IESNA (Illumination Engineer’s Society of North America) standards.
- Lighting fixtures shall be in compliance with the City of North Las Vegas Public Parks Lighting Standards.
- Light fixtures shall face away from adjacent properties, wherever possible.
- Trail lighting shall adhere to the City of North Las Vegas Municipal Code for light spill requirements at adjacent property lines



Emergency Call Boxes

To provide an additional security feature, emergency call boxes may be utilized along portions of designated off-street trails, on a case by case basis, as a need is identified. It is recommended that these locations be coordinated with the Police Department and Fire Department to best provide access and convenience for all potential users.

If a need for call boxes is identified, it is recommended that the emergency call boxes have the following features:

- No trenching required; each call box is a self contained “wireless” unit;
- Durable and vandal resistant construction;
- Powered by internal batteries, requiring no conduit and power being run to the unit;
- Call box answering equipment able to identify each call box location to ensure that assistance is sent to the proper location.

Security Cameras

Security cameras may be utilized, on a case-by-case basis, within specific trail corridors, as determined to be necessary during the planning and design process for each trail segment. Camera connections can be supplied on all trails that are not in direct view of a street and in trail segments that are obscured.

If cameras are deemed necessary in certain locations, they may be one of either two formats. The first is the traditional video camera which can be activated with motion and record video of trail users to ensure that any illegal acts might be caught on tape. The second type of camera is a still photograph “Flash Camera”. The cameras should be solar powered and motion activated up to 100 feet. A flash feature may be used for evening hours, and it also has a voice message option that can broadcast a verbal warning to trespassers.

CPTED Principles

Crime Prevention Through Environmental Design (CPTED) is a proactive approach to reducing crime in a given area by following its four basic principles. These principles should be adhered to as closely as possible during the design process of any trail segment to diminish the possibility of crime occurring along a trail.



Principle #1: Natural Surveillance

“See and be seen” is the overall goal when it comes to CPTED and natural surveillance. A person is less likely to commit a crime if they think someone will see them do it. It also includes the placement of physical features that maximize visibility. Lighting and landscape play an important role in this principle. Utilizing the 2’ - 6’ rule aids in this. This rule states that shrubs in the line of site should be no taller than 2 feet and tree canopies should start no lower than 6 feet.

Principle #2: Natural Access Control

Natural Access Control involves guiding people by using signs, well-marked entrances and exits, and landscaping. It may also include limiting access to certain areas by using real or symbolic barriers. The goal with this CPTED principle is not necessarily to keep intruders out, but to direct the flow of people while decreasing the opportunity for crime.

Principle #3: Territorial Reinforcement

Creating or extending a “sphere of influence” by utilizing physical designs such as pavement treatments, landscaping and signage that enable users to develop a sense of proprietorship is the goal of [Comprehensive Trails & Bikeways Master Plan](#)

this CPTED principle. Public areas are clearly distinguished from private ones. Potential trespassers perceive this control and are thereby discouraged. This can be achieved through the use of motivational signs, displays of student art, and the use of school or community colors to create warmth and express pride.

Principle #4: Maintenance

CPTED and the “Broken Window Theory” suggests that one “broken window” or nuisance, if allowed to exist, will lead to others and ultimately to the decline of an entire neighborhood. Neglected and poorly maintained properties are breeding grounds for criminal activity. Proper maintenance, as outlined in this document, will deter this type of undesirable behavior.

Off- street trailheads

Off-street trailheads shall only be required on publicly maintained off-street trail segments, or if required as part of a master planned community development agreement. All trailhead designs must comply with AASHTO, ADA, and Uniform Building Code standards adopted by the City.

The following designations shall be used for off-street trailheads and rest areas:



- **TRAILHEADS:** Trailheads will be located at 2 mile intervals and will include trail amenities and 1-2 parking spaces where possible. The amenities may include drinking fountains, bicycle racks, dog waste dispenser, concrete divided benches, trash receptacles, and lighted metal shade shelters, where possible.



- **MAJOR TRAILHEADS:** Major trailheads will be located at 2 mile intervals at major access points to trail systems and mark the start and finish of a particular trail route. In addition to the amenities included at trailheads, major trailheads will also include restrooms (where feasible), parking spaces (5-10 spaces), and concrete picnic tables.

Neighborhood, Commercial, Workplace and Adjacent jurisdictional connections

The developer of a trail segment shall make every effort to connect the trail with neighborhoods, public, commercial, and workplace destinations. Small trail spurs, with or without gates shall be constructed when destinations are in proximity to a trail. Trail and bicycle lane connections have been coordinated to smoothly connect with adjacent jurisdictional plans. These connections have been categorized as Gateways and Bicycle Lane connections as identified on the Master Plan Map. Gateways are defined as anywhere a regional trail or transit route intersects with an adjacent jurisdiction. They are located as follows:



Gateways:

- Upper Las Vegas Wash Trail at Decatur Boulevard
- I-215 Trail at Decatur Boulevard
- Las Vegas Wash West Tributary Trail at Craig Road.
- Las Vegas Boulevard at Owens Avenue
- Las Vegas Wash Trail at Pecos Road

Bicycle Lanes:

- Horse Lane, Farm Road, Deer Springs Way, Tropical Parkway, Lone Mountain Road, Alexander Road, and Gowan Road at Decatur Boulevard
- Carey Avenue at Rancho Drive
- Revere Street at Lake Mead Boulevard
- Pecos Road at Owens Avenue

Optional Design Features

The following features are mentioned for information only and are not required at this time.

Bicycle Boxes

The addition of specially marked rectangular areas for bicycles to stop at street intersections provides a place for bicyclists to wait in front of other stopped traffic. The bicycle lane is widened to encompass the outside lane of traffic prior to the intersection. Bicyclists are then more clearly visible to motorists as they stop and then proceed through the intersection before resuming the bicycle lane after crossing the street. Such areas have been used in Portland, OR and are referred to as “Bicycle Boxes” (Figure 3-16).

The use of Bicycle Boxes is intended to minimize the occurrence of bicycle-auto collisions in right turn situations. For this to work properly, a “no right turn on red light” condition at the intersections where it is utilized is necessary. They are purely a safety element, and could be used in high traffic areas to draw motorists’ attention to the presence of bicyclists.

Bicycle Parking and Storage

In order to promote bicycle transportation, the provision of bicycle parking facilities may be considered.

- Safe and secure bicycle parking facilities, such as bicycle lockers, could be provided near transit stops.
- Short and long term bicycle parking facilities could be included on all streets with bicycle accommodations. One mile intervals between bicycle parking facilities are recommended.
- Provision of bicycle parking facilities at key destination points may be considered.
- Bicycle parking facilities must be placed with adequate clearance for riders to dismount and walk bicycles to the lockers.
- All bicycle parking facilities shall be shaded from direct sunlight.



4. KEYS TO SUCCESS: IMPLEMENTATION RECOMMENDATIONS

4.1 INTRODUCTION

Implementation of the Comprehensive Trails and Bikeways Master Plan is a long-term undertaking requiring multi-year budgetary commitment and interdepartmental involvement. The phasing of implementation measures should be approached with the objective to create immediate, tangible, short-term impacts, as well as a multi-year program for development. Successful implementation requires the completion of a combination of action strategies that relate to municipal standards and regulations, education and public outreach, and capital improvement projects.



4.2 RECOMMENDED POLICIES

The following policies relate to trail and bikeway development within the City.

- Policy #1:** The Master Plan Map contained within this document supersedes the Pedestrian and Bicycle Trails map in the City’s adopted Comprehensive Plan.
- Policy #2:** The City’s Master Plan of Streets and Highways should be amended to include the cross-sections adopted in this plan.
- Policy #3:** All private development occurring along an identified trail corridor, as outlined in this document, should develop a trail as prescribed by the CTBMP standards, and/or dedicate the land to the City.

4.3 ACTION PLAN

The following action plan has been developed as implementation tools for the four goals identified in Chapter One:

Goal #1: Create a continuous network of trails and bikeways throughout the City of North Las Vegas.

Action Strategy: Develop design guidelines for the design of off-street multi-use trails, street-side multi-use trails, and bicycle facilities.

Action Strategy: Provide support amenities and site furnishings appropriate for multi-use trails and bikeways.

Action Strategy: Continue to participate in the Southern Nevada Regional Trails and Open Space Workgroup in order to link the City's trails and bikeways to like facilities in neighboring jurisdictions.

Goal #2: Promote safety and increased use of the trails and bikeways network through design, education, encouragement and enforcement.

Action Strategy: Develop volunteer opportunities by establishing a "trail watch" program and an "adopt a trail" program.

Action Strategy: Adopt standards based upon both the American Association of State Highway and Transportation Officials and the Regional Transportation Commission of Southern Nevada Bike and Pedestrian Plan.

Action Strategy: Create cost effective service delivery models to determine appropriate levels of maintenance to sustain the trail system.

Action Strategy: Plan for bikeways and trail access to existing bus stop locations and future planned transit locations.

Action Strategy: Develop a uniform sign program for trails and bikeways.

Goal #3: Create a trails and bikeways network that emphasizes recreational trail experiences; expands transportation options; and enhances community pride and livability.

Action Strategy: Develop an informational trails brochure for residents.

Action Strategy: Continue to coordinate trail outreach efforts with the Health District of Southern Nevada for the Neon to Nature websites.

Action Strategy: Continue to update the RTC regarding the development of new bicycle facilities, for inclusion in the annual Southern Nevada Bike Map.

Action Strategy: Plan special events such as 5k runs, fun walks and annual clean up days using the trail system.

Goal #4: Coordinate successful implementation of the trails and bikeways network in a manner that is strategic, sensitive to the environment and sustainable.

Action Strategy: Design trails and bikeways with sensitivity for the desert environment.

Action Strategy: Require drought tolerant landscaping along the trails.

Action Strategy: Develop new trails in areas where land has already been disturbed, where possible.

Action Strategy: CTBMP should be reviewed and updated every five years.

4.4 PHASING AND NETWORK PRIORITIES



In order to maximize the impact of expenditures, the master plan has been designed to build on existing infrastructure as much as possible.

The goal of the implementation plan is to create a series of pedestrian and bicycle circulation loops. The first priority is the creation of larger circulation loops that connect major portions of the City. Each succeeding phase of the implementation plan builds upon the previous phases to ultimately provide a fully interconnected

system of pedestrian and bicycle circulation loops that link residential areas to major destinations throughout the city.

To accomplish this, the master plan has been divided into four categories, as shown on the Phasing Composite Map (Figure 4-1). Segments identified in Category 1 enhance existing bicycle facilities and prioritize the Las Vegas Wash Trail and roadway construction projects identified in the City's 2010-2014 Capital Improvement Projects report. Completion of these segments will provide several large loops which connect a major portion of the City (Figure 4-2) and become the "backbone" of the plan. Each successive category (2 through 4) connects with the preceding groups to provide smaller loops throughout the City (figures 4-3 through 4-5).

Segments in undeveloped areas of the City (i.e.: BLM disposal areas, future MPC areas) have not been included in the implementation plan. It is anticipated that trails and bikeways in these areas will be incorporated into future development agreements and will connect with the existing system. As new development occurs, the proposed trails and bikeways may be modified to meet additional demand created by the development.

The implementation plan is intended to be used as a tool to assist with the prioritization of capital improvement projects. The phasing and network priorities should be reviewed on an annual basis and updated as necessary. The review should include an evaluation of the following criteria:

- **Destinations Served:** Alignments that provide access to a park, school, or other major community destinations.
- **Availability of Funding:** Consider the available funding and the projected cost of development.
- **Potential Usage:** Consider the likelihood of significant use. Alignments located near high population areas or major destinations like schools, parks, and nature preserves.
- **Ease of Construction:** Consider factors that may impede construction, such as difficult street or highway crossings, right-of-way acquisitions, regulatory issues, and potential political consideration.
- **Transit Connection:** Prioritize projects that provide connection to RTC transit stops.
- **Current Liabilities:** Evaluate facilities for safety issues that need attention.
- **Current Development Projects:** Ensure that new bicycle facilities and trails are being incorporated into new development, where appropriate.
- **Critical Connectivity Gaps:** Evaluate gaps in the current system and the current use of the facility.

FIGURE 4-1 PHASING COMPOSITE MAP

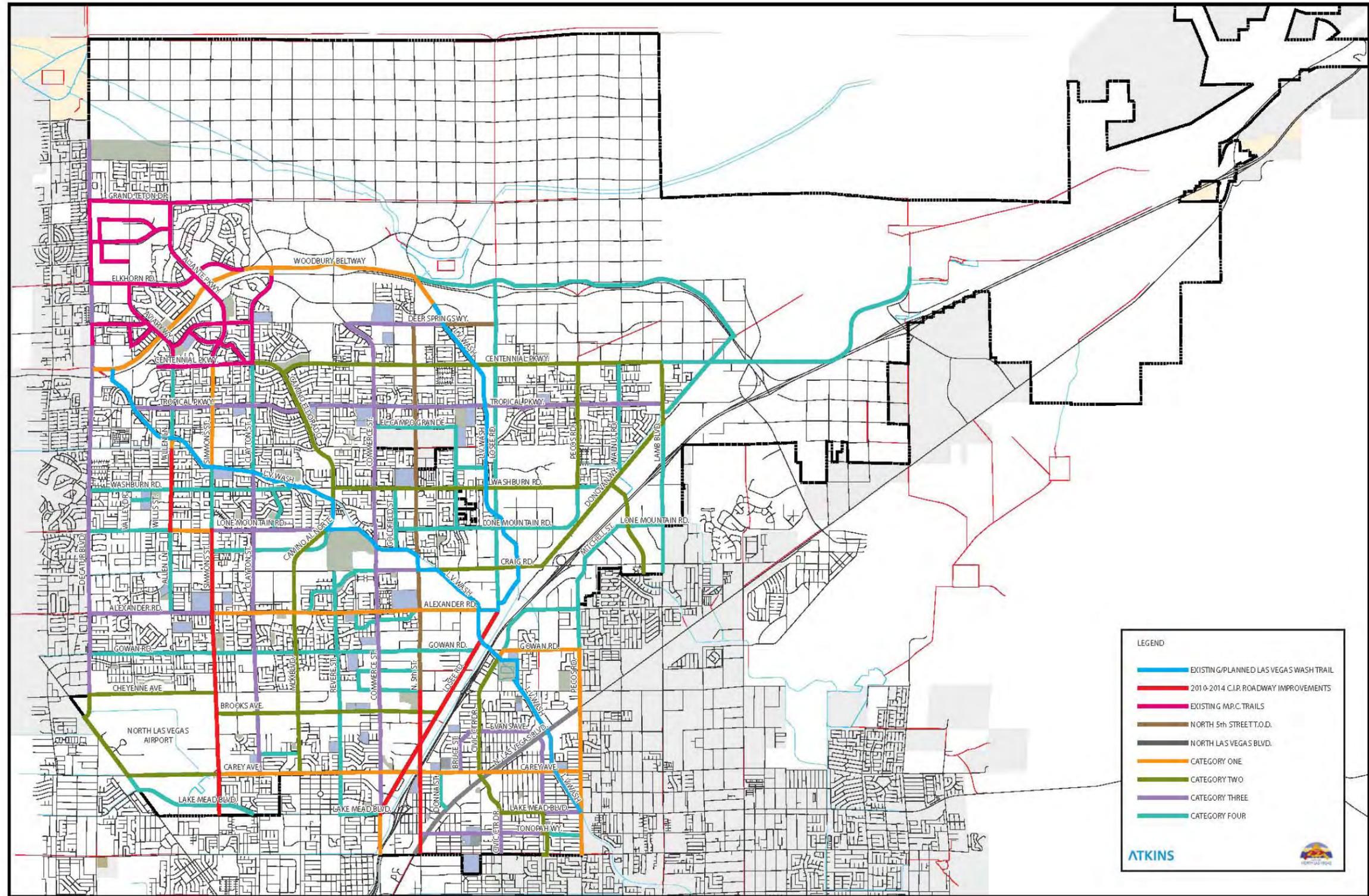


FIGURE 4-2 PHASING CATEGORY ONE

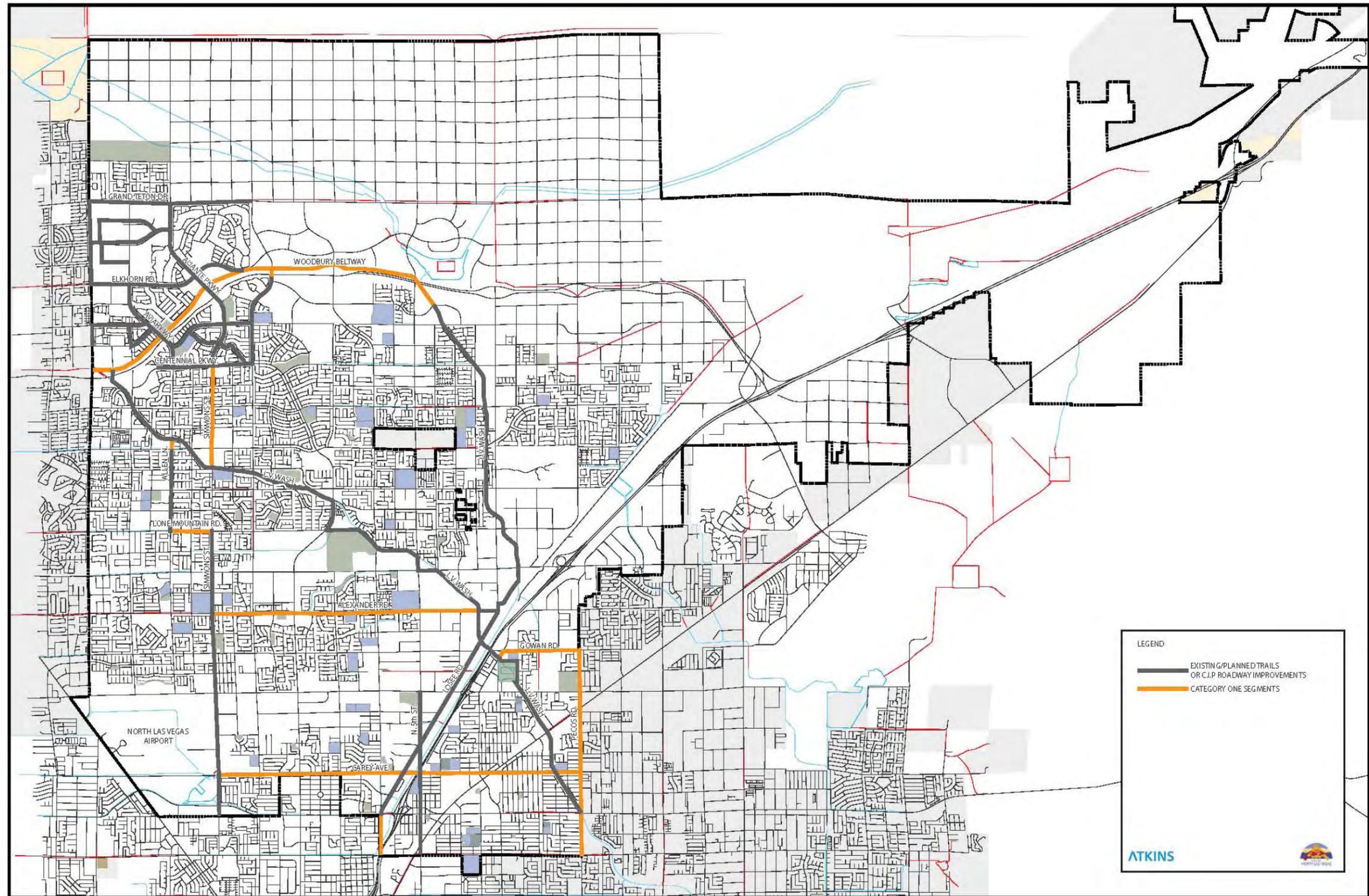


FIGURE 4-3 PHASING CATEGORY TWO

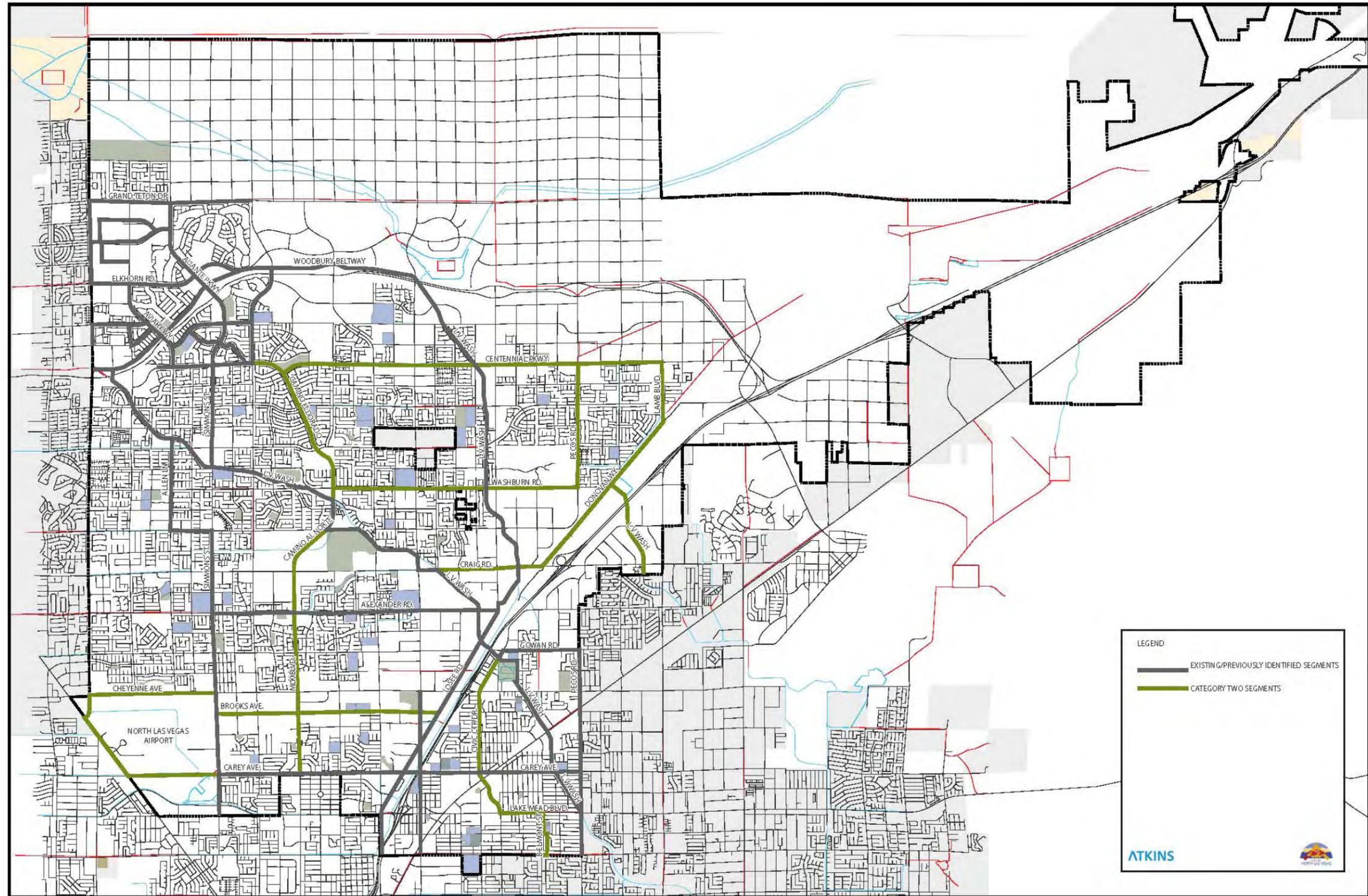


FIGURE 4-4 PHASING CATEGORY THREE

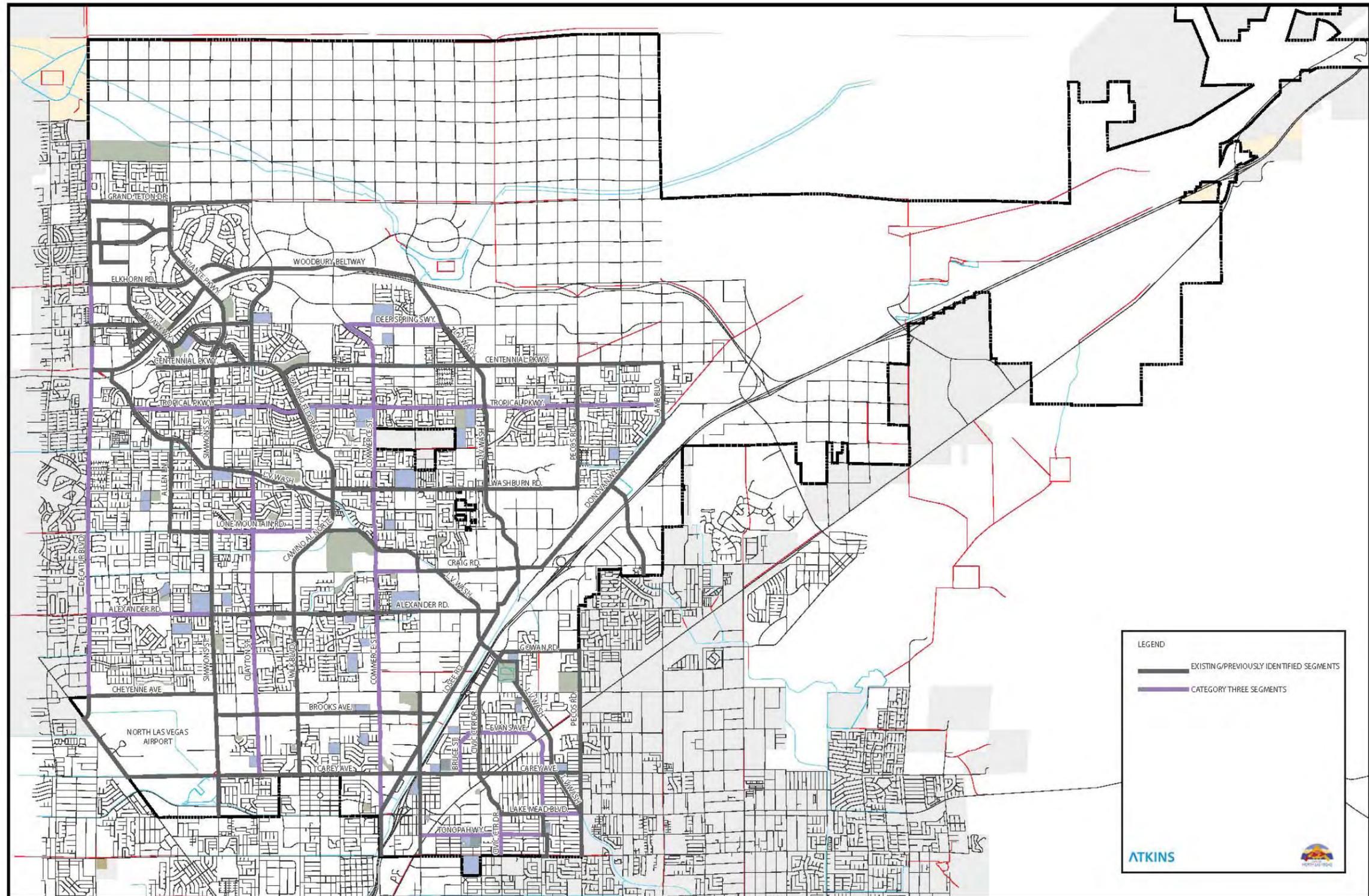
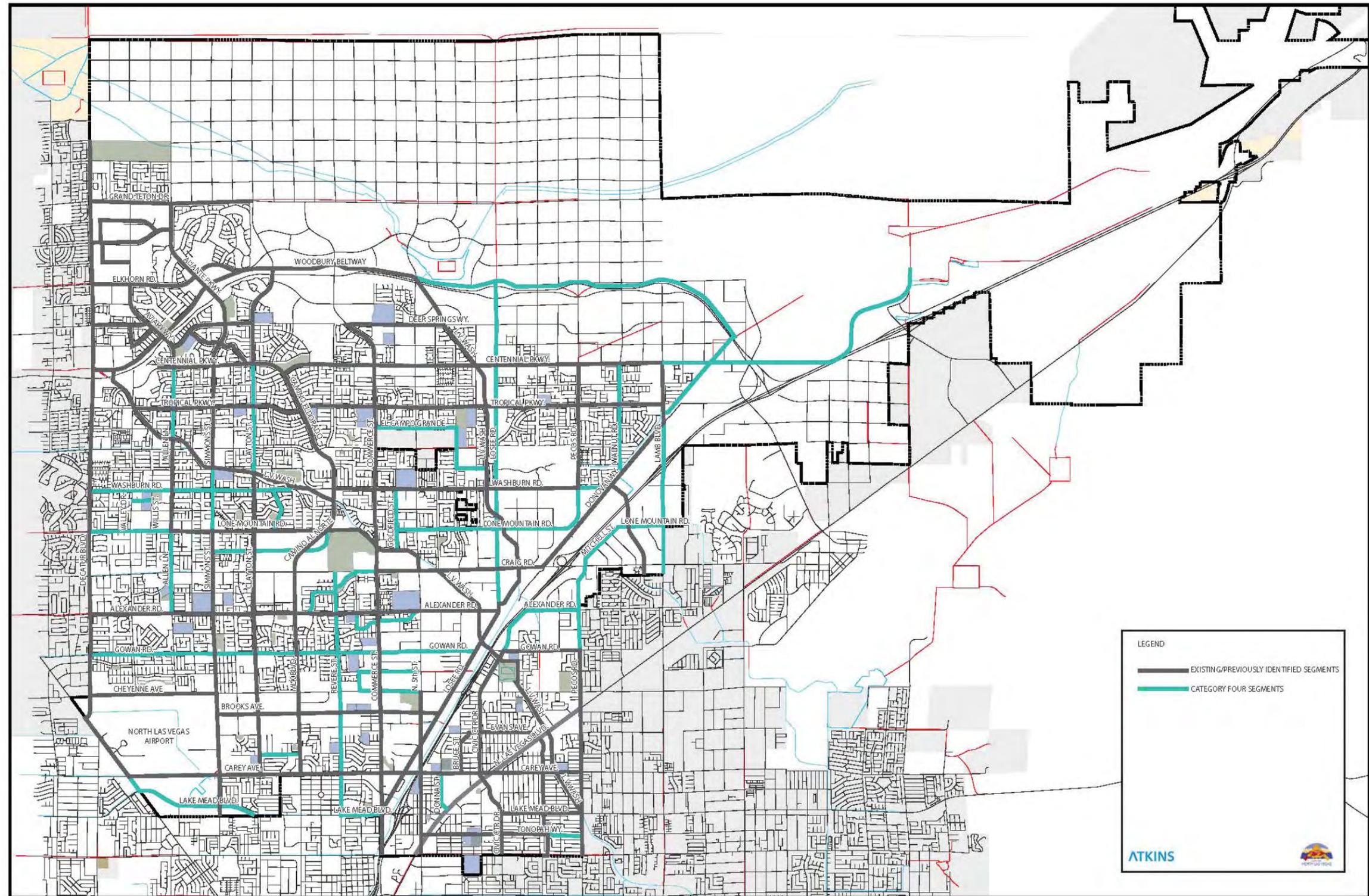


FIGURE 4-5 PHASING CATEGORY FOUR



4.5 MAINTENANCE

Regular maintenance is a key component of a successful trail and bikeway system. A well maintained system will encourage greater use by the public and protect the City's capital investment in constructing the system. Increased use will provide more "eyes on the street," discouraging acts of vandalism and undesirable activities, and create a safe and enjoyable experience for users.

Trail and bikeway maintenance includes scheduled and unscheduled activities. Examples of scheduled maintenance include sweeping to remove dirt build-up and debris, repaving and striping of bicycle lanes and bicycle routes, refuse collection from litter receptacles, and landscape maintenance. Unscheduled activities include such items as pothole patching and crack sealing, replacement of light luminaries, removal of graffiti, and repair of vandalized items.

Decisions made during the design process have a direct impact on the level of service required to maintain the system. Consideration of maintenance requirements early in the design process can reduce future maintenance costs. Design decision that will reduce maintenance expenses include but are not limited to:

- Drought resistant plants and trees
- Root guards can reduce cracks or upheaval on trail surfaces
- Edge treatment for asphalt trails can reduce the deterioration

Developing a Maintenance Program

The Federal Highway Administration recommends four primary objectives to consider when establishing a maintenance program:

1. Trails and bikeways should be maintained at a relatively hazard-free state.
2. Users should be encouraged to report maintenance problems and hazards.
3. Design and construct new facilities in such a way as to reduce potential long-term maintenance problems.
4. Include the costs of maintenance and establish clearly spelled out maintenance procedures in all bikeway and trail projects.

The City's operational and maintenance (O&M) budgets should be evaluated on a regular basis. A key to developing accurate O&M budgets is the creation of a database to track the location and frequency of scheduled and unscheduled maintenance. The database should be populated with information such as the location of maintenance performed, repairs required, acts of vandalism, debris build-up and accident locations. Regular inspections of trails and bikeway facilities are recommended. This will provide valuable data and help identify areas of concern that may require additional attention.

Scheduled maintenance of bicycle lanes and bicycle routes may require a modification to existing street maintenance activities. Street cleaning frequency should be evaluated and adjusted as necessary to reduce hazards caused by the accumulation of debris in streets. This frequency should be determined after the City has populated a database of maintenance activity. Trail maintenance will require a greater level of service. Items not normally associated with normal street maintenance will have to be performed, such as landscape pruning and litter collection.

4.6 SUPPORT PROGRAMS

Trail Watch Program

In addition to the measures above, it is recommended that the City establish a “Trail Watch” program. Similar programs have been initiated throughout the country, and locally in the City of Henderson. It works by having Trail Watch volunteers promote safety and appropriate trail use by providing information and assistance to all trail users. These volunteers would serve as a positive presence on the trails and help the City keep the trails safe and maintained by observing and documenting safety issues that require attention. The processes to become, and requirements to participate as a Trail Watch Volunteer, as outlined by the City of Henderson’s program are repeated below:

Four Steps to Become a Trail Watch Volunteer:

- Complete an application
- Attend training
- Hit the trail
- Report your observations

Trail Watch Volunteer Requirements:

- Must be 18 years of age or older
- Complete the application and attend training.
- Carry a personal cell phone at all times while on the trail.
- Carry Trail Watch ID and wear Trail Watch vest or armband.
- Log and report time on trail.

APPENDIX A: RELEVANT MUNICIPAL CODE STANDARDS AND REGULATION

The guiding principle of the CTBMP is the integration of a comprehensive bikeway and trail system that provides consistent, safe access for the users to destinations and open spaces throughout the area. A major tool in furthering the goals contained in these guiding documents will be the integration of bicycle and trail friendly ordinances and incentives into the North Las Vegas Municipal Code. The following sections provide an overview of existing Codes, Policies and Incentives. Recommended changes and/or additions to the existing Codes, Policies and Incentives are also discussed.

The City of North Las Vegas has laid the groundwork for prioritization and expansion of the system through existing public policies and objectives. As discussed in Chapter 2, there are several provisions related to multi-modal transportation opportunities and trail system enhancement in both the City's Comprehensive Plan and also the Visioning 2025 Strategic Plan.

Codes

The City's Zoning Ordinance (Title 17), requires commercial, industrial, and residential developments to provide pedestrian and bicycle connections to adjacent developments. Specifically the City's Mobility and Circulation section (17.24.050) contain connectivity standards for all developments. Design Standards for pedestrian and bicycle connectivity are also provided. Specific standards include the use of drainage and utility easements as linkages, required width for multi-use trails, and requiring pedestrian and bicycle gates to be located along all perimeter walls within residential and commercial developments. Additionally, within non-industrial areas of the city new developments are required to provide bicycle parking facilities per 17.24.040.G.

Title 17 also contains additional development standards for special districts. For example Planned Unit Developments (PUD) are required to provide additional open space and park land; Mixed-Use Developments (MUD) are required to provide Pedestrian Priority Areas that serve as both plazas and trails connecting the residential and commercial uses within the development; and small lot single-family developments using the Design Incentive System (RDIS) are encouraged to connect their development to existing or planned city parks and trails. Additionally, the sustainability section (17.24.140) encourages the development of additional park land and trails; additional trail connections, and enhanced bicycle facilities.

There are additional code requirements that affect trails and bicycles. These include Title 8 Health and Safety (8.16 Fire Code); Title 10 Vehicles and Traffic (10.60 Bicycles); and Title 16 Development Code (16.20 Design Standards). The Fire Code has impact on trails because the minimum width for fire access roads is 24 feet. The 24 feet must remain clear and cannot be used for multi-use trails. Section 10.60 contains bicycle regulations within the City but does not contain any specific language

regarding routes, lanes, or multi-use trails. Title 16, the development code for the city (16.20.120), does require a developer to reserve public facilities that are planned, which would include public trails.

The following changes to the code are recommended:

- A number of development standards encourage multi-use trails, additional incentives could be developed to help increase the amount of encouragement, or they should be required in the code.
- The Requirements in Title 17 should be relocated into Title 16 and referenced in Title 17, this will allow one chapter of the code to contain the requirements for multi-use trails and bikeways.
- Larger sized developments should be required to provide an internal system of trails and bikeways in addition to the linkages to the regional trail system.

APPENDIX B: RELEVANT ADOPTED PLANS - GOALS, OBJECTIVES, & POLICIES

A major task in the development of this the CTBMP was the review of previous planning documents and policies and the identification of information relevant to this plan (outlined below).

VISIONING 2025 STRATEGIC PLAN

In 2003, the City Manager Outlined the strategic planning needs of the City to be achieved through the development of a citizen-driven process for a Visioning 2025 Strategic Plan. The Steering Committee identified seven vision elements for the strategic plan. The seven Vision Elements are: Planned Quality Growth, Pivotal Centers for Development and Redevelopment, Economic Development, Community Services and Amenities, Safe and Livable Community, Community Spirit, Relationships and Pride and Fiscal Policies and Management. Three of the Vision Elements have specific goals that address and support the creation of a Comprehensive Trails and Bikeways Master Plan.

Vision Element: Planned Quality Growth

Primary Achievement A - Land Use

Vision: The City of North Las Vegas is a carefully planned and well-designed community that has achieved an amenity driven and balanced development in all sectors. It has pedestrian-oriented neighborhoods, high quality commercial and industrial areas, destination power centers, regional shopping malls and restaurants, regional infrastructure and municipal facilities, transportation systems that afford a person the ability to travel easily throughout the City, and a wide variety of housing options, open space, educational, recreational and other cultural amenities.

Goal #8: Establish entryways, streetscapes and other features that distinctively delineate various areas of the City.

Rationale: Each part of the City should be identified distinctively through methods that also invoke the image people desire for that portion of the community.

Strategy: Incorporate within the City's Comprehensive and related community Master Plans appropriate locations and design standards for entryways, gateways, streetscapes and other features delineating various areas of the City.

Primary Achievement B - Transportation

Vision: The City of North Las Vegas has an integrated, citywide, regional, and multi-modal transportation system that affords seamless connections throughout the City on which a person can easily travel without experiencing the frustration of traffic congestion, and travel delays.

Goal #2: Create a safe pedestrian environment throughout the entire transportation system that promotes a connection between neighborhoods and commercial development.

Rationale: The City needs to create a safe environment for pedestrians and bicycles throughout its overall transportation system.

Strategies of Note: Provide better links from neighborhoods to commercial centers; develop bicycle lanes and sidewalks as alternative routes; promote ADA Accessibility; utilize concepts of Special Improvement Districts (SID) or other fund mechanisms for acquisition and completion of Right of Way (ROW) and road systems; and post improved pedestrian signage and complete pedestrian crosswalks.

Goal #5: Mitigate the Impact of future traffic congestion.

Rationale: The expected growth of North Las Vegas over the next 20 years and accompanying impact on traffic and future congestion necessitates the development of alternative modes of transportation.

Strategies of Note: Promote and provide mass transit on vital arterials (multi-modal); allow development of completed sidewalks, trails, and biking paths.

Primary Achievement D - Air Quality

Vision: The City continues to have the cleanest air in the Valley by promoting alternatives to single passenger travel, encouraging nodal development, and attracting high tech, low pollutant industries.

Goal #2: Promote and encourage alternatives to single passenger travel.

Rationale: To promote cleaner air, there must be alternatives to modes of transportation that disproportionately contribute to the City's air quality problems.

Strategies of Note: Encourage use of bicycles, trails and walking as an alternative to driving.

Vision Element: Community Services and Cultural Amenities

Primary Achievement D - Parks and Recreation

Vision: The City has high quality parks and recreation facilities that meet the needs of its projected population of 468,157.

Goal #1: Develop higher than average standards for Parks and Recreation based on national standards and population.

Rationale: The rapid growth of the City of North Las Vegas necessitates ensuring sufficient parkland and resources are available to provide desired park and recreational facilities as prescribed by national standards.

Strategies of Note: Complete actions as outlined in Parks and Recreation Master Plan.

Vision Element: Community Spirit, Relationships and Pride

Primary Achievement A - Community Image

Vision: North Las Vegas has differentiated itself in comparison to other cities in the Las Vegas Valley. It has created a community focused upon people-oriented and imaginative neighborhood and

commercial development; transportation systems that permit rapid and easy transit throughout the City and region; a vibrant economy; and amenities and unique features that attract and excite residents and visitors. The City has taken full advantage of its opportunities including location, weather, community spirit, natural beauty and business friendly climate. Its image is positive, engaging, and permits citizens to beam with community spirit and pride. People are proud to say they live, work, play and thrive in North Las Vegas.

Goal #1: Create a more positive image for the City of North Las Vegas.

Rationale: A positive image is essential to encouraging growth in the community as well as providing a sense of civic pride among its citizenry.

Strategies of Note: Find creative and far reaching methods to portray a positive community image.

THE CITY OF NORTH LAS VEGAS COMPREHENSIVE MASTER PLAN

The Comprehensive Mater Plan for the City of North Las Vegas supports trail and bikeways planning in several ways. The Plan includes a Pedestrian and Bike Trails map, which is a tool created as a base plan for the trails and bikeways system. In addition to establishing the Trail and Bikeways system on the Pedestrian and Bike Trials Map, the Plan includes many policies that encourage the development of a fully integrated trails and bikeways system:

- Principles of Design - Master Planned Communities' should provide a connected system of Trails, Parks and Open Space and promote multi-modal trails through building and street design.
- Parks, Trails, and Open Spaces Policy - This Plan places a strong emphasis on the city achieving a connected system of trails and open space that links the neighborhoods to jobs, goods, services, and recreation destinations throughout the city.
- Transportation and Mobility Policy - This Plan stresses the importance of a multi-modal transportation system throughout the City. The transportation system provided by the City directly impacts its residents' quality of life through mobility, air quality, opportunities for exercise, safety, and transportation choice.

PARK AND RECREATIONAL FACILITIES MASTER PLAN

The Parks and Recreational Facilities Master Plan (PRFMP) updated in April 2004 and “contains Goals, Objectives, Policies, and Actions” that were developed to “expedite the park planning and development process.” The PRFMP includes a classification system for recreational facilities and provides an inventory and analysis of these facilities. In addition, the PRFMP establishes Level of Service (LOS) standards for various recreational elements (including trails and bikeways) and recommends design and development standards for each classification.

There are two specific objective and policy statements included in the PRFMP that support the creation and implementation of the CTBMP. These are:

Objective 1.12

Provide a planned and well thought out interconnected network of both natural and developed open space and linear greenways throughout The City; and

Policy 1.12.1

An open space and trails plan should be developed and adopted as a supporting component of this Parks Master Plan Update by the City.

The PRFMP includes trails and bikeways in the classification of Linear Parks/Greenway Corridors/Streetscapes. These are described as coming in many forms such as natural open space corridors, waterways, working landscapes, streetscapes, and recreational trails. They provide a natural or landscaped course for pedestrian or bicycle passage. It should be noted that the traditional definition of linear parks was expanded to include streetscapes which would generally not fulfill the definition of a recreational facility.

The PRFMP establishes Level of Service standards based upon an online survey of similar facilities from around the country. The resulting median LOS for linear parks and greenway corridors is .25 miles per 1,000 residents. The calculations presented at that time indicated that 37.5 miles were required to meet the LOS but that only 7.5 miles currently existed (the 15 miles of Las Vegas Wash Trail within the City was not included in the calculation). As stated above, the definition of linear parks was expanded in the PRFMP to include streetscapes; the 7.5 miles of existing linear parks and greenways was derived entirely by including streetscapes located along Lake Mead Boulevard, Civic Center Drive, Las Vegas Boulevard, and Carey Ave in the calculation and should not be considered in the resulting deficit figure. Taking all of the above into account, the calculations indicate that a deficit of 22.5 miles of linear parks and greenway corridors existed when the PRFMP was updated in 2004.

The PRFMP provides design and development standards, including the following trail routing guidelines, which have been incorporated into the CTBMP:

- Ability to link neighborhoods, civic areas, schools, shopping and other important destinations.
- Attractive corridors with scenic views or values (e.g. topographic, natural, historical, ecological).
- Ability to link parks, other trail systems and open space with interconnected networks.
- Takes advantage of opportunities for multiple benefits such as the use of drainage ways and utility corridors.
- Avoids steep grades, hazardous crossings, noisy or unpleasant settings and conflicts with adjacent private properties.

- Embodies the purpose of the recreational activity itself, such as hiking, biking, equestrian or interpretive trails.
- Meets a variety of recreational needs and challenges for potential users with a wide range of abilities.

THE DOWNTOWN MASTER PLAN AND INVESTMENT STRATEGY

The Downtown Master Plan and Investment Strategy (DMPIS) is designed to build upon existing assets, address challenges, and capitalize on opportunities in the public and private realm to achieve a revitalization of Downtown North Las Vegas. The Plan recommends new land uses and suggests rezoning to provide the regulatory infrastructure to support the vision.

The plan depicts a crucial need for improved pedestrian and bicycle facilities in the Downtown. It describes the current conditions in the Downtown make for an unfriendly pedestrian environment with wide traffic lanes and few designated crosswalks. The DMPIS identifies areas of high pedestrian activity around the City Hall and library on Civic Center Drive between North Las Vegas Boulevard, and Lake Mead Boulevard. Other areas of significant pedestrian activity include the area around North Vista Hospital, and the Silver Nugget Casino.

Other existing pedestrian conditions include:

- Lack of connectivity between neighborhoods and key destinations
- No clear, safe delineation between pedestrian and motor vehicle traffic routes

Design Guidelines from Chapter 6 of the DMPIS are paraphrased below:

- Min. 12' wide travel lanes are recommended for focus streets within downtown
- Min. 6' wide bicycle lanes with min. 7' wide bicycle lanes adjacent to parking
- Min. 8' wide parking lanes are encouraged on non-arterial streets
- Provide short and long term bicycle parking
- Min. 8' wide sidewalks with 10' min. width on arterial and collector streets
- Min. 5' wide clear unobstructed contiguous path for ADA
- Min. 12' wide shared pedestrian/bicycle paths
- Pedestrian Plaza sidewalks widened on McDaniel and in front of City Hall
- Min. 6' wide clearance for pedestrians in outdoor café areas
- No minimum setback on arterial streets
- Min. 5' to Max. 10' setbacks on collector streets
- Min. 10' to Max. 30' setback on local streets
- Las Vegas Boulevard North: 14' to 18' wide multi-modal transit lanes with 8'-15' wide sidewalks

- Las Vegas Boulevard North southern segment, McDaniel Street, Lake Mead Boulevard, and North 5th St. all have separate guidelines

SNRPC REGIONAL OPEN SPACE PLAN

The Southern Nevada Regional Planning Coalition adopted the Regional Open Space Plan in 2006. The plan defines the vision, tools and strategies for a regional approach to land conservation and trail planning. The objective set forth in the plan is to create an interconnected open space and trail network. The Regional Trails System will include more than 840 miles of urban off-street multi-use trails and more than 250 miles of off-street multi-use non-motorized trails on adjacent public lands.

In October 2007 a Southern Nevada Open Space and Trails Summit was held. This Summit was co-sponsored by 15 governmental entities and community organizations. At the close of the Summit, the fifteen governmental agencies signed a “letter of intent” to work collaboratively to further develop and implement a regional open space and trail system for Southern Nevada.

The Southern Nevada Regional Planning Coalition and the Southern Nevada Agency Partnership jointly chartered a Regional Open Space and Trail Workgroup. The Workgroup is charged with the task of overseeing the development and implementation of the Regional System. One of the first tasks the Workgroup focused on was branding the system. The Workgroup developed the brand Neon to Nature.

THE NORTH 5TH STREET TRANSIT SUPPORTIVE CONCEPT PLAN

The North 5th Street Transit Supportive Concept Plan is a 7 mile corridor from the 215 Beltway south to downtown and the southern City limits at Owens Avenue. East-west corridor limits extend ½ mile either side of North Fifth Street. Along Deer Springs, the corridor study area extends one mile on either side. This plan combines land use and transit oriented development (TOD) principles, with visioning and transportation needs to develop concepts for land use and circulation patterns within the corridor.

Five Planning Districts are defined linking the new UNLV north campus to Las Vegas through North Las Vegas. The TOD principles incorporated into the North 5th Street Transit Supportive Concept Plan require short and long term parking facilities for bicycles in all land uses and requires a quality pedestrian environment with walkway widths varying from minimum 6’ to minimum 10’ depending upon use and width of R.O.W. Core, Center, and Edge have varying pedestrian circulation and path widths. In the defined center, wider sidewalks offer pedestrian amenities such as street trees, kiosks, benches and plazas. Four components of the circulation system are defined based on the existing street grid pattern as follows:

High-capacity streets (e.g., North 5th Street, Craig Road, Cheyenne Avenue) provide regional throughways for significant volumes of vehicles, mass transit and other modes of transportation. Lower-capacity streets (e.g., Deer Springs Way, Ann Road, Alexander Road) allow for local traffic to access destinations such as employment, shopping, recreation, schools and neighborhoods.

Pedestrian Priority Areas feature safe and convenient street crossings; pedestrian friendly intersection designs, tree-lined sidewalks on both sides of each street; designated pedestrian routes to transit facilities; and clear and direct pedestrian routes to and between neighborhoods, retail, commercial and employment centers, schools, libraries and parks. This includes transit station circulation areas within 600 linear feet of a station.

Pedestrian/Bicycle Priority Streets: (e.g.: segments of Brooks Avenue, Donna Street, La Madre Way, Azure Drive, Deer Springs Way, Pecos Road north of Deer Springs Way) Such streets are clear and direct pedestrian and bicycle connections from residential neighborhoods to transit facilities, schools, and park and recreation facilities. Streets feature wider sidewalks, designated 5' bicycle lanes and traffic calming devices. Cross-sections show walking zones vary from 6' (edge) to 8' (center) to 10 (core) minimums.

Great Streets: (e.g.: North Fifth, Deer Springs segment, and Pecos Road segment.) These streets accommodate multi-modal transportation and adapt to function and character of adjacent land uses

THE UNLV NORTH CAMPUS CONCEPTUAL SITE PLAN

The UNLV North Campus Conceptual Site Plan provides an outline of the campus setting and sets forth ideals to provide access to a multi-modal transit center which is shown on the map approximately 0.5 mile north of CC-215 on Pecos Road. The campus is positioned as a gateway to the mountains and recreation areas that are shown on the map.

2001 NEVADA STATE BICYCLE PLAN

The Nevada State Bicycle Plan Update represents a complete new approach to planning for the needs of bicyclists on the roads of Nevada, including state highways and local systems. Building upon policies adopted in the 1996 version of this plan, this effort emphasizes the definition of the roles of state and local government in the continual development of transportation facilities which accommodate bicyclists.

The goals, objectives, and policies presented within this plan are generalized for state and local highways and streets, and multiuser paths as appropriate. The state-supported system includes connecting highways and other locally-owned roadways where there is state and federal investment in local government (county, town, city, general interest district) projects. NDOT collaborates in the decision-making process for projects on these routes and, thus influences the planning and design decisions made for those improvements. The local system includes local streets and county and town

roads. Most bicycle travel occurs on this system and its connectivity to the other systems is of major importance. NDOT has an interest in ensuring that bicycle systems are interconnected and that this system serves both the mobility and access needs of bicyclists.

2005 NEVADA STATE RECREATIONAL TRAILS PLAN

Nevada's 2005 State Recreational Trails Plan is the State's guide to the provision and improvement of recreational trail opportunities for the citizens of Nevada and our many visitors. The goal of Nevada's 2005 State Recreational Trails Plan is "to increase and improve the quality of trail activity opportunities in Nevada."

Recreational trails are important to Nevadans. Over 61% (967,419) of Nevada citizens participated in a trail activity in 2003. Recreational trails are used for everything from daily exercise to the "trip-of-a-lifetime," but many people do not recognize the time and effort necessary to maintain trails. Recreational trails are perhaps the most important piece of public infrastructure necessary for the enjoyment of Nevada's 56 million acres of federal and state lands, and perhaps the most taken for granted.

2005 NEVADA SAFE ROUTES TO SCHOOL PROGRAM

The Safe Routes to School Program identifies obstacles to children walking and biking to school and assists communities in developing strategies to mitigate these impediments. The program is available in areas adjacent to grade K-8 schools including public, private and tribal schools. Federal money is available via a competitive application and review process. Government entities, local communities, school districts, tribal governments, parent teacher organizations, private and non-profit organizations and advocacy groups are encouraged to apply. NDOT is requiring that all non-government entities' proposed programs be partnered with a government entity for purposes of agreements.

APPENDIX C: POTENTIAL FUNDING SOURCES

There is a variety of funding sources available for trail and bikeway development from both state and federal agencies. The keys to developing a successful Trails and Bikeways program are to understand the sources and mechanisms to receive available funding and to develop an innovative and creative funding strategy. A creative funding strategy should pursue funds from a variety of sources for the design and construction of trail and bikeway facilities. As an example, the city of Seattle, Washington used funds from 17 different sources to design and construct one phase of a primary multi-modal trail.

Because of the myriad sources of funding available, the CTBMP recommends that the City appoint a staff member (or members) the primary responsibility of identifying and pursuing funding sources for the overall system. The City should also consider engaging a grant writer to assist in the preparation of grant applications.

The following section lists funding sources available for trail and bikeway projects. It is not intended to document every single funding source available and should be considered as a primer and starting point for developing a creative funding strategy.

Federal Funding Sources

DEPARTMENT OF TRANSPORTATION

Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users

On August 10, 2005, President Bush signed into law the Safe, Accountable, Flexible, Efficient Transportation Equity Act: a Legacy for Users (SAFETEA-LU). The legislation updated Titles 23 and 49 of the United States Code (U.S.C.) and built on the significant changes made to Federal transportation policy and programs by the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA) and the 1998 Transportation Equity Act for the 21st Century (TEA-21). The legislation had a number of provisions to improve conditions for bicycling and walking and increasing the safety of the two modes.

Federal transportation policy is to increase non-motorized transportation to at least 15 percent of all trips and to simultaneously reduce the number of non-motorized users killed or injured in traffic crashes by at least 10 percent. This policy, which was adopted in 1994 as part of the National Bicycling and Walking Study, remains a high priority for the U.S. Department of Transportation (DOT). SAFETEA-LU continued to provide the funding opportunities, planning processes, and policy language by which States and metropolitan areas can achieve this ambitious national goal.

There are currently 53 programs funded through SAFETEA-LU. Although the funds for these programs are administered by a variety of Federal agencies (such as the Federal Highway Administration, the Federal Transit Administration, and the National Highway Traffic Safety

Administration) the States and Metropolitan Planning Organizations have been given enormous freedom to fund projects that best meet their local needs. This means that while there is a wide variety of Federal funding sources for bikeway and trail projects, there is no set amount of funding specifically ear-marked for bikeway or trail construction. Several of these programs are discussed in further detail.

Surface Transportation Program Transportation Enhancements Set-Aside

The Surface Transportation Program Transportation Enhancements Set-Aside, also known as the Transportation Enhancement Activities Program (TE), is a sub-component of the Surface Transportation Program. The purpose of the TE program is “to strengthen the cultural, aesthetic, and environmental aspects of the Nation’s inter-modal transportation system.”

Transportation Enhancement activities offer funding opportunities to help expand transportation choices and enhance the transportation experience through 12 eligible TE activities related to surface transportation, including pedestrian and bicycle infrastructure. TE projects must relate to surface transportation and must qualify under one or more of the 12 eligible categories. The focus of these activities is to improve the transportation experience in and through local communities.

The project must also be accessible to the general public or targeted to a broad segment of the general public. Of the 12 activities defined in the legislation, three are directly related to bikeway and trail funding. These are:

1. The provision of facilities for pedestrian and bicycles;
2. The provision of safety and educational activities for pedestrians and bicycles; and
3. Preservation of abandoned railway corridors (including the conversion and use of the corridors for pedestrian and bicycle trails).

The “provision of safety and educational activities for pedestrians and bicyclists” include non-construction, safety-related activities and the reasonable costs to provide safety and educational activities such as bicycle/pedestrian safety training, the cost of facilitators and classes. Funds may also be used for surface transportation workforce development, training, and education such as design and construction techniques for pedestrian and bicycle facilities.

National Recreational Trails Program

The Recreational Trails Program (RTP) provides funds to the States to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses. The RTP is an assistance program of the Department of Transportation’s Federal Highway Administration (FHWA). Federal transportation funds benefit recreation including hiking, bicycling, in-line skating, equestrian use, cross-country skiing, snowmobiling, off-road motorcycling, all-terrain vehicle riding, four-wheel driving, or using other off-road motorized vehicles

The National Recreational Trails program provides grants for projects that provide, renovate or maintain recreational trails, trailhead and trailside facilities. The RTP funds come from the Federal Highway Trust Fund, and represent a portion of the motor fuel excise tax collected from non-highway recreational fuel use: fuel used for off-highway recreation by snowmobiles, all-terrain vehicles, off-highway motorcycles, and off-highway light trucks.

The RTP funds are distributed to the States by legislative formula: half of the funds are distributed equally among all States, and half are distributed in proportion to the estimated amount of non-highway recreational fuel use in each State. Each State administers its own program; in Nevada it is administered by the Nevada Division of State Parks. The Nevada Recreational Trail program is discussed in further detail under “State Funding Sources” below.

Safe Routes to School Program

The SRTS Program was established in August 2005 as part of the most recent federal transportation re-authorization legislation--SAFETEA-LU. This law provides multi-year funding for the surface transportation programs that guide spending of federal gas tax revenue. Section 1404 of this legislation provides funding for State Departments of Transportation to create and administer SRTS programs which allow communities to compete for funding for local SRTS projects.

The program’s objectives are to enable and encourage children, including those with disabilities, to walk and bicycle to school; to make walking and bicycling to school safe and more appealing; and to facilitate the planning, development and implementation of projects that will improve safety, and reduce traffic, fuel consumption, and air pollution in the vicinity of schools.

The Congestion Mitigation and Air Quality Improvement Program

The Congestion Mitigation and Air Quality Improvement (CMAQ) Program provides funds to States for transportation projects designed to improve air quality and reduce traffic congestion, particularly in areas of the country that do not attain national air quality standards. Congestion Mitigation and Air Quality Improvement Program (CMAQ) and Surface Transportation Program (STP) funds are eligible to projects which include construction of pedestrian walkways and bikeways and non-construction projects related to bicycle safety. Bicycle projects are required to be used primarily for transportation rather than recreation.

Matching Funds Requirements for Federal-Aid Highway Projects

Most Federal-aid highway funding programs require a 20 percent State and/or local match of Federal funds. However, since Nevada has large a percentage of Federal land holdings in the State, a sliding

scale is in effect. This means that a large majority of projects would be eligible for up to 95 percent Federal funding.

The State and/or local funds used to match Federal-aid highway projects may include monetary donations and the fair market value of donated materials, services, or property (23 U.S.C. 323(c)). Funding obtained from any non-DOT agency can also be credited towards the State or local matching fund portion.

U.S. Department of Housing and Urban Development

Community Development Block Grant Program

The Community Development Block Grant (CDBG) program is a flexible program that provides communities with resources to address a wide range of unique community development needs. The CDBG program works to ensure decent affordable housing, to provide services to the most vulnerable in our communities, and to create jobs through the expansion and retention of businesses. Funds made available through the CDBG program are distributed at the State and local level. In the City of North Las Vegas these funds are distributed by the City's Office of Housing and Neighborhood Services. The CDBG program is discussed in further detail under "Local Funding Sources" below.

National Park Service

Land and Water Conservation Fund

The Land and Water Conservation Fund (LWCF) Act of 1965 (Public Law 88-578, 78 Stat 897) was enacted "...to assist in preserving, developing and assuring accessibility to all citizens of the United States of America of present and future generations... such quality and quantity of outdoor recreation resources as may be available and are necessary and desirable for individual active participation..." The LWCF program provides matching grants to States and local governments for the acquisition and development of public outdoor recreation areas and facilities. The program is intended to create and maintain a nationwide legacy of high quality recreation areas and facilities and to stimulate non-federal investments in the protection and maintenance of recreation resources across the United States.

Bureau of Land Management

Southern Nevada Public Land Management Act

The Southern Nevada Public Land Management Act of 1998, Public Law 105-263 (SNPLMA), as amended, provides for the disposal of Federal public land within a specified disposal boundary in the Las Vegas Valley. SNPLMA creates a Special Account in which 85% of the gross proceeds generated

by land sales or exchanges in the Las Vegas Valley are deposited. The remaining 15% is distributed to the State of Nevada's general education program and the Southern Nevada Water Authority (SNWA) for water treatment and transmission facility infrastructure in Clark County, Nevada. The local office of BLM will periodically call for local governments (including the City of North Las Vegas) to nominate Park Trail and Natural Area (PTNA) projects for funding consideration. All eligible nominations are sent to a Park Trail and Natural Areas subgroup for ranking and funding recommendations. Each project nominated is evaluated in regards to the strategic goal of partnering with local governments to develop more and better parks, trails and natural areas to:

- Provide new or improved existing park, trail, or natural areas to meet the demands and changing demographics of residents and visitors
- Protect or improve the integrity of environmental, cultural, historical, scientific, and open space resources.
- Connect parks, trails and natural areas to form a more unified system
- Ensure that the cost and value of investment is considered, well stated and reasonable.

State Funding Sources

Nevada Department of Transportation

A majority of Federal funding is administered at the State level by the Nevada Department of Transportation. Such programs as the Transportation Enhancements Program (TE), the Safe Routes to School Program and Congestion Mitigation, Air Quality Improvement Program (CMAQ) are all administered by NDOT.

Transportation Enhancement Program

The Transportation Enhancement Program was established by Congress as part of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and was continued under the Transportation Equity Act for the 21st Century (TEA-21). In 2005, the Enhancement Program was included in the new Federal transportation bill, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), including the requirement that ten percent of Surface Transportation Program (STP) funds be set aside for transportation enhancement activities.

Every two years, the Nevada Department of Transportation (NDOT) requests applications for potential projects to be programmed using transportation enhancement funds in the State Transportation Improvement Program (STIP). NDOT works cooperatively with local and regional governmental entities and the Statewide Transportation Technical Advisory Committee (STTAC) to develop a list of projects that can be funded under this program.

The STP Transportation Enhancement Program is not a grant program. It is a reimbursement program, with funds being reimbursed following the expenditure of funds for the completion of a project or a phase of a project. NDOT retains responsibility for the projects funded under the enhancement program.

Nevada Safe Routes to School Program

The Safe Routes to School Program identifies obstacles to children walking and biking to school and assists communities in developing strategies to mitigate these impediments. The program is available in areas adjacent to grade K-8 schools including public, private and tribal schools. Federal money is available via a competitive application and review process. Government entities, local communities, school districts, tribal governments, parent teacher organizations, private and non-profit organizations and advocacy groups are encouraged to apply. NDOT is requiring that all non-government entities' proposed programs be partnered with a government entity for purposes of agreements.

Nevada Division of State Parks

Land and Water Conservation Fund

The LWCF program administered by the National Park Service provides matching grants to States for the acquisition and development of public recreation areas and facilities. Under Nevada Revised Statute (NRS) 407.205, the administrator of the Division of State Parks, through the director of the Nevada Department of Conservation and Natural Resources, is assigned the responsibility of accepting and disbursing Federal L&WCF funds.

LWCF assistance may be available to:

1. Acquire lands and waters or interests in lands and waters for public outdoor recreation.
2. Develop basic outdoor recreation facilities to serve the general public.
3. Provide major rehab work for existing outdoor recreation facilities, including replacement.

To be eligible for assistance, projects must be in accord with the Statewide Comprehensive Outdoor Recreation Plan (SCORP), be sponsored by a governmental agency, and meet other State and Federal requirements. In order for a project to comply with the latest SCORP, it is only necessary that the project address one or more of the eight specific issues described in "Nevada's 2003 Statewide Comprehensive Outdoor Recreation Plan." The evaluation of all new L&WCF grant applications will be at least partially based on the relevancy of the proposed projects in addressing these issues.

LWCF assistance is provided on a 50/50 matching basis for individual projects, which are submitted through the State Liaison Officer to the National Park Service for approval. Project costs shall be

determined in accordance with OMB Circular A-102 and A-87, the L&WCF Grants Manual (NPS) and all claims shall be subject to verification by Federal audit.

Nevada Recreational Trails Program (NRTP)

The Nevada Recreational Trails Program is a Federal-aid assistance program funded through the Safe, Affordable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) legislation to help States construct and maintain recreational trails. The program provides funds for a variety of recreational trail uses, such as pedestrian (hiking, backpacking, running, and wheelchair use), bicycling, in-line skating, equestrian use, cross-country skiing, snow shoeing, snowmobiling, off-road motorcycling, all-terrain vehicle riding, four-wheel driving, or using other off-road motorized vehicles.

The NRTP is an 80/20 matching grant program administered by the Division of State Parks through the offices of the Chief of Planning and Development. Applicants must provide a minimum match of 20% for each project. Additional match is encouraged and applications demonstrating higher matching ratios will receive extra points in the scoring process. Matching share can include paid labor, volunteer labor, donations, cash, equipment, and more. Projects may include other sources of Federal funds as match, up to 95% of the total project cost. A minimum of 5% of the total project cost must come from a non-federal source.

The NRTP is a reimbursement program. Applicants must have the financial means to incur the costs of construction and request reimbursement at a later date. Reimbursement is requested quarterly, and normally, reimbursement can take 3-5 weeks depending on time of year.

Nevada Division of State Lands

Conservation and Resource Protection Grant Program (Question 1)

The Conservation and Resource Protection Grant Program (also known as Question 1) was a landmark environmental initiative designed to benefit, protect, and preserve Nevada's natural resources. It authorized the state to issue general obligation bonds up to \$200 million for natural resource projects. Funds generated by the bond sales are used to conserve valuable environmental assets as well as support recreational and cultural facilities throughout Nevada.

The Nevada Division of State Lands administers \$65.5 million of the \$200 million tied to Question 1 and provides grants to state agencies, local governments, or qualifying private nonprofit organizations for various programs including recreational trails, urban parks, habitat conservation, open spaces, and general natural resource protection projects.

Question 1 requires a 25% minimum matching contribution from the requesting agency; however, in order to stretch the allocation, the Division of State Lands has adopted a policy which rewards projects that leverage other funds with a higher ranking. That is, projects that would utilize the Question 1 funds to satisfy another agencies matching fund requirement will receive a higher ranking than a project has no other major funding source.

Local Funding Sources

Regional Transportation Commission of Southern Nevada

The Regional Transportation Commission of Southern Nevada (RTC) is both the transit authority and the transportation-planning agency for Southern Nevada. The regional government agency originated from a 1965 state statute and 16 years later, in 1981, the RTC was named the Metropolitan Planning Organization (MPO) for Southern Nevada. As the region’s MPO, the agency is responsible to state and federal governments for maintaining a continuing, cooperative and comprehensive (3-C) transportation planning process ensuring that transit plans and programs involve public input and recommendations and conform to approved air quality standards. Included in the MPO planning process are projects that require State and Federal funding. Additionally, the RTC also manages distribution of funds from the Federal Transit Administration (FTA), the Federal Highway Trust Fund, the County Option Motor Vehicle Fuel Tax for regional, street and highway construction and county sales tax designated for transportation.

City of North Las Vegas Office of Housing and Neighborhood Services

Community Development Block Grants

The Community Development Block Grant Program is administered by the Department of Housing and Urban Development (HUD) and is authorized by Title I of the Housing and Community Development Act of 1974, as amended. The purpose of the CDBG Program is to benefit low to moderate-income households by developing viable communities through the attainment of three objectives:

1. Decent housing;
2. Suitable living environment; and
3. Expanded economic opportunities.

To meet these objectives, HUD provides “blocks” of funds to State and local communities that may be spent on specified activities.

The City of North Las Vegas is a member of the HUD Consolidated Plan (HCP) Consortium in Clark County and receives its CDBG funds through the Consortium. Mesquite and Boulder City are also members of the Consortium and Clark County acts as the lead agency. The HCP Consortium, in conjunction with the City of North Las Vegas and other local municipalities, works to address the many needs of low to moderate-income persons. The Consolidated Plan encompasses and includes a broad range of goals and strategies that are applied in varying degrees in each City. Three of the goals of the Consolidated Plan can be related to the development of trails and bikeways. These are to provide access to public facilities that contribute to community and neighborhood development and well-being; provide infrastructure improvements to low-income areas; and to support neighborhood preservation and improvement activities.

The Consolidated Plan strategies also take into account the City of North Las Vegas Visioning 2025 Strategic Plan. Based on the information gathered through the North Las Vegas Visioning 2025 Strategic Planning process, North Las Vegas residents want the city to “create and sustain a community of ‘choice’ for its residents, visitors, and businesses.” One of the strategies identified in the Visioning 2025 plan and reflected in the Consolidated Plan strategies is the creation of a safe pedestrian environment throughout the entire transportation system that promotes a connection between neighborhoods and commercial developments.

Acquisition, construction, reconstruction, rehabilitation or installation of public facilities and improvements are eligible activities that may be funded by CDBG grants.

Innovative Funding Strategies

Local Advocacy Groups

Local advocacy groups can be a great source of funds and/or in-kind donations of labor to satisfy the matching funds requirements of many grant programs, as well as providing a strong political voice in local and regional politics. The contributions of advocacy groups should not be underestimated. For example, advocates in Pinellas County, Florida founded a non-profit organization to garner political and financial support for a 35-mile long Rails-to-Trails project. Within one year the organization had raised \$102,400 in cash, pledges, or in-kind donations. Today this would provide enough matching funds to compete for over \$2,000,000 worth of Federal grants.

In-Kind Donations

The majority of Federal grant programs allow donations of services, labor and material to be utilized in fulfilling matching funds requirements. In Arizona a group of advocates, developers and designers volunteered time to develop a Multi-Use Trail Element for the Grand Canyon National Park’s General

Management Plan. The professional services donated by the volunteers was valued at \$200,000 and helped to leverage more than \$1.5 million in Federal transportation funds.

City Sponsored/Cosponsored Fundraising Events

As part of efforts to promote the trails and bikeways system, the City can sponsor programs and events to both promote and generate revenue for the system. In Jackson County, Oregon the Great Bear Creek Greenway Foundation holds an annual “yard” sale along the greenway, proceeds from which helped to secure \$690,000 in Federal grant money.

Private and Philanthropic Donations

A program (or programs) can be implemented that would allow for private companies, organizations or individuals to contribute to the construction of a trail or bikeway project. Companies may pledge to maintain a segment of trail or bikeway by either contributing funds for the purpose or holding volunteer days to perform some activities such as litter removal. Commemorative pavers could be purchased through the City and be installed along the system.

The Nevada Legislature has the authority to grant special funding for specific projects within the state. These funds are typically earmarked for a specific purpose and may be pursued through the Senate Representatives.

APPENDIX D: 2011 COSTS ASSOCIATED WITH MAINTENANCE OF TRAILS AND BIKEWAYS

This Appendix provides an overview of the current costs associated with the maintenance of existing trails and bikeways in the City of North Las Vegas. The costs may be utilized to help budget for future maintenance expense of new trails and bikeways as they are developed.

Costs associated with the maintenance of the existing 9 miles of trails:

Routine Trail Maintenance: costs approximately \$4000.00 per mile, per month for five days a week coverage.

Routine Trail Maintenance: costs approximately \$3000.00 per mile, per month, for three days a week coverage.

Routine Trail Maintenance: costs approximately \$2000.00 per mile, per month, for two days a week coverage.

The City is currently performing routine maintenance on the trails two days per week.

In addition to the twice weekly routine maintenance, future maintenance budget projections should also include the following costs:

- Graffiti Abatement: costs approximately \$25.00 an hour, plus vehicle charge and the cost of materials. Cost for graffiti abatement on the trails for 2011 is approximately \$20,000 (Time and materials)
- Water and power cost approximately \$500.00 and \$1000.00 a month (varies based on time of year and usage, or vandalism).
- Tree Pruning is becoming an additional cost since most of the trees on the first sections of trails are mature and have to be pruned by a lift truck, this averages around \$1500.00 a year per mile, for the trails system we now have in place.

Costs associated with the maintenance of bicycle lanes:

The current value cost per mile maintenance for bicycle lane pavement markings and signage markings is approximately \$6,000 per mile.

APPENDIX E: REFERENCE MATERIALS

City of Boulder, Colorado. “Bicycle Policies and System Plan.” 12 April 2006. City of Boulder. 24 January 2009 <<http://www.bouldercolorado.gov/>>.

City of Boulder, Colorado. “Boulder Revised Code, Title 9: Land Use Regulation.” Revised 10 November 2008. City of Boulder. 24 January 2009 <<http://www.colocode.com/boulder2/title9.htm>>.

City of Boulder, Colorado. “Boulder Valley Comprehensive Plan.” 16 January 2008. 24 January 2009 <<http://www.bouldercolorado.gov/files/PDS/BVCP/bvcp.pdf>>.

City of Davis, California. “City of Davis Comprehensive Bicycle Plan.” May 2001 26 January 2009 <<http://cityofdavis.org/>>.

City of Davis, California. “City of Davis Municipal Code.” City of Davis. 26 January 2009 <<http://cityofdavis.org/>>.

City of Henderson, Nevada. “Open Space and Trails Plan” 6 December 2005 <http://www.cityofhenderson.com/community_development/open_space_and_trails_plan.php>

City of Las Vegas, Nevada. “Master Plan Transportation Trails Element” 20 January 2005 Revised <<http://www.lasvegasnevada.gov/files/TransTrailsElmnt.pdf>>

City of Las Vegas, Nevada. “Master Plan Recreation Trails Element” 20 January 2005 Revised <<http://www.lasvegasnevada.gov/files/RecTrailsElmnt.pdf>>

City of Marina, California. “Marina Pedestrian and Bicycle Master Plan, 23 August 2003 <<http://www.lgc.org/reports/marina/index.html>>

City of North Las Vegas, Nevada. “City of North Las Vegas Comprehensive Plan.” 3 December 2008. 21 January 2009 <<http://www.cityofnorthlasvegas.com/Departments/PlanningAndZoning/2006ComprehensiveMasterPlanDocument.shtm>>.

City of North Las Vegas, Nevada. “North Las Vegas Municipal Code.” 3 December 2008. LexisNexis Municipal Codes. 21 January 2009 <<http://ordlink.com/codes/nolasvegas/index.htm>>.

City of North Las Vegas, Nevada. “Visioning 2025 Strategic Plan.” 2 March 2005.. 21 January 2009 <<http://www.cityofnorthlasvegas.com/Departments/CityManager/PDFs/Visioning2025StrategicPlan.pdf>>.

- City of North Las Vegas “Downtown Master Plan/Investment Strategy.” 10 June 2008. City of North Las Vegas. 21 January 2009
<<http://www.cityofnorthlasvegas.com/Departments/PlanningAndZoning/PDFs/JuneCommunityWorkshops2008.pdf>>.
- City of North Las Vegas “North Fifth Street Transit-Supportive Concept Plan, Transit Oriented Development Strategy.” 19 April 2006. City of North Las Vegas. 21 January 2009
<<http://www.north5thstreet.com> >.
- City of North Las Vegas “Parks and Recreational Facilities Master Plan Update.” June 2004. City of North Las Vegas. 21 January 2009
<<http://www.cityofnorthlasvegas.com/Departments/ParksAndRecreation/PDFs/ParksAndRecreationMasterPlan.pdf>>.
- City of Portland, Bureau of Planning and Sustainability. “City of Portland Comprehensive Plan.” Revised July 2006. City of Portland. 24 January 2009. <<http://www.portlandonline.com/>>.
- City of Portland, Oregon, Bureau of Planning. “Portland Zoning Code.” January 1991. City of Portland. 24 January 2009 <<http://www.portlandonline.com/>>.
- City of Portland, Office of Transportation. “Bicycle Master Plan.” 1 July 1998. City of Portland. 26 January 2009 <<http://www.portlandonline.com/>>.
- City of Portland, Office of Transportation. “Get Behind It- The Bike Box.” City of Portland. 26 January 2009 <www.GettingAroundPortland.org>.
- City of Sammamish, Washington, “Trails, Bikeways and Paths Master Plan.” City of Sammamish
<<http://www.ci.sammamish.wa.us/projects/TrailsPlan.aspx>>
- Florida Department of Environmental Protection, Office of Greenways and Trails. “Recreational Trails Program Fact Sheet.” Florida Department of Environmental Protection. 24 January 2009
<<http://www.dep.state.fl.us/gwt/grants/>>.
- League of American Bicyclists. “Bicycle Friendly Communities.” League of American Bicyclists. 24 January 2009 <<http://www.bikeleague.org/programs/bicyclefriendlyamerica/communities/>>.
- Nevada Division of State Parks, Department of Conservation and Natural Resources. “Nevada’s FY 2007 Recreational Trails Program Grants Manual.” January 2007. Nevada Division of State Parks. 27 January 2009 <<http://parks.nv.gov/lwcf.htm>>.

Nevada Division of State Parks, Department of Conservation and Natural Resources. "Nevada's FY 2007-2008 L&WCF Program Grants Manual." 22 February 2007. Nevada Division of State Parks. 27 January 2009 <<http://parks.nv.gov/lwcf.htm>>.

Regional Transportation Commission of Southern Nevada, "2008 Bike and Pedestrian Plan." <<http://www.rtcsonthernnevada.com/mpo/plansstudies/nmamp/2008%20Plan%20&%20Excerpts/2008%20Bicycle%20and%20Pedestrian%20Plan%20Final.pdf>>.

Searns, Robert. "Trail Maintenance and Management, Operations, Maintenance and Stewardship 101." Trail Tracks. 28 November 2005. National Trails Training Partnership. 23 January 2009 <<http://www.americantrails.org/>>.

U.S. Census Bureau, Census 2010, < <http://2010.census.gov/2010census/>>